T.C. Tekirdağ Namık Kemal Üniversitesi Ziraat Fakültesi



# 2017 Yılı Araştırma Faaliyet Raporu

Tekirdağ-2018

#### SUNUŞ

Trakya Bölgesi artan nüfusu ve göç alımı ile sürekli büyüyen ve gelişen bir bölgedir. Türkiye arazi varlığının % 3'ünü ve ülke nüfusunun % 18'ini oluşturmaktadır. Ekilebilir alanlarının çok oluşu ile büyük bir tarım potansiyeline sahip olmakla birlikte, geçen son 25-30 yıldır artan sanayi yatırımlarıyla da ülkenin önemli sanayi merkezlerinden biri olmuştur. Tekirdağ Namık Kemal Üniversitesi Ziraat Fakültesi ise böyle bir bölgede faaliyet gösteren tek Tarımsal Yükseköğretim Kurumudur.

Ziraat Fakültesi, tarım sektörü içerisinde çiftlikten sofraya kadar çok önemli ve geniş bir faaliyet alanı olan Ziraat Mühendisliği yükseköğretimini 35 yıldır sürmekte birlikte, günümüzde 9 farklı bölüm ve bunlara bağlı 22 ana bilim dalında lisans ve lisansüstü eğitimi yapmaktadır. Fakülte mesleki beceriye sahip, kendini geliştiren, özgür düşünceli, girişimcilik özelliklerine sahip ve ülke tarımının gelişimine katkı sağlayacak Ziraat Mühendisleri, Gıda Mühendisleri ve Biyosistem Mühendisleri yetiştirmektedir. Fakülte uygulamalı bir eğitimin gerektirdiği deneme ve uygulama alanları ile tarımın her dalında teknoloji üretip ve bu teknolojiyi yayma girişiminde bulunulmaktadır.

Her geçen gün önemini biraz daha iyi algıladığımız tarım, tüm toplumun ilgi odağında bulunan, yükselen bir meslektir. Bu mesleğin mensubu olan Fakültemiz öğretim üyelerinin, 2017 yılında yayınlanan araştırma faaliyetlerinin özetlerini bu çalışmada bir bütün olarak derlemiş bulunmaktayız. Bu değerli eserin sahibi çalışma arkadaşlarımı tebrik ediyorum. Eserin araştırıcılara, çiftçilere, öğrencilere ve ilgilenenlere yararlı olacağı inancımla, tüm kullanıcılara sevgi ve saygılar sunarım.

## Prof. Dr. Ahmet İSTANBULLUOĞLU Dekan V.

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**[24]** Solmaz, Y., A. Adiloğlu, 2017. Determining Boron (B), Molybdenum (Mo) and Sodium (Na) Nutritional Status of Walnut Orchards in Tekirdağ Province by Leaf Analysis. 2<sup>nd</sup> International Balkan Agriculture Congress, Abstract Book, p: 542, 16-18 May, Tekirdağ.

**[25]** Soycan Önenç, S., F. Koc, L. Coşkuntuna, L. Özdüven, T. Gümüş, 2017. Kekik ve Tarçın Uçucu Yağlarının Yem Bezelyesi Silajlarının Fermantasyon Kalitesi ile *In Vitro* Metabolik Enerji İçerikleri Üzerine Etkileri. Hayvansal Üretim. 58(2): 39-44.

**[26]** Şahin, G., N, Özder, 2017. Düzce İlinde Fındık Üretim Alanlarında Görülen Yazıcıböcek Türleri (Coleoptera: Scolytidae) Üzerine Araştırmalar. Journal of Tekirdag Agricultural Faculty, 14(03): 27-37.

**[27]** Tan, F, I.S. Dalmış, B. Kayışoğlu, E. Okur, 2017. Toprak Üstü Beton Siloda Sıkıştırma Kuvvetinin Belirlenmesi. 2<sup>nd</sup> Ulusal Biyosistem Mühendisliği Kongresi, 29 Haziran-1 Temmuz 2017. s.76, Tokat.

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#### <u>E. Ulusal bilimsel toplantılarda sunulan ve</u> <u>bildiri kitaplarında basılan bildiriler</u>

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**[3]** Arslan, B., E. Culpan, 2017. Salisilik Asit Uygulamasının Aspir (*Carthamus tinctorius* L.) Çeşitlerinin Verim ve Bazı Kalite Özelliklerine Etkisinin Araştırılması. Türkiye 12. Tarla Bitkileri Kongresi, 12-15 Eylül 2017, Kahramanmaraş.

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**[5]** Baytur, S., K.G. Güner, H.M. Velioğlu, 2017. Geleneksel Antalya Mutfağı ve Turizme Tanıtımı. Turizm ve Mikrobiyal Gıda Güvenliği Kongresi.

**[6]** Dülger, G.Ç., Ü. Geçgel, 2017. Uçucu Yağların Elde Edilmesinde Kullanılan Modern Teknolojiler. YABİTED III. Bitkisel Yağ Kongresi, 12-15 Nisan, İzmir, 51.

[7] Geçgel, Ü., R. Güneş, Ş. Kurultay, 2017. Yumuşak Çekirdekli Meyvelerden Elde Edilen Çekirdek Yağlarının Fizikokimyasal Özellikleri. II. Ulusal Yumuşak Çekirdekli Meyve Türleri Sempozyumu, 26-28 Ekim, Tokat, 42.

**[8]** Geçgel, Ü., R. Güneş, Ş. Kurultay, 2017. Muşmula (*Mespilus germanica* L.) Meyvesinin Kimyasal Özellikleri ve Sağlık Üzerine Etkileri. II. Ulusal Yumuşak Çekirdekli Meyve Türleri Sempozyumu, 26-28 Ekim, Tokat, 81.

**[9]** Geçgel, Ü., Ş. Orcan, D. Apaydın, G.Ç. Dülger, M. Taşan, 2017. Enzimatik Degamming. YABİTED III. Bitkisel Yağ Kongresi, 12-15 Nisan, İzmir, 60.

**[10]** Geçgel, Ü., Y. Güngör, G.Ç. Dülger, D. Apaydın, M. Taşan, 2017. İnteresterifikasyon Yöntemi ile Üretilen Yağların Sağlık Üzerine Etkisi. YABİTED III. Bitkisel Yağ Kongresi, 12-15 Nisan, İzmir, 61.

**[11]** Özdinç, N., S. Baytur, H.M. Velioğlu, 2017. Tekirdağ İli Ceviz (*Juglans regia* L.) Meyvesinin Mikrobiyolojik Açıdan Değerlendirilmesi. Turizm ve Mikrobiyal Gıda Güvenliği Kongresi.

**[12]** Özdinç, N., H.M. Velioğlu, K.G. Güner, 2017. Çağımızda Gıda Alerjileri. Turizm ve Mikrobiyal Gıda Güvenliği Kongresi.

#### F. Diğer dergiler

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[2] Arın, S., 2017. Tarımda Çağdaş Yaklaşımlar ve Geleceğin Tarımı. ZMO İstanbul Şubesi, Barış Manço Kültür Merkezi, 18.04.2017. İstanbul.

[3] Arın, S., 2017. Ölçme Bilgisi. Namık Kemal Üniversitesi, Ders Kitabı, Tekirdağ.

[4] İnan, İ.H., 2017. Tarım, Hayvancılık ve Gıda Sanayi Yatırım Projeleri Hazırlama Tekniği. İdeal Kültür & Yayıncılık, 160 s, İstanbul.

**[5]** İnan, İ.H., 2017. Tarımsal İşletme Yönetimi. İdeal Kültür & Yayıncılık, 120 s., İstanbul.

[6] Kocaman, İ., C. Kurç, 2017. Manda Barınaklarında Havalandırma ve Sisleme Sistemleri. İstanbul Manda Dergisi, 2017, 3(5): 12-17.

[7] Orta, A.H., 2017. Rekreasyon Alanlarında Sulama. Namık Kemal Üniversitesi, Ders Kitabı.

[8] Sağır, F.S., S. Varış, 2017. Perlitte Ortanca Tarımı. Plant Dergisi, (25): s.218-234.

[9] Tan, F., F. Koç, 2017. Silaj Yapım Tekniği ve Mekanizasyonu. İstanbul Manda Dergisi, Ocak 2017, Yıl: 3, Sayı: 5, s.7-11.

[10] Tan, F., 2017. Gübre Yönetimi. İstanbul Manda Dergisi, Ocak 2017, Yıl: 3, Sayı: 5, s.32-35.

**[11]** Varış, S., 2017. Sera Sebzelerinin Perlit Doldurulmuş Torbalarda Topraksız Yetiştirilmeleri. Köyüm Dergisi (15; 17; 18; 19): (70-77; 70-74; 52-56; 48-55).

**[12]** Varış, S., 2017. Saksılı Bitkilerde Sulama Bilimi ve Sanatı. Plant Dergisi (22): s. 204-211.

A. Uluslararası hakemli dergilerde yayımlanan makaleler

#### [1] Abdikoğlu, D.İ., G. Unakıtan, 2017. Supply Response of Sunflower in Turkey. International Journal of Sustainable Agricultural Management and Informatics, 3: 224-232.

Domestic oil seed production in Turkey does not meet the growing population's vegetable oil consumption. Sunflower is one of the most important oil seeds in Turkey. Sunflower production should be increased in order to meet the vegetable oil demand from the domestic production. Sunflower supply is affected by various factors. The aim of the study is to determine the sensitivity of the change in sunflower sowing areas to sunflower price and other product prices in Turkey. According to the results, the short run elasticity of sunflower price is calculated as 0.09 and the long run elasticity is 0.32. When the elasticity coefficients are examined, it is seen that in sunflower production, the producers are not very sensitive to prices when taking the decisions of sowing area. For this reason, agricultural policies aimed at solving structural problems should be emphasized in order to increase production,

**Key words:** Wheat price, sunflower price, sunflower production area, supply response, Turkey.

### [2] Aktaş, T., I.S. Dalmış, S. Tug, F, Dalmış, B. Kayışoğlu, 2017. Development and Testing of a Laboratory Type Gasifier for Gasification of Paddy Straw. Journal of Tekirdag Agricultural Faculty. 14(2): 119-128.

In this research, a laboratory scale gasifier was designed and manufactured for rice straw straw that stayed on the field after harvesting to evaluate energy contents. Collected rice straw from our region was pelletted (100 % straw pellet and pellet mixtured with 15 % coal powder) and the pellets were analyzed. Experiments were realized by using both rice straw and pellets and biomass samples were gasified and compositions of obtained gas samples were determined. As a result of the gasification experiments, it was observed that adding of coal powder to paddy stalk pellets increased the heat value of obtained syngas (from 3,686 MJ/Nm<sup>3</sup> to 3,71 MJ/Nm<sup>3</sup>) while it has negative effect on the efficiency due to increasing of specific gasification rate (maximum 61,9 % for pellets without coal powder and maximum 57,41 % for coal powder added pellets). Due to the high silicon content in the paddy pellets of the paddy, the high gasification rates could not be achieved due to the risk of glass structure at temperatures of 800°C and above. For gasification of pelletted biomass with increased energy density, designed reactor in this project worked smoothly. On the other hand, it has been determined that reactor construction is not suitable for the gasification of paddy straws that were not pelletted and continuous biomass feeding systems should be included and changes in dimensions should be done. Lower efficiency was found for unpelletted paddy straw as 37,14 %. As parallel to this lower efficiency values compared to values determined for pelletted straws, heat values of syngas for unpelletted paddy straw was determined rather low (1,94 MJ/Nm<sup>3</sup>).

Key words: Biomass, gasification, pellet, rice straw.

## [3] Akyürek, H., T. Gül, 2017. Effect of Fenugreek, Coriander and Thyme Essential Oils Addition on Microbiology of Soybean Meal and Sunflower Meal in Different Storage Periods. Pak. J. Nutr., 16(11): 876-881.

This study was organized with the aim to determine the effects of fenugreek (*Trigonella foenum-graecum*), coriander (*Coriandrum sativum*) and thyme (*Thymus vulgaris*) essential oils added to stored soybean meal and sunflower meal on lactic acid bacteria (LAB), yeast, mould formation, nutrient and colour changes. In order to explore the relationship between essential oil addition and feed microbiology under different times of storage, 4×2 factorial study design was used. Thus "absence of essential oils (control group)" versus "addition of essential oils" and "storage during 30 days" versus "storage during 60 days" at 22±2EC and 55 % relative humidity (HR) were compared. The addition of essential oils to vegetable protein sources has a positive impact on the counts of microorganisms and nutrient composition. The addition of essential oils to sunflower and soybean meal inhibited the growth of mould. Feed ingredients with essential oils addition demonstrated protective effect.

Key words: Essential oil, microbiology, soybean meal, sunflower meal, storage.

# [4] Akyürek, S., . İ. Başer, 2017. Evaluation of Bread Wheat Genotypes With Different Phenological Characters in Terms of Resistance to Sunn Pest Damage. Journal of Agricultural, Food and Environmental Sciences, UDC 633.11-275.4: 632.938 (560).

The research was conducted with 23 different varieties in field condition and closed area in 2010 and 2011. Twenty three bread wheat varieties were grown in open fields and closed areas in Faculty of Agriculture, University of Namik Kemal experimental area. The nifm number, sunn pest damage ratio, black point, protein ratio, moisture ratio, sedimentation rate, retarded sedimentation rate, gluten rate and index in the bread wheat varieties were examined. The highest sunn pest damage rate in the samples grown in field condition was found from Tekirdağ sample with 3,08 % and followed by Alga, Renan, Sadova, Geya and Krasnodarskaya-99 samples. The lowest damage rate was obtained from Enola and Dropia with 1,60 %; Krasunia with 1,63 %. In bread wheat samples grown in closed areas, the sunn pest damage rate increased considerably and measured between 4,93-12,75 %. According to the average of two seasons, the highest sunn pest damage rate was obtained respectively from Geya, Tekirdağ, Renan and Sadova samples. The lowest damage rates were obtained from Gelibolu, KateA1, Krasunia and Dropia samples. When the quality features were analysed, gluten, gluten index, zeleny sedimentation and retarded sedimentation values reduced substantially in comparison with values obtained outdoors. Retarded sedimentation values in all samples were at a quite low level that making the crop useless.

Key words: Sunn pest, quality, sunn pest rate, sedimentation, glüten.

## [5] Albayrak, B., B. Akdemir, 2017. Development of a Measurement System for Weighing of Tuber Crops on A Conveyor Band. Tekirdağ Ziraat Fakültesi Dergisi, Journal of Tekirdag Agricultural Faculty, 14(03): 45-54.

In this study, a specific design and manufacturing of a weight measurement system for tuber crops on a belt scale were conducted. The chassis of the belt scale was constructed by equal legs steel profile. The belt material was PVC. The rotational motion of the belt scale was obtained by an AC electric motor. The speed of the belt was measured by a tachometer. Several rollers were used to support the vertical loads on the belt. One of the rollers was connected directly to load cell to measure the weight of the tuber crops. In order to obtain the mass flow on the belt, the data of weight per unit meter from load cell and the speed data from tachometer were transmitted to an electronic board. Multiplication of these two data gives the unit mass flow rate of the tuber crops on the belt scale. The unit mass flow rate and total mass flow rate was displayed on an LCD display. The accuracy of this system was found to be between 96.4 %-97.5 % during measurement of weight on a moving belt scale.

Key words: Belt scale, load cell, tuber crops, weight measurement, precision agriculture.

### [6] Al Juhami, F., U. Gecgel, M. Gulcu, M. Hamurcu, M.M. Ozcan, 2017. Bioactive properties, fatty acid composition and mineral contents of grape seed and oils. *South African Journal of Enology and Viticulture*, 38(1): 103-108.

The oil content of grape seed samples changed between 4.53 % (Adakarası) and 11.13 % (Sauvignon blanc). While the linoleic acid contents of grape seed oils ranged from 47.34 % (Sangiovese) to 72.91 % (Cinsaut), the oleic acid contents varied between 13.35 % (Cabernet Sauvignon) and 26.30 % (Sangiovese) (p < 0.05). Also, the palmitic acid and stearic acid contents of grape seed oils ranged from 7.15 % (Cinsaut) to 16.06 % (Sangiovese) and from 2.43 % (Narince) to 6.55 % (Sangiovese) respectively (p < 0.05). The flavonoid contents of the seeds changed between 263.53 (mg CE/g) and 1 706.00 (mg CE/g) (Cabernet Sauvignon). Total phenols were found to be between 6 711.14 (mg GA/g extract) (Sangiovese) and 8 818.69 (mg GA/g extract) (Narince). The linoleic contents of the grape seed samples changed between 4 347.80 mg/kg (Cabernet Sauvignon) and 9 492.60 mg/kg (Gamay) (p < 0.05). The Fe contents of seeds were found to be between 29.96 mg/kg (Narince) and 73.82 mg/kg (Sangiovese). As a result, the current study shows that grape seeds are useful for human nutrition due to their components.

Key words: Grape seed, varieties, oil, fatty acid, phenol, flavonoid, minerals.

## [7] Altan, A.D., 2017. Simulation of Energy Efficient Lighting System for Energy Optimization: A Case Study of a Dairy Farm. International Journal of Engineering Research and Development, 13(11): 28-31.

The aim of this study is to design and develop lighting system with the help of lighting programmes for energy optimization at Namık Kemal University (NKU) dairy farm. The lighting systems are studied experimentally with different armatures (lamps). The current lighting system is simulated with the Dialux program. As a conclusion, it is determined that the brightness level is insufficient and energy efficient lighting system design is proposed with the Dialux.

Key words: Efficient Lighting, Dairy Farm, Energy Optimization, Dialux, Simulation.

# [8] Altintas, S., S. Varis, Ö. Keskin, İ. Kuru, 2017. Effects of Seedling Age, and Different Levels of N, K and K/N on Quality and Yield of Tomato Grown in Perlite Bag Culture. Tekirdağ Ziraat Fakültesi Dergisi, The Special Issue of 2<sup>nd</sup> Balkan Agriculture Congress, p: 55-61.

The object of the study was to investigate the effects of seedling age, and different levels of N, K and K/N on quality and yield of tomato grown in perlite bag culture. Seeds of Big Boy F1 sown in perlite and subsequently seedlings were planted in ten-liter PE bag filled with coarse perlite. Four fertigation regimes were applied to the plants concerning four N (103, 110, 113 and 120 mg l<sup>-1</sup>), four K (186, 195, 258 and 275 mg l<sup>-1</sup>) and two K/N (1,6 and 2,5) levels. Thrace element levels were the same for all the fertigation regimes. Seedling were planted at three different growth stages; 1) appearance of first inflorescence (7 week-old), 2) 50% flower opening on first truss (8,5 week-old) and 3) fruit set on first truss (10,5 weekold). Although effects of seedling age on total, marketable and early yield, and cracking and blossom-end rot occurrence were not statistically significant, total, marketable and early yield were higher when the seedling were planted at the time of fruit set on first truss. The highest total, early and marketable yields were obtained from the transplants planted at fruit set on first truss with FR1 (plants were fertigated with the high K/N starter solution: K/N = 2,5; 110 mg l<sup>-1</sup> N and 275 mg l<sup>-1</sup> K until the fruits on the first truss reached 2 cm in diameter, then with the low K/N mainfed solution; K/N = 1,6; 120 mg  $l^{-1}$  N and 195 mg  $l^{-1}$  K for the rest of the vegetation).

Key words: Seddling age, K/N ratio, soilles culture, tomato, nitrogen, potassium.

### [9] Apaydın, D., A.S. Demirci, U. Gecgel, 2017. Effect of Gamma Irradiation on Biochemical Properties of Grape Seeds. Journal of the American Oil Chemists' Society, 94(1): 57-67.

In the present study, grape seed samples (Alicante Bouschet, Cabernet Franc, Cinsault, Merlot, Shiraz) were treated with 1.0, 3.0, 5.0, and 7.0 kGy of gamma radiation. Effect of irradiation dose on free fatty acids (FFA), peroxide value (PV), sterol, fatty acid composition, phenolic content, antioxidant activity of the seed oils, and chemical (dry matter, fat, ash, total sugar, invert sugar) changes of grape seeds were determined. Regarding fatty acid composition, oleic acid (C18: 1) and linoleic acid (C18: 2) levels decreased.  $\beta$ -sitosterol content with a highest percentage among sterols in grape seed oils decreased due to gamma irradiation. Generally gamma irradiation increased free fatty acids and peroxide value of the oils; however, phenolic content and antioxidant capacity of grape seeds decreased.

Key words: Irradiation, Grape seed oil, Biochemical properties, Fatty acid composition.

#### [10] Arici, M., F. Coskun, G. Celikyurt, M. Mirik, M. Gulcu, N. Tokatlı, 2017. Some Technological and Functional Properties of Lactic Acid Bacteria Isolated from Hardaliye. Journal of Agricultural Sciences, 23 (2017): 428-437.

Hardaliye is a lactic acid fermented beverage produced from red grape or grape juice with addition of crushed mustard seeds and benzoic acid and it is widely produced and consumed in the Thrace region of Turkey. The aim of this study was to determine the dominant lactic acid bacteria (LAB) species found in hardaliye and to investigate their technological properties related to probiotic action and potential use as a starter culture for production of hardaliye. For this aim; LAB were isolated from 28 hardaliye samples (23 hardaliye samples that were obtained from different regions of Kirklareli, Turkey and 5 hardaliye samples were produced by using traditional methods in laboratory conditions). After carrying out conventional and molecular biological methods, it was found that all LAB species isolated belonged to genus Lactobacillus. The dominant species in the microbiota was found to be Lactobacillus plantarum while around 98 % of the isolates were similar to each other. Therefore, it was well understood that a small diversity of LAB strains played role during the fermentation process. The results of this study revealed that the isolates had the potential to be used as starter cultures in hardaliye production due to their antimicrobial effects and acid production capabilities.

Key words: Hardaliye; Lactobacillus; Probiotic properties; Technological properties.

### [11] Arın, L., H. Balcı, 2017. The Effect of Some Organic Acid and Plant-Derived Material Treatments on The Germination, Emergence and Seedling Quality of Broccoli. Türk Tarım-Gıda Bilim ve Teknoloji Dergisi, 5(13): 1792-1795.

The research was carried out to investigate the effect of plant materials which are used as an alternative to synthetic chemicals in organic agriculture (thyme, mint, basil and garlic oil, hot pepper, and neem tree seed extract) and some organic acids (salicylic and jasmonic acid) on the germination, emergence, and seedling traits in broccoli (Brassica oleracea var. italica) cv Jade. The seeds of broccoli treated with these materials were subjected to germination and emergence tests at 20±1 °C and 60±5 RH in autumn period. After that, all seeds (including untreated) were kept at 5±1 °C and again evaluated for germination, emergence, and seedling traits in spring period. In spring period, the seeds treated with neem seed extract gave highest germination percentage (91.75 %). Also, they germinated shortest time (3.80 days). The lowest germination/emergence percentage and highest mean germination/emergence time was obtained from the seeds treated with thyme oil in both periods. The seeds treated with basil oil had the higher infected seedlings than others. There were no significant differences among treatments in term of seedling traits (except leaf number).

Key words: Brassica oleracea var. italica, seed, organic treatments, germination, seedling.

### [12] Arslan, B., E. Culpan, 2017. Effects of Different Gibberellic Acid Doses on Seed Yield, Oil Content and Some Quality Traits of Safflower (Carthamus tinctorius L.). The Journal of Global Innovations in Agricultural and Social Sciences, vol. 5, pp. 5-9, 2017.

The aim of this study was to determine the effects of gibberellic acid (GA3) on some yield and quality components of safflower (Carthamus tinctorius L.). Research was conducted at Applying Research Field, Faculty of Agriculture, Namık Kemal University, Tekirdağ in spring of 2014 and 2015. The experiment was laid out as a split plot design based on Randomized Complete Block Design with three replications, in which cultivars constituted the main plot with two cultivars (Dinçer and Balcı), and gibberellic acid constituted the sub-plot with four doses (0 ppm, 100 ppm, 200 ppm and 300 ppm). Results showed that variation in doses of gibberellic acid had a significant effect on seeds per capsule, capsule diameter, 1000 seed weight, hull ratio, seed yield and oil ratio of safflower. In this study, results showed that applications of GA3 significantly changed seed yield, oil ratio, hull ratio and 1000 seed weight of safflower. Especially, seed yield and hull ratio were affected negatively. But, increasing doses of GA3 (200 and 300 ppm) increased the oil ratio and 1000 seed weight. More research are required to determine effects of growth regulators (PGRs) on safflower and other oil crops.

Key words: Carthamus tinctorius L., Gibberellic acid, Safflower, Quality, Yield.

[13] Atak, A., M. Akkurt, Z. Polat, H. Çelik, K.A. Kahraman, D.S. Akgül, N. Özer, G. Söylemezoğlu, G.G. Şire, R. Eibach, 2017. Susceptibility to Downy Mildew (*Plasmopara viticola*) and Powdery Mildew (*Erysiphe necator*) of Different Vitis Cultivars. Ciencia e Tecnica Vitivinicola, No 32(1): 23-32.

Turkey has a very old history of viticulture and also homeland of the grapevine (*Vitis* spp.). *Vitis* cultivars belonging to different species are grown in almost every region in the country. However, particularly downy mildew and powdery mildew diseases affect the cultivars belonging to *Vitis vinifera*. In northern of Turkey *Vitis labrusca* and hybrids between *V.vinifera* and *V.labrusca* are rather common. *V.labrusca* cultivars or genotypes exhibit generally higher degree of resistance than *V. vinifera* cultivars. However, resistance level can vary from cultivar to cultivar and even from clone to clone within one cultivar. In this study, different *Vitis* hybrids and genotypes which exhibit different downy and powdery mildew susceptibility are compared for two years. Especially some *V.labrusca* hybrids and genotypes appeared resistance for both diseases. On the other hand, interspecific crosses and *V.vinifera* cultivars were found to be more susceptible. Using resistant lines as parent in later breeding activities, it could be possible grow high quality table cultivars with much fewer pesticide applications or possibly without them.

Key words: Vitis spp., fungal diseases, inoculation, resistant, natural infection.

This study was funded by the National Scientific and Technological Research Council of Turkey (Grant No.1130641).

### [14] Ates, E. 2017. Slope Aspect Has Effects on Vegetation and Forage Traits of Anthropogenic Pasture Under Two Grazing Treatments. Rev. Fac. Agron. (LUZ). 2017, 34: 236-252.

The aim of this investigation was to determine the total green fodder yield, total dry matter yield, botanical composition, ground cover index of vegetation, vegetation height, crude protein (CP), acid detergent fiber (ADF), neutral detergent fiber (NDF), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg) contents and tetany ratios of anthropogenic pasture on north and southfacing slopes under two grazing treatments (free grazing and ungrazed). Slope aspect, grazing treatments and slope aspect x treatments interactions did affect botanical composition. The highest ground cover index of vegetation (89.7 %), vegetation height (61.2 cm), total green fodder yield (2.889 t.ha<sup>-1</sup>.year<sup>-1</sup>) and dry matter yield (1.031 t.ha<sup>-1</sup>.year<sup>-1</sup>) values were found on north-facing slope, ungrazed. South-facing slope showed the highest CP (110.2-113.7 g.kg<sup>-1</sup>), NDF (47.1-48.4 %), ADF (36.5-36.8 %), Ca (1.94-1.97 %) and P (0.37-0.38 %), contents under the free grazing and ungrazed treatments, whereas tetany ratio (0.83-0.85), had its lowest values on these same site. Mg ratio (0.27-0.32 %) was unaffected by grazing treatments and slope aspect.

Key words: Botanical composition, Forage traits, Grazing, Pasture, Slope aspect.

# [15] Ates, E., A.S. Tekeli, 2017. Farklı Taban Gübresi Uygulamalarının Yem bezelyesi (Pisum arvense L.)'nin Ot Verimi ve Kalitesine Etkisi. Kahramanmaraş Sütçü İmam Üniversitesi, Doğa Bilimleri Dergisi, 12. Tarla Bitkileri Kongresi, Özel Sayısı, s.13-16.

Edirne ili Keşan ilçesindeki çiftçi tarlasında yapılan çalışma, 2013-2015 yılları arasında 2 yıl süreyle yürütülmüştür. Tesadüf blokları deneme desenine göre 3 tekrarlamalı olarak kurulan araştırmada Töre yem bezelyesi çeşidi ile yörede kullanılan 3 farklı taban gübresi (18-46-0, 20-20-0 ve 8-21-0 organomineral gübre) kullanılmıştır. Morfolojik gözlemler (bitki boyu, dal sayısı ve yaprak/sap oranı) ve yeşil ot verimi yem bezelyesinin tam çiçeklenme döneminde ölçülmüş daha sonra kuru ot verimi, ham protein, ADF ve NDF oranları belirlenmiştir. En yüksek bitki boyu (135.3 cm), dal sayısı (6 adet), yaprak/sap oranı (0.92), yeşil ot verimi (5214.7 kg/da), kuru ot verimi (1112.5 kg/da), NDF (% 42.7) ve ham protein oranı (% 18.4) ile en düşük ADF (% 31.3) oranı organomineral taban gübresi (8-21-0) uygulamasında tespit edilmiştir.

Anahtar kelimeler: Ot verimi, Pisum arvense L., Taban gübresi, Yem bezelyesi.

# [16] Ay, U., M. Altın, C. Şen. 2017. Effect on Yield and Quality of Different Mixtures Ratios and Harvesting Periods of Fodder Pea (Pisum arvense L.) and Wheat (Triticum aestivum L.) in Kırklareli Conditions. Tekirdağ Ziraat Fakültesi Dergisi, 14(3): 80-85.

This research has been carried out in order to determine the effects of mixture ratios and harvesting periods of fodder pea and wheat mixtures in autumn periods on yield and quality of dry matter in Kırklareli conditions. The research has been set up in Kırklareli Atatürk Soil Water and Agricultural Meteorology Research Station Directory in 2011-2012. Dry grass yield, crude protein ratio have been determined in all parcels in Kırklareli. Practice of fertilizer did not have a significant effect on dry matter and crude protein ratios of mixture. In the research, it has been determined that the mixture ratio and harvesting periods have significant effects on determined characteristics. Generally, according to the research results, the highest dry matter yield has been obtained in % 50 pea + % 50 wheat mixture without fertilizer and dough period of wheat in autumn. The highest crude protein ratio has been obtained in % 100 pea planting without fertilizer and blooming period of pea.

Key words: Mixture ratios, harvesting time, dry matter yield, fodder pea, wheat.

#### [17] Aydın, B., E. Özkan, H. Hurma, E. Aktaş, M.Ö. Azabağaoğlu, G. Özdemir, 2017. Sulama İşletmeciliğinde Etkinlik Analizi (Kırklareli, Edirne, Tekirdağ ve Çanakkale İlleri Örneği). Türk Tarım ve Doğa Bilimleri Dergisi, 4(1): 70-78. (Yayın No: 3513888).

Ülkemizde artan sulama alanlarına paralel olarak, sulama işletmeciliğine yönelik sorunlar da artmış ve sulamadan beklenen yararların gerçekleşmesi düşük kalmıştır. Bu durum izlenen politikalarla birleşince, sulamanın ve bu bağlamda sulama işletmeciliğinin daha verimli ve daha ekonomik hale getirilmesi amacı ile devletin sulama işletmeciliğinden çekilmesi gündeme gelmiştir. Günümüzde sulama işletmeciliği genellikle sulama birlikleri, sulama kooperatifleri, belediyeler veya köy tüzel kişilikleri tarafından yürütülmektedir. Bu çalışmada; araştırma sahasındaki tarım işletmelerinin bazı sosyo ekonomik yapıları ve sulama organizasyonlarının teknik ve çiftçi memnuniyeti yönünden etkinlikleri belirlenmiştir. Etkinlik analizine yönelik veri alınabilen 10 adet sulama kooperatifi ve 4 adet sulama birliğinin etkinlikleri Malmquist toplam faktör verimliliği indeksi kullanılarak hesaplanmıştır. Değerlendirme sonuçlarına göre, 2009 ve 2010 yılları ortalaması için sulama işletmelerinin %36'sının teknik açıdan, % 21'inin sosyal açıdan toplam faktör verimliliği yüksek olmuştur. İki yıllık verilere göre yapılan değerlendirmeler sonucunda teknik etkinlik ve sosyal etkinlik açısından sulama kooperatiflerinin göreceli olarak daha etkin oldukları belirlenmiştir. Sulama birliklerinin etkinlik düzeyleri ise çoğunlukla sınır düzeyde hesaplanmış veya etkinlik düzeylerinin düşük olduğu sonucuna varılmıştır.

Anahtar kelimeler: Sulama işletmeciliği, etkinlik, malmquist faktör verimlilik indeksi.

#### [18] Bahar, E., A. Carbonneau, İ. Korkutal, 2017. Vine and Berry Responses to Severe Water Stress in Different Stages in cv. Syrah (*Vitis vinifera* L.). Journal of Tekirdag Agricultural Faculty (JOTAF), The Special Issue of 2<sup>nd</sup> International Balkan Agriculture Congress, Tekirdag, May 16-18, 62-70 p.

This experiment was carried out during the 2009 growing season in order to evaluate the ecophysiology and quality characteristics of cv. Syrah (Vitis vinifera L.) grafted onto SO<sub>4</sub> in the ECOTRON vineyard in Montpellier SupAgro/INRA in France. The aim of this study was to analyse the effect of sudden and severe water stress (SWS) on the ecophysiological changes, volume losses and shrivellings in grape berries. Also possibilities of existence of recovery, and its possible relationship with SWS and final grapes composition at different phenological stages in cv. Syrah were studied. Three water regime levels; Control (only very mild water stress) and 2 severe water stress levels, SWS1 and SWS2 were established depending on the  $\Psi$ pd. Stressed periods were started at the BV, MM and EM phenological stages. A randomized block design was used. The experimental plots consisted of 54 vines totally. All data analyses were performed with MSTAT-C Statistical Software (Michigan State University) and LSD tests were done for significant differences of measured traits between groups. Minimum  $\Psi$ pd values in BV were -0.28MPa, -1.79MPa, -2.16MPa, in MM were -0.14MPa; -1.58MPa, -2.72MPa, in EM were -0.16MPa; -2.37MPa; -2.76MPa for Control, SWS1 and SWS2 respectively. Notice that such low predawn total leaf water potential are really exceptional, and at that level the regulation of the osmotic potential is critical. In the berry volume a limited recovery determined after about 13.0-26.0 % volume loss for SWS1 and SWS2 respectively along stressed periods. At harvest; berry volume (cm<sup>3</sup>), 100- berry weight (g), total soluble solids (°Brix), pH, total acidity (g tartaric acid L<sup>-1</sup>), Tartaric acid (g L<sup>-1</sup>) <sup>1</sup>), K (g L<sup>-1</sup>), TPI and Anthocyanins (mg L<sup>-1</sup>) were analysed. Berry volume loss rate (%) and mg sugar per 1g berry were calculated. SWS had a negative effect on the sugar per 1g berry, 100g berry weight, berry volume, TSS and positive effect on the anthocyanin concentrations and TPI at three phenological stages. This can open new ways for irrigation monitoring in combination with too high berry sugar content due to the climate change.

Key words: Syrah, Leaf water potential ( $\Psi$ leaf), Water stress, Volume loss, Recovery.

#### 19] Bahar, E., İ. Korkutal, İ.E. Kabataş, 2017. Farklı Yaprak Su Potansiyeli (Ψ yaprak) ve Salkım Seyreltme Uygulamalarının Sangiovese Üzüm Çeşidinin Fitokimyasal Özellikleri Üzerine Etkileri. Iğdır Üniversitesi Fen Bilimleri Enstitüsü Dergisi, 7(3): 11-18.

Bu çalışma yaprak su potansiyeli ve salkım seyreltme uygulamalarının Sangiovese üzüm çeşidinin fitokimyasal özellikler üzerine etkilerini belirlemek amacıyla yürütülmüştür. Denemede 4 farklı yaprak su potansiyeli ( $\Psi$  yaprak) uygulaması; Kontrol (Sulamasız) (< 0.7 MPa),  $\Psi$ şö N $\epsilon$  (-0.3; -0.5MPa],  $\Psi$ şö n $\epsilon$  (-0.3; -0.6MPa] ve  $\Psi$ şö n $\epsilon$  (-0.3; -0.7MPa] ve 2 farklı Salkım Seyreltme Uygulaması; (Salkım Seyreltmesiz ve % 50 Salkım Seyreltme) yapılmıştır. Araştırmada  $\Psi$ şö n $\epsilon$  (-0.3; -0.7MPa] uygulamasının Kontrol'e göre fitokimyasal özellikleri iyileştirdiği saptanmıştır. Salkım seyreltme uygulamalarının yaprak su potansiyeli üzerinde farkedilir bir etkisi görülmemiş ancak % 50 Salkım Seyreltme uygulamasının kaliteyi artırıcı etkide bulunduğu belirlenmiştir. Sonuç olarak Sangiovese üzüm çeşidi için yaprak su potansiyeli uygulamalarından  $\Psi$ şö n $\epsilon$  (-0.3; -0.7MPa] aralığı ile birlikte ürün yükünün fazla olması durumunda % 50 Salkım Seyreltme uygulaması önerilmiştir.

Anahtar kelimeler: Fitokimyasal özellikler, salkım seyreltme, sangiovese, su stresi, yaprak su potansiyeli.

#### [20] Bahar, E., , İ. Korkutal, İ.E. Kabataş, 2017. Sangiovese Üzüm Çeşidinde Farklı Yaprak Su Potansiyelleri (Ψ yaprak) ve Salkım Seyreltme Uygulamalarının Salkım ve Tane Özellikleri Üzerine Etkileri. Tekirdağ Ziraat Fakültesi Dergisi, 14(2): 138-149.

Araştırma Tekirdağ ili Şarköy ilçesi koşullarında, 40° 37' 50" K enlem ve 27° 09' 28" D boylamda, 41 m rakımlı bağda, 2013 yılında, Tesadüf Blokları Deneme Desenine göre 4 tekerrürlü olarak gerçekleştirilmiş olup yaprak su potansiyeli ve salkım seyreltme uygulamalarının Sangiovese üzüm çeşidinin salkım ve tane özellikleri üzerine etkilerini belirlemek amacıyla yapılmıştır. Kontrol (< 7MPa), Ψşö n€(-0,3; -0,5MPa], Ψşö n€(-0,3; -0,6MPa] ve  $\Psi$ sö n $\epsilon$ (-0,3; -0,7MPa] olmak üzere 4 farklı yaprak su potansiyeli ( $\Psi$ yaprak) uygulaması ile; 2 farklı Salkım Seyreltme Uygulaması (SSU), Salkım Seyreltmesiz (SSZ) ve %50 Salkım Seyreltme (% 50 SS) olmak üzere planlanmış ve yürütülmüştür. Denemede salkım özellikleri (salkım eni, salkım boyu, salkım ağırlığı, salkım hacmi, salkımdaki tane sayısı) ve tane özellikleri (tane vas ağırlığı, tane kuru ağırlığı, % kuru ağırlık, tane hacmi, tane özkütlesi, tane kabuk alanı hesap, tane kabuk alanı/ tane hacmi hesap) incelenmiştir. Ψşö nE(-0,3; -0,5MPa] uygulaması ile salkım eni ve salkım ağırlığında en yüksek değerler elde edilirken; tane kuru ağırlığı değerlerinde en düşük veriler elde edilmiştir. Öte yandan Ψşö nE(-0,3; -0,7MPa] uygulaması verim ve kalite değerlerini arttırmış, Kontrol uygulaması ise azaltıcı etki göstermiştir. Salkım seyreltme uygulamalarının yaprak su potansiyeli üzerinde belirgin etkisi görülmemiştir. Sonuç olarak mevcut Terroir'da Sangiovese üzüm çeşidi için yaprak su potansiyelinin tane tutumu-ben düşme döneminde nE(-0,2; -0,35MPa] arasında ve ben düşme-olgunluk döneminde nE(-0,3; -0,7MPa] arasında tutulması ve gerektiğinde şeker konsantrasyonunu (°Brix) artırmak amacıyla %50 salkım seyreltme (SS) yapılması önerilebilir.

Anahtar kelimeler: Sangiovese, yaprak su potansiyeli, salkım seyreltme, su stresi, sulama, salkım, tane.

[21] Bahar, E., İ. Korkutal, İ.E. Kabataş, 2017. Sangiovese Üzüm Çeşidinde Dönemsel Yaprak Su Potansiyeli (Ψ yaprak) Değişimleri ve Salkım Seyreltme Uygulamalarına Bağlı Olarak Düzenlenen Sulama Oranlarının Verim, Sürgün ve Gelişme Özellikleri Üzerine Etkileri. Mediterranean Agricultural Sciences, 30(2): 85-90.

Bu calısma 2013 yılı vejetasyon periyodunda Tekirdağ ili Sarköy ilcesi kosullarında, 40° 37' 50" K enlem ve 27° 09' 28" D boylamında, rakımı 41 m olan üretici bağında, Tesadüf Blokları Deneme Desenine göre 4 tekerrürlü olarak gerçekleştirilmiş olup; yaprak su potansiyeli ve salkım seyreltme uygulamalarının Sangiovese üzüm çeşidinde verim, sürgün ve gelişme özellikleri üzerine etkilerini belirlemek amacıyla yürütülmüştür. Kontrol, Ψşö nE (-0.3/ -0.5] MPa,  $\Psi$ şö n $\in$  (-0.3/ -0.6] MPa ve  $\Psi$ şö n $\in$  (-0.3/ -0.7] MPa olmak üzere 4 farklı yaprak su potansiyeli (Wyaprak) uygulaması ile Salkım Seyreltmesiz ve % 50 Salkım Seyreltme olmak üzere 2 farklı salkım seyreltme uygulaması yapılmıştır. Araştırmada fenolojik gelişme aşamaları, yaprak su potansiyelleri, sürgün özellikleri (sürgün uzunluğu, sürgün uzama hızı, budama odunu ağırlığı, güç, bir yıllık dal ağırlığı, ravaz indeksi), omca başına düşen göz sayısı, dengelenmiş budama göz sayısı ve omca başına verim kriterleri incelenmiştir. Uygulamaların etkileri incelendiğinde Ψşö n€ (-0.3/ -0.5] MPa uygulaması ile budama odunu ağırlığı, bir yıllık dal ağırlığı, güç ve verimde artış, Ψşö n€ (-0.3/ -0.7] MPa uygulaması neticesinde ise buna göre daha düşük değerler elde edilmiştir. Salkım seyreltme uygulamalarının yaprak su potansiyeli üzerinde fark edilir bir etkisi görülmemiştir. Sonuç olarak verim ve sürgün özellikleri dikkate alındığında Sangiovese üzüm çeşidi için yaprak su potansiyeli uygulamalarından Ψşö n€ (-0.3/ -0.7] MPa aralığı ile birlikte % 50 SS uygulaması önerilebilir.

Anahtar kelimeler: Sangiovese, yaprak su potansiyeli, salkım seyreltme, su stresi, gelişme.

### [22] Bahhar, I., O. Ertekin, S. Pirincci, B. Ergenoglu, S. Arat, F. Yucel, E. Akcael, 2017. Monoclonal Antibody Development for Quantitative Analysis of Pancreatitis-Associated Protein. Journal of Biotechnology 256S (2017), 44–116s.

The pancreatitis-associated protein (PAP) is a pancreatic stress protein which is not produced in a healthy pancreas but synthesized in high amounts in pancreatic acinar cells in response to acute and chronic pancreatitis, hypoxia, toxins, diabetes, lipopolysaccharides, hypotransferrinaemia, and organ transplant. Strong induction of PAP observed during the early phase of pancreatic diseases suggests that PAP serum levels may be used as a valuable biological marker. Pancreatic stress is among the symptoms of Cystic Fibrosis (CF), so, PAP can also be used as a marker of CF and numerous studies emphasize the use of PAP in early diagnosis of CF in neonates. The aim of our study was the development of monoclonal antibody (MAb) to use in quantitative determination of PAP levels in human serum. In this scope, high affinity mAbs against PAP whose hybridoma clones namely 9B7, 14D8, 8H10 and 1E9 were developed by using hybridoma technology. MAbs were characterized in terms of their specifities, isotypes and affinities. The antibodies were labeled with Biotin or Horseradish Peroxidase and used in sandwich immunoassay with different combinations. The results showed that developed monoclonal antibodies will be used successfully in quantitative determination of PAP levels.

**Key words:** The pancreatitis-associated protein (PAP), pancreatic acinar cells, hypotransferrinaemia.
# 23] Bal, E., D. Kök, A.İ. Torçuk, 2017. Postharvest Putrescine and Ultrasound Treatments to Improve Quality and Postharvest Life of Table Grapes (*Vitis vinifera* L.) cv. Michele Palieri. Journal of Central European Agriculture, 18 (3): 598-615.

The main objective of this study was to assess the effectiveness of putrescine (Put) (1 and 2 mM for 10 min) and ultrasound treatments (32 kHz for 10 min) alone or in combination on changing biochemical compounds and extending postharvest life of grape. After treatments, clusters were packed in boxes with modified atmosphere packaging and stored at 1-2 °C with 90-95% relative humidity for 60 days. The weight loss, total soluble solids, titratable acidity, total anthocyanins, total phenolic content, antioxidant capacity, stem browning, decay rate and visual appearance at 0, 20, 40 and 60 days after harvest were recorded. Statistically significant differences were observed between different treatments in all measured parameters except for weight loss and total soluble solids. The data showed that individual Put or ultrasound treatment had a positive response in maintaining grape quality during storage, but conjugation of Put with ultrasound treatments showed better effects. Combination treatments maintained higher levels of anthocyanins, total phenolic content, antioxidant capacity and reduced the loss of sensory acceptability and decay incidence compared to control. At the end of the storage, control grapes markedly lost their quality, reaching below the critical marketable level while all the treatments preserved better the visual quality. These results demonstrated that the combined treatments of Put and ultrasound could be a promising approach to maintain postharvest storage quality of grapes.

Key words: Biochemical compound, grape, polyamine, postharvest quality, ultrasonic.

# [24] Bayhan, Y., İ.H. Çelen, E. Önler, 2017. Determining The Energy Usage Efficiency of Different Soil Tillage Methods and No-Till Method in Aftercrop Beans Production. Fresenius Environmental Bulletin, Volume 26, No. 11/2017, page 6918-6923.

This study presented the energy usage efficiency of 3 different soil tillage method and notill method in aftercrop beans production. As a result, the value of specific energy was found as 1.63 MJ/kg in No-till, 1.80 MJ/kg in Rotary tiller + drilling (ROT), 2.01 MJ/kg in Disc harrow + rotary tiller + roller + drilling (HD + ROT), and 3.36 MJ/kg in Disc harrow + drilling (DT). The energy output/input ratio was obtained as 9.01 in no-till, 8.16 in ROT, 7.32 in HD + ROT and 4.38 in DT. It was found that the highest share in the total input energy in all methods was held by fertilizer energy, while fuel-oil had the second place.

Key words: Soil tillage, No-till, beans production, energy usage efficiency.

## [25] Belliturk, K., N. Hinisli, A. Adiloglu, 2017. The Effect of Vermicompost, Sheep Manure, and Cow Manure on Nutrition Content of Curly Lettuce (*Lactuca sativa var.*). Fresenius Environmental Bulletin (FEB), 26(1a): 1116-1120, Germany.

The main purpose of this study is to assess the effect of different concentrations of vermicompost, sheep manure, and cow manure on curly lettuce crop nutritional content and yield. This study was conducted using random experimental design in greenhouse conditions. The three amendments were incorporated into 2500 gr of topsoil from a wheat field in the following concentrations: 1 % (25 gr), 3 % (75 gr), 5 % (125 gr) and 7 % (175 gr). It was observed that the vermicompost had a significant effect on the germination rate. In general, application of sheep manure resulted in higher nutrition content of the plant. However, applications of cow manure resulted in higher levels of N uptake. The N content of curly lettuce increases in a linear manner reaching a high of 3.608 % with an application rate of 7 % cow manure.

Key words: Vermicompost, Sheep Manure, Cow Manure, Curly Lettuce.

## [26] Bilgen, B.B., N. Kaya, 2017. Genetic Diversity Among *Pinus sylvestris* L. Populations and Its Implications for Genetic Conservation: Comparison of Nuclear and Chloroplast Microsatellite Markers. Fresenius Environmental Bulletin, 26(11): 6873-6881.

Scots pine (*Pinus sylvestris* L.) is one of the most widely distributed forest trees belonging to *Pinaceae* family in the world. The most southern distribution of its populations is located in Turkey. In this study, altitudinal genetic variation in *P. sylvestris* populations was determined via cpSSR and nSSR markers. Cones were gathered from 149 trees in five populations that represent five different elevational zones from sea level to 2250 meters in Turkey. A total of 32 alleles were determined for analyzed six cpSSR loci. The cpSSR alleles were formed 87 different haplotypes. The percentage of unique haplotypes was 65.52 %. The results of AMOVA showed that the genetic diversity within populations are peripheral (the most southern ones in the distribution area of Scots pine), their genetic variation is still high. The results suggest that high priority should be given to peripheral populations for in situ conservation activities, as long as they have high genetic variation, because of their potential for adaptation to changing environments. The most suitable populations for forestry practices should be selected with strong emphasis on geographic location and elevation gradients.

Key words: Altitudinal variation, cpSSR, Genetic conservation, nSSR, Pinus sylvestris.

## [27] Bostanci, A., S. Albut, M. Sener, 2017. Watershed Database Management with Archydro Model Builder Processing: Case Study of Tekirdag Suleymanpasa District. Journal of Scientific and Engineering Research, 4(6):52-59.

This study is the work of identification of watershed characteristics by using Geographic Information System (GIS) software, and Geoprocessing ArcGIS Model Builder program featuring Digital Elevation Model (DEM) map of a specific region. DEM map of the province of Tekirdag was used the study area. At the end of the study, visual programming language designed program Geoprocessing and Model Builder methods can easily be applied to any conditions provided by DEM map. In this study, the main watershed characteristics for the catchment area of the Central District of Tekirdag ArcGIS Geoprocessing model is developed by subtracting. ArcHydro which is a model of ArcGIS has been used to determine the model and basin. ArcGIS is a free softwa re and it is used for hydrologic applications. This model is developed for the Central District of Tekirdag is a digital elevation data, unrelated to the size of any watershed characteristics of the basin, can be removed only by entering the DEM map data.

Key words: Watershed, Geoprocessing, ArcGIS Model Builder, ArcHydro, GIS.

## [28] Boyraz Erdem, D., S. Yılmaz, 2017. The Effect of Coal Ash Practices on Heavy Metal Content in the Soil. Fresenius Environmental Bulletin. Volume 26, No. 10/2017: 6121-6126.

The objective of this study is to define whether the ash, which is formed after burning of lignite coal, can be used as soil regulator in agricultural lands and to determine its doses if it has applicable value. A randomized experimental design with three replications was used with two different soil textures, being clay and sandy loam, and four different ash dosages (0, 5, 15 and 20 %) are taken into consideration. As a result, it is defined that coal ash within two different soil textures and having four different doses form heavy metal pollution according to existing regulations in terms of Ni, Zn, Cd, Pb, Hg, Cr, Sn and Cu elements. However, 15 and 20 % affected the increase in Cr amount while the amount applied as 20 % affected increase of Ni and Cu values to sandy loam soil texture. More than 5 % coal ash is not recommended as it increases heavy metals on soils. With the usage of coal ash, which is processed as waste material in agriculture; prevention of environmental pollution, savings in natural resources are expected.

Key words: Coal ash, soil pollution, heavy metal, soil conditioner.

#### [29] Boyraz Erdem, D., 2017. Classification of the Soils Formed in Toposequence Kayi and Aydinpinar Streams (Tekirdag) and Classes of Suitability to Agricultural Uses. Agronomy Research, 15(2): 329–343.

The soils formed in the vicinity of Kayı and Aydınpınar streams were investigated in transects formed toposequence splitting vertically towards the coastal line of Thrace region. On the characteristic points of topography formed by the Kayı and Aydınpınar streams, five soil profiles were described, the two on the Oligocene marine deposits, the two on side stream creeks and the one on the alluvial bed representing low land. The morphological, physical and chemical properties of the samples taken from these profiles according to the genetic horizon principle were determined. The classification of these soils formed in the toposequence relationship and their suitability to various plants varieties were determined. The 4<sup>th</sup> profile in subgroup of Typic Xerofluvent were formed in alluvial land, The 2<sup>nd</sup> profile in subgroup of Calcic Haploxerept, 1<sup>st</sup>, 3<sup>rd</sup> and 5<sup>th</sup> profiles in subgroup of Typic Haploxerept were classified. The soil formed in a toposequence is different for suitability of plant cultivation varies. KA1, KA2 and KA5 soils are highly suitable for grass families expect maize and sudan grass while KA3 soil is medium suitable for grass families. KA1 and KA2 soils (expect soybean) are highly suitable, KA3 (expect alfalfa and sainfoin) and KA5 (expect alfalfa) soils are medium suitable and KA4 soil is marginal suitable for legume plants.

Key words: Soil genesis, toposequence, entisols, inceptisols.

#### [30] Cavalaris, C., B. Akdemir, C. Karamoutis, T. Gemtos, 2017. Monitoring Sunflower and Maize Canopy Under Alternative Nitrogen Regimes with Lidar and Optical Sensors. Journal of Agricultural Faculty Gazi Osman Paşa University (JAFAG) 34(2): 81-90.

Crop fertilization is an important part of cost and energy inputs in agriculture. The opportunity to apply the variable rate of nitrogen fertilizers according to the plant needs in each part of the field is a promising practice to increase the fertilizer use efficiency. An experiment was conducted in 2016 in the University of Thessaly farm, Central Greece in order to evaluate the use of lidar and optical sensors to monitor the crop canopy for sunflower and maize. The canopy development can serve as a good indicator for the nutrition state of the crops regarding especially the nitrogen, and it can be used as an indicator for variable rate application systems. In order to obtain plants with different canopy development, a field experiment was established with treatments receiving the normal, farmer's practice, nitrogen rates (100 % N) at basic fertilization, treatments receiving 50 % reduced nitrogen fertilizer (50 % N) and treatments with no nitrogen application (0 % N). During growing, the crop canopy was monitored with a lidar and an optical sensor. Manual measurements of plant height and weight were also made. The manual measurements revealed the effect of variable fertilizer rates to plant development. The plots with higher nitrogen rates had higher and more vigor plants. The lidar sensor depicted more clearly these differences compared to the optical sensor. Plant height was sufficiently assessed for both the sunflower and maize crop by lidar. Plant volume though was assessed only for the sunflower. A problem with the lidar sensor was the small sampling rate (almost 2 Hz) but this can be compensated by its ability to scan simultaneously more than one crop rows (4 to 6) and obtain multiple sample information.

Key words: Canopy height, crop monitoring, lidar sensor, precision fertilization.

# [31] Chicas-MosierbBree, M.A., A. Cooperbc, A. Melendezbd, M. Pérezb, D. Oskay, C. Abramsonab, 2017. The Effects of Ingested Aqueous Aluminum on Floral Fidelity and Foraging Strategy in Honey Bees (*Apis mellifera*). Ecotoxicology and Environmental Safety, Volume 143, September 2017, Pages 80-86.

Pollinator decline is of international concern because of the economic services these organisms provide. Commonly cited sources of decline are toxicants, habitat fragmentation, and parasites. Toxicant exposure can occur through uptake and distribution from plant tissues and resources such as pollen and nectar. Metals such as aluminum can be distributed to pollinators and other herbivores through this route especially in acidified or mined areas. A free-flying artificial flower patch apparatus was used to understand how two concentrations of aluminum (2 mg/L and 20 mg/L) may affect the learning, orientation, and foraging behaviors of honey bees (Apis mellifera) in Turkey. The results show that a single dose of aluminum immediately affects the floral decision making of honey bees potentially by altering sucrose perception, increasing activity level, or reducing the likelihood of foraging on safer or uncontaminated resource patches. We conclude that aluminum exposure may be detrimental to foraging behaviors and potentially to other ecologically relevant behaviors.

Key words: Honey bee Aluminum Flower patch Foraging behavior.

#### [32] Coşkun, F., 2017. A Traditional Turkish Fermented Non-Alcoholic Beverage, "Shalgam". Beverages, *3*(4): 49.

Shalgam is a traditional Turkish beverage produced by lactic acid fermentation. Shalgam is also sold in markets in some European cities. In shalgam production, bulgur flour (formed during the crushing process, it is the part that remains under the sieve after breaking the outer shells of boiled dried wheat for processing), salt, water, purple carrot, turnip, and sometimes red beet is used. The traditional method of production can take 10–12 days. Commercial production takes 4–5 days. Shalgam is a probiotic food and a good source of nutrients. It helps regulate the pH of the digestive system. It contains  $\beta$ -carotene, group B vitamins, calcium, potassium, and iron. People also use it as a medicine because of its antiseptic agents. Shalgam consumption should be increased and become worldwide.

Key words: Shalgam, turnip juice, traditional beverages, salgam, Turkish beverages.

### [33] Coşkun, F. 2017. A Traditional Turkish Fermented Non-Alcoholic Grape-Based Beverage, "Hardaliye". Beverages 3(1): 2.

Hardaliye is a non-alcoholic fermented beverage produced in a traditional way in Thrace, the European part of Turkey. The nutritional value of hardaliye is derived from the grapes and the fermentation process. Health benefits of hardaliye are also related to etheric oils present in mustard seeds. Hardaliye is a lactic acid fermented traditional beverage produced from grape juice and crushed grapes with the addition of different concentrations of whole/ground or heat-treated mustard seeds and sour cherry leaves. The color of hardaliye reflects the original color of the grapes and has a characteristic aroma. Dark red grape is preferred. Benzoic acid is used as preservative during production. Benzoic acid inhibits or decreases alcohol production by affecting the yeast. Fermentation process can be extended until 20 days. If the ambient temperature is low, fermentation process can be extended until 20 days. Once fermented, the hardaliye is stored at 4 °C for three to four months. The hardaliye is consumed either fresh or aged. If it is aged, hardaliye may contain alcohol. The industrial production is just in small-scale and it must be developed. More studies are required to determine characteristic properties of hardaliye. Identification of the product properties will supply improvement for industrial production.

Key words: Hardaliye, fermented beverage, mustard seeds.

## [34] Coşkun, F., S. Kayışoğlu, 2017. The Effect of the Income Level of Consumers on the Reading Habits of Food Labels in Tekirdag Province. *International Refereed Journal of Engineering and Sciences*. 11, 107-132.

In this study, food label reading habits and importance given to the food label, reasons for reading food label. Levels of understanding the information on the label of consumers, which information and which products' labels are read more, the rate of consent of the ingredients information on the label, effect on label reading rate of health problem while purchasing food items according to their income levels were investigated. This survey study conducted with 406 consumers selected from Suleymanpaşa district of Tekirdag province. The number of consumers who say the label is very important and number of readers of labels for health have increased with the increase in the income level. The expression by style of the information on the label is mostly preferred by low-income consumers. With the increase in income, the proportion of those who regard protectors as harmful components has increased. The consumers with the lowest and highest income levels are mostly always read the labels of the products such as chocolate, confectionery and so on with cakes, biscuits and so on. According to the results obtained from this study, 2000-3000 TL income level is characteristic of turnover point in terms of label considerations. In order to be able to design labels that are more understandable by consumers, it is necessary to increase the number of studies that reveal consumer preferences.

Key words: Food Label, Income Level, Purchasing, Healthy Food.

[35] Coskun, I., F. Korkmaz, A. Altop, H. Cayan, G. Filik, A. Sahin, H.E. Samli, G. Erener, 2017. The Effects of in Ovo Pollen Extract Injection on Growth Parameters, Ileal Histomorphology and Caecal Microflora in Fasted Broiler Chicks. Indian Journal of Animal Research, p. 1033-1037.

This study was carried out to determine the effects of in ovo pollen extract injection on growth parameters, ileal histomorphology, and caecal microflora of fasted broiler chicks. In this experiment, 2×2 factorial experimental design was used. One d old, 120 healthy broiler chicks were allocated to 4 treatment groups and 6 replicates (5 mixed sex chicks allocated each replicates). Treatment groups were: A) Pollen extract injection and 24 h fasting (P24); B) Pollen extract injection and 48 h fasting (P48), C) Control, no injection 24 h fasting (C24) and D) Control, no injection 48 h fasting (C48). The experiment lasted 21 days. Live weight, feed consumption, feed conversion ratio were recorded weekly. Ileal histomorphology, caecal microbiota, organ weight were recorded at 21th days of experiment. In ovo pollen extract injection did not affect hatchability rate. At the end of 21 days, in ovo pollen extract injection did not affect feed intake, live weight gain, feed conversion ratio, inner organ development and ileal villi width irrespective to fasting 24 h and 48 h. In ovo pollen extract injection increased ileal villi length, caecal lactic acid bacteria and Saccharomyces Cerevisiae count, decreased caecal Enterobactericaea count. In conclusion, in ovo pollen extract injection can be applied for broiler eggs to improve weight gain, better digestion and gut health.

Key words: Broiler, In ovo injection, Performance, Pollen extract.

#### [36] Coskun, I., M. Tad, G. Filik, A. Altop, A. Sahin, G. Erener, H.E. Samli, 2017. Dietary Symbiotic Supplementation Alters The Ileal Histomorphology and Caecal Pathogen Micro-Organism in Broiler Chicks. Journal of Livestock Sci. 8: 109-114.

The aim of this study was to determine the effects of dietary symbiotic supplementation on ilealhistomorphology, growth performance, digestive tract development, caecaltotalColiform, E coli andEnterobactericaeacounts in different chick weights. A blend of mannanoligosaccharide and Saccharomyces cerevisiae mixture was used as symbiotic. Two initial body weight groups (L= Light and H= Heavy chicks) and two feeds (B= basal diet and S= 0,2% symbiotic supplemented diet) were tested in 2x2 factorial experimental design. One hundred and twenty newly hatched chicks obtained from a healthy broiler parent stock aged 40 wk old. Each treatment group had 3 replicates consist of 10 chicks. Trial lasted for 21 days. Daily body weight gain (DBWG), daily feed intake (DFI), feed conversion ratio (FCR) (g feed/g gain) was recorded weekly. The DBWG, DFI, FCR and digestive tract development (heart, liver, gizzard, proventriculus, pancreas, bursa fabricius weight and gut length) were not affected by treatments. Symbiotic supplementation increased villi length. Symbiotic supplementation decreased pathogenic microorganisms (Escherichia Coli, Coliform and Enterobactericaea) in caeca irrespective to the DBWG of chicks. To conclude, symbiotic supplementation can be used to improve villi morphology and to suppress pathogenic microorganisms in caeca.

Key words: Broiler chicks, mannanoligosaccharide, Saccharomyces cerevisiae.

#### [37] Çakır, R., U. Kanburoğlu-Çebi, S. Altıntaş, A. Özdemir, 2017. Irrigation Scheduling and Water Use Efficiency of Cucumber Grown as a Spring-Summer Cycle Crop in Solar Greenhouse. Agricultural water management, 180: 78-87.

This 3-year study aimed to determine the most appropriate irrigation application and water use efficiency programs based on Class A Pan evaporation for mini (Lebanese) type cucumber plants grown as a first crop under protected conditions in a solar greenhouse. Research was carried out in an unheated solar green- house constructed on the lands of Ataturk Soil Water and Agricultural Meteorology Research Institute in Kirklareli, Northwestern Turkey. In order to prevent excessive increase in temperature within the protective structure, the semicircular shaped unheated greenhouse with sidewall ventilation was screened with 75% green-coloured shading net. The experimental layout of the study was a split-plot design with 3 replications. Two irrigation intervals (D1-2 days and D2-4 days) and four different plant-pan coefficients (0.75, 1.00, 1.25 and 1.50) were applied to main and subplots in the experiment. It was determined that cucumber yields increased with the increase in the irrigation water amount and reached averages of 128.2 and 126.5 ton  $ha^{-1}$  with use of highest plant pan coefficients of 1.50 and 1.25 vs. 90.7 and 90.9 ton  $ha^{-1}$  under the lowest Ecp coefficient of 0.75. The highest irrigation water use efficiency (IWUE) and water use efficiency (WUE) values of about 56 kg  $ha^{-1} m^{-3}$  and 42 kg  $ha^{-1} m^{-3}$ were obtained from the conditions with least applied irrigation water amounts. The average seasonal value of the yield response factor (ky) estimated on the basis of data from the 3year study was determined as 0.75.

Key words: Mini cucumber, unheated tunnels, yield, Ky.

# [38] Çelen, İ.H., M.F. Baran, E. Önler, Y. Bayhan, 2017. Determination of Energy Balance of Apple (Malus domestica) Production in Turkey: A Case Study for Tekirdag Province. ANAJAS, 32(1): 40-45. Doi: 10.7161/omuanajas.289604 (Yayın No: 3581484)

This study aims to define the energy usage efficiency in apple cultivation in the Province of Tekirdağ. The study was conducted during 2015 production season through observation and measurement in an apple garden with a land area of 12 da and located in Nusratlı village in Central Tekirdağ. It has been tried to reveal the role of mechanization energy among all the inputs. According to the calculated data, in apple cultivation the respective figures for total energy input, total fruition, total energy output, energy output/input rate, specific energy, energy productivity and net energy have been calculated as 58839.65 MJ ha-1, 38370 kg ha-1, 92088.00 MJ ha-1, 1.56, 1.53 MJ kg-1, 0.65 kg MJ-1 and 33248.35 MJ ha-1 respectively. As a result, among the general energy inputs in apple cultivation, the highest energy consuming items have been respectively defined as fertilizer energy, fuel-oil energy, chemicals, machinery, human labour and irrigation energy.

Key words: Input energy, Output energy, Apple Energy, use efficiency, Tekirdağ.

## [39] Çördük, N., S. Demirbaş, N. Hacioglu Dogru, 2017. A Comparative Study of The Antimicrobial Properties and Antioxidant Enzyme Activities of Field-Grown And *In Vitro*-Propagated Plants of Endemic *Digitalis trojana* Ivanina. Achieves of Biological Sciences, 69(4): 603-610.

The antimicrobial properties and antioxidant enzyme activities of field-grown and in vitropropagated plants of Digitalis trojana Ivanina (Helen of Troy foxglove), a perennial endemic plant species of Turkey, were compared. The field work was carried out in May and July 2014, and plant samples of D. trojana were collected from Kazdağı (Turkey). Propagation of D. trojana was achieved by culturing leaf explants on MS medium supplemented with 13.3  $\mu$ M 6-benzylaminopurine (BA) and 0.53  $\mu$ M  $\alpha$ -naphthaleneacetic acid (NAA). The antimicrobial activity, plant lipid peroxidation levels and antioxidant enzyme (superoxide dismutase (SOD), catalase (CAT), peroxidase (POX), ascorbate peroxidase (APX), glutathione reductase (GR)) activities were analyzed in 12- and 17-week-old in vitro-grown Digitalis plants collected in May and July from two different localities at 430 and 1173 m above sea level. Although the in vitro-propagated plants had very low antagonistic activities compared to field-grown plants, they exhibited remarkably similar antibacterial activities against Escherichia coli ATCC 11230, Pseudomonas aeruginosa ATCC 27853 and Bacillus subtilis ATCC 6633. There were no important differences between plants collected from the two localities (430 and 1173 m a.s.l.). Biochemical analysis showed that the antioxidant enzyme (SOD, APX, GR) activities of field-grown plants were higher than in vitro-grown plants. Also, the difference in altitude at which the plants were grown was apparently linked to decreases in antioxidant enzyme activities, except for POX in field-grown plants collected in July.

**Key words:** *Digitalis trojana, in vitro* propagation, field-grown, antimicrobial activity, antioxidant enzyme activities.

### [40] Demirbaş, S., O. Acar, 2017. Physiological and Biochemical Defense Reactions of *Arabidopsis thaliana* to *Phelipanche ramosa* Infection and Salt Stress. Fresenius Environmental Bulletin, 26(3): 2275-2282.

The effects of salinity stress on growth parameters and the activities of antioxidant enzymes (superoxide dismutase (SOD), peroxidase (POX), catalase (CAT), glutathione reductase (GR), and ascorbate peroxidase (APX)) were investigated in *Arabidopsis thaliana* during *Phelipanche ramosa* mediated biotic stress. The experiment was conducted using 100 mM NaCl on infected 18-day old *A. thaliana* plants in Gamborg B5 medium. *P. ramosa* infection reduced root length and shoot dry weight (DW) in *A. thaliana*. After salt stress treatment shoot fresh weight (FW) decreased in *A. thaliana* plants infected with *P. ramosa*. Salt stress treatment produced a significant reduction in carotenoid and total chlorophyll content while it did not change the chl a/b ratio of infected plants. POX and APX activities increased during *P. ramosa* infection in *A. thaliana*. Additional NaCl treatment decreased the level of lipid peroxidation accompanied by an increment in SOD, POX, GR, CAT and APX activities, while chl a/b ratio and total chl content decreased. These results, presented for the first time, demonstrated induction of the antioxidant defense system against *P. ramosa* infection by NaCl treatment in *A. thaliana*.

**Key words:** Antioxidant defense system, broomrape, combined stress, *Phelipanche ramosa*, salt stress.

#### [41] Demirci, T., K. Aktaş, D. Sözeri, H.İ. Öztürk, N. Akın , 2017. Rice Bran Improve Probiotic Viability in Yoghurt and Provide Added Antioxidative Benefits, Journal of Functional Foods, 36: 396-403.

Experimental yoghurts were made with 13% reconstituted skim milk supplemented with 1, 2, 3 % rice bran (RB) and inoculated with probiotic culture of Lactobacillus casei 431. The products were stored at 4 °C for 3 weeks. During this period, the viability of the probiotic L. casei 431 strain and yoghurt starter cultures were evaluated. In addition to this, some physicochemical, antioxidative and sensory properties of yoghurts were also determined. L. casei 431 remained above the 8 log CFU/g throughout the storage period in yoghurts fortified with 2 % and 3 % RB. Addition of rice bran decreased the syneresis and viscosity values whereas it increased scavenging activities of DPPH radical. However, yoghurts with RB had less sensory scores compared to plain yoghurt.

Key words: Yoghurt, Rice Bran, Prebiotic, Probiotic.

#### [42] Deveci, M., E. Cabi, L. Arın, Ö. Yavaş, 2017. Effect Of Water Deficit on Some Physiological Properties of *Abelmoschus Esculentus* (L.) Moench Cv. "Sultani". Journal of Tekirdag Agricultural Faculty (JOTAF), The Special Issue of 2<sup>nd</sup> International Balkan Agriculture Congress, Tekirdag, May 16-18, 48-54p.

This study was conducted to determine the some physiological changes after the artificial drought stress in okra (Abelmoschus esculentus (L.) Moench cv."Sultani") which is widely cultivated in Turkey and well adapted to Trakya region. After germination, the seedlings were grown under normal growing conditions in an unheated plastic greenhouse until they reached to 2-4 leaf. They were planted in the field with a distance of 50 cm between rows and 25 cm in rows. The plants normally irrigated until flowering time. After then, water constraint applied for drought stress. Control plants were irrigated to bring to field capacity, when they lost 50 % of usable water capacity in root region. Other plots were irrigated to 0 %, 25 % and 50 % of applied water in control parcel. Water restriction was done once a week and then measurements were made. During the experiment, leaf water potential (-MPa), leaf relative water content (%), membrane damage in leaf cells (%) and total chlorophyll (SPAD value) in leaves were determined. As results, it has been determined that as the amount of water restriction goes from control to 0 %, the leaf water potential decreases and the plants grown at 0% water constraint show severe damage symptoms. It has also been found that the amount of leaf-relative water content and the total amount of chlorophyll are reduced in a manner contrary to the increase in drought stress. Contrary to other criteria, membrane damage and leaf temperatures increase in leaf cells due to the increase in the amount of water restriction.

**Key words:** *Abelmoschus esculentus* cv. Sultani, water stress, leaf water potential, leaf proportional water content, membrane damage in leaf cells, total chlorophyll.

#### [43] Deveci, M., L. Arın, E. Cabi, Ö. Yavaş, 2017. Generatif Döneminde Su Kısıtı Uygulamalarının Bamyanın Bazı Morfolojik Özelliklerine Etkisi. 3<sup>rd</sup> International Congress of Agriculture and Environment. Akademia Mühendislik ve Fen Bilimleri Dergisi, ICAE - IWCB 2017, Özel Sayı, s.256-267.

This study was conducted to determine some morphological changes after the artificial drought stress in okra (Abelmoschus esculentus cv."Sultani") which is widely cultivated in Turkey and well adapted to Trakya region. The seedlings of okra (cv Sultani) were grown under normal growing conditions in an unheated plastic greenhouse until they reached to 2-4 leaf. They were planted in the field with a distance of 50 cm between rows and 25 cm in rows. The plants normally irrigated until flowering time. After then, water deficit applied for drought stress. Control plants were irrigated to bring to field capacity, when they lost 50 % of usable water capacity in root region. Other plots were irrigated to 0 %, 25 % and 50 % of applied water in control parcel. Water restriction was done once a week and during the experiment, leaf damage index, number of leaves per plant, leaf weight (g), leaf thickness (mm), leaf surface area  $(cm^2)$ , fruit diameter (mm), fruit length (cm), individual fruit weight (g), plant height (cm) and yield (kg/da) were determined. As results, it has been determined that as the amount of water restriction goes from control to 0 %, the leaf water potential decreased and the plants grown at 0 % water deficit showed severe damage symptoms. Due to the increase in the amount of water restriction, leaf damage index increased but total fruit yield and other leaf and fruit weight decreased. Keywords: Okra, Abelmoschus esculentus cv. "Sultani", Water stress, Morphological characteristics, Generative period.

**Key words:** Bamya, *Abelmoschus esculentus* cv. "Sultani", su stresi, morfolojik özellikler, generatif dönem.

#### [44] Deveci, M., D. Tuğcu, 2017. Değişik Vejetasyon Dönemlerine Kadar Uygulanan Farklı Tuz Konsantrasyonlarının Yaprak Lahana (*Brassica oleraceae* var. acephala)'da Meydana Getirdiği Bazı Fizyolojik ve Morfolojik Değişikliklerin Belirlenmesi. Academic Journal of Agriculture. Vol: 6 (Special Issue), s.81-88.

Bu araştırmada materyal olarak yaprak lahana (karalahana) (*Brassica oleracea* L. var. acephala DC.) çeşidi kullanılmıştır. Deneme tesadüf parselleri deneme desenine göre 4 tekerrürlü olarak kurulmuş ve her tekerrürde 4 tuz konsantrasyonu (kontrol, 50, 100 ve 200  $\mu$ M NaCl), 2 tuz uygulama zamanı (8 gerçek yapraklı ve hasat dönemine kadar) uygulanmıştır. Denememiz kontrollü koşullar altında sıcaklığı +40°C ile –20°C arasında ayarlanabilen iklim odasında kurulmuştur. Tüm deneyler, 20°C sıcaklık, % 65-70 nem, 12/12 (aydınlık/gece) saatlik fotoperiyodik düzene sahip iklim odasında gerçekleştirilmiştir. Tuz uygulamaları bitkilerin 4-5 gerçek yapraklı olduğu dönemde yapılmaya başlanmış ve 8 gerçek yapraklı dönem ve hasat dönemine kadar kaplardaki besin çözeltisine sulama zamanlarında 0, 50, 100 ve 200  $\mu$ M tuz konsantrasyonunu sağlayacak şekilde saksılara NaCl ilave edilmiştir. Deneme süresince hasar indeksi, yaprak sayısı (adet), yaprak ağırlığı (g), yaprak kalınlığı (mm), yaprak alanı (cm<sup>2</sup>), yaprak oransal su içeriği (%), bitki boyu (cm), kök derinliği (cm) ölçülmüştür. Karalahananın gelişim dönemleri bakımından; 8 yapraklı döneme kadar uygulanan tuz uygulamalarının daha düşük stres oluşturduğu, tuz uygulamalarının hasat dönemine kadar uygulanması ile stres seviyesi gittikçe arttığı tespit edilmiştir.

Anahtar kelimeler: Karalahana, vejetasyon dönemi, tuzluluk stresi, yaprak oransal su içeriği.

#### [45] Deveci, M., D. Tuğcu, 2017. Tuz Stresinin Yaprak Lahanada Yaprak Su Potansiyeli ve Bazı Yaprak Fizyolojik Özellikleri Üzerine Etkisi. 3<sup>rd</sup> International Congress of Agriculture and Enviriment. Akademia Mühendislik ve Fen Bilimleri Dergisi, ICAE-IWCB 2017, Özel Sayı, s.268-280.

Bu araştırmada materyal olarak yaprak lahana (karalahana) yerli çeşidi (Brassica oleracea var. acephala cv. Yerli) kullanılmıştır. Deneme tesadüf parselleri deneme desenine göre 4 tekerrürlü olarak kurulmuştur ve her tekerrürde 4 tuz konsantrasyonu (kontrol, 50, 100 ve 200 mM NaCl), 2 tuz uygulama zamanı (8 gerçek yapraklı ve hasat dönemine kadar) uygulanmıştır. Tüm deneyler, 20 °C sıcaklık, % 65-70 nem, 12/12 (aydınlık/gece) saatlik fotoperiyodik düzene sahip iklim odasında gerçekleştirilmiştir. Tuz uygulamaları bitkilerin 4-5 gerçek yapraklı olduğu dönemde yapılmaya başlanmış ve 8 gerçek yapraklı dönem ve hasat dönemine kadar kaplardaki besin çözeltisine sulama zamanlarında 0, 50, 100 ve 200 mM tuz konsantrasyonunu sağlayacak şekilde saksılara NaCl ilave edilmiştir. Deneme süresince yaprak su potansiyeli (MPa), yaprak hücrelerinde membran zararlanması (%), yaprak sıcaklıkları (°C) ve klorofil miktarları (SPAD değeri) ölçülmüştür. Elde edilen sonuçlara göre denemede ele alınan farklı vejatatif dönemlerden hasat dönemine kadar tuz uygulaması ile yaprak hücrelerinde membran zararlanması ve yaprak sıcaklığı kriterlerinde en yüksek ortalamalara ulaşılmıştır. Farklı tuz konsantrasyonları sonucunda ele alınan kriterlerden yaprak hücrelerinde membran zararlanması ve yaprak sıcaklığının tuzluluk arttıkça arttığı belirlenmiştir. Diğer tüm kriterlerde tuzluğun 0 mM'dan 200 mM'e doğru artmasıyla elde edilen ortalamaların azaldığı tespit edilmiştir. Yaprak su potansiyeli bakımından tuz konsantrasyonu arttıkça gün ortası yaprak su potansiyelinin ( $\Psi$ go) düştüğü yani yaprakların su stresinin arttığı sonucuna varılmıştır.

**Anahtar kelimeler:** Yaprak Lahana, *Brassica oleracea* var. acephala L, sulama suyu tuzluluğu, yaprak su potansiyeli, klorofil miktarı.

#### [46] Deveci, M., B. Tuğrul, 2017. Ispanakta Tuz Stresinin Yaprak Fizyolojik Özelliklerine Etkisi. Academic Journal of Agriculture. Vol: 6 (Special Issue), s.89-98.

Tuz stresinin Ispanak yaprak fizyolojisinde oluşturduğu olumsuz etkilerin tespit edilmesi amacıyla bitkiler iklim odasında 22/18°C (gündüz/gece) sıcaklık, % 70 nem, 10/14 saatlik (aydınlık/gece) fotoperiyodik düzende, 400  $\mu$ mol m<sup>-2</sup>s<sup>-1</sup> ışık şiddetine sahip kontrollü koşullarda gerçekleştirilmiştir. Araştırmada materyal olarak Meridien F1 çeşidi ile San Moreno çeşidi Hoagland besin çözeltisi içeren hidroponik sistemde yetiştirilmiştir. Tuz uygulamaları bitkilerin 4-5 gerçek yapraklı olduğu dönemde yapılmaya başlanmış hasat dönemine kadar kaplardaki besin çözeltisinin tuzluluğu EC = 2, 6, 8 ve 10 olacak şekilde NaCl ilave edilerek elde edilmiştir. Deneme tesadüf parselleri deneme desenine göre 3 tekerrürlü olarak kurulmuş ve her tekerrürde 2 çeşit (Meridyen F1 ve San Moreno F1) ve 4 tuz konstrasyonu (EC = kontrol, 6, 8 ve 10) uygulanmıştır. Tüm denemede toplam 24 parsel, her parselde 16 bitki ve tüm denemede toplam 384 bitki yetiştirilmiştir. Deneme süresince, yaprak oransal su içeriği (%), yaprak su potansiyeli (MPa), yaprak hücrelerinde membran zararlanması (%), yaprak sıcaklıkları (°C) ve yaprak stoma geçirgenliği (mmol m<sup>-2</sup>s<sup>-1</sup>) belirlenmiştir. Elde edilen sonuçlar neticesine göre uygulanan farklı tuz konsantrasyonları sonucunda ele alınan kriterlerden yaprak hücrelerinde membran zararlanması ve yaprak sıcaklığı tuzluluk arttıkça arttığı belirlenmiştir. Yaprak su potansiyelinde tuz konsantrasyonu arttıkça stresin şiddetlendiği, diğer kriterlerde ise tuzluluğun artmasıyla elde edilen ortalamaların azaldığı tespit edilmiştir.

Anahtar kelimeler: Ispanak, tuz stresi, yaprak su potansiyeli, oransal su içeriği, stoma geçirgenliği.

#### [47] Durakli Velioglu, S., E. Ercioğlu, İ.H. Boyacı, 2017. Rapid Discrimination Between Buffalo and Cow Milk and Detection of Adulteration of Buffalo Milk with Cow Milk Using Synchronous Fluorescence Spectroscopy in Combination with Multivariate Methods. Journal of Dairy Research, 87(2): 214-219. (DOI: https://doi.org/10.1017/S0022029917000073).

This research paper describes the potential of synchronous fluorescence (SF) spectroscopy for authentication of buffalo milk, a favourable raw material in the production of some premium dairy products. Buffalo milk is subjected to fraudulent activities like many other high priced foodstuffs. The current methods widely used for the detection of adulteration of buffalo milk have various disadvantages making them unattractive for routine analysis. Thus, the aim of the present study was to assess the potential of SF spectroscopy in combination with multivariate methods for rapid discrimination between buffalo and cow milk and detection of the adulteration of buffalo milk with cow milk. SF spectra of cow and buffalo milk samples were recorded between 400-550 nm excitation range with  $\Delta\lambda$  of 10-100 nm, in steps of 10 nm. The data obtained for  $\Delta\lambda = 10$  nm were utilised to classify the samples using principal component analysis (PCA), and detect the adulteration level of buffalo milk with cow milk using partial least square (PLS) methods. Successful discrimination of samples and detection of adulteration of buffalo milk with limit of detection value (LOD) of 6 % are achieved with the models having root mean square error of calibration (RMSEC) and the root mean square error of cross-validation (RMSECV) and root mean square error of prediction (RMSEP) values of 2, 7, and 4 %, respectively. The results reveal the potential of SF spectroscopy for rapid authentication of buffalo milk.

Key words: Buffalo milk, cow milk, authenticity, synchronous fluorescence spectroscopy.

## [48] Durakli Velioglu S., K.G. Guner, H.M. Velioğlu, G. Celikyurt, 2017. The Use of Hazelnut Testa in Bakery Products. Journal of Tekırdag Agrıcultural Faculty, 14(3): 127-139.

Hazelnut testa is the thin brown perisperm which wraps the hazelnut kernels, and obtained as a by-product after the roasting process of hazelnut. It has good antioxidant and dietary fiber properties. Hence, the present study was carried out to utilize hazelnut testa in the production of bread, cookie and cake, and evaluate some physicochemical and sensorial properties of the samples enriched with hazelnut testa. The wheat flour samples substituted with hazelnut testa at levels of 4, 6, 8 and 10 % were used in product recipes. The rheological properties of flour mixes were evaluated using extensograph and farinograph measurements. Increased amounts of testa resulted to higher water absorption (61.8 to 67.1%), development time (4.3 to 10.7 min) and stability (8.2 to 17.2 min) values of flour. Total phenolic content (TPC) of hazelnut testa was determined to be 209.750 mg GAE/g dry matter. TPC of bread, cookie and cake samples which were produced using flour containing 10% testa were 19.427, 9.777 and 13.126 mg GAE/ g dry matter, respectively. Cookies prepared with flour containing 8% testa had the highest scores for color, smell and taste (P < 0.05) where the panelists liked all breads and cakes according to overall acceptability equally (P > 0.05). Consequently, the use of flour mixes enriched with hazelnut testa could be an effective way to put functional bakery products in the food market.

Key words: Hazelnut testa, bakery, bread, cake, cookie.

#### [49] Durakli Velioglu, S., H.T. Tümay, E. Ercioğlu, H.M. Velioğlu, A. Topcu, İ.H. Boyacı, 2017. Use of Raman Spectroscopy for Determining Erucic Acid Content in Canola Oil. Food Chemistry, 221: 87-90. (DOI: 10.1016/j.foodchem. 2016.10.044).

This study presents a novel method to determine erucic acid in canola oil samples by using Raman spectroscopy and chemometric analysis. The oil mixtures were prepared at various concentrations of erucic acid ranging from 0% to 33.56% (w/w) through binary combinations of different oils. In order to predict erucic acid content, Raman spectroscopy and GC results were correlated by means of partial least squares analysis. High coefficient of determination values was obtained for both calibration and validation data sets, which are 0.990 and 0.982, respectively. The results of the present study reveal the potential of Raman spectroscopy for rapid determination (45 s) of erucic acid in canola oil. Further research would be useful to improve the method to put it forward as an alternative to GC in the erucic acid analysis.

Key words: Erucic acid, canola oil, Raman spectroscopy.

# [50] Durgut, M.R., T. Aktaş, S. Kayişoğlu, Ç. Yağcılar, 2017. Determination of Optimum Reaction Conditions in Biodiesel Production from Microalgae Oil Using Microwave Irradiation. Journal of Scientific and Engineering Research, 4(12): 111-115.

Demands for alternative fuels such as biodiesel are increasing because of decreasing of fossil fuel sources and its environmental concerns. However, the resulting biodiesel plant origin safflower, canola, peanut oil, etc. at the same time hold an important place in the food sector, the biodiesel production is the most important limiting factor. One of the most important vegetable oil sources is microalgae oil, because of high oil content of the seeds such as 31-68%. The yield of transesterification reaction is too high because microalgae oil can be dissolved in alcohol easily. In this study, parametric experiments were done using microwave heating system in order to obtain biodiesel by transesterification reaction of microalgae oil using KOH as a catalyst. Effect of catalyst ratio, reaction temperature and time on transesterification of microalgae oil were investigated. Microwave assisted transesterification of cottonseed oil under the conditions of 1.5% catalyst-oil ratio, 60oC temperature and 6 minutes reaction time, resulted in a biodiesel yield of 91.7%.

Key words: Microalgae, microwave, biodiesel, biomass, transesterification, biofuels

## [51] Durgut, M.R., E. Gönülol, B. Kayışoğlu, 2017. Production of Biodiesel from Microalgae using Acid and Base Catalysts. Journal of Scientific and Engineering Research, 4(10): 263-268.

Biodiesel is gaining attention as an alternative fuel to diesel engines as it is natural, ecofriendly and alternative diesel fuel which is obtained from renewable resources like animal fats and vegetables oils. In the present study, biodiesel has been produced from microalgae oil using two step catalyzed transesterification reaction acid method followed by base method. Favourable results were obtained for physiochemical analysis (density, flash point, copper strip corrosion test, viscosity, and flow cloud point) of oils in context to biodiesel standards (ASTM). A yield of 86,3 % and 91,7 % was obtained from microalgae oil by using two step method with a reaction mixture containing 0,5 % w/w of H2SO4 for acid pretreatment, 0,4 % w/w of KOH.

**Key words:** Microalgae oil, Transesterification reaction, Biodiesel, Acid catalysts, Base catalysts.

## [52] Eryılmaz Acikgoz, F., D. Hasturk Sahin, D. Altan, T. Aktas, 2017. Changes In Nutritional Properties of Sorrel (*Rumex acetosa* L.) Plant Dried Using Different Drying Methods. Oxidation Communications. 40: 389-400.

In this study, drying process of sorrel (*Rumex acetosa* L.) using different drying methods the determination of its quality characteristics was aimed. For these aims, sorrel plants were dried by the methods of convective hot air drying, sun drying, and shadow drying. 40–50–60°C drying temperatures and drying air velocity values of 1–2 m/s were applied for hot air drying experiments. Total amount of phenolic material and antioxidant activity were determined both on fresh and dried plant samples in order to study the effects of drying on nutrient retention. The most appropriate drying method was tried to be determined that will retain the maximum nutrient and quality properties expected from the sorrel samples. According to results of the analyses, the maximum values of phenolics content and antioxidant activity were obtained for the samples dried at conditions of 40°C with 2 m/s air velocity. Dried consumption of sorrel plant was recommended as well as consumption of fresh sorrel.

**Key words:** Sorrel (Rumex acetosa L.), drying, total phenolic material, antioxidant activity, ascorbic acid, protein.

### [53] Elibol, C., B.B. Bilgen, 2017. Genetic Diversity and Molecular Characterization of Natural *Pancratium maritimum* L. Populations by DNA Markers. Turkish Journal of Botany, 41: 569-578.

Bulbous plants play an important role in Turkey's biodiversity due to their great potential use in various industries. Sea daffodils (Pancratium maritimum), one aspect of Turkey's biological richness, represent an important bulbous plant that generally spreads on sand dunes and can be seen only on the Mediterranean coast and on its certain beaches in our country. In this study, the genetic structure and genetic diversity of four natural P. maritimum populations have been determined by RAPD and nrSSR primers. Eight RAPD and four nrSSR loci were analyzed. All RAPD and nrSSR loci, except SSR-20, were found to be polymorphic. Genetic diversity parameters such as mean number of alleles for each nrSSR loci (Na = 3.313), effective allele number (Ne = 2.190), Shannon's information index (I = (0.728), observed heterozygosity (Ho = 0.449) and expected heterozygosity (He = 0.396) were calculated. A rather high proportion of the genetic diversity (81 % for nrSSR, 72 % for RAPD) was due to within-population variation and the remaining part was due to variation between populations. According to the acquired UPGMA phenogram for RAPD and nrSSR data, the İğneada and Çamlıkoy populations, which are geographically close, are also genetically the most similar populations. The STRUCTURE analysis results supported the constructed UPGMA phenogram for the studied sea daffodil populations. The results of this study include important information about the genetic structure of the studied populations.

**Key words:** Genetic conservation, genetic diversity, nrSSR, *Pancratium maritimum*, RAPD, sea daffodil.

### [54] Gecgel, U., O. Ay, 2017. The Determination of Heavy Metal and Micronutrient Elements in Sunflower Seeds Grown in the Thrace Region. La Rivista Italiana delle Sostanze Grasse, 94(3): 181-188.

In this research, the amount of heavy metals and micronutrient elements were determined in sunflower seeds, which are widely produced in the Thrace Region. This study was performed on the sunflowers harvested from 28 different settlements within the boundaries of the Thrace Region (sampling locations) 2012 and 2013. In the research; the heavy metals of Lead (Pb), Nickel (Ni), Iron (Fe), Zinc (Zn), Antimony (Sb), Cadmium (Cd), Copper (Cu), Arsenic (As), and micronutrient elements of Manganese (Mn), Phosphorus (P), Calcium (Ca), Magnesium (Mg) and Potassium (K) were determined using ICP-OES. In conclusion, no amount of Sb and As were detected in the analyzed samples. The heavy metal results in 2012 and 2013; for Pb, Ni, Fe, Zn, Cd and Cu, 0.2- 0.0, 0.05-0.0 mg/kg; 9.94-1.03, 10.11-1.90 mg/kg; 68.92-26.54, 70.71-26.65 mg/ kg; 31.60-16.36, 24.55-17.36 mg/kg; 0.22- 0.03, 0.22-0.02 mg/kg and 13.13-6.20, 14.20-7.75 mg/kg between these values were found respectively. The micronutrient element of the samples for 2012 and 2013, Mn, P, Ca, Mg and K results; 22.36-6.32, 20.93-5.83 mg/kg; 5496.8-2216.7, 4388.0-2388.7 mg/kg; 3370.2-792.4, 1763.8- 833.7 mg/kg; 2229.2-1059.0, 2018.3-994.2 mg/kg; 7669.8- 3890.5, 7766.0-4044.1 mg/kg, were determined respectively

**Key words:** Environmental pollution, heavy metal, micronutrient element, sunflower seed, Thrace Region

#### [55] Geçgel, Ü., O. Dağlıoğlu, I. Yılmaz, M. Arıcı, K.G. Güner, D. Apaydın, G.Ç. Dülger, O. Ay, B. Ersöz, Y. Çotra, M. Taşan, 2017. Pirinç Kepeği Yağlarının Fiziko-Kimyasal Özellikleri ve Oksidatif Stabilitelerinin Belirlenmesi. Tekirdağ Ziraat Fakültesi Dergisi, 14(1): 93-102.

Bu çalışmada; stabilizasyon işleminin pirinç kepeği yağının fizikokimyasal özelliklerine ve yağ asidi bileşimine etkisinin belirlenmesi amaçlanmıştır. İki farklı pirinç kepeği çeşidi (Osmancık ve Opela); mikrodalga, etüv ve mikrodalga+etüv olmak üzere 3 farklı yöntemle stabilize edilmiştir. Pirinç kepekleri toplamda dokuz farklı stabilizasyon şartında muamele edilmiştir. Mikrodalga ile stabilizasyonda 600 W 1 dk, 600 W 2 dk, 600 W 3 dk; etüv ile stabilizasyonda 80°C'de 30dk, 100°C'de 30dk, 120°C'de 30dk, etüv ve mikrodalganın birlikte kullanıldığı kombine yöntemde ise 600 W 2dk mikrodalga+80°C'de 30dk etüv; 600 W 2dk mikrodalga+100°C'de 30dk etüv ve 600 W 2dk mikrodalga+120°C'de 30dk etüv uygulaması yapılmıştır. Stabilizasyon işleminden sonra pirinç kepek yağı solvent ekstraksiyon yöntemi ile elde edilmistir. Elde edilen pirinc kepeği yağlarına ait serbest yağ asitliği değeri, peroksit sayısı, yağ asitleri bileşimi, sterol kompozisyonu, iyot sayısı, sabunlaşma sayısı, özgül ağırlık değeri ve kırılma indisi değeri belirlenmiştir. Uygulanan stabilizasyon işlemleri sonucunda pirinç kepeği yağlarının serbest yağ asitliği, peroksit sayısı ve iyot sayısı değerlerinin azaldığı tespit edilmiştir (p<0,05). Stabilizasyon işlemi, pirinç kepeği yağının sabunlaşma sayısında istatistiksel açıdan önemli değişikliklere neden olmamıştır (p>0,05). Pirinç kepeği yağında en çok bulunan sterol β-sitosterol olarak tespit edilmiştir.

Anahtar kelimeler: Pirinç kepeği yağı, oksidatif stabilite, fiziko-kimyasal özellikler, stabilizasyon.

## [56] Gecgel, Ü., M. Yılmaz, D. Apaydın, H. Erol, 2017. Soğuk Pres Tekniği ile Elde Edilen Ceviz Yağının Fizikokimyasal Özelliklerinin Belirlenmesi. Bahçe Dergisi, 46 (Özel Sayı 2): 273-279.

Ceviz (*Juglans regia* L.), *Juglandaceae* familyasında yer alan, anavatanı Türkiye olan önemli bir meyvedir. 2015 yılı TUİK verilerine göre Türkiye'de yıllık 190.000 ton ceviz üretimi yapılmıştır. Ceviz yaklaşık %52–70 değerleri arasında yağ içermektedirler. Türkiye'deki cevizlerin bileşimi üzerine yapılan çalışmalarda; cevizin yaklaşık olarak %3.2–4.4 su, %12.0– 19.6 protein, %61.3–73.8 yağ, %1.8–2.3 kül ve %2.2–4.5 şeker ihtiva ettikleri görülmektedir. Ayrıca ceviz, Ca, P, Mg, Fe, Na, K gibi mineral maddeler bakımından zengin olduğu gibi A, B1, B2, B6, C vitaminlerini de içermektedir. Soğuk pres yağ teknolojisi ile üretilen yağlar son yıllarda tüketiciler tarafından gittikçe rağbet görmektedir. Bu teknoloji ile elde edilen yağlar

oldukça düşük sıcaklık derecelerine maruz kalmakta (40-50°C) ve yağ elde edilmesi

esnasında hiçbir şekilde solvent (çözücü) uygulaması söz konusu olmamaktadır. Bu çalışmada, ceviz yağı soğuk pres yöntemiyle elde edilerek ceviz yağının bazı fizikokimyasal özellikleri belirlenmiştir. Ceviz yağının iyot sayısı, sabunlaşma sayısı, serbest asitlik, peroksit sayısı değerleri sırasıyla 139.57, 191.039, %0.38 (oleik asit cinsinden), 5.24 meqO<sub>2</sub>/kg olarak tespit edilmiştir. Ceviz yağının yağ asitleri bileşimi değerlendirildiğinde; palmitik asit %7.10, stearik asit %4.58, oleik asit %26.50, linoleik asit %50.77, linolenik asit %11.05 olarak tespit edilmiştir.

Anahtar kelimeler: Ceviz, ceviz yağı, soğuk pres yöntemi, fizikokimyasal özellikler, yağ asitleri bileşimi.

### [57] Gültaş, H., A.H. Orta, Y. Ahi, 2017. A Perspective to Wastewater Legislation in European Countries and Turkey.

Factors such as intense industrialization, population growth, pollution due to the resulting over-consumption, ill-judged approaches to water policy and water management, inefficient irrigation techniques and global climate change increase the competition for water resources even more day by day. This entails the use of alternative water resources. In many countries, as well as in Turkey, the emphasis placed on the use of treated wastewater is growing. In its worldwide projections until the year 2030, United Nations' water-related goals for sustainable development are to achieve the reuse of water in greater quantities and to increase the use of safe treated wastewater. According to the model developed for the potentials of reusing wastewater of European countries, Turkey ranks as the 4th among 31 countries in the projection for the year 2025. In the relevant legislation in our country, there are parts that encourage the use of treated wastewater in areas as irrigation water. Although there are some serious obstacles against the reuse of water in Europe, European countries have started updating the legislation and seeking ways to increase the safe reuse of wastewater through intense efforts, especially during the years 2014-2016, for it are known that safe and healthy reuse of water can be provided in other areas. In this study, the legal legislation and operation concerning the reuse of wastewater both in our country and in European countries is evaluated. It is aimed to present the approaches toward the reuse of wastewater in both their positive and negative aspects.

Key words: Legislation, water recycling, water pollution regulations, projections

## [58] Gür, M., M. Altın, C. Şen, M.L. Özdüven. 2017. The Changes of Chemical Content of Natural Pastures with Different Using History during Growing Season. Tarım Bilimleri Dergisi, Cilt 23, sayı 2, 276-284.

This research was carried out on enclosured, grazed and abandoned pastures in Karahisarli village in the province of Tekirdağ for two years (2010 and 2011). The measurements were taken on four line in each of four designated sampling areas on the pastures. The forage samples were taken between 30 March and 15 July for 15-days intervals. According to average of the two year, the ratio of crude protein, crude fat, crude ash content were found as 10.93 %, 1.78 % and 7.71 % on enclosured pastures, 9.46 %, 2.03 % and 7.86 % on grazed pastures and 8.55 %, 1.69 % and 8.55 % on abandoned pastures, respectively. Between March and July, samples collected for 15-days intervals indicated that the highest ratio of crude protein was determined on 30 April on grazed pastures (10.86 %), on 15 May on enclosured pastures (17.12 %) and on 15 April on abandoned pastures (14.92 %). ADF and NDF ratios which shows digestibility of feed were found inenclosured range as 38.28 % and 49.68 %, in the grazed range as 36.92 % and 51.77 %, on abandoned range as 35.84 % and 50.93 %, respectively.

Key words: Pasture; Nutrient contents; Crude protein; ADF and NDF.
## [59] Hasturk Sahın, F., T. Aktas, D.D. Altan, F. Eryılmaz Acıkgoz, 2017. Effects of Different Drying Techniques on Drying Characteristics and Some Quality Attributes of Sorrel (*Rumex Acetosa* L.) Oxidation Communications. 40: 345–358.

This research aimed to determine the effect of different drying methods on changes of drying behaviours and some quality parameters (dry matter, colour, water activity) of sorrel (*Rumex acetosa* L.) leaves. For this purpose, three drying methods were applied for sorrel namely, convective hot air drying using tunnel type dryer, open sun drying and shadow drying. Hot air drying experiments of plants were performed at three drying temperatures that were 40, 50, 60 °C and at two air velocities that were adjusted as 1 and 2 m/s. Drying process took 3–17 h in hot air dryer depend on air temperature and air velocity, 50 h in open sun drying and 80 h in shadow drying. The colour parameters for the colour change of the sorrel leaves were quantified using the CIE L\*, a\*, b\* system. The brightness (L\*) values of dried sorrels were determined lower than those values of the fresh samples. Redness (a\*) values of all dried samples were found higher than those values determined for fresh samples. Yellowness (b\*) values decreased for all drying applications. This result shows that the yellow colour tone decreased in the all dried sorrel samples. Water activity (aw) value decreased for all dried samples.

Key words: Sorrel (Rumex acetosa L.), sun drying, shadow drying, convective hot air drying.

### [60] Işık, R., G. Bilgen, N. Koşum, Ç. Kandemir, T. Taşkın, 2017. Polymorphism in Exon 7 of $\beta$ - Lactoglobulin ( $\beta$ -LG) Gene and Its Association with Milk Yield in Saanen Goats. Journal of Tekirdağ Agriculture Faculty.

 $\beta$ -Lactoglobulin ( $\beta$ -LG) is one of milk protein and has important function on technological properties of milk such as cheese making. The relations between whey protein genes and milk yield/ composition have been investigated in previous researches.  $\theta$ -LG can be utilized as a candidate gene for selection and breeding programs to increase milk yield and protein quality. The aim of this study is to investigate the  $\beta$ -LG gene polymorphism and relation between  $\beta$ - LG genotypes and milk yield. In this study, a total of 74 purebred Saanen goats originated from Australia were used to detect polymorphism with PCR-RFLP method. Sacli digestion in 427 bp of  $\beta$ -LG exon 7 (GenBank: Z33881.1) was revealed. Two alleles (S1, S2) and 3 genotypes (S1S1, S1S2, S2S2) were determined in  $\beta$ -LG/ Sacll locus. The  $\beta$ -LG/S1S1 genotype with only one restriction site revealed two bands (347 bp and 80 bp). The  $\beta$ -LG/S1S2 heterozygote genotype generated three bands (427 bp, 347 bp and 80 bp). An undigested product, 427 bp was  $\beta$ -LG/S2S2 genotype which was due to a single nucleotide substitution at position g.4601G>A. S1S2 with genotype frequency (43.3%) higher than the other genotypes. S1 allele frequency was determined predominantly. Deviation from Hardy-Weinberg equilibrium was not identified in the Saanen breed. In *B-LG/ SacII* locus, a significant relationship was not found between genotypes and lactation milk yield. However,  $\beta$ -LG/ S1S1 genotype was observed to have higher lactation milk yield. It is concluded that  $\beta$ -LG gene could be used as a molecular marker for economic traits such as milk yield and composition.

**Key words:** *β-LG*, PCR-RFLP, Saanen, SNP, *SacII*, milk yield.

#### [61] Ivgin Tunca, R., D. Oskay, S. Erginoglu, 2017. Monitoring of Nosema Infections Levels During Hygienic Honey Bee Breeding Programs in Turkey. Kafkas Universitesi Veteriner Fakultesi Dergisi, Volume: 23 Issue: 4 Pages: 521-526.

The objective of this study was to follow Nosema infection levels and species under hygienic bee breeding program for resistance to American foulbrood (*Paenibacillus larvae*). The incidence of Nosema parasite infection levels and detection of the species of Nosema were evaluated in 5 periods during 2012-2014 for Mugla honey bees known as an ecotype of Apis mellifera anatoliaca in the hygienic bee breeding program. During the hygienic breeding program, no organic or synthetic chemical treatments were applied against nosemosis in the colonies. The incidences of Nosema spores were followed in 123 colonies at five time periods. Although the correlations were negative for between sporestemperature (r = -0.115; P> 0.01) and positive for spores-humidity (r = 0.013; P> 0.01) but not significant statistically. Molecular diagnosis showed that only N. ceranae spores were detected from samples during 5 seasons. In conclusion, nosema infection levels decreased under hygienic bee breeding programme but further monitoring studies should be performed in order to decide whether the nosema spores decrease due to hygienic behavior. To our knowledge, this is the first long-term and unique study for observation of Nosema during breeding program in Turkey so far.

Key words: Nosema ceranae, Nosema apis, Breeding program, Mugla ecotype, Turkey.

#### [62] Karaman, M.R., M. Turan, A. Horuz, M.Ş. Tüfenkçi, A. Adiloğlu. 2017. Interactive Effects of Boron and Humic Acid on the Growth and Nutrient Status of Maize Plant (*Zea mays* L.). International Journal of Plant and Soil Science, 19(2): 1-9.

Development of the methods decreasing boron (B) toxicity to agricultural crops is a high priority. The use of alternative organic material sources such as leonardite based humic substances (H.A.) could be used to control B balance in soils. For this aim, a pot experiment, based on a completelyrandomized design with three replications, was conducted using the soil of calcareous usthochrepts. In the research, maize variety of ADA-9510 (Zea mays L.), which was obtained from Central Anatolia Region, was used. In the experiment, leonardite based humic substance (12 % humic acid) at the levels of 0, 60, 120 mg kg<sup>-1</sup> were used as humic material source, which was developed by Turkish Coal Corporations Foundation. Boron fertilizer at the levels of 0, 10, 20 and 30 mg B kg<sup>-1</sup> were used in the form of H3BO3. The plants were harvested after 56 days, and dry weights in top of maize plants were recorded. Macro and micro nutrient concentrations of the plants were also determined. Dry matter yields of maize plants were significanly affected by the applications of H.A. and B fertilizer, whereas dry matter yield was decreased by the application of higher B at the rate of 30 mg kg<sup>-1</sup> without H.A application. Thus, results of this study clearly showed that there was a close sinergism between the H.A. and B applications with regard to B toxicity tolerance of maize plants. The maximum dry matter yields of 50.71 and 51.09 g pot<sup>-1</sup> were obtained by the applications of 20 mg B kg-1 together with H.A. applications at the rates of 60 and 120 mg kg<sup>-1</sup>, respectively. Depending on H.A. applications, B contents of maize plants varied between 32.18 and 35.02 mg kg<sup>-1</sup>.

Key words: Maize plant, humic acid, leonardite, boron fertilizer, boron toxicity.

#### [63] Karık, Ü., A.C. Sağlam, 2017. Tekirdağ Ekolojik Koşullarında Anadolu Adaçayı (*Salvia fruticosa* Mill.) Popülasyonlarının Verim ve Kalite Özelliklerinin Belirlenmesi. Tarla Bitkileri Merkez Araştırma Enstitüsü Dergisi, 26(2): 203–215

Bu çalışmada Marmara Bölgesi Florası'nda bulunan Anadolu adaçayı (*Salvia fruticosa* Mill.) popülasyonlarının verim ve kalite özelliklerini belirlemek amaçlanmıştır. Floradan toplanan 10 adet Anadolu adaçayı (*Salvia fruticosa* Mill.) popülasyonuna ait tohumlar çalışmada materyal olarak kullanılmıştır. Araştırmada popülasyonların yeşil herba verimi (kg/da), kuru herba verimi (kg/da), yeşil yaprak verimi (kg/da), kuru yaprak verimi (kg/da), uçucu yağ oranı (%), ve uçucu yağ bileşenleri (%) saptanmıştır. Çalışmada ilk yıl kuru yaprak verimi ve uçucu yağ oranı sırası ile 439.86-691.62 kg/da ve % 3.26-4.34 arasında, ikinci yıl 507.74-986.70 kg/da ve % 2.53-3.88 arasında gerçekleşmiştir. Uçucu yağın ana bileşenleri 1,8cineole, camphor ve β-caryophyllene olarak belirlenmiştir. Yıllara ve popülasyonlara göre 1,8-cineole oranı % 23.2-37.3, camphor oranı % 8.1-29.1 ve β-caryophyllene oranı % 2.8-14.8 arasında değişim göstermiştir.

Anahtar kelimeler: Marmara Bölgesi, Anadolu adaçayı, Salvia fruticosa Mill., verim, kalite.

#### [64] Kayişoğlu, B., T. Aktaş, M.R. Durgut, 2017. Biodiesel Production from waste Oil with Micro-Scale Biodiesel System Under Laboratory Condition, International Journal of Engineering Research and Development, 13(1): 11-18.

The aim of this project is to produce biodiesel from waste oil. The use of vegetable oils as diesel fuel started with the invention of diesel engines in the 1900s and is also common in many countries today. The fact that the oils used in biodiesel production are also an important input of the food industry is a limiting factor in production. For this reason, it is aimed to produce biodiesel from waste oil which can not be assessed in food production in this study. The most important contribution of the study to biodiesel researches is the establishment of a small-capacity biodiesel unit in laboratory conditions. The waste oils from the food production facilities of Namık Kemal University (NKU) have been collected and biodiesel has been produced using two different experimental methods. The analyses that determine the quality of the biodiesel samples have been carried out by Energy Agriculture Research Center of Black Sea Agricultural Research Institute in Republic of Turkey Ministry of Food, Agriculture and Livestock. As a result of the research, it has been determined that the biodiesel fuel obtained by the B-1 method using KOH as a catalyst conforms to the standards and can be used with confidence in diesel engines.

Key words: Biodiesel, Biomass, Transesterification, Biofuels, Waste Oil.

### [65] Kocaman, İ., C. Kurç, 2017. Evaluation of Climatic Control Units Sufficiency for Water Buffalo Barns in Thrace Region with Regard to Animal Welfare, Journal of Scientific and Engineering Research, 4(10): 396-400.

This research was carried out to evaluate the sufficiency of existing ventilation and lighting systems of the water buffalo barns in Thrace region of Turkey with regard to animal welfare. As a result of this research, it was found that 61.3 % of the barns had a ventilation chimneys, total cross-sectional areas of the ventilation chimneys varied among the barns and ranged from 0.25 to 5.2 m<sup>2</sup>. Based on animal welfare, this value should be between 0.45 and 11.8 m<sup>2</sup> according to barn capacity. The window areas for natural lighting had great difference among the barns and the percentages of window area depending on barn floor area were calculated between 0.66 and 4.80 %. When the region's climatic characteristics and animal welfare are taken into consideration, this value should be at least 7.5 % of the barn floor area. 94 % of the barns had artifical lighting but the artifical lighting values per unit floor area (1 m2) were found between 0.2 - 2.3 W. This value should be in the range of 4-6 W/m<sup>2</sup>.

Keywords: Water buffalo farms, barn, ventilation, lighting, animal welfare.

#### [66] Kocaman, İ., E.K. Gurcan, C. Kurç, M.İ. Soysal, 2017. Determination of Body Measurements, Live Weights and Manure Production of Dairy Anatolian Water Buffaloes in the Istanbul Region, Journal of Scientific and Engineering Research, 4(4): 62-66.

This study was carried out in order to characterise live weights and morphometric properties of the Anatolian water buffaloes, and determine to their manure productions depending on live weights which compose basic data for waste management in the water buffalo enterprises according to different seasons. Morphometric properties such as withers height, rump height, body length, chest width and chest circumferencewere measured by measuring rod, compass and measuring tape in order to determine body measurements. Electronic weighing scale was used to measure live weight of the Anatolian water buffaloes. The cell methodwere implemented to determine manure production of the Anatolian water buffaloes. At the result of this study, withers height, rump height and chest circumference of the Anatolian water buffaloes were measured between 130–148 cm, 134–159 cm and 192–223 cm respectively. Also, the average of withers height, rump height and chest circumference of the Anatolian water buffaloes were found as 137.1 cm, 146.1 cm and 207.3 cm respectively. The live weights varied between 427 and 596 kg. The manure production as a percentage of live weight varied between 7.4 and 8.6 % depending on seasons.

**Key words:** Anatolian water buffaloes, live weights, body measurements, manure production.

## [67] Koc, F., S. Ozturk Aksoy, A. Agma Okur, G. Celikyurt, D. Korucu, M.L. Ozduven, 2017. Effect of Pre-fermented Juice, *lactobacillus plantarum* and *lactobacillus buchneri* on the Fermentation Characteristics and Aerobic Stability of High Dry Matter Alfalfa Bale Silage. The J. Anim. Plant Sci. 27(5): 1426-1431.

The experiment was conducted to investigate the effects of pre-fermented juice (PFJ), Lactobacillus plantarum and Enterococcus faecium (LP), and Lactobacillus buchneri (LB) on the fermentation characteristics and aerobic stability of alfalfa bale silage. The herbage was wilted to 602.3 g/kg dry matter (DM). Treatments of alfalfa silage included (1) control; (2) PFJ:  $2.6 \times 10^5$  colony-forming units (cfu/g); (3) LP:  $1.0 \times 10^6$  cfu/g Lactobacillus plantarum and Enterococcus faecium (Pioneer 1188, USA) and (4) LB: 1.0×10<sup>6</sup> cfu/g Lactobacillus buchneri (Pioneer 11A44) and baled, 150 days. At the end of the ensiling period, three bales of each treatment group were opened and chemical and microbiological analyses were made. Consequently, lactic acid bacteria inoculants and PFJ increased the quality of alfalfa silages. In terms of aerobic stability, PFJ and LP used had a positive effect on CO<sub>2</sub> concentrations coliform bacteria and yeast. Also, LB inoculant decreased NDF content and increased in vitro organic matter digestibility of silages. A total number of 15 representatives of lactic acid bacterial strains were retained and among them 3 dominant genus were identified as Lactobacillus plantarum (46.66 %), Lactobacillus pentosaceus (33.33 %) and Lactobacillus collinoides (20,00 %). It can be concluded that PFJ can be used as silage additive alfalfa bale silage in farm condition.

**Key words:** Alfalfa bale silage, identification, *in vitro* organic matter digestibility, lactic acid bacterial inoculants, PFJ (pre-fermented juice).

# [68] Konukcu, F., B. Akman, 2017. The Effects of Different Irrigation Levels and Mulching on the Yield and Quality Components of Young Grafted Vine of Tekirdag Seedless Variety. Journal of Scientific and Engineering Research, 4(11): 195-203.

The objective of this research, carried out in Tekirdağ Viticulture Research Institute, was to investigate the effect of different irrigation level s and mulching on the yield and quality of young grafted vine of Tekirdag Seedless variety. Cuttings of Tekirdag Seedless gape variety grafted on Kober (5BB) rootstock was used. Drip irrigation method was applied to the mulched (M) and non mulched (NM) pilots when 30 % (I30), 50 % (I50) and 70 % I70) of the plant available water was consumed in a Randomized Complete Block Design in split plots with 3 replications. Seedling efficiency, main shoot length, main shoot thickness, main root number, shoot and root growth levels were evaluated. Total irrigation water amount in MI30 treatment was 279.0 mm and 13.3 %, 17.2 %, 23.7 %, 27.6 % and 32.6 % less than that of the MI50, MI70, NMI30, NMII50 and NMI70 treatments, respectively. As for the seedling quality, considering main shoot length, main shoot thickness, main root number, the level of shoot growth and root growth level, MI30 treatment gave the best results, which was followed by MI50. As a conclusion, frequent irrigation in small amounts is suggested to meet water demand.

Key words: Irrigation Program, Mulch, Vine, Seedling Quality and Yield, Tekirdag.

## [69] Konukcu, F., S. Albut, B. Alturk, 2017. Land use/land cover change modelling of Ergene River Basin in western Turkey using CORINE land use/land cover data. Agronomy Research 15(2): 435–443, 2017.

Land use planning is a useful tool to find a balance among the competing and sometimes contradictory uses in order to achieve food security, economic growth, energy supply, nature conversation and other objectives. In this study, modelling land use/land cover change of Ergene River Basin in Western Turkey between the years of 1990 and 2012 was investigated. The CORINE land use/landcover data and ArcGIS software were used to detect land use/land cover change between the years, 1990–2000, 2000–2006 and 2006–2012. As a results, the artificial area (including settlement area and industrial zone) and water bodies increased by 39.4 % and 47.9 %, due to industrial development and new reservoirs construction, respectively, while wetlands and agricultural areas decreased by 1.1 %, 1.0 % and 32.1 %, respectively. The change in the agricultural areas into industrial area corresponds to about 13,000 hectares, which is considered threatening not only natural resources but also food security since the basin has the most productive arable land of Turkey.

Key words: Land use/land cover change, CORINE, Ergene, Turkey.

#### [70] Konyalı, S., 2017. Sunflower Production, Consumption, Foreign Trade and Agricultural Policies in Turkey. Social Sciences Research Journal. Vol. 6, pp. 11-16.

Sunflower is one of the most important oilseed crops in Turkey and in the world. In thye world, 11 % of crude vegetable oil production is supplied by sunflower. Cultivated sunflower (Helianthus annus L.) is one of the principal sources of edible oils produced by annual field crops in Turkey. The total production of sunflower is 1.670.716 tons in Turkey. The average yield of sunflower was 410 kg/da in 2016 (Anonymous, 2016), despite changes in the regions. Turkey which has 4 % ratio of sunflower production is in not sufficient even for domestic consumption. In Turkey, there is a continuous increase in consumption of vegetable oil, which is the result of rapid population and consequently consumption per capita, the oil production cannot meet the consumption, and the increasing oil deficit is eliminated through imports. Turkey imports sunflower seeds, processed and raw sunflower oil for many years. Therefore, it is necessary to increase the sunflower production areas and yield. Sunflower planted areas and production was decreasing in the last years due to low prices mainly both in the Turkey and the world. In addition, increasing of the agricultural input prices of sunflower is higher than sunflower intervention prices in Turkey. It is a problem for producers because they are affecting negatively. The oilseed production is supported by the government with premium applications, input subsidies and tariff quota applications. Within the scope of agricultural subsidy, premium support was given to the oil sunflower the same as 0.3 TL/kg for the years 2014/2015 and 2015/2016. It is necessary to increase the premium system to provide its continuity. Therefore, sunflower production should be promoted by applying more consistent policies in Turkey. The purpose of this study is to examine the economic problems in sunflower farming and to propose solutions by evaluating the structure of the Vegetable Oil Industry and existing agricultural policies in Turkey.

**Keywords:** Sunflower production, vegetable oil, agricultural support, agricultural policy, Turkey.

#### [71] Korkutal, İ., E. Bahar, S. Bayram, 2017. Farklı Toprak İşleme ve Yaprak Alma Uygulamalarının Syrah Üzüm Çeşidinde Tanede Metabolik Birikim ve Su Stresi Üzerine Etkileri. Selçuk Journal of Agriculture and Food Sciences, 31(3): 125-135.

Tekirdağ koşullarında yetiştirilen Syrah üzüm çeşidinde farklı toprak işleme ve yaprak alma uygulamalarının su stresi ve tanede metabolit birikimi üzerine etkileri incelenmiştir. Toprak işleme uygulamaları; korumalı toprak işleme (KTİ) ve korumalı toprak işleme+geleneksel toprak işleme (KTİ+GTİ) ve geleneksel toprak işleme (GTİ) olmak üzere 3 farklı şekilde yapılmıştır. Yaprak alma uygulamaları da; kontrol (AY+KY) (ana yaprak ve koltuk yaprakların omca üzerinde bırakıldığı uygulamalar) AY ana yaprakların omca ve KY ( koltuk yaprakların omca üzerinde bırakıldığı uygulamalar) olmak üzere 3 farklı şekilde yapılmıştır. Denemede; iklim verileri ve fenolojik gelişme, yaprak su potansiyelleri, şıra özellikleri [SÇKM, total asidite, PH, seker konsantrasyonu, tanedeki seker miktar, toplam (L-) malik asit miktarı, toplam antosiyanin miktarı, toplam polifenol indeksi (TPİ)], omca başına verim ve olgunluk indisleri (pH<sup>2+</sup> SÇKM ve şeker / titre edilebilir asit) incelenmiştir. Buna göre; KTİ+GTİ uygulamasının yaprak su potansiyelini ve verimi artırdığı; SÇKM, şeker konsantrasyonu, toplam antosiyanin miktarını ise azalttığı görülmüştür. KTİ uygulaması ise yaprak su potansiyelini ve verimi azaltmış; SÇKM, toplam asitlik, şeker konsantrasyonu, toplam antosiyanin miktarı ve TPİ artırmıştır. Yaprak alma uygulamalarında ise AY uygulaması verim değerini azaltırken; toplam asitliği, TPİ ve malik asit miktarını artırmıştır. KY uygulamasının ise SÇKM, şeker konsantrasyonu, toplam antosiyanin miktarını artırdığı; öte yandan şıra pH'ını azalttığı tespit edilmiştir. Sonuç olarak Tekirdağ koşullarında yetiştirilen kırmızı şaraplık üzüm çeşidi Syrah'ta tanede metabolit birikimi üzerine olumlu etkileri olduğundan toprak işleme uygulamalarından KTİ uygulaması, yaprak alma uygulamalarında ise Kontrol (AY+KY) uygulaması önerilebilir.

Anahtar Kelimeler: Syrah, yaprak su potansiyeli, toprak işleme, yaprak alma, metabolit birikimi.

#### [72] Kök, D., 2017. Assessment of Electrochemical Attribute and Monoterpene Content of Twelve Aromatic Grape Cultivars (*V. vinifera* L.) Grown Under the Ecological Conditions of Northwestern Turkey. Oxidation Communications, 40 (I-II): 557-564.

Electrochemical attributes of fruits are important for quality assessment in various fruit species and also grapes. Grape-derived glycosides, which are also partly prominent cultivar grape aroma are considered to be the primary precursors for table and wine grape aroma. These quality characteristics of berries may depend on cultivar, ecological conditions and viticultural practices used in vineyard. In present study, results shown great quantitative differences in the berry chemical properties of grape cultivars. The levels of free and potentially monoterpenes in juice from cv. Muscat Ottonel were respectively the highest (3.443 and 9.968 mg/l), while cv. Merlot had the lowest amount of levels of free and potentially monoterpenes (0.793 and 1.965 mg/l). In terms of p-values, it was seen in cultivars that cv. Merlot had the lowest p-value (108.73  $\mu$ W) and the highest value was obtained from cv. Muscat Ottonel (141.77  $\mu$ W). As a result, muscat grape cultivars had intensive aroma characteristics in terms of monoterpene content, but cv. Merlot had the lowest p-value, meaning it has higher quality attribute in terms of other quality attributes.

Key words: V. Vinifera L., grape quality, electrochemical attributes, p-value, monoterpenes.

### [73] Kök, D., 2017. Electrochemical Properties and Biochemical Composition of cv. Shiraz Wine Grape (V. *vinifera* L.) Depending on Various Dose and Application Time of Foliar Microbial Fertilizer Treatments. Erwerbs-Obstbau, 59: 263-268.

Utilization from bio fertilization is well known a considerable tool to improve the yield and fruit quality of various crop fruits through the increasing emphasis on maintain of soil health, minimize environmental pollution and decrease the use of chemical fertilization. In this study, in order to improve wine grape quality features of cv. Shiraz, four different doses of foliar microbial fertilizer, including 0, 1000, 2000 and 3000 ppm were applied at two different terms as Term I (mostly; pre-bloom applications) and Term II (mostly; post-bloom applications). However, there were no influences of application terms of foliar microbial fertilizer treatments; treatment doses had considerable effects on yield and quality parameters. The lowest p-values, meaning the highest berry quality, from doses of foliar microbial fertilizer were obtained from 2000 ppm (105.08  $\mu$ W), 1000 ppm (110.40  $\mu$ W), 3000 ppm (112.97  $\mu$ W) and 0 ppm (119.58  $\mu$ W). Comparing the applications of foliar microbial fertilizer, it was observed that doses of 2000 ppm (3155.56 mg/kg), 1000 ppm (3000.92 mg/kg) and 3000 ppm (2530.19 mg/kg) exhibited higher total phenolic compounds content when compared with 0 ppm treatment (2206.97 mg/kg). Berries from grapevines applied with the doses of 2000, 1000 and 3000 ppm foliar microbial fertilizer respectively shown higher total anthocyanin content such as 1230.19, 1160.85 and 865.86 mg/kg compared to 0 ppm (637.37 mg/kg). As a result, research the findings indicated that 2000 and 1000 ppm doses of foliar microbial fertilizer was obviously effective on wine grape quality features of cv. Shiraz in terms of electrochemical property, total phenolic compounds content and total anthocyanin content.

**Key words:** Wine grape, foliar microbial fertilizer, p-value, phenolic compounds, anthocyanins.

### [74] Kök, D., E. Bal, 2017. Compositional Differences in Phenolic Compounds and Anthocyanin Contents of Some Table and Wine Grape (V. *vinifera* L.) Varieties From Turkey. Oxidation Communications, 40 (2): 648-656.

In present study, total phenolic compounds content and total anthocyanin content of colored and white grapes, consisting of four table grape and four wine grape varieties grown in Turkey were evaluated. Amounts of these bioactive compounds were determined by different spectrophotometric methods. Study results showed that total phenolic compounds content and total anthocyanin content varied depending on grape varieties and it was observed that wine grape varieties had higher phenolic compounds content and total anthocyanin content varied soluble compounds content and total anthocyanin content varieties. In the research, total soluble solids contents were between 16.62 and 23.27% in Horoz Karasi and Merlot grape variety. The phenolic compounds contents ranged from 192.52 to 3550.37 mg GAE/kg fw for Tekirdag Misketi and Merlot variety. However, the lowest total anthocyanin content in colored grape varieties was recorded for Horoz Karasi variety (627.18 mg GAE/kg fw), when the highest total anthocyanin content was 1509.38 mg GAE/kg fw for Merlot variety. It was determined that table and wine grape varieties from present study contained high amount phenolic compounds and anthocyanin, which were important bioactive compounds for human health.

Key words: Table grape, wine grape, phenolic compounds, anthocyanin, quality.

### [75] Kök, D., E. Bal, 2017. Chemical and Non-Chemical Thinning Treatments Influence Berry Growth and Composition of cv. Shiraz Wine Grape (*V. vinifera* L.). Erwerbs-Obstbau, 59:269-273.

Yield management is important subject in modern grape growing and winter pruning and cluster thinning treatments were used for yield control. Standard cluster thinning is generally labor intensive and expensive method and grape growers try to new methods, which are alternative to cluster thinning for reducing berry set. The goal of the present research was to investigate the effects of chemical thinning treatments such as ethephon (ETH), gibberellic acid (GA3), naphthalene acetic acid (NAA) and non-chemical thinning treatments such as early leaf removal (ELR) and standard cluster thinning (SCT) on decreasing grape yield and enhancing berry composition of cv. Shiraz. In this study, percentages of berry set of cv. Shiraz were decreased by both chemical and non-chemical thinning methods shown certainly significant differences in berry composition of cv. Shiraz. Eventually, the best results in improved quality characteristics of cv. Shiraz were obtained from ELR treatment and treatments of ELR, ETH, GA3, NAA and SCT successively resulted in considerable enhancements in quality attributes of cv. Shiraz.

**Key words:** *V. vinifera* L., yield management, crop removal, chemical and non-chemical thinning.

#### [76] Kök, D., E. Bal, 2017. Enhancing Skin Color and Phenolic Compounds of cv. Red Globe Table Grape (*V. vinifera* L.) Utilizing of Different Preharvest Treatments. Erwerbs-Obstbau, Doi.org/10.1007/s.10341-017-0352-8.

Foliar sprayings of grapevines with different plant growth regulators or chemicals were evaluated for determining grape skin color and phenolic compounds content and enhancing table grape quality characteristics of cv. Red Globe in this study. Grape skin color is one of the most important quality factors for table grapes. Sometimes, it can be viewed difficulties in skin coloration of some red table grape cultivars grown in various grape growing regions of the world and poor skin coloration of red table grapes is a frequent trouble that reduces production efficiency. Despite the fact that it is utilized from some canopy management practices; plant growth regulators, chemicals with plant hormones and hormone-like compounds as active ingredients can be recently used for improving anthocyanin accumulation in growing of some table grape cultivars. In current study, nine different preharvest treatments were used for improving quality parameters of cv. Red Globe, including 1-Control (C), 2-300 mg/L Abscisic acid (ABA), 3-300 mg/L Ethephon (Eth), 4-30% Ethanol (EtOH), 5-300 mg/L ABA + 300 mg/L Eth, 6-300 mg/L ABA + 30% EtOH, 7-300 mg/L Eth + 30% EtOH, 8-300 mg/L ABA + 300 mg/L Eth + 30% EtOH and 9-Cluster tip cutting (CTC). Although the best results from total phenolic compounds content and total anthocyanin content of cv. Red Globe were obtained in CTC treatment in all preharvest treatments, Eth+ETOH treatment especially gave rise to the best results among the preharvest chemical treatments.

**Key words:** *Vitis vinifera* L., table grape, coloration defect, preharvest treatment, plant growth regulators.

## [77] Kök, D., E. Bal, 2017. Leaf Removal Treatments Combined With Kaolin Particle Film Tehnique From Different Directions Od Grapevine's Canopy Affect The Composition of Phytochemicals of cv. Muscat Hamburg (*V. vinifera* L.). Erwerbs-Obstbau, DOI 10.1007/s.10341-017-0337-7.

In some viticulture regions of the world, high temperature and irradiance can negatively affect the grapevine growth and grape quality. Particle film technology is a remarkable tool, leading to decrease in environmental stress conditions for grape production. In current study, leaf removal and kaolin particle film treatments were performed on east and west sides of grapevine's canopy of cv. Muscat Hamburg and five different treatments were respectively evaluated: Control (C), leaf removal treatment from east side of grapevine's canopy (LR-E), leaf removal treatment from east side of grapevine's canopy plus kaolin particle film treatment (LR-E+K), leaf removal treatment from west side of grapevine's canopy (LR-W), leaf removal treatment from west side of grapevine's canopy plus kaolin particle film treatment (LR-W+K). In present research, the higher total phenolic compounds contents were measured in LR-W (2010.56 mg GAE/kg fw), LR-W+K (2006.42 mg GAE/kg fw), LR-E (1925.58 mg GAE/kg fw), LR-E+K (1913.15 mg GAE/kg fw) and C treatment (1851.46 mg GAE/kg fw). Furthermore, means of higher total anthocyanin content were obtained from LR-W (737.68 mg GAE/kg fw), LR-W+K (736.16 mg GAE/kg fw), LR-E (706.50 mg GAE/kg fw), LR-E+K (701.94 mg GAE/kg fw) and C treatment (679.12 mg GAE/kg fw). Consequently, it was observed that both LR-W and LR-W+K treatments had especially advantages in terms of increasing grape quality attributes of cv. Muscat Hamburg; were followed by LR-E and LR-E+K treatments.

**Key words:** *V. Vinifera* L., leaf removal treatment, kaolin particle film treatment, canopy direction, grape quality.

### [78] Köycü, N.D., J.E. Stenger, H.M. Hatterman-Valenti, 2017. Cold Climate Wine grape Cultivar Sensitivity to Sulfur in the Northern Great Plains Region of the United States. Horthtechnology, 27 (2).

Elemental sulfur is commonly applied for powdery mildew (Erysiphe necator) protection on winegrape (Vitis sp.). The product may be used in a diversified, integrated disease management system to help prevent fungicide resistance to products with other modes of action. Additionally, sulfur may be used as a control option in organic systems. Applications of sulfur have been known to cause phytotoxic injury to susceptible winegrape cultivars, particularly those stemming from fox grape (Vitis labrusca) parentage. To improve recommendations to producers in the northern Great Plains region of the United States, a comparison of injury incidence and severity, as well as effects on yield characteristics was undertaken for 13 regional cultivars exposed to three sulfur rates (0, 2.4, and 4.8 lb/ acre a.i.) at a North Dakota State University Research Station near Absaraka, ND. Overall, four cultivars (Bluebell, Baltica, Sabrevois, and King of the North) of the 13 cultivars tested showed phytotoxic symptoms. Injury severity and incidence of these cultivars differed between years and across rates. 'Bluebell' showed consistent and severe sulfur injury symptoms. Injury to the other three susceptible cultivars tended to vary by the given environment, with King of the North generally showing the lowest injury response. Injury symptoms were not found to be associated with the overall yield or cluster weight. Results suggest that alternative spray programs that exclude sulfur-based fungicides should be recommended for 'Bluebell', 'Baltica', 'Sabrevois', and 'King of the North', whereas sulfurbased fungicides may be applied to 'Alpenglow', 'ES 12-6-18', 'Frontenac', 'Frontenac Gris', 'La Crescent', 'Marquette', 'Somerset Seedless', 'St. Croix', and 'Valiant'. Observations on fruit ripening in 2014 suggest that future research is needed to determine if a reduction of fruit quality may occur in some seasons with repeated sülfür applications or with successive annual sülfür applications for susceptible cultivars if used in an organic production system.

Key words: Grapevine, leaf necrosis.

#### [79] Kucukkoyuncu, E., A. Agma Okur, E. Tahtabicen, F. Korkmaz, H.E. Samli, 2017. Comparing Quality of Free Range and Battery Cage Eggs. European Poultry Science, 81, ISSN 1612-9199, DOI: 10.1399/eps.2017.197.

Quality parameters of eggs from laying hens kept in free-range respectively battery cage systems were compared. Lohmann Brown laying hens (n = 75) from 24 to 31 wk of age were used in the study. Feed and water were available *ad libitum* for both systems. Lightning was applied via a photovoltaic system planned to benefit from solar energy for the free range system. Eggs were sampled at 14-day intervals and interior and exterior quality parameters were recorded. The study showed that hen age was much more influential than housing system on egg weight (P < 0.05). However, shell weight was found to be significantly higher at 28 weeks of age in free-range eggs (P < 0.05). The yolk colour of free range eggs were significantly lower than that of cage eggs (P < 0.001). It might be caused by colouring agents supplemented to the cage hen diet. On the other hand, yolks of free range eggs were significantly heavier. However, similar effects were not observed with regard to albumen.

Key words: Laying hen, free range, cage, egg quality.

## [80] Kurç, H.C., C.B. Şişman, 2017. The Prevention of Harmful gases and Odours Dispersion by Biofiltration in The Animal Farm, Agronomy Research 15(1), 219–224.

Animal farms are have to be controlled regarding to environmental issues beacuse of their waste's effects. Dispersion of harmful gases and odour is some most important effect of animal waste. Decomposition of animal waste may cause dispersion of harmful gases such as ammonia, methane, carbon dioxide, hydrogen sulfide etc. and odours. Harmful gases and odours impact on human and animal welfare negatively. Biofiltration is a technique used to prevent the dispersion of harmful gases and odour on animal farms. Especially some animal production types such as swine and poultry farms may cause great problem in terms of harmful gases and odour, so biofiltration has been seen as an effective method treating polluted air in these farms. The process of biofiltration is conducted based on biological degradation of pollutants. The bed materials such as litter, mulch and woodchips etc. are used in biofiltration about the biofiltration, its basic principles and usage on animal farms based on conducted researches.

Key words: Animal waste, biofilters, treatment, environmental problems.

## [81] Kutlu, İ., A. Balkan, K.Z. Korkut, O.Bilgin, İ. Başer, 2017. Evaluation of Reciprocal Cross Populations for Spike-Related Traits in Early Consecutive Generations of Bread Wheat (*Triticum aestivum* L.). GENETIKA, Vol. 49, No.2, 511-528.

Breeding effort on increasing grain yield of wheat will incessantly continue because it is indispensable product. Obtaining the genetic information such as genotypic variation, heritability, genetic advance is the fundamental components of these studies. It is important that the maternal effects are put forward throughout successive generations because of genotypic and/or environmental effects as far as variation. This research was conducted to investigate changes of reciprocal crosses throughout successive generations and determine selection criteria for high yield in early generations. For this purpose, the populations were analyzed with regard to genotypic and phenotypic variation coefficient, heritability, genetic advance and Unweighted Pair Group Method (UPGMA) cluster analysis for real crosses, reciprocals and all genotypes separately. According to the results, heritability and genetic advance values of traits investigated were highly varied throughout successive generations among real crosses, reciprocals and all genotypes. This finding indicated that non-additive gen effects or epitasis played a role in inheritance of all traits. Dissimilarity of crosses than their reciprocals indicated variation of successive generation. Dissimilarity value of each parent differed as generation progresses according to combination created. This condition suggested that there were maternal effects in this population throughout successive generations. Grain weight per spike, spike harvest index and spike density had high direct and indirect effects on the grain yield at all of three generations, it proved that these traits can be a selection criterion for early generations. Sana was the best parent and 'Bezostaja x Krasunia' and 'Krasunia x Pehlivan' were best performance in most of traits at all generations.

**Key words:** Cluster analyses, early generation, genotypic effects, reciprocal crosses, spike traits.

#### [82] Orcan, O.S., M. Kıvan, 2017. Pentatomidae (Hemiptera) Species on Fruit Trees in Saray District of Tekirdağ, Turkey. Global Journal of Advanced Research, 4(10): 293-300.

The study was coducted to determine the species of Pentatomidae (Hemiptera) found on fruit trees in the district of Saray in Tekirdağ, Turkey. Specimens were collected from Ayvacık, Büyükyoncalı, Küçükyoncalı and Sefaalan districts of Saray in between March-November during 2015-2016. As a result of study, 17 species belonging to the family of Pentatomidae was identified. Rhaphgaster nebulosa (Poda), Nezara virudula (Linnaeus) and Dolycoris baccarum (Linnaeus) were found the most abundant phytophagous species in the investigated area. Among the identified species, Picromerus bidens (Linnaeus) and Zicrona caerulea (Linnaeus) are predator species.

Key words: Apple, pear, walnut, plum, mulberry, morelli, Pentatomidae, Turkey.

### [83] Ozcan, M.M., F. Al Juhami, M. Gulcu, N. Uslu, U. Gecgel, 2017. Determination of bioactive compounds and mineral contents of seedless parts and sedds of grapes. South African Journal of Enology and Viticulture, 38(2): 212-220

In this study, phenolic compounds, minerals, total flavonoids, total phenolic contents and antioxidant activities of the seedless parts (pulp+skin) and seeds of table and wine grapes were determined. Also, the total oil, tocopherol contents and fatty acid composition of seed oils of table and wine grapes were investigated. The highest total phenolic content of the grape pulp was found in Trakya ilkeren (199.063 mg/100 g), while total flavonoid and antioxidant activity of the pulp was determined at a high level in Red Globe (6.810 mg/g, 90.948%). Antioxidant activity, and the total phenolic and flavonoid contents of grape seeds varied between 86.688 and 90.974%, 421.563 and 490.625 mg GAE/100 g, and 90.595 and 145.595 mg/g respectively (p < 0.05). Generally, the main phenolic compounds of all grape pulps and seeds were gallic acid, 3,4-dihydroxybenzoic acid, (+)-catechin and 1,2-dihydroxybenzene. In addition, the oil contents of grape seeds ranged from 5.275 (Çavuş) to 13.881% (Çınarlı karası) (p < 0.05). The major fatty acids of grape seed oils were linoleic, oleic and palmitic acid. The seed oil of the Trakya ilkeren variety was rich in tocopherols in comparison with the other varieties. The major minerals of both the seedless parts and the seeds were determined as K, Ca, P, S, Mg.

**Key words:** Grape, bioactive compounds, antioxidant, fatty acid composition, mineral content.

## [84] Önler, E., İ.H. Çelen, T. Gülhan, B. Boynukara, 2017. A study regarding the fertility discrimination of eggs by using ultrasound. Indian J. Anim. Res., 51(2): 322-326., Doi: DOI:10.18805/ijar.v0iOF.4561 (Yayın No: 2882053).

The aim of this research was to track the growth of chicken eggs, and make a decision as to whether the egg was fertilized or not. A digital imaging system has been developed in order to take an image from six different points without damaging the egg shell. All the images were transferred to a PC and turned into binary images. All the images were reduced to 1024 pixels and fed directly into the classification algorithm. The logistic regression method was used to discriminate the fertility of the eggs. Python programming language and the scikit-learn machine learning library was used to carry out the classifications. True positive, true negative, wrong positive, and wrong negative detection numbers in the trials were 350, 344, 56, and 50, respectively. Negative indicates the egg was infertile, and positive indicated that the egg was fertilized. The model accuracy was measured as 0.8675.

Key words: Fertility, Poultry egg, Ultrasound.

## [85] Ozcan, M.M., F. Al Juhami, M. Gulcu, N. Uslu, U. Gecgel, K. Ghafoor, N. Dursun, 2017. Effect of harvest time on physico-chemical properties and bioactive compounds of pulp and seed of grape varieties. Journal of Food Science and Technology, 54(8): 2230-2240.

In this study, physicochemical properties and bioactive compounds of three grape varieties (Cardinal, Mu"s,ku"le and Razaki) harvested at the three different harvest times (on time, one and two weeks earlier) were investigated. The highest antioxidant activity, total phenolic and flavonoid contents were observed in Razaki pulp and these were 82.854 %, 127.422 mg/100 g, 3.873 mg/g, respectively. The contents of bioactive compounds in grape seeds were found higher than those in pulps. Similarly, seed of Razaki had higher antioxidant activity (91.267%) and total phenolic content (477.500 mg/100 g) when compared to results of other varieties. The key phenolic compounds of all grape variety and seeds were gallic acid, 3,4-dihydroxybenzoic acid, (?)-catechin ve 1,2 dihydroxybenzene. The oil content of grape seeds ranged from 8.50 % (Razaki harvested one week ago) to 19.024 % (Mu"s,ku"le harvested one week ago). The main fatty acids of grapeseed oils were linoleic, oleic and palmitic acids. In addition, the oil of Razaki seeds was rich in tocopherols when compared to the other varieties.

Key words: Grape, Bioactive compounds, Antioxidant, Fatty acid composition, Harvest time

# [86] Özdemir, G., G. Unakıtan, E. Yılmaz, Ü.F. Er Ü, G. Keskin, 2017. Women's Perspective on Organization and the Alternative Means of Income in Agriculture in Thrace Region Turkey, British Journal of Economics, Management & Trade, 16(3): 1-9.

This study was conducted in Thrace Region, which is a significant agricultural area in Turkey. The alternative means of income were determined and 477 women, consisting of 94 self employed women and 383 women working together with their families, were surveyed and their perspectives on alternative means of income and organization were analyzed. It is ascertained at the end of this study that women do not consider farming as an occupation, even though they work in agricultural sector together with their spouses, that many of them own small scale enterprises, that they are afraid of taking risks, and that they want to receive grants rather than loans. Women's contribution to labor force is more like unwaged employment in family businesses, but there are also considerable number of self-employed women in this region. The research Show that 81 % of women stated that there were not any projects regarding alternative means of income in this region. When women were asked to list the alternative income activities according to their significance levels, 70 % gave prominence to organic farming. In terms of their perspective on organization, 89 % of women stated that they had never participated in any collaborative Works in their villages, 53 % of women, however, stated that they would have been willing to play an active role if they ever got the opportunity.

Key words: Women, organization, agricultural business, alternative income, Thrace region.

#### [87] Özdemir, G., G. Unakıtan, E. Yılmaz, Ü.F. Er, G. Keskin, 2017. Tarım İşletmelerinde Kadınların Yarattığı İş Gücü Değeri ve Örgütlenme Yaklaşımları: Trakya Bölgesi Örneği, Sosyal Politika Çalışmaları Dergisi.

Bu araştırma, Trakya Bölgesi'nde gerçekleştirilmiş olup eşleriyle birlikte üretim faaliyetlerine katılan kadınlar (383) ile kendi hesabına çalışan kadınların (94) oluşturduğu iki gruptan örnekleme yoluyla belirlenmiş ve rastgele seçilen köylere gidilerek yapılmış anketlerden oluşmaktadır. Araştırmada kadınların yarattığı iş gücü değeri ve örgütlenme yaklaşımlarının belirlenmesi amaçlanmıştır. Araştırmadan elde ettiğimiz sonuçları değerlendirdiğimizde kadınların yarattığı iş gücünün değer bakımından daha çok ücretsiz aile işçisi niteliğinde olduğu; kendi hesabına çalışan kadınların ise bölgede azımsanmayacak derecede yer aldığı görülmüştür. Kırsal alanda kadınların örgütlenmeye bakışı ele alındığında; kurulmuş bir örgüte ortak olmak isteyenlerin oranı %43,9'dur. Ekonomik amaçlı kurulacak bir örgütte aktif çalışmak isteyenlerin oranı %47'dir. Kadınların yarıdan fazlası ise aktif olarak çalışmak istemediklerini (%53) belirtmişlerdir.

Anahtar kelimeler: Tarım, Kadın, İş Gücü, Örgütlenme, Kooperatif, Trakya Bölgesi.

### [88] Özdemir, G., E. Yılmaz, G. Unakıtan, İ. Yılmaz, G. Keskin, 2017. Kırsalda Kadının Geleneksel Gıda Üretimi ve Pazarlama İstekliliği, Journal of Tekirdag Agricultural Faculty, vol. 14, pp. 66-72.

Bu çalışmada Trakya Bölgesinde, geleneksel gıda üretimi konusunda özellikle çiftçi ailelerinde kadınların aktif çalışmalarının sağlanmasında geleneksel gıda üretim ve pazarlama istekleri araştırılmıştır. Araştırma sonucunda kırsal alanda yaşayan kadınların geleneksel gıda ürünleri üreterek pazarlama isteklerinin olasılığı logit modelle tahmin edilmiştir. Model sonuçlarına göre, eğitim, yaş ve arazi miktarı büyüdükçe pazarlama isteği düşmektedir. Kendine ait bir gelirinin olmasını isteyen kadınlar (8,472 kat), gıda güveliği hakkında bilgi sahibi olan kadınlar (4 kat) ve ayrıca örgütlü biçimde aktif olarak çalışma isteği bulunan kadınlar (2,03 kat) diğerlerine göre daha fazla geleneksel gıda pazarlama isteğindedirler.

Anahtar kelimeler: Geleneksel gıda, pazarlama, kadın, kırsal alan, üretim.

## [89] Özder, N., Ş. Demirtaş, 2017. Effects of Artificial Diets and Floral Nectar on Parasitization Performance of *Trichogramma brassicae* Bezdenko (*Hymenoptera: Trichogrammatidae*). Türkiye Entomoloji Dergisi, 41(1): 53-60.

This study was conducted to determine whether various food resources enhanced the longevity and fecundity of theegg parasitoid Trichogramma brassicae Bezdenko, 1968 (Hymenoptera: Trichogrammatidae) under laboratory conditions(25°C, 65% RH, 16L:8D h photoperiod) at Laboratory of Biological Control, Department of Plant Protection, Agriculture Faculty, Namık Kemal University in 2014. Newly hatched female wasps were fed on Ephestiakuehniella Zeller, 1879(Lepidoptera: Pyralidae) eggs with either honey, grape molasses and royal jelly as a main food, alone or double combination of this main foods or supplemented with resin (derived from plants), acacia nectar, *Paulownia* nectar, red tulip nectar, yellow asphodel nectar, apple syrup, liquid of E. kuehniella eggs or mashed E. kuehniella larvae. Trichogramma brassicae, females that were fed on honey and acacia nectar (17.47 d), honey + apple syrup (17.20 d), honey (16.93 d) and honey + Paulownia nectar (16.60 d) lived significantly longer than females that fed on other floral nectars and artificial diets. Females were fed on royal jelly + mashed E. kuehniella larvae (1.40 d) had the shortest longevity. Trichogramma brassicae females that were fed on honey (106.8 eggs), honey + acacia nectar (105.4 eggs), Paulownia nectar (103.13 eggs) parasitized significantly more hosts than females that fed on other floral nectars and artificial diets. Females fed on royal jelly were had the lowest parasitizing ability (3.33 eggs). These results showed that providing *T. brassicae* with honey, honey + acacia nectar, honey + apple syrup resulted in greater longevity and total fecundity than other food resources.

**Key words:** *Trichogramma brassicae, Ephestia kuehniella,* floral nectar, food, fecundity, longevity.

#### [90] Özer, N., T. Şabudak, C. Özer, K. Gindro, S. Schnee, E. Solak 2017. Investigations on the Role of Cuticular Wax in Resistance to Powdery Mildew in Grapevine. Journal of General Plant Pathology, 83, No 5, 316-328.

Cuticular wax on the plant epidermis inhibits or enhances prepenetration events of powdery mildew (*Erysiphe necator* Schwein). We examined the role of cuticular leaf and berry waxes as a resistance mechanism in four grapevine genotypes (Italia × Mercan-174, Gürcü, Isabella, Özer Karası) resistant to powdery mildew after natural infection and inoculation. To understand cuticular wax properties, we determined the amount of wax and antifungal effects of thin layer chromatography (TLC) fractions from cuticular leaf and berry waxes, then assessed the chemical composition of fractions with different antifungal activities using gas chromatography/mass spectrometry (GC/MS). Susceptible genotypes Cabernet Sauvignon and Italia were used for comparison. Resistant and sensitive genotypes did not differ significantly in the total amount of wax on leaves and berries; however, 27 fatty acids, 26 alkanes, 6 terpenes, 4 indole derivatives and 4 ketones, and 3 amides, 3 phenols and 3 steroids were detected in fractions with high antifungal activity (≥75% inhibition of germination) in leaf and/or berry cuticular waxes of resistant genotypes only. These compounds may be evaluated as markers for powdery mildew resistance during genotype selection in a grapevine breeding program.

**Key words:** Antifungal compounds, Cuticular wax, *Erysiphe necator*, Grapevine powdery mildew.

This study was funded by Namık Kemal University Scientific Research Project (NKUBAP.00.24.AR.14.26).

## [91] Ozturk, E., M. Sener, 2017. Determination of Suitable Irrigation Method by Using Some Soil and Topography Properties. Journal of Scientific and Engineering Research, 4(11): 103-107.

For optimal use of water and land resources, irrigation activities need to be tailored accordingly. The basic rule for good irrigation activity is the choice of irrigation method which is most suitable for the conditions. In this study, the possibilities of utilizing the Geographic Information System for selecting suitable irrigation method by using infiltration, available water holding capacity (AWHC), slope and texture data were investigated.

Key words: Suitable irrigation method, GIS, Soil properties, Topography.

#### [92] Ozturk, E., M. Sener, 2017. GIS Usage in Determining the Change of Soil Properties. Journal of Scientific and Engineering Research, 4(5): 44-47.

It is very important to know the soil properties and its spatial changing in the selection of the irrigation method. In this study, it was tried to determine the spatial variation of soil characteristics such as Field Capacity, Wilting Point, Bulk density and Available Water Holding Capacity in irrigation field in Bursa Province. For this purpose, soil samples taken from 3 different layers from 83 control points determined by large soil g roups and field observations were processed and mapped in ArcGIS program.

**Key words:** Solar cell, finite elements, Gaussian beam, wavelength, photocurrent, photovoltage, recombination velocity, diffusion length, shunt resistance, series résistance.

### [93] Ozduven, M.L., F. Koç, V. Akay, 2017. Effects of Bacterial Inoculants and Enzymes on the Fermentation, Aerobic Stability and *in vitro* Organic Matter Digestibility Characteristics of Sunflower Silages. Pak. J. Nutr., 16(1): 22-27.

This study was carried out to determine the effects of lactic acid bacteria inoculant, enzymes and lactic acid bacteria inoculant+enzymes mixture on the fermentation, cell wall content, aerobic stability and in vitro organic matter digestibility characteristics of sunflower silages. Sunflower was harvested at the milk stage of maturity. The treatments were as follows: (1) control (no additive), (2) inoculation of lactic acid bacteria (LAB; 2 g/ton, a mixture of Lactobacillus plantarum and Enterococcus faecium applied at a rate of 6.00 log<sub>10</sub> cfu LAB/g of fresh material) (3) enzyme (E; 150000 CMCU/kg for cellulase and 200000 SKB/kg for amylase) and (4) LAB+enzyme mixture (LAB+E, 2 g/ton a mixture of Lactobacillus plantarum bacterium (6.00 log<sub>10</sub> cfu/g) and 150000 CMCU/kg for cellulase and 200000 SKB/kg for amylase). After treatment, the chopped sunflower was ensiled in 1.0-l special anaerobic jars, equipped with a lid enabling gas release only. The jars were stored at 25±2°C under laboratory conditions. Three jars from each group were sampled for chemical and microbiological analysis 2, 4, 8 and 60 days after ensiling. At the end of the ensiling period all silages were subjected to an aerobic stability test for 5 days. In addition, in vitro organic matter digestibilities of these silages were determined. Both inoculants (LAB and LAB+E) increased characteristics of fermentation but impaired aerobic stability of sunflower silages. LAB+E mixture inoculants decreased neutral and acid detergent fiber content than control silages. In vitro organic matter digestibility was numerically increased for treated than control silages.

**Key words:** Silage, sunflower, lactic acid bacterial inoculants, enzyme, fermentation, aerobic stability.

[94] Öztürk, İ., K.Z. Korkut, 2017. Stability Parameters for Yield and Yield Component of the Bread Wheat Genotypes under Various Drought Stress Condition. Journal of Tekirdag Agricultural Faculty, The Special Issue of 2<sup>nd</sup> International Balkan Agriculture Congress, May 16-18, 2017, 77-82.

Drought is the main abiotic stress factor and low rainfall during grain filling period affect bread wheat yield and yield component. This experiment was carried out in the experimental field of Trakya ARI, Edirne (Turkey), in 2008-2009 and 2009-2010 years. Totally, 15 genotypes were planted in RCBD in a split-plot with three replications. The main plots were assigned to five moisture regimes, which included 3 drought stress environments, one non-stress and one non-treatment environment. Droughts were created under mobile rain shelter at various plant growth stages from shooting up to maturating stage. Stability parameters were determined for grain yield, biological yield, harvest index, spike number per square meter, kernel and spikelet number per spike were investigated. A joint regression analysis was applied to grain yield and other yield component to estimate the stability parameters; mean yield (x), determinations coefficient (R2), regression coefficient (b), deviation from regression coefficient (S2d), and intercept value (a). The highest yield (658.3 kg/da) was determined in Bereket and biological yield (2539.4 kg/da) in Kate A-1 cultivar. The highest grain and biological yield was obtained under non-stress condition. For grain yield, it was determined that Kate A-1 and BBVD7 were adapted to well environmental conditions, Bereket was well adapted to all environment condition. For biological yield Pehlivan, BBVD7 and Bereket were well adapted to all environmental conditions. Wide range of stability statistics was determined among cultivars for all the parameters. Gelibolu and Bereket were the stable cultivars on the basis of overall mean yield and stability parameters.

Key words: Bread wheat, genotypes, yield component, stability parameters.
#### [95] Pehlivan, E.C., B. Kunter, S.D. Royandazagh, 2017. Choise of Explant Material and Media for *in vitro* Callus Regeneration in Sultana Grape Cultivar (*Vitis vinifera* L.)., Journal of Tekirdağ Agriculte Faculty, Special issue: 30-34.

The study was carried out to choise of explant material and culture media for callus regeneration in 'Sultana' (*Vitis vinifera* L.). Leaf disc and node explants were the main explant materials which were taken from *in vitro* shoots which were obtained from macroshoot tip explants. The initial macroshoot tip were cultured on MS (Murashige and Skoog) medium including BAP (6-benzylaminopurine) (1 mg L-1) and *in vitro* shoots were subcultured on shoot multiplication medium with BAP (1 mg L-1) + IBA (Indole-3-butyric acid) (0.1 mg L-1) In order to investigate callus regeneration potential of Sultana grape cultivar, leaf disc explants were cultured on two different MS medium including BAP in combination with 2,4-D (2,4-dichlorophenoxyacetic acid) whereas node explants cultured on four different MS medium including BAP in combination with 2,4-D and NAA (naphthalene acetic acid). The intensity of callus proliferation was greater in leaf disc culture than in node culture. In all media combinations, MS medium including BAP (1 mg L-1) + 2,4-D (0.1 mg L-1) were found to be the most effective on callus regeneration. In this medium, callus regeneration rate was found to be 100% and the average diameter of callus was found to be 6.3 mm.

Key words: 'Sultana' (Vitis vinifera L.), tissue culture, callus, leaf disc, node.

#### [96] Polat, S., N. Sahin, H. Özdemir, 2017. Farklı Fide Yetiştirme Ortamlarının Crimson Sweet Karpuz Çeşidinde Fide Kalitesine Etkileri. Akademik Ziraat Dergisi, Cilt: 6, Özel sayı 47-50.

Bu çalışma; bahar vejetasyonunda, ısıtmasız plastik sera koşullarında cibre, torf, perlit, torf:perlit (1:1) karışımı ve bahçe toprağının kontrol olarak kullanıldığı 5 farklı fide yetiştirme ortamlarının Crimson Sweet karpuz çeşidinde fide kalitesi (bitki boyu, yaş ve kuru ağırlığı, gövde çapı ve uzunluğu, kök uzunluğu, yaş ve kuru ağırlığı) üzerine olan etkilerinin ve en uygun ortamın belirlenmesi amacıyla yürütülmüştür. Çalışma sonucunda fide büyümesi bakımından perlit ve cibrenin tek başlarına kullanımlarının ümitvar olmadığı görülürken torf ve torf:perlit (1:1) karışım ortamın değişik karışımlarının en iyi sonuçları verdiği tespit edilmiştir.

Anahtar kelimeler: Crimson Sweet, fide kalitesi, torf, perlit, cibre.

### [97] Sarı, H., 2017. The Effect of Some Soil Characteristics oil The Hydraulic Conductivity of Soil in Tekirdağ Province. Alınteri Dergisi, 32 (2): 95-103.

In tins study, the factors that affect hydraulic conductivity of the soil and their significance was examined. As a field of study, Tekirdağ province was chosen, and sample points were determined by coinciding corine belonging to this city, land use, geology and soil maps m Arcmap program. Samples were collected from 53 different points (Total 187 samples). Samples were taken from 4 different depths (0-30, 30-60, 60-90, 90-120 cm) from 0 to 120 cm and then They were analysed by physically and chemically. Hydraulic conductivity measurements were made with Constant Level Permeability device in the laboratory', and the results were figured out according to Darcy's Law. Statistical analysis of the results were made with SPSS and MSTAT-C software programs. Statistically the following results were reached: significant relations were found between hydraulic productivity and clay, bulk density at negative and 1% level; significant relations were found between hydraulic productivity and sand, specific weight and porosity at positive and 1% level; insignificant positive relations were found between hydraulic productivity and silt, organic matter; insignificant negative relations were determined between hydraulic and lune. pH, salt; and significant relations at 1% level were found in the interactions made between hydraulic productivity and land use.

Key words: Hydraulic conductivity, texture, permeability, Tekirdağ.

## [98] Sağlam, C., F. Tan, 2017. The Effects of Anhydrous Ammonia on the Leaf Nitrogen and Leaf Color in Wheat, Journal of Scientific and Engineering Research, 4(11): 62-67.

To study the effect of anhydrous ammonia application on the leaf nitrogen and leaf color components of wheat a field experiment was conducted in Tekırdag, Turkey during 2014-2016. Three different methods were planned in the field experiment. Anhydrous ammonia application methods (M1), traditional methods (M2) and control methods (M3). Anhydrous ammonia application was made once before the sowing period at M1. The traditional method (M2) was the method used by local farmers. The control method (M3) was no nitrogen fertilization. Leaf nitrogen and nutrients, leaf colors were measured in three periods every year. Results showed that Anhydrous ammonia application has a positive effect on leaf nitrogen and leaf color.

**Key words:** Anhydrous ammonia, Anhydrous ammonia application, Wheat, Nitrogen, Leaf color, leaf nitrogen.

[99] Sağlam, Ö., A.A. Işıkber, H. Tunaz, M.K. Er, F. Bahadır, R. Şen, 2017. Preliminary Checking of Some Turkish Diatomaceous Earth Similarities with Commercial Diatomaceous Earths under Scanning Electron Microscope (SEM). Journal of Tekirdag Agricultural Faculty, The Special Issue of 2nd International Balkan Agriculture Congress, May 16-18, 2017, Tekirdağ, Turkey, p. 13-19.

Diatoms are dead bodies of unicellular algae's and made up of fossilized diatoms in aquatic ecosystems. Diatomaceous earth (DE) is a dust varying in color depending on composition, from white-grey to yellow to red and active ingredient is amorphous silicon dioxide. DEs are commonly used for purification of water, the purification of juices, separation of various oils and chemicals and also used as an insecticide. Mode of action as insecticide which damage occurs to the insects protective wax coat on the cuticle, mostly by sorption and to a lesser degree by abrasion, or both. The result is the loss of water from the insect's body through desiccation resulting in death. The efficacy of DE against insects depends on different physical and morphological characteristics of the diatoms. In present study, image properties of 10 different Turkish DE samples under Scanning Electron Microscope (SEM) were checked and compared similarities with commercial DEs, namely Protector, SilicoSec, Insecto and Pyrisec. SEM image analysis indicated that there were variations in shape and size of dead bodies of diatoms in Turkish and commercial DEs. The shapes of dead bodies of diatoms in Turkish local DE's named as CBN and BGN were found very similar with those in commercial DE, Silicosec. Local DE coded as DC has a round shape and looks similar to commercial DE of Pyrisec while local DE coded as CAN has triangle shape and its shape was different from those of all other DE samples.

Key words: Turkish Diatomaceous earth, SEM, Diatom, composition, insecticide.

#### [100] Sakar Kolay, H., C.B. Sisman, 2017. Investigation of the Greenhouses in Istanbul in Terms of Structural Properties. International Journal of Science and Engineering Investigations. 6(70): 131-135.

In this study, we aimed to determine the current structural conditions, problems, characteristics of the ventilation and heating systems of the greenhouse systems in Sariyer and Pendik districts of Istanbul province, then to develop an appropriate greenhouse project to local ecological conditions. Gümüşdere neighborhood in Sarıyer district and Göcbeyli and Emirli neighborhoods in Pendik district have been selected as a research area, which covers 50.8 % of Istanbul's greenhouse cultivation. We carried out a survey to determine the size and type of farms, and greenhouse materials. Examined greenhouses are selected by the random sampling method. The current condition and set up construction, types and features of plastic greenhouses and high tunnels are examined by making measurements, sketches, observations and taking photographs. Of all surveyed greenhouse systems, 7.8 % (totally 10) are single greenhouses, 38.3 % (totally 49) are block greenhouses, and 53.9 % (totally 69) are high tunnels. It is determined that 100% of the surveyed plastic greenhouses and high tunnels are constructed without any project. 79.7% of growers have made a local contractor established plastic greenhouses and high tunnels. Iron is used as the main carrier material in 71.9% of the greenhouses. There is no steel used in greenhouses because it is mostly used in glass greenhouses. In the examined region, there are almost no glass greenhouses. As a result, we aimed to raise technical standards of plastic covered greenhouses and high tunnels to that of the Turkish Standards Institute (TSE). To enlighten local growers, we aim to make a usable technical project suitable for the research area using AutoCAD software

Key words: Plastic Greenhouse, High Tunnel, Cover Material, Construction.

#### [101] Solmaz, Y., A. Adiloğlu, 2017. Determination of Nutritional Status of Walnut Orchards by Leaf Analysis in Tekirdağ Region. Tekirdağ Ziraat Fakültesi Dergisi, 14(1): 88-92.

This study was conducted to determine the nutritional status of the walnut orchards leaf sample analysis in Tekirdağ region. For this purpose, 46 leaf samples, which were taken from 44 different walnut orchards located in 32 different villages in Çorlu, Saray, Ergene, Kapaklı, Marmara Ereğlisi, Muratlı, Hayrabolu, Malkara, Şarköy, Çerkezköy Districts and were analyzed. By comparing the results of the leaf samples analysis with the nutrient status limits of the investigated orchards the nutrition status have been studied and determined. According to the results, 84.78% N, 4.39% P, 4.35% K, 2.18% Ca, 4.35% Mg, 4.35% S, 2.18% Fe, 8.69% Cu, 65.21% Zn and 4.35% Mn deficiency were determined. On the other hand, 15.22% N, 89.13% P, 95.65% K, 84.78% Ca, 95.65% Mg, 91.30% S, 97.82% Fe, 89.3% Cu, 34.79% Zn and 84.78% Mn were determined sufficient in leaf samples and 6.58% P, 13.04% Ca, 2.18% Cu and 10.87% Mn were found excess level in leaf samples.

Key words: Tekirdağ, walnut, nutrient element, leaf analysis.

#### [102] Tan, F., İ.S. Dalmış, F. Koç, 2017. Determination of Compaction Force in Bunker Silos Using a Pressure Measurement Method, International Journal of Current Research. Vol. 9, Issue, 01, pp.45597-45599, January, 2017

Chopped maize have to be compressed in bunker silos for high quality silage. High losses can occur if the compaction is too low. The main objective of this research was to determine the compaction force at the ensiled material in bunker silo. A pressure measurement method was developed. This method is based on the compaction force determination. Mesens 500 series 4-20 mA of the 4 bar capacity pressure sensor was used. Sensor capacity was determined by the tractor tire pressure. In bunker silos were identified measure points to characterize the silage compaction profile. The experiment was organized in a 3 layer thickness (0.5 m, 1 m, 1.5 m) x three lateral positions (left near the wall, right near the wall and centre) x three areas (A, B and C). Sensors were located while filling each layer in the bunker silos. Results indicate that a higher compaction force was measured by decreasing layer thickness and by increasing compaction time. The highest pressure was measured in C area due to the higher compaction time.

Key word: Silage, compression, bunker silo, pressure, compaction.

#### [103] Şen, C., O. Ozturk, 2017. The Relationship between Soil Moisture and Temperature Vegetation on Kirklareli City Luleburgaz District A Natural Pasture Vegetation International Journal of Environmental & Agriculture Research (IJOEAR) ISSN: 2454-1850,Vol-3, Issue-3

This study was realized in 2014 – 2015 in two different sections of Kirklareli city Luleburgaz district Sakizkoy village natural pasture in order to research the effect of soil moisture and soil temperature on area covered by vegetation, plant species and dry yield. As research area, study was conducted in two different sections defined as A and B located to the north and south of village coppice forest area located within the borders of Kirklareli city Luleburgaz district Sakizkoy village. By this study, the relation between soil moisture and temperature with plant species were evaluated by CANOCO 4.5 computer program. Accordingly, the effect of ecological values on vegetative properties was presented. According to research results, soil moisture and temperature have significant effect on vegetation. In the first year when soil moisture was high, hay yield was 2901.9 kg/ha while the yield was detected as 480.1 kg/ha after soil temperature (which is inversely correlated with soil moisture) increased in the second year. It was determined that Lolium perenne (one of the dominant species of vegetation) is common in parcels with high moisture while Chrysopogon gryllus is common in parcels where soil temperature is high.

Key words: pasture, dry yield, soil moisture, soil temperature, CANOCO 4.5.

### [104] Şen, C., 2017. Impact of Soil Factors and Management Systems on Pasture Vegetation in Tekırdag, Turkey. Fresenius Environmental Bulletin Volume 26 No: 2904-2914

The focus of my research is to determine the impact of soil factors and management systems on the vegetation composition of the Yukarisevindikli natural pasture in Tekirdag, Turkey. Measurements in the pasture were taken during three different management systems (grazed, abandoned, and mowed). Multivariate relationships between environmental variables and vegetation composition were determined using redundancy analysis (RDA) using the CANOCO (4.5) program. This research found that soil parameters and management systems had effects on dry matter yield and pasture species in the Yukarisevindikli pasture. Using RDA, which is among the ordination analyses, the effect of environmental factors on species distribution and dry matter yield was found to be very important on each axis. It was determined that Lolium perenne is common on certain sites that are mown and protected while Vulpia ciliata among graminae is the plant of grazed sites. In the study, it was determined that the low amount of organic matter and soil nutrients in grazed pasture sites negatively affects both the plant species composition and dry matter yield. The method of usage and soil structure will comprise an important function in the success of pasture management and overall improvement by assessing the collected data. In this context, the protection of the pasture and not allowing heavy grazing from time to time will ensure that the pasture can be used more profitably. As a result, in the future, similar studies should be conducted to understand better the dynamics of a pasture eco-system in natural areas.

**Key words:** Management system, pasture, redundancy analysis results (RDA), soil factors, vegetation composition.

#### [105] Sen, C., 2017. The Effects of Soil Moisture and Temperature on Vegetation Composition and Yield at Different Pasture Sites Int. J. Agric. Sc & Vet. Med. Vol. 5, No. 2, May 2017.

This study was conducted in four different sections defined as Elmacik, Korukoy, Karahidir, and Kaynarca pastures of Kirklareli province in 2016. The focus of my research is to determine the effects of soil moisture and temperature on vegetation composition and herbage yield of the different natural pastures. Multivariate relationships between soil moisture and temperature with plant species were determined using redundancy analysis (RDA) using the CANOCO (4.5) program. When these measurement results were compared, soil moisture has strongly influenced herbage yield and distribution pasture species. It was found out that the plants such as Trifolium repens, Agrostis stolonifera, had a positive relationship with soil moisture. Using RDA, which is among the ordination analyses, the effect of environmental factors on species distribution and dry matter yield was found to be very important on each axis. Likewise, it was determined that Lolium perenne (C3) among these common species are found in moisture pasture site. It was obtained that there was a negative relationship between soil temperature and herbage yield. Avena fatua, Vulpia ciliata, Chrysopogon gryllus were common in sites with high temperature soil. The sites with the high ratios of perennial plants and herbage yield generally show parallelism with the sites with a high soil moisture. Annual plants were the most common in dry pasture sites.

Key words: Pasture, Herbage yield, Soil moisture, Soil temperature, CANOCO 4.5

#### [106] Şen, C., S. Günay, C. Kurt, Y.T. Tuna, 2017. The Effects of Some Improvement Methods on Vegetation in Grazed and Ungrazed Pastures with Different Slopes. KSÜ Doğa Bil. Derg., 20 (Özel Sayı), 52-59, 2017

The research was carried out in Koruköy natural pasture area in Kırklareli Province between 2009 and 2013. The aim of the study was to determine the effects of fertilization and topdressing applications on hay yield, botanical composition and canopy cover in grazed and ungrazed pastures area at different slopes (6-12% and 12-20%). Hay yields obtained in the study were 382.1 kg/da for fertilized plots, 292.9 kg/da for oversowing plots and 180.1 kg/da for natural plots. In our study, it was determined that the ungrazed areas had a higher average dry hay yield for five years (327.0 kg / da) compared to that in grazed areas (243.1 kg / da). The ratio in grasses (79.1%) was the highest in the fertilized plots, this was followed by the oversowing plots (71.6%) and the natural plots yielded the lowest values (61.2%). Other plant families yielded the highest ratio (27.8%) in the natural pasture whereas, unlike grasses, had the lowest value (13.3%) in the fertilized pasture. The ratio determined in the oversowing application was 19.1%. The ratios obtained in other families in areas with higher slopes were higher. Canopy cover ratios were similar to botanical composition ratios. In conclusion, nitrogen fertilization is important in increasing the hay yield in natural pasture vegetation. Nitrogen promotes the growth of grasses. Oversowing application can be recommended in regions with low soil surface covering areas and in regions with high precipitation regime in addition to ungrazing. Botanical composition of the vegetation should be monitored and mild or moderate grazing should be initiated if propagating and invading species start to develop in natural pastures.

Key words: Pasture, slope, oversowing, ungrazed, grazed.

## [107] Şener, T., İ.A. Helvacıoğlu, C. Tokatlı, A. Balkan, 2017. Fertilizer and Pesticide Preferences of Rice Producers in İpsala District: An Economic Survey. Tarım Bilimleri Araştırma Dergisi, 10(2): 33-37.

İpsalaDistrict is known as "Rice Land", since it is one of the most important rice producer regions of Turkey and 35% of total rice production in Turkey is provided from İpsala Region. This region is located on the Meriç Plain and has a great land condition – natural water resources to make especially paddy cultivation. In this study, an economic review was performed in terms of fertilizer and pesticide preferences of rice producersliving in İpsala, Karpuzlu and MeriçRegionsby using some systematic data collection techniques.

Key words: Rice producers, İpsala District, Economic review.

### [108] Tan, F, İ.S. Dalmıs, F. Koç, 2017. Effects of Compaction Pressure on Silage Fermentation in Bunker Silo, Agronomy Research 15(1): 298–306, 2017.

The aim of this research was to determine the effects of compaction pressure on maize silage fermentation under field conditions. The CAT 955 L type work machine was used for the compaction of the material. In this research, a pressure measurement system was developed to measure the compaction pressure in bunker silos. In bunker silos, 24 points for pressure and temperature measurement were identified. Chemical and microbiological analyzes were made by taking samples from each measurement point. The lowest temperature is measured in the back wall of the silo. There is a significant relationship between pressure and temperature. Pressure had a significant effect (P < 0.05) on silage fermentation. There was a significant correlation between regions in bunker silo and pressure (R2 = 0.914, P < 0.01).

Key words: Silage, pressure, compaction, bunker silo, pressure measure method.

### [109] F. Tan, I.S. Dalmis, F. Koc, 2017. Effects of Compaction Pressure on Silage Fermentation in Bunker Silo. Agronomy Research, 15(1): 298-306.

The aim of this research was to determine the effects of compaction pressure on maize silage fermentation under field conditions. The CAT 955 L type work machine was used for the compaction of the material. In this research, a pressure measurement system was developed to measure the compaction pressure in bunker silos. In bunker silos, 24 points for pressure and temperature measurement were identified. Chemical and microbiological analyzes were made by taking samples from each measurement point. The lowest temperature is measured in the back wall of the silo. There is a significant relationship between pressure and temperature. Pressure had a significant effect (P<0.05) on silage fermentation. There was a significant correlation between regions in bunker silo and pressure ( $R^2$ =0.914, P<0.01).

**Key words:** *Orobanche cumana*, genetic diversity, nSSR, polymorphism, sunflower broomrape, Thrace region.

## [110] Taşcı Durgut, F., M.R. Durgut, B. Kayışoğlu, 2017. Physico-Mechanical Properties of Edible Summer Squash (*Cucurbita pepo* L.) for Harvesting and Threshing, Journal of Scientific and Engineering Research, 4(10): 351-356.

Economical value of squash, which is cultivated widely at Trakya region, increasing day by day. However, either its yield or product quality at squash cultivation cannot be reach sufficient level yet, because of using low quality seeds and using unsuitable mechanization technics. Insufficient mechanization level cause to loss of manpower and time especially at harvesting stage. This study aims to develop new technology for squash harvesting which can meet the optimal needs. For achieving this aim we tried to determine physical (dimension properties, weight of 1000 seed) and mechanical properties of squash (peel puncture, rupture and split force). As a result of this study; mean weight of squashes was determined as 881.7 g, squash dimensions (thickness-width-length) were determined as 112.46 - 112.98 - 147.15 mm and sphericity rate was determined as 85.41. Also total amount of seeds obtained from one squash was 230.4 and weight of 1000 seeds were 214.9 g. Mean peel puncture force measured as 60.30 N and peel rupture force measured as 18.96N. Also split force was measured as 168.8N at experiments.

**Key words:** Biological material, *Cucurbita pepo* L., Edible Summer Squash, Physicomechanic properties, Physical properties.

#### [111] Tenikecier, H.S., A. Orak, M.A. Gürbüz, M.G. Çubuk, 2017. Trakya Bölgesi Koşullarında Bazı Mürdümük (Lathyrus sativus L.) Çeşit ve Popülasyonlarının Performanslarının Belirlenmesi, Kahramanmaraş Sütçü İmam Üniversitesi Doğa Bilimleri Dergisi, 12. Tarla Bitkileri Kongresi Özel Sayısı, sayfa 102-108, 2017.

Bu araştırma mürdümüğün Trakya Bölgesi koşullarında performansının belirlenmesi amacıyla yürütülmüştür. Araştırma 2 mürdümük çeşidi (Karadağ ve Gürbüz-2001,) ve Tekirdağ Muratlı ilçesi Yeşilsırt Mahallesinden temin edilen Populasyon-Tekirdağ, Diyarbakır' dan temin edilen Populasyon-Diyarbakır materyal olarak kullanılmıştır. Çalışma 2017 yetiştirme döneminde Namık Kemal Üniversitesi Ziraat Fakültesi Tarla Bitkileri Bölümü Deneme Alanı, Kırklareli Atatürk Toprak, Su ve Tarımsal Meteoroloji Araştırma Enstitüsü, İstanbul İli Silivri İlçesi Alipaşa Mahallesi üretici arazisinde olmak üzere 3 lokasyonda tesadüf blokları deneme desenine göre 3 tekrarlamalı olarak yürütülmüştür. Ele alınan çeşit ve popülasyonlar 5 m uzunluğundaki parsellere 25 cm sıra arası olacak şekilde 4 sıra olarak ekilmiştir. Çalışmada çeşit ve popülasyonların ve lokasyonların Bitki boyu, Bin Tane Ağırlığı, Yeşil Ot Verimi, Kuru Ot Verimi üzerine etkisi araştırılmıştır.

Anahtar kelimeler: Mürdümük, Trakya Bölgesi, Yeşil Ot Verimi, Korelasyon.

# [112] Tenikecier, H.S., A. Orak, A.K. Demirkan, 2017. Determination of yield and yield components of vetch and cereal mixture and evaluation using by gge-biplot analysis. International Journal of Environment, Agriculture and Biotechnology (IJEAB) Vol-2, Issue-6, N ov-Dec- 2017, page 3010-3020.

This study was carried out to determine forage and seed yield and its effecting component in different vetch and cereal mixtures, ecological condition of Tekirdağ-Thrace region of Turkey. The study was conducted using a total 5 vetch and cereals varieties includes three different vetch species orakefe, Hungarian vetch species sariefe, narbon vetch candidate variety 570, two different cereals (barley variety scarpia, oat variety sebat) and their mixture combinations, each species were sown as sole, double and triple mixtures (8 combinations for each genotype) a randomized complete block design with 3 replications was laid out on 2013-2015 growing season. Eight mixture combinations for each genotype (common vetch, Hungarian vetch, Narbon vetch, barley and oat) were evaluated for yield and major plant structural characteristics. Genotype-Trait (GT) biplot analyses were used. Applying type of analyses to the multiple trait data revealed that GT biplot graphically displayed the interrelationships among traits and facilitated visual comparison of mixtures and selection for each genotype. Wide variation was observed for traits plant structure and components (plant height, branch number and pod number/plant, 1000 seed weight, individual genotype ratio). It was found that; seed yield, 1000 seed weight, plant height, branch and pod number /plant were the highest value in pure stand NV570. In addition (570+sebat) had maximum dry forage yield, sariefe as pure stand has the maximum plant height and seed yield value. On the other had sariefe+scarpia combination showed very high value for pod number/plant, branch number/plant and fresh and dry forage yield. Pure stand scarpia was the best performer in seed yield. CV+NV+scarpia had the highest 1000 seed weight, fresh and dry forage yield. Maximum planth height was determined from sebat+scarpia, CV+O+B and CV+HV+B combinations. Favorable seed yield and 1000 seed weight value was produced under pure stand sebat seeding. Intercrop NV570+O combination had the higher fresh and dry forage yield. CV+HV+O, CV+NV+O and CV+B+O combination had the highest plant height of sebat.

Key words: Mixture, GGE-Biplot, forage crops, cereals.

[113] Toker, O.S., F.T. Zorlucan, N. Konar, O. Dağlıoğlu, O. Sağdıç, D. Şener, 2017. Investigating the Effect of Production Process of Ball Mill Refiner on Some Physical Quality Parameters of Compound Chocolate: Response Surface Methodology Approach. International Journal of Food Science&Technology, 52: 788-799.

Chocolate compound was produced using ball mill refiner, and the effect of agitator shaft speed and refining time on the physical quality parameters (particle size, colour and steady-state rheology) of compound chocolate was determined using response surface methodology. The shaft speed and refining time range were selected between 40–60 r.p.m. and 10–30 min, respectively. Determination coefficient of the models established for particle size, Newtonian viscosity and colour parameters (brightness, chroma and hue angle) were found to be very close to unity. Increasing shaft speed and time induced a reduction in particle size and an increase in viscosity of the samples. Temperature sweep test was also performed, and the obtained data were successfully fitted to Arrhenius equation to calculate the corresponding parameters representing temperature dependency of the compounds. The results highlighted that the establishment of such models can provide essential information in terms of optimisation of production processes regarding usage purpose of the compound chocolate.

Key words: Chocolate, mathematical model, processing effects, rheology.

# [114] Unakıtan, G., B. Aydın, M.Ö. Azabağaoğlu, H. Hurma, C. Demirkol, F. Yılmaz, 2017, Bitkisel Üretimde Çiftçilerin Girdi Kullanım Bilinç Düzeylerinin Analizi: Trakya Bölgesi Örneği, Gaziosmanpaşa Üniversitesi Ziraat Fakültesi Dergisi, 34 (1), 104-117.

Bu çalışmada, çiftçilerin bitkisel üretimin vazgeçilmez girdileri olan tohum, gübre ve tarım ilacı kullanımındaki bilinç düzeylerinin analizi amaçlanmıştır. Proje sahası Trakya bölgesi olarak belirlenmiş ve Tekirdağ, Edirne ve Kırklareli illeri ele alınmıştır. Saha çalışması kapsamında tesadüfî olarak seçilen 383 üretici ile anket çalışması yapılmıştır. Çalışmada Trakya Bölgesinde faaliyet gösteren çiftçilerin girdi kullanımındaki bilinçlilik düzeylerini etkileyen faktörler yapısal eşitlik modeli (YEM) ile analiz edilmiştir. Yapısal eşitlik modeli sonuçlarına göre, ilaç ile girdi kullanım bilinci arasındaki ilişki katsayısının 0.88, gübre ile girdi kullanım bilinci arasındaki katsayının 0.096, tohum ile girdi kullanım bilinci arasındaki katsayısı 0.73 bulunmuştur. Çiftçinin girdi kullanım bilinci üzerinde ilaç kullanım bilinci daha yüksek bir etkiye sahip iken tohumluk kullanım bilinci ilacı takip etmektedir. Gübre kullanım bilincinin ise çiftçinin bilinç düzeyi üzerinde anlamlı bir etkisi bulunamamıştır.

Anahtar kelimeler: Gübre, ilaç, tohum, yapısal eşitlik modeli.

B. Uluslararası bilimsel toplantılarda sunulan ve bildiri kitabında (Proceedings) basılan bildiriler

### [1] Abdikoğlu, D.İ., G. Unakıtan, 2017. Supply Response of Sunflower in Turkey. 2<sup>nd</sup> International Balkan Agriculture Congress, (16-18.05.2017).

Domestic oil seed production in Turkey does not meet the growing population's vegetable oil consumption. For this reason, there is an foreign dependency on oil seeds. Sunflower is one of the most important oil seeds grown in Turkey. Sunflower is 46% of total oil seed production (BSYD, 2017). Sunflower production should be increased in order to meet the vegetable oil demand from the domestic production. Therefore, it is necessary to increase the sunflower sowing areas and sunflower yield. Sunflower supply is affected by various factors such as sunflower prices, other oil seeds' prices and alternative products that can be produced. The aim of the study is to determine the sensitivity of the change in sunflower sowing areas to sunflower price and other product prices in Turkey. Data between 1970 and 2014 are obtained from FAO. According to the results, the short run elasticity of sunflower price is calculated as 0.09 and the long run elasticity is 0.32. When the elasticity coefficients are examined, it is seen that in sunflower production, the producers are not very sensitive to prices when taking the decisions of sowing area. For this reason, while determining agricultural policies to increase production, structural politicies should be more emphasized.

Key words: Wheat price, sunflower price, sunflower production area, supply response.

#### [2] Acar, O., S. Demirbaş, 2017. Antioxidant Defense Enzymes in Broomrape Parasitism: What have we learned?. 13<sup>th</sup> International Conference on Reactive Oxygen and Nitrogen Species in Plants: Emerging Roles in Plant Form and Function, 10-13.09.2017, pp. 55, Kuşadası, Türkiye.

Broomrapes are obligate parasitic plants. They have a negative effect on the yield of the host cultivated plants. Our researches are conducted in our laboratory during the last 10 years have pointed to a positive correlation between stress tolerance of plants and resistance to broomrape parasitism in some plant species. In this review, the roles of various antioxidant defense enzymes in interacting with different broomrape species have been combined. While *P. ramosa* infection induces APX and GR activities in eggplant leaf tissue, salt stress application in Arabidopsis thaliana increases SOD, POX, GR and CAT activities. *P. aegyptiaca* increases POX activity especially in root and leaf tissues in pepper plants. Following the salt application, APX and GR activities increase especially in leave tissue and all enzymes (SOD, POX, APX, GR, CAT) in all tissues following bioactivator application increased SOD, POX, GR and CAT activities in the lentil root. Glycine-betain application increased SOD, POX, GR and CAT activities in the same tissue. The GR and CAT activity was increased with *O. crenata* in the drought-resistant chickpea variety. In general, the results indicate that antioxidant enzymes work effectively during broomrape infection but differ in root and leaf tissue.

Key words: Broomrape, Biotic Stress, Antioxidant Defense System.

[3] Akdemir, B., C. Sağlam, N. Türen, L.C. Özyürüyen, E.S. Atar, 2017. Development of a Prototype Lineer Fertiliser Machine With a Variable Rate Controller for Orchards. 1<sup>st</sup> AXEMA-EurAgEng Conference-Intensive and environmentally friendly agriculture: an opportunity for innovation in machinery and systems, 25 Şubat 2017. Paris, Fransa.

Fertilisation of orchards are generally has been doing by centrifugal fertilisers, fertigation or by hand. There are a few kind of linear spreader machines to apply chemical fertiliser. More than 80% percentage of orchards there isn't drip irrigation system to apply fertigation method. Other methods have difficulty for homogeny mineral fertilisation in orchards. Precision farming is an emerging philosophy to protect environment and increase profitability. Fruit production is generally more profitable than field production. Farmers change production from field crops to fruit, vineyard or animal production because of their profitability Variable rate application in orchards for mineral fertilisers. In this research, a multi fertilisers spreader machine with 3 hoppers, variable rate controller, laboratory test software and a prescription map software were developed. Developed variable rate controller consists of 3 servomotors, 3 servomotors' drivers, electronic control card, wireless communication and software for spreading 3 different mineral fertilisers. Fertilisers were distributed by specially designed fluted rollers driven by servomotors. The variable rate controller change revolution of fluted rollers to change fertilisation rate. Amount of fertiliser for each grid can be chosen for prescription map and applied amount of fertiliser can be saved for application map by "Prescription Map Software". This software can save some data such as tractor tracks in orchard, distances, time consuming for fertilisation and turnings, time to enter and exit from grids based on GPS data. Fertilisation amount determined for different chemical fertilisers at different scales of the control Soil and leaves samples form olive orchard were analysed for determining system. required amount of mineral fertilisers. Yield was measured for each olive tree to investigate effect of variable rate fertilisation on yield. Texture, pH and nutrient content of soil and micro and macro nutrients in leaves were determined and spatial variability maps were created. Yield data for 2013 and 2015 were not evaluated because of periodicity of olive trees, yield data for 2014 was only evaluated to compare effect of variable and constant rate fertiliser application. Yield results of the variable rate application was higher as 16.80% for total yield and 11.50% for mean tree yield than that yield results of constant rate fertiliser application bin 2014.

Key words: Precision farming, variable rate contraller, orchard fertilisation.

[4] Akdemir, B., C. Sağlam, K. Belliturk, Z. Makaraci, A.Y. Uruşan, E.S. Atar, 2017. Effect of Spatial Variability on Fertiliser Requirement of Olive Orchard Cultivated For Oil Production. International U.A.B.–B.EN.A. Conference - Environmental Engineering And Sustainable Development, 25-27 May 2017, Book of Abstract, p:210, Alba Iulia, Romania.

Aim of this research is to determine effect of spatial variability of soil texture, pH, salt, and plant nutrient contents of soil and leaves on fertiliser requirement of an oil olive orchard which has 102 olive trees. Soil and leaf samples were taken from 29 locations to determine spatial variability. Soil texture, pH, salt, lime, organic matter, nitrogen (N), phosphorous (P), potassium (K), calcium (Ca), magnesium (Mg), iron (Fe), copper (Cu), zinc (Zn) and manganese (Mn) amounts were determined from soil samples that were taken from 0-30 cm and 30-60 cm soil depths. N, P, K, Ca, Mg, Fe, Cu and Mn were determined from leaf samples. When results were evaluated; N, P, K, Ca and Cu contents had optimum values. But Fe, Mn and Zn were found in deficiency levels. Fertiliser requirements for variable rate fertilisation were between 0-0.76 kg/tree for N, 0–0.192 kg/tree for P, and 0–5.22 kg/tree for K. Fertiliser requirement for fixed rate was determined 0.75 kg/tree for nitrogen, 0.275 kg/tree for phosphorous and 1.5 kg/tree for potassium. Required N, P and K values converted to commercial fertiliser forms as urea, ammonium nitrate, and potassium sulphate and triple super phosphate.

Key words: olive, precision farming, spatial variability, variable rate fertilisation.

# [5] Akdemir, B., C. Saglam, N. Türen, L.C. Ozyuruyen, M. Üngör, E.S. Atar, 2017. Development of a prototype linear fertiliser machine with variable rate controller for orchards. 13<sup>th</sup> International Congress On Mechanization and Energy In Agriculture, 13-15 September, 2017, Abstract book; p:20, İzmir, Turkey.

Fertilisation of orchards has been doing by centrifugal fertilisers, fertigation or by hand. There are a few kind of linear spreader machines to apply chemical fertiliser. More than 80% percentage of orchards there isn't drip irrigation system to apply fertigation method. Other methods have difficulty for homogeny mineral fertilisation in orchards. Precision farming is an emerging philosophy to protect environment and increase profitability. Fruit production is generally more profitable than field production. Farmers change production from field crops to fruit, vineyard or animal production because of their profitability Variable rate application in orchards for mineral fertilisers. In this research, a multi fertilisers spreader machine with 3 hoppers, variable rate controller, laboratory test software and a prescription map software were developed. Developed variable rate controller consists of 3 servomotors, 3 servomotors' drivers, electronic control card, wireless communication and software for spreading 3 different mineral fertilisers. Fertilisers were distributed by specially designed fluted rollers driven by servomotors. The variable rate controller change revolution of fluted rollers to change fertilisation rate. Amount of fertiliser for each grid can be chosen for prescription map and applied amount of fertiliser can be saved for application map by "Prescription Map Software". This software can save some data such as tractor tracks in orchard, distances, time consuming for fertilisation and turnings, time to enter and exit from grids based on GPS data. Fertilisation amount determined for different chemical fertilisers at different scales of the control system. Soil and leaves samples form olive orchard were analysed for determining required amount of mineral fertilisers. Yield was measured for each olive tree to investigate effect of variable rate fertilisation on yield. Texture, pH and nutrient content of soil and micro and macro nutrients in leaves were determined and spatial variability maps were created. Yield data for 2013 and 2015 were not evaluated because of periodicity of olive trees, yield data for 2014 was only evaluated to compare effect of variable and constant rate fertiliser application. Yield results of the variable rate application was higher as 16.80% for total yield and 11.50% for mean tree yield than that yield results of constant rate fertiliser application bin 2014.

Key words: precision farming, variable rate application, fertiliser spreader, orchard, olive.

## [6] Akyar, M., Z. Ekşi, E. Polatdemir, D. Apaydın, F. Coskun, 2017. The advantages of microwave using on foods. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May 2017, s 597.

The usage of the microwave sources in industry and at homes has increased dramatically in recent years. Being heated of a material with microware materializes with either movements of the ionic components or mechanism of the particle's polarisation and depolarisation. Heat proceeds from the surface of the food to inner part in traditional heating methods. Owing to producing of the heat inside the material, heating speed is high and the time of process is short during the heating with microwave. Heating in food occurs as a result of molecular friction. To apply microwave, the product should have a dielectricloss. In other words, when applied alternating electromagnetic field, dipolar electric charge is required to occur in the material. Every product containing water is suitable for heating with microwave, since water molecules can easily form dipolar electric charges., the product quality increases owing to less side reaction of microwave. Microwave ovens don't affect adversely the chemical structure of the food. Short heat treatment time and decreasing the loss of nutrition are the reasons of the preference of microwave in heat process. There is no evidence of any dangerous or toxic components with microwave radiation. As a result, microwave energy doesn't make oven, food or any surface radioactive.

Key words: microwave, advantages of microwave, microwave energy, heat treatment.

## [7] Altan, A.D., 2017. Energy efficiency and determination of energy efficiency indicators for agricultural industry. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May 2017. Tekirdag/Turkey.

The efficient use of energy is one of the priorities for sustainable agriculture. Indicators is the key to gaining a better understanding of the evolution of the systems. Energy efficiency indicators were developed to provide a measurement of how efficiently energy is being utilized on industry and a management tool that can be used for comparison in relation to energy use on a representative group. This paper focuses on the methodological issues rather than comprehensive applications. Energy efficiency indicators (includes concepts such as specific energy consumption, energy density, specific energy etc.) have been identified and mathematical formulations have been made for using in agricultural land.

**Key words:** Energy efficiency, energy efficiency indicator, agricultural energy, energy density.

# [8] Altin, İ., C. Öksel, E. Bingül, M. Mirik, 2017. Bacterial spot (*Xanthomonas axonopodis* pv. *vesicatoria*) biocontrol by using potential antagonist bacteria in Turkey. VIII International Scientific Agriculture Symposium AGROSYM 2017, 584-584.

Bacterial leaf spot of pepper and tomato caused by Xanthomonas axonopodis pv. vesicatoria, is one of the most serious diseases in many areas. The disease affects stems, leaves and fruits and causes significant losses when environmental conditions are suitable for the pathogen. Different strategies have been employed for controlling the disease such as sanitation, chemical control by using copper and streptomycin sprays. Also, biological control of the disease by treatment with antagonistic bacteria was also reported. In an attempt to control this disease biologically, the antibacterial activity of isolated 83 bacteria strains in Turkey was tested in vitro condition utilizing PSF agar. A paper disc was placed at the under of plate, and potential bacteria were inoculated on nutrient medium to test their effectiveness against Xanthomonas axonopodis pv. vesicatoria. After 25 h, the phytopathogenic bacteria Xanthomonas axonopodis pv. vesicatoria (grown in NA at 26 °C overnight) was sprayed on the plate inoculated with potential antagonist bacteria. The plates were incubated at 26 °C till the inhibition zone appeared. Antibacterial activity was assessed by measuring the average diameter of the clear zone of inhibition. Among these potential antagonist bacteria, seven of them were found effective against bacterial spot of tomato agent. The degree of shown antagonism varied from 5 to 8 mm. These results confirmed that the antagonists produce some type of toxic substance with antimicrobial effect against Xanthomonas axonopodis pv. vesicatoria, causing inhibition of the pathogen growth.

Key words: Bacterial leaf spot, biocontrol, pepper, tomato.

# [9] Altin, İ., C. Öksel, E. Bingör, M. Mirik 2017. *In vitro* inhibition of bacterial speck of tomato *Pseudomonas syringae* pv. *tomato* by soil-borne antagonistic bacteria in Turkey. VIII International Scientific Agriculture Symposium AGROSYM 2017. 583-583.

Bacterial speck of tomato (Pseudomonas syringae pv. tomato) is a significant source of economic loss in the tomato industry. This disease is cosmopolitan in distribution, favoured by low to mild temperatures and high moisture conditions. Lesion on fruit are very small (almost pinpoint-like) spots and do not penetrate very deeply into the tissue. The spots can be raised, flat or sunken, and range in color from brown to black. Lesions may make fruit unfit for fresh market. Control of bacterial speck of tomato is possible using resistant cultivars, disease-free seed and transplants and/or by treatment with copper compounds. Nevertheless, using bacteria as biological control agents are still misused. However, the biocontrol of disease affecting several crops by this microorganism have been increasingly researched. The objective of this experiment was to evaluate in vitro biocontrol of bacterial speck of tomato by using the candidate antagonist bacteria. The study consisted of two parts: isolation and multiplication of the potential antagonists; in vitro screening of potential antagonists against Pseudomonas syringae pv. tomato. Totally one hundred and twenty- four candidate antagonist bacteria were obtained from rhizosphere of healthy tomato plants and some other fruit trees. The effect of candidate antagonist bacteria over phytopathogen Pseudomonas syringae pv. tomato was performed by the antagonistic activity measured by inhibition zone diameter. In vitro studies showed that dual cultures of all organisms significantly decrease the growth of Pseudomonas syringae pv. tomato. Interestingly, among 17 effective antagonist bacteria, three of them totally inhibited the growing ability of pathogen Pseudomonas syringae pv. tomato.

Key words: Tomato, *Pseudomonas syringae* pv. tomato, antagonist bacteria, soil-borne.

### [10] Altintas, S., E. Karamuk, 2017. Effects of Pruning on Yield and Quality of Tomato (*Solanum lycopersicum* cv. Jumbo F1). 2<sup>nd</sup> International Balkan Agriculture Congress, Book of Abstracts, p: 283.

An experiment was conducted to investigate the effects of a) side shoot pruning: either removing when shoots were 3-5 cm long or topped to leave two leaves on the shoot b) number of trusses on plant: plants were topped to leave 3, 4 or 5 trusses on plant c) number of fruits in trusses: fruits were thinned to leave 4, 5 or 6 fruits in trusses on yield, earliness and fruit quality of beef type tomato (cv. Jumbo F1) grown in PE tunnel in spring-summer growing period. Side shoots removal, when shoots 3-5 cm long, increased total and early yield while pinching of side shoots back to leave two leaves improved fruit quality. While plants with three trusses had the highest early yield, total and early yield were highest with the plants with five trusses. Fruit removal had a positive effect on total, early and individual fruit yield, and the highest yields were observed with plants with four-fruited trusses. It was concluded that, according to combining effect of three factors involved in this experiment; side shoot removing, when shoots 3-5 cm long along, with five trusses on plant and four fruits in each truss had highest total and early yield.

Key words: Tomato, pruning, truss number, fruit thinning, yield.

# [11] Altintas, S., S. Varis, A. Gokgoz, 2017. The Effect of Grape Marc as Seedling and Growing Subtrates on Yield and Tipburn Incidence of Lettuce Grown in Bag Culture. 2<sup>nd</sup> International Balkan Agriculture Congress, Book of Abstracts, p: 575-584.

The effect of grape marc as seedling and planting substrate on yield and tipburn incidence of lettuce grown in bag culture, in spring growing season, was tested in this study. In seedling stage a total of four substrates; fresh grape marc (FGM), open composted grape marc for one year (OCGM1), open composted grape marc for two years (OCGM2), and perlite (P) were used. Seedlings from four seedlings growing substrates subsequently, planted in the planting substrates which were FGM, OCGM1, OCGM2, P and greenhouse soil. Marketable weight of cv. Salinas (iceberg) was the highest with FGM x P (1118 g), P x greenhouse soil (1101 g) and OCGM1 x P (988 g) seedling and planting media combinations. Combinations of OCGM2 x FGM (465 g), P x OCGM2 (450 g), P x FGM (444 g) resulted in the lowest marketable weight. In cv. Lobjoit's green (cos lettuce), weight reduction was observed in total 16 combinations of four substrates as seedling and growing media in bag culture. The highest marketable weight with 813 g, was obtained from the seedlings grown in perlite and planted in the greenhouse soil. P x P combination resulted in second best combination for cos lettuce with 692 g marketable weight. While tipburn incidence ratio of plants grown in soil were 16,7 % with iceberg lettuce, tipburn was not observed in P x FGM, P x OCGM1, OCGM2 x P, OCGM2 x OCGM2, FGM X OCGM2 combinations. In cos lettuce, however, tipburn was observed in all combinations, including soil, except in P x OCGM1 combination.

Key words: Grape marc, soilless culture, tipburn, yield, perlite, compost.

[12] Altintas, S., S. Varis, B. Temel, Ç. Ayvalık, 2017. Effects of Tap Water and Low Strenght Nutrient Solution Applications on Yield and Preventing Salt Accumulation in the Root Zone of Tomato Grown in Perlite Bag Culture. 2<sup>nd</sup> International Balkan Agriculture Congress, Book of Abstracts, p: 285.

Effects of low strength nutrient solution and tap water applications on different intervals on salt accumulation in the root zone and yield and fruit characteristics of tomato grown in perlite bag culture were investigated. Tap water (pH: 8,2; EC: 400  $\mu$ Siemens/cm), pH balanced tap water (pH: 6,2; EC: 500  $\mu$ Siemens/cm) and low strength nutrient solution (pH: 5,5; EC: 1300  $\mu$ Siemens/cm) applied to the root zone either two weeks or four weeks apart or when the EC in the root zone reached to 3000  $\mu$ Siemens/cm. While the effects of solutions and application intervals were not to be statistically important on yield, tap water and pH balanced tap water positively affected total and marketable yield. In addition, there was no blossom-end rot occurrence with the tap water and the pH balanced tap water. Individual fruit yield and fruit diameter were affected by treatments.

Key words: Soilless culture, tomato, salt accumulation, yield, blossom-end rot.

## [13] Ana, D., S. Demirbaş, 2017. Priming Studies for Increasing Plant Tolerance against Abiotic Stress Factors. VIII. International Symposium on Ecology and Environmental Problems, 4-7.10.2017, p. 213, Çanakkale, Türkiye.

Under natural conditions, plants are in the struggle for survival under the influence of various stress factors. Sudden changes in the environmental conditions increase the stress level and limit plant performance. Abiotic stress factors including drought, salinity, temperature, light, nutrients and heavy metals have negative effects on plant growth and development and decrease plant productivity. Germination stage is a significant phase of plant life. Seed genetic structure cause simultaneous seed germination to prevent seedling emergence. Seed priming is a pre-sowing treatment in order to remove all adverse effects and to obtain sufficient seedling establishment and yield. It is aimed to minimize the negative effects that can be experienced during germination and seedling emergence with priming studies, to provide a uniform seedling exit and strong seedling development in a short time and to increase tolerance level of plants to stress conditions. Priming studies can be grouped into four groups according to the substance used: hydropriming (eg., water), osmopriming (eg., proline), hormopriming (eg., strigolactones) and biopriming (eg., Pseudomonas aureofaciens). In addition to these methods, effects of newly used chemicals (reactive oxygen species, nitrogen oxides, etc.) in priming studies on physiological (stomata conductance), biochemical (antioxidant enzyme activity) and molecular (transcription factors) changes were explained in this study.

Key words: Reactive oxygen species, tolerance, plant stress responses, seed, pre-treatment.

#### [14] Apaydın, D., F. Coskun, 2017. Changes of Some Properties of Honey-enriched Probiotic Yogurt During Refrigerated Storage, 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May 2017, p. 595.

Consumption of probiotic yogurt supplies alive microorganisms which protects intestinal health and digestive system since it ensures balance in numbers of bacteria in intestine. Honey-enriched probiotic yogurt is a good source of carbohydrates, proteins, minerals and vitamins. Probiotic yogurts were produced by adding natural probiotic yogurt cultures (Lb. bulgaricus, S. thermophilus, Lb. acidophilus) and different ratios of flower honey to cow milk and then analayzed. We evaluated several physicochemical properties (pH, titratable acidity, texture, color, and syneresis), microbial viability of starter cultures (Lactobacillus bulgaricus and Streptococcus thermophilus) and probiotics (Lactobacillus acidophilus, Lactobacillus casei, and Lactobacillus reuteri) during storage (21 d at 4°C), as well as sensory preference among them. Having been evaluated, physicochemical parameters (pH, titratable acidity) indicated that best yogurt was the yogurt with %6 honey. Though, pH, water holding capacity of yogurt samples were decreased, viscosity increase was observed in yogurt during storage. Honey-enriched yogurt is a good alternative for people who don't like yogurt in order to benefit nutritive value of yogurt. In this research, when we evaluated sensory preference among them, yogurt with no added honey and yogurt with %6 honey were choosen the most desirable ones respectively. The highest increase among bacteria in yogurt with %3 honey and control one was observed in Streptococcus thermophilus, as well as the highest increase in yogurt with %6 honey was observed in Lactobacillus acidophilus. Honey-enriched probiotic yogurt is a good alternative for people who do not like yogurt to benefit from the nutritional value of the yogurt.

Key words: Honey-enriched yogurt, probiotic yogurt, yogurt, fermented product.
#### [15] Apaydin, D., U. Gecgel, M. Tasan, 2017. Significant Oil Plants Grown in Thrace Region and Their Quality Features. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May, Tekirdag, Turkey, 601, (2017).

Thrace Region is located in the North West of Turkey, west of Istanbul, north of Black Sea, south of Marmara Sea and west of Aegean Sea; furthermore Greece and Bulgaria are the neighbors of Thrace Region. Edirne, Kırklareli and Tekirdağ provinces and a part of Istanbul and Canakkale provinces are located in this region. The surface area of Thrace Region is 23.686 km<sup>2</sup> and it constitutes 3 % of the land area in Turkey. The important oil plants grown in Thrace Region are sunflower and canola. The production of sunflower in Turkey in 2015 is 1.2 million tons, about 35-40 % of this amount is supplied from Thrace Region. Likewise, canola production in Turkey in 2015 is 87.954 thousand tons, this amount corresponds to around 70% of Turkey canola production. The average sunflower yield was 232 kg/da, while this value for canola was 346 kg/da. The fatty acid composition of sunflower seeds in this region is determined as 35% oleic acid (C18: 1, n-9, omega-9), 55 % linoleic acid (C18: 2, n-6, w-6) while the remaining 10% were predominantly formed by other fatty acids such as palmitic (C16: 0) and stearic (C18: 0) acids. The ratio of linolenic acid (C18: 3, n-3, omega-3) is usually below 1 %. On the other hand, high oleic sunflower production has been carried out in the region in recent years and the oleic acid content in such varieties exceeds about 80 %. The major fatty acids of canola seeds grown in the region are C18: 1 and C18: 2, followed by C18: 3.

Key words: Thrace Region, oil plants, sunflower, canola.

### [16] Arap, S., E. Yılmaz, 2017. Evaluation of Relationship Between Önder Çiftçi Consultancy Association And Member, Mediterranean International Conference on Social Sciences, Mediterranean Economy, Culture, Architecture and Security, University of Donja Gorica (19-20.05.2017).

In this study, the associations of Önder Ciftci Consultancy Associations operating in Tekirdag province and its provinces are examined. Within the scope of the research, Önder Çiftçi Consultancy Associations (ÖÇDD), operating in the provinces of Tekirdağ and Malkara, Hayrabolu and Muratlı, were taken. According to the membership numbers, face-to-face interviews were conducted with different members from each association and questionnaire data were collected and analyzed. A total of 139 surveys were conducted. According to research findings; Of the producers who are members of Önder Çiftçi Consultancy Association, 48.2% are in the age range of 46-55, 43.9% are primary school graduates and 43.2% has a lot of land worth 400 decares. 49.6% of the members are recording / bookkeeping. 87.1% of ÖCDD member states consulted the Association and stated that they were producing in line with their recommendations and that their incomes increased. When we examined the reasons why the interviewed member farmers were members of Önder Çiftçi Consultancy Associations, 64.8% stated that they are members to provide technical information and assistance, to participate in organized training and seminars and to benefit from consultancy services. In addition to all these, the members stated that they are satisfied with the activities of the association with a very high rate (96.4%)

Key words: Önder Çiftçi Consultancy Association, organization, member, agriculture

### [17] Arat, S., 2017. Reproductive performans of cloned Anatolian Grey cattle and their generations. 2. International Balkan Agriculture Congress, 359-359.

In this study, we examined reproductive performance of one male and four female cloned cattle which were produced by somatic cell nuclear transfer (SCNT) in a previous study and their generations. The parameters evaluated by fase contrast microscopy for motility, TUNEL for DNA fragmentation, eosin staining for viability, Hoechst 33258 staining and HOST for membrane integrity and FITC-PSA for acrosome integrity of frozen-thawed spermatozoa, as well as, birth and survival of calves following insemination with frozenthawed semen of cloned and nuclear donor bull and normal bull. The spermatological parameters of cloned bull semen as volume, concentration and motility of fresh were in the well accepted limits for the artificial insemination (4,60  $\pm$  0,47 mL, 1,55  $\pm$  0,21 x109spermatozoa/mL,  $80,00 \pm 1,07$  % respectively). Frozen-thawed sperm motility and viability rate was higher in cloned bull (56.6%, 56.7%) than in its nuclear donor (47 %, 43 %) (p < 0.05). Intact membrane and DNA fragmentation rate of cloned bull and its nuclear donor bull sperm were similar (p > 0,05) but, intact acrosome rate of cloned bull was higher than its nuclear donor (p < 0.05). When four female cloned grey cattle were artificially inseminated with frozen semen from nuclear donor bull and cloned grey bull and was naturally mated with a holstein bull, they gave birth seven healthy calves (F1). When three female calves reached pubertas they were naturally mated with normal grey bull and they gave birth three healthy calves (F2). Those data showed that cloned Anatolian grey bull and cows had normal fertility.

Key words: Anatolian Grey cattle, cloned cattle.

## [18] Arat, S., 2017. Synchronization of Fresh and Frozen Cells Obtained from Livestock. 8th.Balkan Animal Science Conference, 6-8 September 2017, Prizren, Kosova.

The most important step of NT is to synchronize the cells of desired animal at desired cell cycle stage for cloning. The aim of the project is to synchronize different type of cells (such as; skin fibroblast, muscle cells, cartilage cells and granulosa cells) obtained from various species (such as; cattle, sheep, goat and buffalo) at a particular cell cycle stage using a variety of methods (serum starvation, contact inhibition and roscovitin), to determine the potential harmful effects of methods on these cells, and to determine the less hazardous and the best method. After synchronization experiments, cells were analysed by flow cytometry for cell viability, apoptosis, necrosis and cell cycle stage. As a result of this study, one or a few cell synchronization options giving highest rate of G1/G0 and having lowest harmful effect on cells were identified for four different cell types used at least on time for nuclear transfer studies and resulted live birth. In addition, thinking of cells stored in frozen cell banks in the scope of genetic resouces conservation program, all methods were applied on both fresh and frozen cells in comparison. This research was supported by TUBITAK with grant numbers TOVAG-1120932 and Namik Kemal University with grant numbers NKUBAP.00.24.AR.12.10

Key words: Frozen Cells.

## [19] Arat, S., 2017. Cell Isolation from Livestock and Cry-conservation of Animal Cell. 8th.Balkan Animal Science Conference, 6-8 September 2017, Prizren, Kosova.

Cloning of organisms with nuclear transfer (NT), namely production of genetic copy of organisms, is the most advanced point of today's modern biotechnology and assisted reproductive technique. One of the main material for cloning process is the cell of animal which is chosen for cloning. Therefore, the most important step of NT is to isolate the cells of desired animal for cloning and also to cryopreserve them for long period. The aim of the project is to isolate different type of cells (such as; skin fibroblast, muscle cells, cartilage cells and granulosa cells) obtained from various species (such as; cattle, sheep, goat and buffalo) and cryopreserve them by using differen cryoprotectant combinations. While the ratio of necrotic and apoptotic cells was increased when the serum ratio in the freezing solution decreased. The highest cell viability was obtained from freezing solution containing 10% DMSO, 40% serum, in dextran 40 or dextrose. This research was supported by TUBITAK with grant numbers TOVAG-1120932 and Namik Kemal University with grant numbers NKUBAP.00.24.AR.12.10

Key words: Cry-conservation, Animal Cell.

# [20] Arslan, B., E. Culpan, 2017. Oil Crops Production and Vegetable Oil Deficit of Turkey. International Congress of the New Approaches and Technologies for Sustainable Development, Book of Abstract, page 281, 21-24 September 2017, Isparta.

Turkey has been among importer countries in the trade of oilseeds and vegetable oils for many years. Because our country does not have consistent agricultural plans for production of oil crops which can not be put into practice, over the years vegetable oil deficit has increased. Despite adequate production of many crops in our country, the big foreign trade deficit exists especially in the production of oil crops and vegetable oil. According to TUIK foreign trade data, Turkey imported 6.2 million tons of vegetable oil, oilseeds and oilseeds pulp worth 3.4 billion dollars, 3.1 billion tons of oil seeds (\$ 1.4 billion), 1.5 million tons of crude oil (\$ 1.6 billion) and 1.6 million tons of oilseeds pulp (\$ 444 million) in 2016. These import values constitute about 1.7% of the total foreign trade of our country in 2016 (\$ 198.6 billion), which means a serious foreign currency loss in terms of our economy. The amount of vegetable oil obtained from oil seeds produced in Turkey is 780 thousand tons and this value can meet only 1/3 of the needs of our country in 2016. Althoug our country is suitable for the production of oilseed crops in almost every region, the increasing vegetable oil deficit is thought-provoking. However, Turkey's oil crops are in appropriate ecological condition in terms of their production. Our country will be able to make use this advantage ideally and plan and program it with a number of precautions so that it will be able to exert itself in the production of oil seed and vegetable oil and export the production excess.

Key words: Oil seed, vegetable oils, oil deficit, import.

## [21] Arslan, B., E. Culpan, 2017. The Present State of Medicinal Plants in the Natural Flora of the Thrace Region and Facilities of Utilizing. 1st International Congress on Medicinal and Aromatic Plants, Book of Abstract, page 464. 9-12 May 2017, Konya.

Medicinal plants have been used for medical and other purposes throughout history, and their use is increasing day by day. Because of possessing geographical regions that are different from each other in terms of their topographical features and climate, encompassing three phytogeographical regions, tying the continents of Asia and Europe and being surrounded on three sides by the sea, our country has a considerable worldwide wealth of plant species. Our country involves nearly 10000 plant species, 4000 of which are endemic. However, 500 of these species are known to be used for medical purposes. In our country, nearly 140 plants are registered to codexes. But the number of plants being consumed for medical purposes is much higher. In some publications, it is reported that the number of plants being consumed for medical purposes is at least around 500. It is reported in the list prepared as a result of examining lots of publications about the Thrace Region that there are 2450 plant species that ramify in 145 families. The fact that the Thrace Region involves 2450 plant species is a sign of how rich its flora. There are a large number of medicinal and aromatic plants in this rich flora. In this study, some plants that are part of natural flora, that have commercial importance and that are used in pharmaceutical industry are explored, and their present state and facilities of utilizing them are elaborated.

Key words: Thrace Region, plant species, medicinal plants, flora.

### [22] Arslan, B., Y. Yıldırım, E. Culpan, 2017. Effects of Boron Applications on Seed Yield and Some Quality Characters of Rapeseed (*Brassica napus* L.). 2nd International Balkan Agriculture Congress, Book of Abstract, page 183, 16-18 May 2017, Tekirdağ, Turkey.

This research was conducted at the field of Tekirdag Viticulture Research Institute in 2013-14 growing seasons. The aim of this research was to determine of effects of boron application on seed yield and some quality traits of rapeseed. The four cultivars of rapeseed (Excalibur, Artoga, PR44W29, Karavel) were used as a material of this research. In this research different rates of boron fertilizer (control, 100, 200 and 300 ml/da) were investigated. The doses of boron fertilizer (%8 voliminous WP) were applied by spraying to plants %50 flowering stage. The research was conducted using a randomized complete block, split block design with four replicates. In this study were observed some morphological and quality traits. According to the results of this research; boron fertilizing was no significant in term of yield and yield component of rapeseed, but diffirences among cultivars were significant in term of yield and yield traits. Branch number has showed positive effect with boron doses and highest branch number has obtained with 300 ml/da application. Differences among cultivars were significant in term of seeds per capsule and highest seeds per capsule has obtained PR44W29 cultivar, averages ranged from 19,463-20,745. Differences among cultivars were significant in term of seed yield and highest seed yield has obtained Artoga cultivar, averages ranged from 282.675-343,390 kg/da. Boron doses were no significant in term of capsule length, seeds per capsule, 1000 seed weight, seed yield and oil yield.

Key words: Rapeseed, Boron Fertilizing, Seed Yield, Oil Rate.

[23] Atak, A., Z. Polat, M. Akkurt, Z. Göksel, H. Çelik, G. Söylemezoğlu, K.A. Kahraman, Y. Boz, N. Özer, Z. Yıldırım, D.S. Akgül, G.G. Kandilli, Y. Doyğacı, 2017. Use of different methods to determine dısease resistance of some *Vitis* spp. VIII International Scientific Agriculture Symposium, 05-08 October, Abstract Book, Page: 559.

Fungal diseases are the most important problems that limit quality production in viticulture. Downy and powdery mildew particularly cause serious yield and quality losses in almost every grape growing region. Too many fungicides are needed for treating these diseases, whichposesa serious threat for humans and the environment. To address this problem, creating disease resistant or tolerant cultivars is suggested as most effective. Therefore, it is necessary to clarify the resistance of cultivars in terms of downy and powdery mildew. In this study, we tried to determine the resistance status of different cultivars/genotypes of Vitis against these two diseases with different methods. Natural infections and inoculation applications for downy and powdery mildew diseases had been applied for two years. The results were scored and disease severities were determined and classified according to the scale values of the cultivars/genotypes. As the second method, the existence of resistant gene regions in the cultivars/genotypes with a total of 8 different markers related to these two diseases was investigated. Finally, in addition to this, some cultivars/genotypes were examined for changes in the amounts of different phenolic components in the healthy and diseased leaves. The amount of total phenolics and antioxidants especially showed significant increases after both diseases. As theresult of the study, the researchers determined which of the cultivars/genotypes were resistant, tolerant or susceptibleto both diseases. The resistant cultivars/genotypes were mainly the cultivars from Vitis labrusca and interspecies.

Key words: Fungal diseases, Vitis spp., resistance, marker, phenolic compounds.

## [24] Avci, S.H., M. Mirik, İ. Altin, C. Öksel, 2017. Identification and prevalence of bacterial blight of walnut (*Xanthomonas arboricola* pv. *juglandis*) on walnut orchards in Edirne. 2<sup>nd</sup> International Balkan Agriculture Congress, 40-40.

Walnut (*Juglans regia* L.), has great importance in agriculture due to its high nutritional value and the usage in the furniture industry. Walnut production was increasing in significant level in Turkey. Recently, severe incidence of walnut blight disease caused by *Xanthomonas arboricola* pv. *juglandis* in walnut orchards in Trace region of Turkey. In this study, bacterial isolation and identification from diseased walnut samples, obtained from walnut orchards in Edirne, were made in 2014- 2016 growing seasons. Disease symptoms were characterized by small water-soaked spots on the leaves turning with age into angular, sunken, deep-brown to black necrotic lesions which were often surrounded by a yellow-green halo on leaves and fruits. During the survey, prevalence of bacterial blight of walnut disease was determined. Sixty two infected plant samples were collected during the survey studies. Hundred and four bacterial isolates were obtained from diseased samples. Bacterial blight of walnut disease was identified according to biochemical methods. The prevalence of bacterial blight of walnut disease was determined as 86% and the incidence ratio was 28.65% in all surveyed walnut fields.

**Key words:** *Juglans regia*, walnut, *Xanthomonas arboricola* pv. *juglandis*, bacterial walnut blight, identification, LOPAT.

[25] Aydın, A., A.A. Işıkber, M.K. Er, Ö. Sağlam, İ. Doğanay, H. Tunaz, 2017. Efficacy of Turkish Diatomaceous Earth in combinations with Entomopathogenic fungus, *Beauveria bassiana* (Bals.) Vuill against *Rhyzopertha dominica* (F.). 11th Conference of the IOBC/wprs Working Group on the Integrated Protection of Stored Products,3-5 July 2017, Ljubljana, Slovenia, p.32. (Oral presentation) ISBN: 978-961-6379-41-0

In this study, effectiveness of Turkish diatomaceous earth in combinations with entomopathogenic fungus, Beauveria bassiana (Bals.) local isolate against stored grain insect pest, Rhyzopertha dominica (F.). In this scope, biological tests were carried out in order to determine insecticidal activity of 250 and 500 ppm concentrations of Turkish diatomaceous earth (DE) alone, 150 and 300 ppm of entomopathogenic fungus, Beauveria bassiana (Bals.) local isolate alone and their binary combinations against R. dominica adults. The mortality of *R*. dominica adults and their numbers of progeny of  $F_1$  generation were determined 7 and 14 days after the treatments and 45 days after the complete of each biological test respectively. The results of biological tests on wheat indicated that all treatments of Turkish diatomaceous earth alone (250 ppm DE and 500 ppm DE) resulted in low mortalities of R. dominica adults. After 7 days of the treatments, all binary combinations of Turkish diatomaceous earth (DE) and B. bassiana local isolate (150 ppm EP+250 ppm DE, 150 ppm EP+500 ppm DE, 300 ppm EP+250 ppm DE, 300 ppm EP+500 ppm DE) resulted in higher mortalities of *R. dominica* adults than Turkish diatomaceous earth and B. bassiana local isolate alone treatments. However, no treatments did not produce the complete mortality of *R. dominica* adults after 7 day of the treatments. The mortalities of *R.* dominica adults at all binary combinations of DE and EP after 7 day of the treatments, were higher than sum of the mortalities of EP and DE alone treatments. After 14 day of the treatments all binary combinations of DE and EP except treatments at the highest concentration of EP (300 ppm) for R. dominica also resulted in significant increase of the mortality of R. dominica adults. The complete mortality of R. dominica adults was obtained at only binary combination of 300 ppm EP and 500 ppm DE after 14 days of treatment. In parallel with the mortality results obtained from biological tests, all binary combinations of DE and EP significantly reduced F1 progeny production compared with that at control treatment. However, all binary combinations of DE and EP except binary combination of 300 ppm EP and 250 ppm DE did not completely prevent F1 progeny production of R. dominica. In conclusion, this study indicated that the binary combination of Turkish diatomaceous earth and B. bassiana local isolate would have potential to be used for control of stored-grain insects.

**Key words:** Turkish diatomaceous earth, entomopathogenic fungus *Beauveria bassiana*, *Rhyzopertha dominica*, biological tests.

## [26] Azabağaoğlu, M.Ö., G. Unakıtan, 2017. Bakery Sector Issues and Possible Solution Suggestions, V. International Balkan and Near Eastern Social Sciences Congress Series, Series-Kırklareli (23-24.09.2017).

Fats and carbohydrates are two basic nutrition groups to compensate human's food energy need. Main source of carbohydrates is cereal crops and bread as a final product. Bread and bakery products are major nutrition source almost all over the world. Turkey is one of the major countries in the world by quantity of bread and bakery products consumption. Approximately, 26 thousand tonnes bread consumed in a day and totally 9.5 million tonnes in a year. Prevalently wheat crop is the main source of bread making in Turkey, but also millers use rye, corn, barley and other field crops to make different breads. Last years white bread consumption figures decreases but brown bread and mixed crop bread consumption increases due to the health conscious. While bread and bakery products are serious food source for humans but sector has struggled with raw material quality, qualified labor, legal regulations and mainly unfair competition. The purpose of the study is to determine issues of the bread and bakery products sector and develop possible solutions of those problems. For this reason we use SWOT analysis to reveal strong and weak sides of the bakery sector and to solve these problem with identify the opportunities and threads.

Key words: Bread, bakery products, SWOT analysis, cereal crops.

### [27] Azabağaoğlu, M.Ö., U. Yıldırım, 2017. Examining the Economic Structure of Fertilizer Sector in Turkey, International Balkan and Near Eastern Social Sciences Congress Series-Russe/BULGARIA (08-09.04.2017).

Fertilizers are substances that increase soil nutrients that reduced from soil after agricultural production period, and also increase the yield of agricultural products. And also fertilizers are the most effective tools to improve food quality and quantity. Compared to other agricultural inputs, fertilizers provide an up to 40 % yield increase. For this reason, fertilizers contribute to world food safety, support to higher living standards and fight against to starvation. The importance of the fertilizer sector not only evaluating with yield increase in agricultural production, but also evaluating with quantity of create added value and opportunity for employment. Agriculture has sharing 13 % from Gross Domestic Production (GDP), but 1/3 of them provided from fertilizer sector. Fertilizer sector has a low capacity usage issue, even full capacity compensate to 90% of domestic demand, but only 62 % of the supply level is ensured by the companies. Hence, fertilizer sector has dependent to foreign fertilizer producers. Import of the raw material of the fertilizer has a great issue regarding bureaucracy and higher costs. Majority of the world fertilizer demand provided from developing countries. China is the leader of the production with the share of 20.6 %, USA, India, Canada and Russia follow the China respectively. Last years, developing countries fertilizer usage increased by means of 2.5 times. Develop countries are also increased by means of 0.9 times at the same period. Examining the world export figures, it is obviously seen that developed countries are the top exporters as Canada, Russia, USA and Germany respectively. Those countries are also has a great potential of fertilizer raw materials, so this potential has create positive opportunity for competition. Aim of the study is to analyze economic structure of fertilizer sector in Turkey take into consideration with world fertilizer situation. Furthermore, outcomes of this analyze on further fertilizer sector developments would be arguing. Paper also investigates to measures to recover foreign source dependency with respect to determine potential of domestic fertilizer raw materials. An also we suggest that fertilizer firms should be improve their skills on research and development, production techniques, supply chain management and marketing system.

**Key words:** Fertilizer trade, productivity, gross domestic production, foreign source dependency.

#### [28] Azabağaoğlu, M.Ö., G. Unakıtan, U. Yıldırım, 2017. Thrace Region Farmers' Fertilizer Usage Conscious in Agricultural Production, International Balkan and Near Eastern Social Sciences Congress Series-Russe/BULGARIA (08-09.04.2017).

Chemical fertilizers are the most important input in production of agricultural goods. Fertilizer usage in Turkey is increasing by the years. Last year, this figure reaches the 5.5 million tons of chemical fertilizer in Turkey. Approximately 40% of them provided from import. Fertilizer consumption still lowers than world average and EU countries. Proportion of fertilizer consumption in Turkey is around 90kg/ha but in contrast, EU countries average reaches to 200kg/ha. World consumption is still higher than Turkey as an 116kg/ha. The aim of the study reveals the Thrace region farmers' fertilizer consumption with regards to three different districts. Especially comparative study will examine the differentiation among the districts. For this reason, producers of Tekirdağ, Edirne and Kırklareli provinces were formed our sampling frame. Data were gathered from face to face interviews. Farmers' fertilizer usage decisions and the conscious level will have been studied. Another goal of the study is find out, if it is positive relation, quantity of fertilizer consumption regarding farmers who did soil analysis. An also we will have examined the appropriate fertilizer usage ratio and yield connection.

Key words: Fertilizer consumption, production yield, farmers' decision, soil analysis.

# [29] Bakanogulları, F., U. Ay, B. Akdemir, 2017. Determination of Spatial Variability In Sunflower Production, 5th International Participation Soil and Water Resources Congress, 12-15 September, 2017, Kırklareli, Proceedings book: 149, Atatürk Soil, Water and Agricultural Meteorology Research Institute, Republic of Turkey Ministry of Food, Agriculture and Livestock, Kirklareli, Turkey

Aim of this research is to determine spatial variability of soils, nutrients in soil and yield for sunflower production to assess variable rate fertilisation. Materials were sunflower field, and GNSS. Seed variety was Limagrain 5542. Total size of the research field was 35.8 ha. Soil samples were taken from 0-30 cm and 30-60 cm depths. Soil texture, saturation point (%), pH at saturated soil, Lime (%), total salinity (%), CaCO3, organic matter, useful P (P2O5), useful K (K2O), field capacity (%), and wilting point (%) were determined. Soil texture was found mostly clay but clay loam and sandy clay loam textures was also determined. Mean values and standard deviations for saturation point 57.35% and 7.44%, pH 7.30 and 0.66, Salt 0.07 and 0.01, lime 7.63 and 0.68, organic material 1.29% and 0.17%, P2O5 18.22 and 2.52, K2O 146.05% and 30.82, field capacity 30.34% and 4.07%, and for wilting point 19.18% and 2.72. Mean yield was 2100 kg/ha. Required fertilisers will be 285 kg/ha Ammonium Sulphate (21%N) and 115 kg/ha Calcium Ammonium Nitrate (26%N) for constant rate fertiliser application as conventional application. If this fertiliser is applied as variable rate; amount of fertilisers will be 115 kg/ha Calcium Ammonium Nitrate (26%N) for whole field and 285 kg/ha Ammonium Sulphate (21%N) should be applied for 250 ha. field size. Urea (46%N) suggested as 130 kg/ha for 100 ha. According to the results, fertiliser requirement of the sunflower field is not constant. Fertilisation necessity is spatially determined. Fertiliser application with spatial variable rate will increase yield, quality and decrease fertilisation cost and environmental effects.

Key words: Sunflower, Precision Agriculture, Spatial Variability, Variable Rate Controller.

### [30] Başaran, B., S. Konyali, 2017. Evaluation of Agricultural Policies in terms of the Sustainability of Viticulture in Tekirdag, UARD Jubilee Scientific Conference, Sustainable Regional Development Perspectives 27-28 October 2017, Plovdiv, Bulgaria.

Viticulture is one of the important agricultural activities in Turkish agriculture. Turkey is among the leading countries in the world with vineyard area and grape production. Grape as a fruit has various usage areas such as grape molasses, grape juice, wine etc. Also vine leaves can also have brined and consumed. However, in recent years, vineyard areas have decreased significantly. It is necessary that viticulture should be supported because it is a costly activity which requires intensive labor but provides a high added value. The viticulture businesses are generally small-scale enterprises. These businesses can continue their activity as long as they earn money. In Tekirdağ viticulture and wine making is an agricultural activity inherited from the Greeks who migrated in exchange. Wine grape production is mostly carried out by small-scale enterprises. However, there are also large businesses that produce wine with their own brand. In this study, agriculture policies were evaluated in terms of sustainability of viticulture activity in Tekirdağ.

Key words: Viticulture, sustainability, Tekirdağ, agricultural policy.

#### [31] Başaran, B., Z.M. Tengiz, 2017. Young Farmers Projects and Young Farmers in Tekirdağ. The Eurasian Agriculture and Natural Sciences Congress (Özet Bildiri/Sözlü Sunum)(Yayın No:3605947).

Agriculture is the source of food that is needed by people for sustenance. In Turkey, agricultural activities are the most important source of income in rural areas. On account of insufficient income in agriculture, especially young population migrates from the rural area to the city and tries to maintain its life in the city. The result of this migration, old and senescent farmers are keeping on the agricultural activities. Agricultural production is essential for sustainability of agriculture and agricultural areas, to prevent migration from rural areas, to nourish, to reduce external dependence. For these purpose, "Young Farmer Project" is enacted by the Ministry of Food, Agriculture and Livestock to cover the years 2016-2018 within the scope of Rural Development Supports. Supporting the entrepreneurship of young people aged 18-40, ensuring sustainability in agriculture, creating alternative sources of income, contributing to the employment of young people in rural areas; shortly it is aimed to prevent migration from the village to the city. In 2016, about 15 thousand young farmers benefited from about 30 thousand Turkish Liras per person. 142 young farmers took this support in Tekirdağ. An important proportion of the support was livestock projects. In the research, beneficiaries were evaluated for their grant support. For this purpose, a questionnaire will be applied to the young farmers and their attitudes towards the given support was examined and offers were provided for this support.

Key words: Rural Development, Young Farmers, Grant, Tekirdağ, Young Farmers Project.

### [32] Başaran, H., B. Başaran, 2017. Conjuncture Effect for Cooperative Development. 2. International Balkan Agriculture Congress (Özet Bildiri/Sözlü Sunum)(Yayın No:3605928)

In the world, Cooperatives has been functioning for more than 150 years. It is seen that exceptional circumstances, economic and social crises, historic and social developments have effects on the emergence and expansion of cooperative movement. There is no coincidence that the first examples of cooperative movement was seen in Britain which industrial revolution affected the most. Also, Turkish community was in search of cure to its economic and social problems. So, the same logic and search formed intellectual foundations of the cooperative movement. In the 19th century, Ottoman Empire, was on decline economically and socially, tried to reform its economy and social structure. Within this framework, Memleket Sandıkları, the first Turkish cooperative, was founded in 1863 under the guidance of governer of Nis province Mithad Pasha to consolidate the social solidarity. Moreover government officials support to cooperatives and new starts, transformation of Turkish economy and social atmosphere at different times led to shape cooperatives. Thus agriculture based Turkish economy pioneered founding of agricultural cooperatives like "Agricultural sales cooperatives" and "Agricultural credit cooperatives", as a predecessor of Turkish cooperative law. For instance; increase in agricultural cooperatives at beginning of 19th century, housing cooperatives when intense migration to cities, consumption cooperatives at high inflation-times, are some examples of cooperatives were brought about by economic and social conditions. This article will examine Turkish Cooperative history through economic and social atmosphere. To understand today through results which caused by cooperative activates on economic and social perspective.

**Key words:** Cooperatives, conjunctur, turkish cooperative history, cooperative development.

### [33] Başaran, H., B. Başaran, 2017. Agricultural Cooperatives (Co-ops) in Turkey.2. International Balkan Agriculture Congress. Yayın No: 3605934.

The agricultural sector still keep the economic and social importance in Turkey. Cooperatives are the most effective organized structure of the agricultural sector. Agricultural sales and agricultural credit cooperatives to the years they have established so far has pioneered both in terms of industrialization and agricultural activities. Sugar beet cooperatives established in demand from the base, have contributed to the development of the sugar industry and have been the most effective enforcement of the contract farming today. Economic conditions in the historical period in which the country has forced restructuring to cooperatives. Restructuring programs are often created and implemented with public management-source. Restructuring initially experienced difficulties in practice, the process that allows the development of cooperatives continued existence but shrunk numerically.

Key words: Cooperatives, agriculture, industrialization, local economic development.

#### [34] Başaran, H., B. Başaran, 2017. Kuzey Kıbrıs Türk Cumhuriyetinde Hayvansal Üretim Ve Hayvansal Ürünler Ticaretinin İncelenmesi. 22. Milletlerarası Türk Kooperatifçilik Kongresi Sosyal Ekonomi Ağları: Küresel Değişim İçin İşbirliği, 05-07 Ekim 2017 Nevşehir.

Tarım, Kuzey Kıbrıs Türk Cumhuriyeti ekonomisinde önemli bir sektör olma özelliğini korumaktadır. Hayvancılık faaliyetleri ve hayvansal ürün ticareti tarım sektörünün en önemli alt kolu olarak önemimi sürdürmektedir. Kuzey Kıbrıs Türk Cumhuriyetinde hayvancılık faaliyetleri büyükbaş hayvancılık, küçükbaş hayvancılık, kanatlı yetiştiriciliği, balıkçılık ve arıcılık üzerine yoğunlaşmıştır. Ülkede balıkçılık ve arıcılık yeterince gelişmemiş, küçükbaş hayvan yetiştiriciliği genellikle küçük aile işletmeleri tarafından yapılırken, büyükbaş hayvancılık ve kanatlı yetiştiriciliği ileri tarım tekniklerini kullanan işletmelerce yapılmaktadır. Ülkede büyükbaş hayvancılık faaliyetinde üretici/işletme sayısı 1.025, küçükbaş hayvancılık faaliyetinde bulunan üretici/işletme sayısı 3.558 dir. İşletme başına düsen sığır ortalama sayısı 65,7, kücükbas ortalama sayısı 94,5 dir. Hayvansal ürünlerin değerlendirilmesi ve pazarlanmasında sorunlar bulunmaktadır. Süt ürünleri ihracatı süreklilik göstermekte olup dönemsel olarak sorunlarla karşılaşılmaktadır. Tarımsal ürün ticaretinde serbest piyasa koşulları yeterince oluşmamıştır. Çiğ süt alım ve destekleme politikaları, kısa dönemli endişelere çözüm bulmaya yönelik, genellikle üreticilere fiyat desteği sağlamama şeklinde, tedbirlerden oluşmaktadır. İç pazarın küçüklüğü yanında ihracatta karşılaşılan sorunlar üretim hacmini olumsuz etkilemektedir. Bu durum verimliliği düşürmekte ve maliyetleri artırmaktadır. Tarım ürünleri ülke ihracatında ilk sırada yer almaktadır. 2016 yılı ihracat gelirinin yaklaşık %34'ü süt ürünleri, %27'si bitkisel ürünler (narenciye, sebze ve diğer), %6'sı kanatlı eti ürünlerden olmak üzere yaklaşık %67'si tarım ürünlerden elde edilmiştir. Bu çalışmada; Kuzey Kıbrıs Türk Cumhuriyetinde hayvancılık sektörünün durum analizi yapılarak hayvansal ürünlerin üretim ve ticareti üzerine değerlendirme yapılmıştır. Çalışmanın ana materyalini Kuzey Kıbrıs Türk Cumhuriyeti Devlet Planlama Örgütü ile Kuzey Kıbrıs Türk Cumhuriyeti Tarım ve Doğal Kaynaklar Bakanlığının yayınlanmış verileri oluşturmaktadır. Ayrıca daha önce yapılmış çalışma ve araştırma sonuçlarından yararlanılmıştır.

Anahtar kelimeler: Tarım, hayvancılık, hayvansal ürün, tarımsal yapı, dış Pazar.

# [35] Başer, İ., S. Akyürek, 2017. Comparison of Sunn Pest Damage and Genotypic Differences in Bread Wheat Varieties by SDS-Page Analysis. 2nd International Balkan Agriculture Congress, 16-18 MAY, Tekirdağ, Turkey, Book of Abstracts, page 130.

The research was carried out in five different locations in 2010 and 2011 years under In the ecological conditions of Hayrabolu, Malkara, Suleymanpasa, Şarköy and Saray districts. Twenty three bread wheat varieties were used as material in the study. the study carried out in the 2 different growing conditions as field condition and a covered area with sunlight. The sunn pest damage rates in wheat varieties grown in the open area was ranged from of 6.0. to 0.10 %. The sunn pest damage rates in bread wheat varieties grown in closing area was changed between 10.37 to 23.17 % with a significant increase. The average of the highest sunn pest damage in two years was observed the numbred 15, 10, 1, 11 and 16 cultivars, while the lowest values was obtained form the numbred 4, 13, 8 and 3 varieties. According to the SDS-PAGE analysis, while protein band number in bread wheat varieties was ranged from 17 to 21 unit, the density and molecular weight of protein bands were significant differences among the varieties. Protein bands were distributed predominantly in the omega region while in the gamma and beta regions a small number of bands were observed. There are no bands in the alpha region in bread wheat varieties.

**Key words:** Sunn pest, SDS PAGE, open and closed area, bread wheat, damage rate Bread wheat, grain yield, agronomic score, diseases.

## [36] Başer, İ., K.Z. Korkut, O. Bilgin, A. Balkan, 2017. Production of doubled haploid plant by corn anther culture in vitro. 2nd International Balkan Agriculture Congress, 16-18 MAY, Tekirdağ, Turkey, Book of Abstracts, page 158.

The study was carried out in Department of Field Crops of Agriculture Faculty in Namik Kemal University. Two Chine corn genotpypes having high anter culture response were hybridized with 8 Turkish corn genotypes. Corn genotypes were sown 4 different sowing times in Sakarya Agricultural Research Institute and 2 different sowing times in Namık Kemal University. The transfer of anther in Sakarya Agricultural Research Institute started on 16 July 2012 and completed on July 10th August, 2012. The transfer of anther in Namik Kemal University started on 20 July 2012 and was completed on July 128 July, 2012. Anthers of 100 corn genotpes in the study were transferred on 4 different culture medium as MS, YPI, N6, B5. The studies were carried out in four replicates which 100 anthers were placed in each petri dish. Out of anthers, totally 7 calluses in B5, 51 calluses in YPI, 25 calluses in N6 and 7 calluses in MS were observed. One plantlet was improved from these calluses. Regarding crosses, it was obtained 65 callus from 1st hybrid, 104 callus from 2nd hybrid, 40 callus from 3rd hybrid, 3 callus from 4th hybrid, 28 callus 5th hybrid, 1 callus from 6thhybrid, 14 callus from 8th hybrid. The most callus development was in YPI culture medium. 25 plantlets developing from these callus made progress, but 24 of them did not complete their development

Key words: Anther, callus, media, plantlets, haploid, corn

## [37] Bayram, M.E., K.Z. Korkut, 2017. Determination of alveograph dough parameters of some bread wheat (Triticum aestivum L.) genotypes. 2nd International Balkan Agriculture Congress, 16-18 MAY, Tekirdağ, Turkey, Book of Abstracts, page 187.

Alveograph analysis has long been one of the important methods in determination of bread making quality of wheat genotypes. Sixty four bread wheat genotypes were analyzed for five alveograph parameters including alveograph energy (W, 10-4 joule), dough strength (P, mm), elasticity (L, mm) index of swelling (G, cm3), alveograph configuration ratio (P/L). Genotype means of W ranged from 155.4 j to 444.7 j and the trial mean was 275.2 j. Ocoroni86/Pewit3 reached the highest W value with 442.7 j. Pamukova-97 stayed in the same statistical group with 426.5 j W value. Genotype means of P ranged from 50.0 mm to 162.9 mm. The trial mean of P value was 106.17 mm. Aköz/Galil had the highest P value, 162.9 mm. Aköz/Galil, Pamukova-97, Gönen-98, Aköz/Dariel, Dariel and Galil entered into the same (a) statistical group. Genotype means of L ranged from 40.6 mm to 180.8 mm. Sunco/Pastor had the highest L value with 180.8 mm. The trial mean of L value was 78.2 mm. Genotype means of G ranged from 14.35 cm3 to 29.98 cm3. Sunco/Pastor had the highest G value with 29.98 cm3. The trial mean of G value was 19.3 cm3. Genotype means of P/L rate ranged from 0.29 to 3.77. Aköz/Galil had the highest P/L rate with 3.77. The trial mean of P/L rate was 1.64. The results of this study revealed alveograph status of the genotypes. This valuable information will be useful for bread wheat breeding programs attempting to improve high quality bread wheat cultivars.

**Key words:** Rheology, wheat flour, alveograph energy, dough strength, dough elasticity, bread-making quality.

### [38] Bayram, M.E., K.Z. Korkut, 2017. Identification of glutenin genes in some prominent bread wheat genotypes. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 MAY, Tekirdağ, Turkey, Book of Abstracts, page 388.

Applications of classical quality tests such as alveograph energy or baking tests seem difficult to use in the early generations of the breeding programs due to requiring more wheat grains and being laborious. High molecular weight glutenin subunits (HMW-GSs) are major determinants of gluten quality and low molecular weight glutenin subunits (LMW-GSs) influence dough traits greatly. Identification of HMW-GS and LMW-GS alleles which are conferring high quality may be one of the easy ways to determine promising wheat lines in early generations. SDS-PAGE electrophoresis is one of the prominent methods for determination of the glutenin (Glu) alleles. HMW-GS and LMW-GS alleles of 64 bread wheat (Triticum aestivum L.) genotypes from a breeding program including advanced lines and cultivars were identified using SDS-PAGE electrophoresis method. Three alleles at the Glu-A1 locus, 6 alleles at the Glu-B1 locus, 2 alleles at the Glu-D locus, 6 alleles at the Glu-A3 locus 7 at the Glu-B3 locus and 2 alleles at the Glu-D3 locus, 26 alleles were identified in total. The most prevalent alleles among the 64 genotypes in the study were 2\* (67.2%), 7+9 (42.2%), 5+10 (68.8%), A3c (28.1%), B3b (35.9%), and D3c (92.2%). The quality scores of the genotypes were also identified. Having the highest quality score, 10, only Adana-99 and Tosunbey had good quality expressive subunits 1, 17+18, 5+10 at the Glu-1 loci in all studied genotypes. Revealed genotypes having good quality expressive alleles by this study may be integrated into bread wheat breeding programs.

**Key words:** Glutenin genes, HMW, LMW, SDS-PAGE electrophoresis, bread-making quality, breeding.

## [39] Baytekin, Ö., Ö. Sağlam, 2017. Insecticidal Efficacy of Turkish Diatomaceous Earth Deposits in Stored Paddy against Rice Weevil (*Sitophilus oryzae* L.). 11<sup>th</sup> Conference of the IOBC/wprs Working Group on the Integrated Protection of Stored Products, 3-5 July 2017, Ljubljana, Slovenia, p.83.

In this study were tested four different Turkish diatomaceous earth (DE) deposits (BGN-1, BHN-1, AG2N-1, CBN-1) and commercial DE deposit, Silicosec<sup>®</sup> against Sitophilus oryzae (L.) (Coleoptera: Curculionidae) at five different concentrations (100, 300, 500, 900 and 1500 ppm) on paddy. Mortalities of *S. oryzae* adults were determined after 7<sup>th</sup>, 14<sup>th</sup> and 21<sup>st</sup> day of the treatment. Also progeny productions of S. oryzae were assessed after 65 days. The efficacy of Turkish diatomaceous earth deposits, CBN-1, BHN-1 and Silicosec on paddy was almost similar at high (1500 ppm) concertation after 7<sup>th</sup> days of DE teratment while other DEs had low efficacy against S. oryzae adults. Complete mortalities of S. oryzae adults were obtained at high concentrations (1500 ppm) of BHN-1, CBN-1 and Silicosec after 14<sup>th</sup> day of DE treatment. Treatments of BHN-1, CBN-1 and Silicosec at 900 ppm concentration resulted in almost complete mortality (97.8-99 %) of *S. oryzae* after 14<sup>th</sup> day of DE treatment. After 21<sup>st</sup> day application all DE treatments except BGN-1 at 900 ppm concertation achieved complete mortalities of S. oryzae. The progeny productions of S. oryzae on the control treatments on paddy were significantly higher than those of all DE treatments. Although the complete mortalities were obtained CBN-1 treatment at 500 ppm concentration after 21<sup>st</sup> day of DE treatments, progeny productions were not completely prevented in all DE treatments. In conclusion, this study indicated that Turkish diatomaceous earth deposits, CBN-1, AG2N-1 and BHN-1 would have potential to be used for control of stored-paddy insects.

Key words: Turkish diatomaceous earth, Sitophilus oryzae, toxicity, paddy, Silicosec.

### [40] Baytur, S., N. Özdinç, H.M. Velioğlu, 2017. The Use of Rosemary (Rosmariunus Sp.) and Thyme (Thymus Sp.) Essential Oils in Edible Coating of Meatball. 1<sup>st</sup> International Congress on Medicinal and Aromatic Plants.

Meatball is a traditional meat product produced from minced meat and different spices such as cumin, black pepper, garlic and onion. There are number of studies on extending the shelf life of meatball in the literature. However, the use of chemical antimicrobial agents is not allowed by legislations in Turkey. In this context, the studies are focused on the use of natural additives for preservation of raw meatball. Edible coatings have been used in food sector to enhance the overall quality of the products, especially for improving the resistance against deterioration. In the present study, edible coatings including 0.25, 0.50, 0.75 and 1.00 % rosemary and thyme essential oils were used to coat meatball samples and microbiological and color changes were compared with control group that was coated with edible coating without essential oil addition. Analysis were done after 5 days storage at +4°C. The results showed that total mesophilic aerobic bacteria (TMAB) count of sample containing 1.00% rosemary essential oil was 4.11 log cfu/g where that of control sample was 4.25 log cfu/g. Thyme essential oil was also effective on microbial count where TMAB count of the sample containing 1.00% thyme essential oil was 4.22 log cfu/g and that of control sample was 4.25 log cfu/g. Additionally, the results clarify that the more essential oil addition resulted a significant decrease in TMAB count (P < 0.05). The color value of meatball samples was also measured at the end of the 5 days storage period at +4°C. The results confirmed that the L (lightness) value was lower in the sample containing 1.00% essential oil and the a (redness) value of that was the highest (P<0.05) for both sample sets containing thyme and rosemary essential oil. In conclusion, the findings showed that the use of rosemary and thyme essential oils in edible coatings can positively affect some quality properties of raw meatballs.

Key words: Rosemary (Rosmariunus Sp.).

## [41] Bilgen, B.B., C. Elibol, 2017.Molecular characterization of natural *Pancratium maritimum* L. populations by RAPD and SSR markers. International Symposium on Biodiversity and Edible Wild Species, Antalya, Turkey. 03/04/2017-05/04/2017.

In this study, the genetic structure and genetic diversity of four natural Sea daffodil populations from İğneada Longoz Forests National Park, Çamlıkoy National Park, Pamucak Coast and Belek Coast was determined by 8 RAPD and 4 nSSR primers. Eight RAPD (OPA-01, OPA-02, OPB-10, OPB-12, OPN-06, OPN-12, OPV-08 and OPV-18) and four 4 nSSR (SSR-15, SSR-20, SSR-27 and SSR-38) loci were analyzed. All RAPD and nSSR loci, except SSR-20, were found to be polymorphic. Eight RAPD primers revealed 74 polymorphic bands. Using four cpSSR, 20 alleles with a mean of 3.313 alleles per population and locus were identified. Rather high proportion of the genetic diversity (81% for nSSR, 72% for RAPD) was due to within population variation and the remaining part (19% for nSSR, 28% for RAPD) was due to variation between populations. According to acquired UPGMA dendrogram for both RAPD and SSR data, İğneada and Çamlıkoy populations, which are geographically close, were genetically the most similar populations as well. The results of this study include important information about the genetic structure of the studied populations. Also, the data obtained from this study is valuable to provide important contributions to the national and international studies with sea daffodil and other related species, and will be helpful constructing strategies for genetic resources conservation.

Key words: Genetic conservation, nSSR, Pancratium maritimum, RAPD.

## [42] Bilgen, B.B., A.K. Barut, 2017. Genetic Characterization of *Orobanche cumana* Wallr. Populations in Thrace Region of Turkey via SSR markers. 2<sup>nd</sup> International Balkan Agriculture Congress, Tekirdağ, Turkey. 16/05/2017-18/05/2017.

Orobanche cumana Wallr. (broomrape) is a parasitic plant that can lead to advanced losses in yield, in agricultural lands cultivating sunflower, depending on the sunflower varieties and the level of contamination. The numerous and small sized seeds of broomrape causes contamination in sunflower fields quickly. There was not enough knowledge about genetic diversity of *O. cumana* populations in our country in the literature. In this study, genetic structure and genetic diversity of six O. cumana populations from Thrace region of Turkey was determined with the help of 8 nSSR loci. Eight nSSR (Ocum-52, Ocum-70, Ocum-81, Ocum-87, Ocum-108, Ocum-141, Ocum-160 and Ocum-196) loci were analyzed and all loci were found to be polymorphic. A total of 23 alleles were determined for the analyzed eight loci in 120 samples. Genetic diversity parameters; mean number of alleles for each loci (N<sub>a</sub>=2.271), effective allele number (N<sub>e</sub>=1.667), Shannon's information index (I=0.547), observed heterozygosity ( $H_o=0.207$ ) and expected heterozygosity ( $H_e=0.340$ ) were calculated. Rather high proportion of the genetic diversity (66%) was due to within population variation and the remaining part (34%) was due to variation between populations. According to acquired UPGMA dendrogram, there was two main clusters. Cluster l was classified into three groups contains four populations (Babaeski/Kırklareli/2013, Avarız/Edirne/2014, Avariz/Edirne/2012, Lüleburgaz/Kırklareli/2013). Muratlı/Tekirdağ/2012 and Muratlı/Tekirdağ/2013 populations were in cluster II. The information obtained from this study is valuable to provide significant contribution to other works towards determining the genetic structure and genetic diversity of O. cumana.

Key words:

### [43] Bilgen, B.B., C. Elibol, 2017. Genetic characterization of natural populations of Sea Daffodil (*Pancratium maritimum* L.) by nSSR markers. 2nd International Balkan Agriculture Congress, Tekirdağ, Turkey. 16/05/2017-18/05/2017

Bulbous plants have important role in Turkey's biodiversity due to their great potential use in various industries. Sea Daffodils (Pancratium maritimum L.) are one of the important bulbous plants which are generally spreading in sand dunes and seen only in Mediterranean coast and certain beaches in our country. In this study, the genetic structure and genetic diversity of four natural Sea daffodil populations from İğneada Longoz Forests National Park, Çamlıkoy National Park, Pamucak Coast and Belek Coast was determined by 4 nuclear microsatellite (nSSR) primers. Four nSSR (SSR-15, SSR-20, SSR-27 and SSR-38) loci were analyzed. All, except SSR-20, were found to be polymorphic (75%). A total of 20 alleles were determined for the analyzed four loci in 81 samples. Genetic diversity parameters; mean number of alleles for each loci ( $N_a$ =3.313), effective allele number ( $N_e$ =2.190), Shannon's information index (I=0.728), observed heterozygosity ( $H_0$ =0.449) and expected heterozygosity ( $H_e=0.396$ ) were calculated. Rather high proportion of the genetic diversity (81%) was due to within population variation and the remaining part (19%) was due to variation between populations. According to acquired UPGMA dendrogram, İğneada and Çamlıkoy populations, which are geographically close, takes place in one group, Antalya and Pamucak populations occurs in other group. The results of this study include important informations about the genetic structure of the studied populations. Also, the data obtained from this study is valuable to provide important contributions to the national and international studies with sea daffodil and other related species, and the determination of genetic resources conservation strategies.

**Key words:** Genetic diversity, sea daffodil, molecular markers, nSSR, *Pancratium maritimum*.

[44] Bilgili, Y., A.A. Işıkber, H. Tunaz, C.G. Athanassiou, Ö. Sağlam, İ.Ş. Doğanay, M.K. Er, 2017. Rapid Insect Disinfestation of Dried Figs by Fumigation of Propylene Oxide as Alternative to Methyl Bromide. 11th Conference of the IOBC/wprs Working Group on the Integrated Protection of Stored Products,3-5 July 2017, Ljubljana, Slovenia, p.75 (Poster presentation)

In this study, Propylene oxide (PPO) alone and combination of PPO with low pressure (100 mm Hg) and high concentration of carbon dioxide (%92 CO<sub>2</sub>) were investigated for rapid disinfestations of dried figs as a replacement for methyl bromide by evaluating its toxicity against major insect pests, Ephestia cautella and Plodia interpunctella of stored dried figs. The complete mortality of all life stages of P. interpunctella and E. cautella was achieved at a Ct product of 45.5 and 53.2 mg h/liter for empty space fumigation respectively. It required a dosage of 11.4 and 13.3 mg/liter for empty space fumigation and 32.4 for and 30.2 mg/liter for fumigation in presence of dried figs to kill 99% of the larvae of P. interpunctella and E. cautella respectively. Thus, 2.85-fold and 2.27-fold higher dose of PPO required for PPO fumigation in presence of dried figs to obtain the complete mortality of the larvae of *P. interpunctella* and *E. cautella*, respectively. Generally PPO +vacuum and PPO+CO2 treatments were the most toxic to all life stages of E. cautella and P. interpunctella and followed by PPO alone treatment. The complete mortality of all life stages of P. interpunctella was achieved at a Ct product of 61.2 mg h/liter for empty space fumigation. It required a dosage of 13.9 and 72.1 and 93.1 mg/liter to kill 99% of the larvae of *P. interpunctella* when fumigated in empty space and in presence of dried figs, respectively. Thus, five-fold higher dose of PPO required for PPO fumigation in presence of dried figs to obtain the complete mortality of the larvae of P. interpunctella. The combination of PPO with 100 mm Hg of low pressure and high concentration of CO<sub>2</sub> (%92  $CO_2$ ) can be a potential as fumigant for replacing alternative methyl bromide for quarantine purposes required rapid insect disinfestation in dried figs.

**Key words:** Propylene oxide, fumigant, dried fig, *Ephestia cautella*, *Plodia interpunctella*, methyl bromide, quarantine.

## [45] Bilgin, O., İ. Başer, K.Z. Korkut, A. Balkan, E. Gülfidan, 2017. Molecular Characterization of Bread Wheat Genotypes for Leaf Rust Resistance. 3<sup>rd</sup> International Symposium for Agriculture and Food-ISAF 2017, 18-20 October, Ohrid, Rebuplic of Macedonia, Book of Abstract, page 268.

The study was carried out in Namık Kemak University, Agricultural Faculty, Field Crops Department experimental area and laboratory with twenty-four bread wheat varieties grown in the region during 2014-2015 growing year. To create artificial epidemic in field conditions, bulk population of sensitive varieties after each ten 10 varieties was sown as spreader row in the research, and the severity of the disease and the reactions of wheat varieties to the disease were scored by modified cob scale. Isogenics lines carrying the genes Lr9, Lr14, Lr19, Lr24 and Lr47 from CIMMYT were used as standard for checking of bread wheat varieties used to carrying or not in SSR analysis. In the field experiment, although Pehlivan, Selimiye, Sagittario, Tina, Anapo, Momtchill and Saraybosna were the most sensitive, Nota, Kate A1, Prostor, Sana were the most resistant bread wheat varieties to leaf rust. Based on the SSR analysis, it was detected that Sana Pehlivan, Golia, F 85, Saroz 95, Renan, Sirena, Kate A1, Selimiye, Bezostoja 1, Saraybosna, Nina and Tina varieties carry Lr9 gene. Twenty-one bread wheat varieties except Selimiye, Bezostaja 1 and Tina have Lr14 gene. Sana, Aldane, Renan, Nina, Prostor, Flamura 85, Krasunia, Pamukova, Momtchill, Syrena, Bezostoja 1, Golia, Tekirdağ, Kate A-1, Selimiye, Saraybosna, Gelibolu, Bereket, Esperia, Sagittario, Rumeli bread wheat varieties were found to carry the Lr19 gene. It has been specified that all bread wheat varieties carry the Lr14 and Lr24 genes. On the other hand Lr47 gene was detected only for Krasunia, Aldane and Gelibolu varieties. It is revealed that Lr9 and Lr47 genes should be taken into consideration in the studies to be performed in the region and be useful to examine a larger number of leaf rust genes for more successful results in breeding studies.

Key words: Bread wheat, leaf rust, grain yield, SSR markers, molecular characterization.

## [46] Bilgin, O., K.Z. Korkut, A. Balkan, İ. Başer, 2017. Comparison of bread wheat genotypes with respect to yield components and diseases resistance. 2nd International Balkan Agriculture Congress, 16-18 MAY, Tekirdağ, Turkey, Book of Abstracts, page 155.

The study was conducted in experimental area NKU Agricultural Faculty Department of Field Crops according to randomized blocks experimental design with three replicated in 2015 year. Totally 25 bread wheat genotypes consist of varieties and lines were used as material. Each one was sown in plots. 60 kg/ha nitrogen and 60 kg/ha phosphorus were given after sowing. In the beginning of booting, 70 kg/da nitrogen and 50 kg/da phosphorus were given before heading time. Brown rust susceptible two genotpes (spreader) were sown as 4 rows after every 20 rows. In the study, agronomic score, heading date, maturing date, grain yield, powdery mildew, stripe rust, leaf rust, septoria, black point diseases for the bread wheat genotypes were examined. In the result of the study, it was observed that genotypes were different in terms of agronomic scores. For heading and maturation times were determined differences 10 days between bread wheat genotypes. Statistical differences among genotypes were significant for grain yield. 25 genotypes of bread wheat were scored visually for powdery mildew as 1-9 scale, stripe rust only as 5-20 MR, septoria as 2-4 scale and root collar as 1-2 scale. Bereket and Pehlivan were the most sensitive varieties with score of 40 S for leaf rust which is the most common disease in the region, and they were followed by Selimiye and Sagittario varieties with score of 40 MS. Nota was resistant variety with score of 5 MR, and Sana, Kate A1, Prostor were the other resistant varieties.

Key words: Bread wheat, grain yield, agronomic score, diseases.

## [47] Bozkurt H., A.A. Işıkber, Ö. Sağlam, İ. Doğanay, 2017. Determining phosphine resistance in *Sitophilus oryzae* (L.) (Rice weevil) populations from Turkey. 2nd International Balkan Agriculture Congress (AGRIBALKAN) Abstract Book, May 16-18, 2017, Tekirdağ, Turkey, p. 25.

This study was aimed at investigating the status and prevalence of phosphine resistance in *Sitophilus oryzae* (L.) populations collected from Kahramanmaraş, Adana and Şanlıurfa Province in Turkey by conducting the discrimination dose tests and the concentration-mortality bioassays. Discriminating dose tests showed that 80 % to 90 % populations of tested total *S. oryzae* populations (29 population samples) collected from three provinces were resistance to phosphine, which reveals high prevalence of phosphine resistance in the insect sampling locations. The concentration-mortality bioassays indicated that there were significant differences in resistance levels of *S. oryzae* populations collected from different provinces. Based on the resistance factors (RF) calculated by LC<sub>50</sub> values *S. oryzae* populations from Adana, Şanlıurfa and Kahramanmaraş were 25- to 28- fold, 55- to 57-fold and 16- and 21-fold resistance to phosphine, respectively. The highest level of phosphine resistance was determined in *S. oryzae* populations from Şanlıurfa, followed by those from Adana and Kahramanmaraş, respectively. In conclusion, this study indicated that high levels of phosphine resistance in *S. oryzae* populations collected from different grain storages in Kahramanmaraş, Şanlıurfa and Adana provinces of Turkey were prevalent.

Key words: phosphine, resistance, *Sitophilus oryzae*, discrimination dose, Turkey.

#### [48] Bulut, H., R. Işık, F. Özdil, 2017. Candidate Genes Affecting Equid Milk Production Traits. 6<sup>th</sup> International Congress on Molecular Biology and Biotechnology.

Milk is a high nutritional food that is secreted from the mammary glands of female mammals. The nutritional composition, beneficial health effects, antimicrobial properties and therapeutic properties of horse (Equus caballus) and donkey (Equus asinus) milk have been known since ancient times. Donkey milk was successfully used for feeding orphaned infants in Europe. In addition to being rich in essential nutrients, it is advantageous to be hypoallergenic as well as digestible and drinkable at high levels. The candidate gene approach that a major component of quantitative genetic variation (DNA polymorphism) of phenotype under investigation is caused by functional mutation of virtual gene. Some of the candidate genes for milk quality parameters according to their functions; fatty acid binding protein 3 (FABP3), growth hormone (GH) and lactoferrin (LTF). It has been determined that SNPs in growth hormone 1 (GH1), prolactin (PRL) and toll-like receptor 2 (TLR2) are associated with milk coagulation. Also, lipase E (LIPE) and stearoyl-CoAdesaturase 1 (SCD-1) were associated with milk acidity and casein alpha s1 (CSN1S1), casein beta (CSN2), prolactin (PRL) and signal transducer and activator of transcription 5A (STAT5A) were associated with curd firmness and maximum curd firmness. Research on donkeys and horse's milk is not at an adequate level. These candidate genes can be used as selective markers to increase the quality and production of milk at horse and donkey. Identifying new genes associated with milk yield and quality parameters that are economically important in equid husbandry and including these markers in breeding programs will open up more profitable livestock.

Key words: candidate genes, milk, donkey, horse, nutrition.

### [49] Bütün, Y., S. Yaver, 2017. Effect of Seeding Rates and Inter-Row Spacing on Some Plant Characteristics of Anise (*Pimpinella anisum* L.). 2<sup>nd</sup> International Balkan Agriculture Congress, Book of Abstract, page 213, 16-18 May 2017, Tekirdağ, Turkey.

The purpose of this research, three anise populations in Tekirdağ conditions (Denizli, Çeşme, Burdur), different seed quantity per decare (1-2-3 kg / da) and the distance between the different rows (15-30 cm) to determine the effects of some aspects of anise. In the study, the germination of the population of 33-35 days between the time - out, the number of days between 92-95 days flowering, ripening the number of days between 120-130 days, plant height value of between 37,01 to 44,31 cm, the number of branches 6,93-8,38 units / plants between, umbrella plant number from 7,04 to 10,95 per unit / plant between 1000 grain weight of between 3,85 to 5,32 g, the number of seeds in the umbrella from 70,63 to 77,37 units / plants between, seed yield per plant is between 2,27 to 3,59 g, seed yield between 44,58 to 105,32 kg/da, 2 % between changing.

Key words: Anise, pimpinella anisum, amount of seed, row spacing.

### [50] Ceylan, O., M.Ö. Azabağaoğlu, 2017. Analysis of Contemporary Food Retailers in Turkey According to Fresh Fruit and Vegetable Distribution System, VI. International Balkan and Near Eastern Social Sciences Congress Series, Series-Ohrid/Macedonia (28-29.10.2017).

In Turkey, there are traders, wholesalers, processing companies and retailers are forming the fresh fruits and vegetables marketing system. Regarding to purchases and pricing of these products, the power of traders and brokers are still important. In developed countries, modern food retailers play a significant role in marketing fresh fruits and vegetables. Contemporary food retailers have began to get place in 90's for fresh fruit and vegetable marketing system that could buy major quantities and affect the marketing chain system. Especially the heavy increase store numbers of modern food retailers is directly rate to the developments in economic and social structure of the society. While the share of local food bazaar in fresh fruit and vegetable handling was very high backwards, but now 1/3 of it are sold in the local food bazaar and 1/3 are sold in modern food retailers. Grocery stores has still have a get large market share as %20. Figures shows that modern retailers allocated store area of about 6% for fresh fruit and vegetables. It is also seen that not only local products but imported fruit and vegetable products are sold in this area. The objective of this study is; researching the system of fresh fruits and vegetables sales in contemporary food retailers due to the how to success in the future. Also this paper will argued the which precautions should be done for company success.

Key words: Wholesaler, producer, middleman, marketing, retailing.
# [51] Cobanoglu, S., T. Erdogan, N. Kilic, 2017. Four New Records of the False Spider Mites Tenuipalpidae (Acari: Prostigmata: Tenuipalpidae) From Turkey. The 3<sup>rd</sup> International Persian Congress of Acarology, 23–25 August 2017, Abstract Book, page: 12.

Tenuipalpids (Acari: Teniupalpidae) are considered as phytophagous species and known as false spider mites. These species are reddish in colour, slow moving and usually feeding on plant leaves. This family has more than 1,100 species belonging to 36 genera, Cenopalpus Pritchard & Baker (Acari: Tenuipalpidae) is the largest one in this family with 60 species. The tenuipalpids of this study were collected in Ankara and Tekirdag. The leaves were collected randomly at different levels of the plants. Berlese funnels were used to extract the mites from the plant material, which were subsequently preserved in 70% ethanol, cleared in lactophenol solution and mounted in Hoyer's medium. Meyer (1979), Mesa et al. (2009) and Khanjani et al. (2012) were followed for the identification of the species. Four false spider mite species were identified as a first report for the Turkish fauna. The species were identified; Cenopalpus irani Dosse, 1971, Cenopalpus quadricornis (Livshits & Mitrofanov 1967), Cenopalpus pennatisetis (Wainstein 1957) and Brevipalpus recki (Livshits & Mitrofanov 1967) described and illustrated. The samples were collected mainly from orchards in Ankara and Tekirdağ. A key belong to species of Cenopalpus Pritchard & Baker and Brevipalpus Donnadieu (Acari: Tenuipalpidae) known to occur in Turkey is included. Cenopalpus irani were collected from Prunus avium L., P. amygdalus Batsch., Pyracantha coccinea Roem. (Rosaceae) and Platanus tree. Cenopalpus quadricornis were collected from Prunus armeniaca L., P. avium L., Malus communis L., Cydonia vulgaris L. and Rubus fruticosus L.

Key words: Acari, Tenuipalpidae, Cenopalpus, first record, Turkey.

### [52] Coskun, F., 2017. Food Contaminations 1<sup>st</sup> International Health Sciences Congress, (23-25 November 2017), p. 24.

There are three different types of food contamination: chemical, physical and biological. Chemical contamination refers to food that has been contaminated by some type of chemical substance and can lead to chemical food poisoning. Chemicals must be properly labelled and stored separately to food stuff to minimise the risk of contamination. There are also chemicals that occur naturally in foods and in some cases minimal chemical contamination might not actually lead to illness. Biological contamination refers to food that's contaminated by substances produced by living creatures - such as humans, rodents, pests or microorganisms. This includes bacterial contamination, viral contamination or parasite contamination that's transferred through saliva, pest droppings, blood or faecal matter. Biological contamination is when bacteria or toxins contaminate food and is a common cause of food poisoning and food spoilage. Physical contamination refers to food that has been contaminated by a foreign object at some stage of the production process. For example, hair may cause physical contamination. These objects have the ability to injure someone and can also potentially carry harmful biological contaminants, which then cause illness. Cross-contamination occurs when bacteria or pathogens are transported from one object to another. For example, never use the same chopping board or knife to prepare raw meat and ready-to-eat foods. Besides, there is careless or deliberate tampering. Foodborne illness can be extremely serious in some cases. Protect from foodborne illness by buying fresh foods, storing food properly, avoiding food contamination in the kitchen, and keeping foods properly refrigerated.

Key words: Food contamination, poisoning, chemicals, spoilage, keeping food.

## [53] Coşkun, F., L. Karabulut Dirican, 2017. Effects of pine honey on the phsicochemical Microbiological, and sensory properties of probiotic yoghurt, 1<sup>st</sup> International Health Sciences Congress, (23-25 November 2017), p. 353.

Probiotics are described as live microorganisms, which when administered in adequate amounts, confer a health benefit on the host, especially by improving intestinal microbial balance. Some of the fermented dairy available on the market are sweetened and fruit flavoured, and consumers can prefer these types of products. Hence, yoghurt sweetened by honey may be preferred by children and older people. Honey has significant nutritional and medicinal benefits. It is a rich source of readily available sugars, organic acids, various amino acids as well as source of many biologically active compounds. Yoghurt with honey can be a very benefical functional food. In this study, physicochemical and microbiological of probiotic yoghurt not including pine honey and including various proportion (2%, 4%, 6%) pine honey on days 1, 7, 14, 21 of storage were investigated. The results of the analysis showed that the pH level, syneresis level and water holding capacity decreased, titratable acidity increased during the storage. Microbiologic analysis showed that numbers of Lb. delbrueckii ssp. bulgaricus, Streptococcus thermophiles and Lb. acidophilus decreased through mid of storage time but they increased to last day of storage. Sensory analyses of yoghurt with pine honey were realized on day 7 of storage. In consequence of sensory analyses performing with expert panelists on the 7th day of storage probiotic yoghurt containing honey 2% was approved. Increasing honey ratio adding into yoghurt positively effected, physicochemical, microbiologic and sensory values.

Key words: Pine honey, yoghurt, probiotic.

#### [54] Coşkuntuna, A., Ş. Yonsen, N. Özer, M. Demir, 2017. Possibility of Biological Control of Grey Mould (*Botrytis cinerea* Pers.) on Grape. International Conference on Agriculture, Forest, Food Sciences and Technologies, 15-17 May 2017, Abstract Book, Page: 833.

In this study, the effect of Bacillus subtilis (Sim Bacil) was investigated against gray mould disease caused by Botrytis cinerea on grape under natural infection conditions. Two grape cultivars, Emir and Barış, which are known to be susceptible grape cultivars to the pathogen, were used. The experiments were carried out in the Viticulture Research Station of Tekirdağ as randomized blocks design. A commercial biological preparate (Serenade) with active ingredient *Bacillus subtilis* and a fungicide with active ingredient cyprodinil+fludioxanil were used for comparison. All preparations were applicated at four different periods of growing. At the end of the study, the effect of applications on Emir and Barıs cultivars Serenade, Cyprodinil + Fludioxanil, Bacillus subtilis (Sim Bacil) were 30.63%, 38.50%, 75.87%; 0%, 15.94%, and 53.96% respectively.

Key words: Vine, Botrytis cinerea, Bacillus subtilis, biological control.

#### [55] Coşkuntuna, A., T. Şabudak, N. Özer, 2017. Occurrence of Potential Antifungal Metabolites from Seedling Roots By Biological Control of Sunflower Downy Mildew Disease. Ecology 2017, International Symposium. 11-13 May. Abstract Book, Page: 249. (Oral presentation)

Downy mildew caused by Plasmopara halstedii (Farl.) Berl. and de Toni is the most destructive disease of sunflower (Helianthus annuus L.). The control of the disease is usually carried out by seed application with a few fungicides which cause detrimental effects to the environments as well as risk for resistance development in the fungus populations. The use of resistant hybrids is limited because of resistance breakdown. As an alternative method, biological control is eco-friendly for plant disease management. Asergillus flavus Link (nonaflatoxigenic isolate; AS3), Trichoderma harzianum Rifai (TRIC7 and TRIC8) from Tekirdağ/Turkey soils, which were found as successful for controlling sunflower downy mildew disease at seedling stage, were evaluated for their effects on hypocotyls length, sporulation density of the pathogen and root metabolites in this study. Seed of susceptible cultivar Sirena were surface sterilized with sodium hypochlorite, then were agitated in conidia suspension (1x107 conidia/ml) of the antagonists for 6 hours and were germinated for three days on sterile germination paper. Zoosporangia suspension (1x105 zoosporangia/ml) of pathogen was inoculated to the roots of pre-germinated seeds. The length of hypocotyls and sporulation density on cotyledon leaves were measured when the leaves of control plants were covered by zoosporangia. The roots of the seedlings were extracted with ethanol (99%) for three days (1 ml/0.1 g root) and the extracts were analysed by the gas chromatography/mass spectrophotometer (GC/MS). Sporulation reductions of 84.21, 76.30 and 70.05, % by TRIC7 TRIC8 and AS3, respectively, in cotyledon leaves were recorded after seed treatments with these antagonists. All of the antagonists also significantly enhanced the hypocotyls length. The root extracts of seedlings contained several compounds from different chemical groups differing to the treatments. Among the metabolites, 6 aldehydes, 2 alkenes, 9 alcohols, 4 amides, a coumarin derivative, 16 esters, 4 fatty acids, 8 heterocyclic compounds, 8 carboxylic acids, 3 ketones, 3 phenols, 3 steroids, 16 terpenes were present only in the roots of antagonist treated seedlings. This study suggests the important role of antagonist treatments on induction of some compounds, which are known for their antifungal activity.

**Key words**: Sunflower (*Helianthus annuus* L.), downy mildew, biological control, seedling root metabolites.

Acknowledgement: The authors acknowledge Central Research Laboratory (NABILTEM-NKU) for using GC/MS.

## [56] Culpan, E., B. Arslan, 2017. Breeding Studies on Safflower (*Carthamus tinctorius* L.). International Congress of the New Approaches and Technologies for Sustainable Development, Book of Abstract, page 279, 21-24 September 2017, Isparta.

Turkey is dependent on other countries for production of oilseed crops. In 2016, crude oil was produced 780 000 tonnes, it was imported 1 482 000 tonnes in Turkey and this production met nearly 32 % of the our needs. Thus, research on alternative oil crops has continued recently in order to resolve vegetable oil deficit. Safflower is one of the alternative oil crops. As safflower is unselective in terms of ecological conditions and more resistant to lower temperatures than other oil crops, this provides a production area in different climates for the safflower. On the other hand drought resistant and cultivation without irrigation enable especially availability of fallow areas. Safflower will become one of the oil crops which have the potential to resolve vegetable oil deficit in our country. However, the oil content and seed yield of safflower are lower than other oil crops (sunflower, canola etc.), so safflower agriculture has not been able to develop in our country. The main aim of safflower breeding is development of high oil content and seed yield cultivars in the world. These studies will provide wider cultivation area and production of safflower. Therefore, research must be done in order to increase seed yield and oil content and breeding studies must be conducted in order to develop new cultivars. There are seven registered cultivars which are Yenice, Dincer, Remzibey, Balci, Linas, Olas, Göktürk and there is one cultivar which have production licences such as Asol. Although oil content of Balcı, Linas and Olas cultivars has been increased, new safflower cultivars whose oil content and seed yield are as high as theirs must be developed so that safflower in our region can contest economically other oil crops (sunflower, canola etc.). In order to develop new cultivars of safflower, the aims of breeding should be well known. For this purpose, this research focuses on safflower breeding aims and recent breeding studies.

Key words: Safflower, Carthamus tinctorius, seed yield, oil content, breeding aims.

## [57] Demirci, M., O. Şimşek, Ş. Kurultay, M.I. Soysal, I. Yılmaz, M. Taşan, U. Geçgel, 2017. Red Meat Production in Turkey. 8<sup>th</sup> Balkan Animal Science Conference Balnimalcon 2017, 6-8 September, Prizren, Kosovo, 188, (2017)

According to TUIK data, there has been a significant increase in the number of livestock's and production amounts of animal products in the last 10 years in Turkey. The number of cattle, sheep and goats totalling 43 million head in 2006 reached 55.5 million in 2016. This number included about 14 million cattle, 31 million sheep and 10.5 million goats. This increase in the number of animals was also reflected in the amount of production, and red meat production, which was 438 thousand tons in 2006, increased about 2.5 times to 1.173 thousand tons in 2016. The increase in milk production amounted to 18.5 million tons from 12 million tons during the same period. On the other hand, although red meat consumption in Turkey reaches 16 kg per person per year, this value is behind the world average. The most important reason for this is the insufficient supply of livestock's compared to the population. As a result, Turkey has been importing to meet the need for red meat, trying to make up for it by importing meat from other countries, especially countries like Bosnia-Herzegovina, Poland and Germany.

Key words: Red meat, production, Turkey.

#### [58] Demirci, A.Ş., İ. Palabiyik, D. Apaydin, M. Mirik, T. Gümüş, 2017. Investigation of Xanthan Yield of Local Isolate *X. axonopodis* pv. *Dieffenbachia*. The 3<sup>rd</sup> International Symposium on EuroAsian Biodiversity-SEAB 2017.

Xanthan gum is an important extracellular heteropolysaccharide that is produced efficiently by Gram-negative bacteria of the genus Xanthomonas. It is widely used as a thickening or stabilizing agent in food, pharmaceutical and oil-recovery industries. Because of its wide applications, it becomes important to develop high yield xanthan producer local strain. In this study, a native strain-isolated from anthurium, (*Anthurium andraenum*), *X. axonopodis* pv. *dieffenbachia* were evaluated in terms of xanthan gum production in industrial fermentation media.

Key words: Xanthan, X. axonopodis pv. dieffenbachia, inoculum volume, agitation rate.

#### [59] Demirkol, C., M.Ö. Azabağaoğlu, 2017. Analysis of Business Structures on Capacity Usage in Determining Encountered Problems of Red Meat Industry in Turkey, UARD Jubilee Scientific Conference, Sustainable Regional Development Perspectives 27-28 October 2017, Plovdiv, Bulgaria.

Meat and meat products currently represent an important sources of protein in the human diet, and the consumers are becoming more aware of the relationships between diet and health and this has increased consumer interest therein. Capacity usage and the problems of red meat firms in Turkey are presented in this study through a survey carried out with 54 firms. It can be said that a large part of the red meat industry is largely owned by European Union standards in terms of the production technologies they use and the physical conditions they have in Turkey. The main problem faced by the red meat industry is the inadequacy of raw materials and the inability to provide them regularly. This problem causes firms to work with lower capacity. The firms with capacities below 19 tons are smallscale firms and profitability comes first in the strategies they follow. These types of firms focus on production, they are primarily focused on producing affordable and quality products. Firms whose daily capacity is between 20 tons/day and 50 tons/day are grouped as medium-sized firms. A great majority of these firms are carcass meat producing firms. There are also high-capacity firms concentrated on a single product but producing on a national scale. These mid-sized firms offer products to the domestic market as well as they do contract manufacturing for the other large-scale firms. In these firms, market demand is again the first criterion to be considered in production. The large scale firms (producing over 51 tons per day) are working on increasing their market share close to all, on growth and profitability strategy. At the most important strategies of these firms are image, personnel-focused practices and quality issues. The most important reason for the implementation of these strategies is that these firms are nationally operating and branded firms.

Key words: Red meat, industry, capacity usage, problems, Turkey.

[60] Doğanay, İ., A.A. Işıkber, Ö. Sağlam, H. Tunaz, M.K. Er, 2017. Insecticidal efficiency of local turkish diatomaceous earth against Cowpea weevil, *Callosobruchus maculatus* (Coleoptera:Chrysomelidae: Bruchninae) adults on chickpea. 2<sup>nd</sup> International Balkan Agriculture Congress (AGRIBALKAN) Abstract Book, May 16-18, 2017, Tekirdağ, Turkey, p. 26.

In this study, insecticidal efficiency of Turkish local diatomaceous earth (DE), DE-Turco-1 against Cowpea weevil, Callosobruchus maculatus (Coleoptera: Chrysomelidae: Bruchninae) adults was determined on chickpea. For this purpose, different concentrations of DE-Turco-1 and commercial diatomaceous earth, SilicoSec®, (0, 250, 500, 750 and 1000 ppm (mg DE/kg chickpea) were testedunder laboratory conditions. Mortality of C. maculatus was recorded after 1st, 3rd and 5th day of DE treatments. Progeny production of C. maculatus adults exposed to DE's was also assessed after 45 days of treatment. Results showed that DE deposits and DE concentrations had significant effect on mortality and progeny production of C. maculatus. After 1st day of DE treatments on chickpea, the mortality on DE-Turco-1 was higher than Silicosec®. After 3rd, and 5th day on DE treated chickpea efficacy of DE-Turco -1 and SilicoSec generally was similar. After 5th day of DE treatment, the complete mortality of C. maculatus was observed only on 1000 ppm concentration of DE-Turco-1 and SilicoSec<sup>®</sup>. The progeny production of *C. maculatus* on the non-treated chickpea was significantly higher than on DE treated chickpea. Although, after 5 days exposure to DE and the complete efficacy of 1000 ppm concentration progeny production was not completely prevented. In conclusion, these results indicated that Turkish diatomaceous earth, DE-Turco-1 would have potential for control of stored-bean insects as grain protectant.

Key words: Turkish diatomaceous earth, De-Turco-1, Callosobruchus maculatus, chickpea.

# [61] Candar, S., A.S. Yaşasın, T. Alço, E. Bahar, İ. Korkutal, 2017. Interactions of Abiotic Environmental Factors on Physiological Parameters in cv. Merlot (*Vitis vinifera* L.). 2<sup>nd</sup> International Balkan Agriculture Congress, Book of Abstracts, p: 626-635.

This study was conducted during 2012 growing season in Tekirdağ Viticulture Research Institute to observe the physiological responses of 27 total, 16-years-old Merlot/5BB combination vines which planted at 2.5x1.5 m spacing with double-stranded Guyot training to some environmental factors. The correlation of stomatal conductance (gs) between transpiration (E) was observed as R2 = 0.2977 and transpiration (E) between photosynthesis (A) was observed as R2 = 0.2633. Changing photosynthesis levels between 11.10  $\mu$ mol CO2 m<sup>-2</sup> s<sup>-1</sup> and 14.91  $\mu$ mol CO2 m<sup>-2</sup> s<sup>-1</sup> corresponds range of from 0.14 to 0.36 mol m<sup>-2</sup> s<sup>-1</sup> stomatal conductance and range from 2.10 to 5.95 mmol m<sup>-2</sup> s<sup>-1</sup> transpiration. The predawn leaf water potential ( $\Psi$ pd) and mid-day leaf water potential ( $\Psi$ md) determined under effects of different variables.

Key words: Merlot, Vitis vinifera L., photosynthesis, leaf water potential.

### [62] Çayan, H., A. Altop, F. Korkmaz, İ. Coşkun, 2017. The Microalgae and Importance for Poultry Feeding. BALNIMALCON 2017.

The microalgae include important food substances for aquatic animals in aquaculture and human health as well as have biological and ecological roles in aquatic ecosystems additionally. Numerous microalgae species are used in industrial purposed biotechnological studies and animal feeding for their high protein, beta-carotene, unsaturated fatty acid, vitamin and pigment contents. Commercial microalgae and the most important pigments they contain; beta-carotene (Dunaliella salina, Scenedesmus acutus), phycocyanin (Spirulina sp.), Astaxanthin (Haematococcus pluvialis), chlorophyll b, cellular xanthophyll (Nannochloropsis oculata). Haematococcus pluvaris is a single-celled microalgae, which synthesizes astaxanthin in stress conditions such as excessive light, high temperature, and nutrient deficiency. Astaxanthin; is a natural carotenoid pigment with high antioxidant capacity. Thus, antioxidant activity of astaxanthin is reported to be 500 times more effective than Vitamin E, 10 times more effective than beta-carotene (vitamin A) 6000 times stronger than vitamin C and 4 times more effective than lutein. Astaxanthin acts as an antioxidant to protect cells against free radicals such as hydroxyl and peroxyl. It also has anti-inflammatory, anti-bacterial, anti-cancer, anti-inflammatory, and cholesterol-regulating effects. Astaxanthin is an alternative feed additive in poultry feeding studies with its high antioxidant capacity, although it is a natural coloring matter, as consumer preferences are at the forefront. In this review, the significance of astaxanthin, using of areas and importance of animal nutrition will be examined in light of the literature.

Key words: Broiler, performance, astaxanthin.

# [63] Coşkun, İ., A. Altop, F. Korkmaz, H. Çayıroğlu, A.G. Filik, H. Çayan, A. Şahin, G. Erener, H.E. Şamlı, 2017. The Effects of Supplementation of Enzyme Combination on Performance, Intestinal Histology and Microbiota of Male Broilers. BALNIMALCON 2017 (Sözlü Sunum)

The aim of this study was to determine the effect of supplementation commercial enzyme combination (EC) addition on the 42-day growth performance, internal organ development, ileal histology and intestinal microbiota of male broilers. A total of 225 ROSS 308 male broiler chickens were used at 1 day of age, including 3 treatment groups in each treatment group, 5 replicates in each treatment group and 15 in each treatment group. The treatment groups in the study were: 1) control, 2) 300 ppm EC addition to drinking water, and 3) 300 ppm EC addition to ration. Commercial broiler diet was used in the research. The enzyme combination was daily mixed daily for animal's drinking water and diet (300 ppm total, 20 ppm for each animal). The study lasted 42 days. At the end of the study, there were no statistically significant effects of EC additions on 42-day performance parameters, inner organ development, ileum histology and caecum lactic acid bacteria colonization of broiler chickens (P > 0.05). Supplementation of EC via drinking water and diet EC increased the number of total live bacteria and decreased the number of Enterobacter in the gut of animals. At the end of the study, it was determined that supplementation of EC in diet and drinking water had no adverse effects on the 42-day performance parameters.

**Key words:** Enzyme combination, performance, intestinal histology, intestinal microbiota, broilers.

#### [64] Daneshvar Royandazagh, S., Yildirim, H.T., Turen, S. and Pehlivan, E.C. 2017. Effect of Different Explant and Media For *in vitro* Seed Germination and Callus Regeneration in *Pancratium maritimum*. 2<sup>nd</sup> International Balkan Agriculture Congress, Abstract Book, p. 409, Tekirdağ, Turkey.

In this study, the effect of different explants (root, hypocotyl, cotyledon and leaf) and different medium (combination of BAP, NAA and 2,4-D) for callus regeneration in Pancratium maritimum was obtained through in vitro seed germination. Three different germination methods were developed by applying MS0 medium containing sucrose and sucrose-free, drying paper in petri dishes, and sterilization with sodium hypochlorite (NaClO) solution in different concentrations including 30% :25 min., 60% : 15 min., 90% : 5 min. The highest percentage of germination was observed in MS0 media containing 30 g/L sucrose. The most effective surface sterilization of seeds (80%) were observed in 60% NaClO solution during 15 min. in 0 MS medium containing 30 g/L sucrose. Explants were transferred on callus regeneration medium (0.5-1 and 1.5 mg / L NAA) which were obtained from in vitro germination. Regenerated Callus was sub-cultured on three different development medium (0,1 mg/L NAA + 1 mg/L BAP ve 2,4-D; 1 mg/L NAA + 1 mg/L BAP). As a result of this study, it was determined that callus development in tissue culture proceeds slowly in Pancratium maritimum. The highest regeneration was found in root and hypocotyl explants from different initial explants in MS medium containing 1 mg/l NAA medium. The highest percentage of regeneration (63%) was obtained in MS medium containing 0,1 mg/L NAA + 1 mg/L BAP which was used in hypocotyl explants.

Key words: Pancratium maritimum, in vitro, seed germination, callus.

#### [65] Dellal, G., İ. Daşkiran, N. Koluman, H. Kiliç, E. Pehlivan, Ö. Köksal, A. Şen. 2017. Goat Meat Production in Turkey: Present Situation and Future. 2<sup>nd</sup> International Balkan Agriculture Congress 2017, 16-18 Mayıs 2017, Tekirdağ/TÜRKİYE.

The goats have been breeding for centuries in Turkey and goat products have been contributing to the family farm income and national economy. Geographical and economic conditions of Turkey are very suitable for goat breeding. Turkey has approximately 10.416 million goats, according to data of 2015. The total population is mainly constituted Hair and Angora goat (respectively, 10.210.000 and 205.828). Goat meat consumption and production in Turkey is low depending on many factors. Production amount of goat meat is 33.990 tons in 2015 and this production level is constitute approximately 3% of the red meat production. However, significant improvements in goat meat consumption are also experienced in recent years. In this paper studied the current situation of goat meat production in Turkey, expected changes in the near future and the contributions of this production area to Turkish economy.

Key words: Turkey, goat meat, production, consumption.

#### [66] Deveci, M., L. Arın, E. Cabi, Ö. Yavaş, 2017. Generatif Döneminde Su Kısıtı Uygulamalarının Bamyanın Bazı Morfolojik Özelliklerine Etkisi. 3<sup>rd</sup> International Congress of Agriculture and Enviriment. ICAE-Abstract Book 2. November 16-18, p: 90, Antalya-Turkey.

Bu çalışma Türkiye'de yaygın olarak yetiştiriciliği yapılan Trakya Bölgesine de iyi adapte olmuş "Sultani" bamya çeşidinde (Abelmoschus esculentus cv. "Sultani") yapay kuraklık stresi sonrası meydana gelen bazı morfolojik değişiklikleri belirlemek amacıyla yürütülmüştür. Denemede bamya tohumları çok gözlü saksılara ekilmiştir. Çimlenme sonrasında 2-4 yapraklı fide devresine kadar fideler ısıtmasız plastik serada muhafaza edilerek normal bakım ve sulama şartlarında yetiştirilmiştir. Şaşırtma döneminde bitkiler parsellere sıra arası 50 cm, sıra üzeri 25 cm mesafe ile açıkta arazide esas yetiştirme yerlerine dikilmiştir. Bu dönemden sonra ilk çiçeklenme dönemine kadar damla sulama ile normal su ihtiyacı giderilmiş olan bitkilere daha sonra yapay kuraklık stresi uygulama amacıyla su kısıtı uygulamalarına başlanmıştır. Su kışıtları kontrol parsellerine, bitki kök bölgesindeki kullanılabilir su tutma kapasitesinin %50'si tüketildiğinde, mevcut nemi tarla kapasitesine çıkaracak şekilde sulama suyu uygulanırken, diğer parsellere kontrol parseline uygulanan suyun %0, %25 ve %50'si kadar sulama suyu uygulanmıştır. Su kısıtı uygulaması haftada bir yapılarak ardından ölçümler gerçekleştirilmiştir. Deneme süresince, yaprak hasar indeksi, yaprak sayısı (adet), yaprak ağırlığı (g), yaprak kalınlığı (mm), yaprak alanı (cm<sup>2</sup>), meyve çapı (mm), meyve uzunluğu (cm), tek meyve ağırlığı (g), bitki boyu (cm) ve taze bamya verimi (g) belirlenmiştir. Elde edilen sonuçlara göre su kısıtı miktarının kontrolden % O'a doğru gidildikçe yapraklarda zararlanmanın artması sonucu yaprak hasar indeksi artmış, ele alınan diğer yaprak ve meyve değerleri ile toplam meyve verimi azalmıştır. Su kısıtı miktarının artışına bağlı olarak yaprak hasar indeksi azalmış, diğer kriterlerin arttığı belirlenmiştir.

Anahtar kelimeler: Bamya, Abelmoschus esculentus cv. "Sultani", su stresi, morfolojik özellikler, generatif dönem.

#### [67] Deveci, M., E. Cabi, L. Arın, Ö. Yavaş, 2017. The Effect of Water Deficit on Some Physiological Properties of *Abelmoschus esculentus* (L.) Moench cv. "Sultani". 2<sup>nd</sup> International Balkan Agriculture Congress, Book of Abstracts. May 16-18, 265p, Tekirdag-Turkey.

This study was conducted to determine the some physiological changes after the artificial drought stress in okra (Abelmoschus esculentus (L.) Moench cv."Sultani") which is widely cultivated in Turkey and well adapted to Trakya region. After germination, the seedlings were grown under normal growing conditions in an unheated plastic greenhouse until they reached to 2-4 leaf. They were planted in the field with a distance of 50 cm between rows and 25 cm in rows. The plants normally irrigated until flowering time. After then, water deficit applied for drought stress. Control plants were irrigated to bring to field capacity, when they lost 50 % of usable water capacity in root region. Other plots were irrigated to 0 %, 25 % and 50 % of applied water in control parcel. Water restriction was done once a week and then measurements were made. During the experiment, leaf water potential (MPa), leaf relative water content (%), membrane damage in leaf cells (%) and total chlorophyll (SPAD value) in leaves were determined. As results, it has been determined that as the amount of water restriction goes from control to 0 %, the leaf water potential decreases and the plants grown at 0 % water deficit show severe damage symptoms. It has also been found that the amount of leaf-relative water content and the total amount of chlorophyll are reduced in a manner contrary to the increase in drought stress. Contrary to other criteria, membrane damage and leaf temperatures increase in leaf cells due to the increase in the amount of water restriction.

**Key words:** *Abelmoschus esculentus* cv. Sultani, water stress, leaf water potential, leaf relative water content, membrane damage in leaf cells, total chlorophyll.

#### [68] Deveci, M., D. Tuğcu, 2017. Effects of Salt Stress on Leaf Water Potential and Some Leaf Physiological Characteristics in Kale. 2<sup>nd</sup> International Balkan Agriculture Congress, Book of Abstracts. May 16-18, 308p, Tekirdag-Turkey.

The cultivar kale (Brassica oleracea var. acephala cv. Yerli) was used in this research. All of the experiments were carried out in a climate room with 20 °C temperature, % 65-70 humidity, 12/12 (light/dark) photoperiodical system. Salt applications were started to be done until the term in which the plants have 4-5 real leaves and NaCl was added to the nutrient solution in the cups in order to maintain a salt concentration of 0, 50, 100 and 200 mM in watering times until the 8 real leaves term and the harvesting term. During the trial, leaf water potential (MPa), membrane damage in leaf cells (%), leaf temperature (°C), total chlorophyll (SPAD) in the leaves were measured. According to the obtained results from the trial containing the salt application from different vegetation periods until the harvesting period, the membrane infestation in the leaf cells, the temperature of leaf and the damage index criteria have been measured as highest mean scores. As a result of different salt concentrations, among the discussed criteria the membrane infestation in the leaf cells and the leaf temperature was determined that the amount increases as the salinity increases. All the other criteria discussed in this study were decreased when the salinity increased from 0 mM to 200 mM concentrations It was concluded that when salt concentration increases, midday leaf water potential have fallen and it means that water stress of leaves have been increased too.

**Key words:** *Brassica oleracea var. acephala,* vegetation period, membrane damage, leaf temperature, total chlorophyll.

### [69] Deveci, M., M. Pıtır, 2017. The Effect of Different Water Deficiency on Morphological Characteristics of Pepper. 2<sup>nd</sup> International Balkan Agriculture Congress, Book of Abstracts. May 16-18, 307p, Tekirdag-Turkey.

The cultivar Jalepeno pepper (Capsicum annuum var. annuum) was used in this research. The experimental design was split plot with five replications and four water restriction levels (control, 0 %, 25 %, 50 %) were used. The research was made in a unheated plastic greenhouse at Namik Kemal University, Agricultural Faculty, Department of Horticulture. After planting, plants were grown in normal growing conditions for a month and water restriction treatments were applied from the second month onwards. The plants development and other parameters were recorded. During the experiment, number of leaves, weight of leaf (g), leaf thickness (mm), leaf area (cm<sup>2</sup>), fruit number, fruit length (mm), fruit diameter (mm), fruit weight (g), plant height (cm) were measured. Artificial draught stresses made by water restrictions affected the growth and development of plants badly. The normal growth was observed in control (100 % water). The plants watered with 50 % were affected less than 25 % and 0 % water treatments. The treatment (25 % water) gave noticeable stress symptoms, leaf wilting, reduced growth and development and yield reduction. The treatment (0 % water) caused reduced growth, small leaf, wilting, drying, reduced yield and gradually the death of plants. As a result, number of leaves, weight of leaf, leaf area, fruit number, fruit length, fruit diameter, fruit weight, plant height were the highest in 100 % water treatment. The lowest leaf thickness was determined in 100 % water treatment as well.

**Key words:** *Capsicum annuum* var. annuum, jalepeno pepper, greenhouse, water stress, plant characteristics.

#### [70] Deveci, M., D. Tuğcu, 2017. Tuz Stresinin Yaprak Lahanada Yaprak Su Potansiyeli ve Bazı Yaprak Fizyolojik Özellikleri Üzerine Etkisi. 3<sup>rd</sup> International Congress of Agriculture and Enviriment. ICAE-Abstract Book 2. November 16-18, 91-92 p, Antalya-Turkey.

Bu araştırmada materyal olarak yaprak lahana (karalahana) yerli çeşidi (Brassica oleracea var. acephala cv. Yerli) kullanılmıştır. Deneme tesadüf parselleri deneme desenine göre 4 tekerrürlü olarak kurulmuştur ve her tekerrürde 4 tuz konsantrasyonu (kontrol, 50, 100 ve 200 mM NaCl), 2 tuz uygulama zamanı (8 gerçek yapraklı ve hasat dönemine kadar) uygulanmıştır. Tüm deneyler, 20 °C sıcaklık, % 65-70 nem, 12/12 (aydınlık/gece) saatlik fotoperiyodik düzene sahip iklim odasında gerçekleştirilmiştir. Tuz uygulamaları bitkilerin 4-5 gerçek yapraklı olduğu dönemde yapılmaya başlanmış ve 8 gerçek yapraklı dönem ve hasat dönemine kadar kaplardaki besin çözeltisine sulama zamanlarında 0, 50, 100 ve 200 mM tuz konsantrasyonunu sağlayacak şekilde saksılara NaCl ilave edilmiştir. Deneme süresince yaprak su potansiyeli (MPa), yaprak hücrelerinde membran zararlanması (%), yaprak sıcaklıkları (°C) ve klorofil miktarları (SPAD değeri) ölçülmüştür. Elde edilen sonuçlara göre denemede ele alınan farklı vejatatif dönemlerden hasat dönemine kadar tuz uygulaması ile yaprak hücrelerinde membran zararlanması ve yaprak sıcaklığı kriterlerinde en yüksek ortalamalara ulaşılmıştır. Farklı tuz konsantrasyonları sonucunda ele alınan kriterlerden yaprak hücrelerinde membran zararlanması ve yaprak sıcaklığının tuzluluk arttıkça arttığı belirlenmiştir. Diğer tüm kriterlerde tuzluğun 0 mM' dan 200 mM'e doğru artmasıyla elde edilen ortalamaların azaldığı tespit edilmiştir. Yaprak su potansiyeli bakımından tuz konsantrasyonu arttıkça gün ortası yaprak su potansiyelinin ( $\Psi$ go) düştüğü yani yaprakların su stresinin arttığı sonucuna varılmıştır.

**Anahtar kelimeler:** Yaprak Lahana, *Brassica oleracea* var. *acephala* L, sulama suyu tuzluluğu, yaprak su potansiyeli, klorofil miktarı.

#### [71] Duraklı Velioğlu, S., K.G. Güner, 2017. Acrylamide risk in bakery products, Association of Thrace Universities 1st International Health Sciences Congress. pp: 363. 23-25 November, 2017. Edirne, TURKEY.

Heat treatment of food products is a popular issue both for the food industry and consumers. One of the most important reactions which occur during heat treatment of food products is the Maillard reaction. It plays a key role in formation of not only the desired sensorial characteristics of the food products, but also some toxic compounds which decrease the nutritional value and safety of them. One of the toxic compounds occurring during heat treatment is acrylamide which is classified in Group 2A as "probable human carcinogen" by the International Agency for Research on Cancer (IARC). Acrylamide precursors such as free amino acids (mainly asparagine), reducing sugars and also process conditions such as baking temperature and time, moisture content of the product influence the formation of acrylamide in foods. Hence, the high sugar and asparagine content of bakery products as well as the high baking temperature make them one of the most important groups of food products possessing acrylamide risk. The usage of ingredients containing high amounts of reducing sugars (such as sugar syrups, honey or molasses) in the formulation of bakery products such as cakes, cookies or biscuits also increases the risk of acrylamide formation in these products. Determination of optimal combinations of ingredients, additives and heat treatment conditions is of great importance in order to produce bakery products having the desired quality with low acrylamide content. The present paper summarizes the recent studies about the risk of acrylamide formation in bakery products.

Key words: Maillard reaction, acrylamide, bakery products.

# [72] Duraklı Velioğlu, S., G. Tırpancı Sivri, 2017. Antimicrobial Effect of Ginger (*Zingiber officinale*) Extracts Against Streptococcus pyogenes. 1<sup>st</sup> International congress on Medicinal and Aromatic Plants "Natural and Healty Life" (IMAPCON'17) Abstract Book, pp: 888, 9-12 May 2017. Konya, TURKEY.

Ginger (Zingiber officinale) has been used widely as a food spice and an herbal medicine. It is very common to use it to treat sore throat, cough, fewer etc., that are prevalent during winter. The purpose of this study was to investigate the antimicrobial effect of ginger extracts against Streptococcus pyogenes (ATCC<sup>®</sup> 19615<sup>™</sup>) which is group A streptococci causing infections. Although there is a wide range of antibiotics for the treatment of bacterial infections, the development of resistance to chemotherapeutic agents increasingly become a pressing problem which makes researchers looking for alternative therapeutic agents. For this reason, fresh and dried ginger aqueous extracts and essential oils were assessed for their antimicrobial activity. Disc-diffusion method on blood sheep agar was used to test the antimicrobial efficiency of the extracts. The essential oil obtained from hydrodistillation of dried ginger was the most effective with 17.43 mm inhibition zone. The aqueous extracts obtained by decoction process was not effective as essential oils. Tetracycline, cefixime and streptomycine were used as positive controls and antimicrobial activity of the essential oil of dried ginger is not significantly different than that of tetracycline (p<0.05). It was concluded that the essential oil of ginger may contain compounds with therapeutic activity against Streptococcus pyogenes.

Key words: Ginger (Zingiber officinale), Streptococcus pyogenes, antimicrobial effect.

#### [73] Duraklı Velioglu, S., G. Tırpancı Sivri, M.I. Soysal, M. Demirci, 2017. Buffalo Milk Products. 8th International Balkan Animal Science Conference (BALNIMALCON 2017), pp: 160. 06-08 September, 2017. Prizren, KOSOVA.

Buffalo milk is the second most widely produced milk in the world. It has a great importance because of its nutritional and technological properties. The composition of buffalo milk differs from other types of milk in terms of major components (fats, proteins, and water content) as well as minor components such as carotenes and riboflavin. Buffalo milk is a favourable raw material in the production of various premium traditional dairy products especially in Asia and Europe. These products include Mozzarella, Ricotta, Provola, Treccia in Italy, Buffalo Milk Yoghurt and Kaymak in Turkey, Yoghurt, Butter, Braila and Vladeasa in Romania, Pecorini in Bulgaria, Ghee and Dahi in India, and Gemir in Iraq. The consumers' demand for buffalo products has been increasing in recent years because of the different aroma, structure and natural properties of buffalo milk products. The dairy industry also values the superior properties of buffalo milk, which make it very suitable for producing various dairy products. The high proportion of milk solids in buffalo milk not only makes it ideal for processing into premium products, but also contributes to some extent to save energy during processing. The high solids content of buffalo milk reduces the need to add milk proteins and to evaporate water during yogurt processing. Buffalo milk has twice the fat content of cow milk, and is favored in the production of a variety of products because of its taste and texture superior to cow milk. Lower cholesterol and higher proportion of saturated fatty acids and conjugated fatty acids content of buffalo milk have importance from the nutritional point of view. Being less susceptible to oxidative changes compared to cows' milk is another feature of buffalo milk. This paper summarizes the valuable features of high quality buffalo milk in the production of premium dairy products.

Key words: Buffalo milk, production, dairy products.

### [74] Duraklı Velioğlu, S., H.M. Velioğlu, 2017. Carcinogenicity of Meat Products. 1<sup>st</sup> International Health Sciences Congress.

Meat and meat products refer to two main groups namely unprocessed and processed meats. While unprocessed meat is generally consumed after cooking, processed meat products such as sausage, salami and ham may be cooked or not before consumption according to the product properties. Whether meat contains valuable biologic compounds such as protein, vitamins and minerals, it is under suspicios due to some process contaminants that are proven as carcinogenic for human beings. N-nitroso compounds, polycyclic aromatic hydrocarbons and heterocyclic aromatic amines are the most discussed chemicals that ocur during the production processes of meat products. The formation of these compounds is related to the thermal and/or chemical reactions which are technically essential in the production process of meat products. While there is inadequate evidence in experimental studies for humans, meat products are categorized in Group 1 "carcinogenic to humans" by International Agency for Research on Cancer in 2015. In the present paper, the possibility of formation of carcinogenic chemicals in meat products and the discussions about the reliability of their effects on human health are summarized.

Key words: Carcinogenicity.

### [75] Er, Y., N. Sivri, M. Mirik, 2017. Comparison of antimicrobial effects of disc diffusion and agar well diffusion methods using some essential oil against *Rhizobium vitis*. 40<sup>th</sup> World Congress of Vine and Wine, 332-332.

The aim of this study is to determine antimicrobial effects of black cumin oil (*Nigella sativa*), mustard oil (Sinapis sp.), centaury oil (Hypericum perforatum), garlic oil (Allium sativum), thyme (Thymus vulgaris) and ginger oil (Zingiber officinale) against seven Rhizobium vitis isolates obtained from Thrace region vineyards. After bacterial isolates were tested for colonization morphology and pathogenicity, essential oils were examined for six different concentrations (5, 10, 15, 20, 25 and 30 mg/ml) to determine antibacterial activity and select suitable method according to agar disc diffusion and agar well diffusion methods. The comparison was made between these two methods. The diameters of the inhibition zones forming at the end of the incubation period were measured with a millimeter scale. The experiments were conducted with five replications, with positive and negative controls. As a result, it has been observed that the disk diffusion method has a larger diameter and a more visible zone. According to inhibition zone formation, It has been found that centaury, thyme and ginger essential oils, respectively are the most effective among the other essential oils and doses tested in disk diffusion and well diffusion methods and are observed to be a significant inhibitory effect for all tested bacterial isolates, especially at the concentration of 30 mg/ml. Inhibition zone diameter of centaury, thyme and ginger essential oils was found to be 75 mm, 32 mm, 33 mm for agar well diffusion method and 82 mm, 51 mm, 54 mm for disc diffusion method, respectively. At the last stage of the study, component analysis of antibacterial essential oils were performed by GC/MS. The major volatile compounds in the centaury, thyme and ginger essential oil were found to be camphor (20.67 %), thymol (36.9 %) and benzyl alcohol (43.07 %) respectively.

**Key words:** *Rhizobium vitis*, black cumin, mustard, centaury, garlic, thyme, ginger, essential oil, agar disc diffusion, agar well diffusion, inhibition zone, antimicrobial activity, camphor, thymol, benzyl alcohol.

#### [76] Erdoğdu, Y., E. Esendal, 2017. The Effect of Different Doses of Nitrogen on Yield and Essential Oil Content of Coriander (Coriandrum sativum L.). 2nd International Balkan Agriculture Congress, Book of Abstract, page 191, 16-18 May 2017 Tekirdağ, Turkey.

This research was carried out in experimental field of Field Crops Department of Agricultural Faculty of Namik Kemal University in 2011-2012 growing season to determine effects of five different nitrogen doses (0, 3, 6, 9 and 12 kg/da) in two coriander cultivars (Arslan and Gürbüz) on seed yield, essential oil content (%) of immature and mature seed and essential oil yield mature seed. The experiment was designed as coriander cultivars main plot, nitrogen doses sub-plots, in randomised split-plot design with four replications. In this research Gürbüz cultivars has higher values in essential oil content of immature seed. Nitrogen doses varied between 98.20-146.70 kg/da for seed yield, % 0.40-0.47 for oil content of immature seed, % 0.29-0.30 for oil content of mature seed and 0.289-0.4351 l/da oil yield of mature seed. As a result; chracteristics examined in study are evaluated together, 9 kg/da nitrogen usage is suitable for coriander cultivation in Tekirdağ ecological conditions.

Key words: Coriandrum sativum L., nitrogen doses, mature, imaturem, essential oil.

## [77] Evci, G., V. Pekcan, M.I. Yilmaz, T.H. Ciftcigil, B.B. Bilgen, Y. Kaya, 2017. The Determining of Yield Performances of Some High Oleic Type Sunflower Hybrids Resistant to Broomrape. III. International Plant Breeding Congress, Kyrenia, TRNC. 15/10/2017-19/10/2017.

Sunflower is one the most important oil crops in Turkey but domestic vegetable oil production is not enough so this relevant gap is supplied by importing of mostly sunflower seed or/and crude oil with higher costs. Higher oleic type sunflower is common and getting popular recently in the world vegetable oil sector both presenting healthy oil to customers and also giving an opportunity to reuse more for frying so reducing of the need amounts. Its use and entering to market in Turkey quite new but it will be more popular in next years so as a seed sector, we have to develop new oleic type sunflower hybrids and get information their adaptation capabilities to be ready for these vital and strategical requests. On the other hand, these new cultivars also be resistant to broomrape parasite which results until 100% yield loss in sunflower and also other common diseases and stress conditions in Turkey. The study was conducted in Edirne and Trakya region which has about 50% of sunflower production in Turkey and in TUBITAK 1003 project titled "The Development of Broomrape (Orobanche cumana Wallr.) Resistant and High Oleic Acid Type Sunflower (Helianthus annuus L.) Inbred Lines Utilizing Classical and Molecular Breeding Methods. Based on this project, selected broomrape resistant and high oleic inbred lines determined in previous years also utilizing from molecular markers with Marker Assisted Selection (MAS) in the breeding studies then the candidate sunflower hybrids were made using these inbred lines in 2016. These candidate sunflower hybrids were tested in conducted yield trials in 2 locations as Edirne and Luleburgaz in Trakya region in 2017 with 4 commercial hybrids selling in the market. The yield experiments were conducted in 4 replications, 4 rows with 70 x 30 cm plant density. Based on trial results, some high oleic hybrids exhibited higher performances than commercial checks which commonly sold in the Turkish market both for seed yield and also in other desired yield traits. Additionally, they will be evaluated for other yield characters and also their inbred lines and its backgrounds in this winter. Some selected one could be sent directly for registration if they have enough seeds or they could be existing again regional yield trials in next year to see their performances.

**Key words:** Sunflower, High Oleic, Broomrape resistance breeding, Inbred lines, Hybrid Breeding.

#### [78] Ferek, Ö., O. Daglioglu, D. Oskay, 2017.Determination of Some Quality Properties of Mugla Pine Honeys. 45<sup>th</sup> APIMONDIA INTERNATIONAL APICULTURAL CONGRESS Septembe 29 - October 4, 2017 / Istanbul – TURKEY.

In this study, it was aimed to determine the quality properties (pyhsical, chemical and antioxidant properties) of pine honey samples produced from secretion of Marchalina hellenica living on Pinus brutia Tenore in Mugla Province. For this purpose, 15 pine honey samples collected from the beekeepers who live in 5 different locations (Köycegiz, Bodrum, Datca, Mentese, Yatagan). Minimum and maximum values of pine honey samples are as follows; electrical conductivity 0,892- 1,838 mS/cm, optic rotation (-0.12)- (+3.51), L\* 44-70, a\* 16- 30, b\* 76- 88, moisture content 15.6 %- 18, proline 388- 682 mg/kg, diastase 9-21, glucose 22.1 %- 28.76, fructose 28.6 %- 35.6, saccarose 0 %- 2.1, trehalose, 0 %- 0.23, maltose 0.02 %- 0.65, melebiose 0 %- 0.36, total polyphenol content 27- 48 mgGAE/100g, total avonoid content 0.1-1.5 mgQAE/100g, FRAP (ferric reducing antioxidant power) 1.1-1.52 μmol FeSO4.7H2O/g ve DPPH- SC50 radical scavenging activity 32 mg/mL- 55 mg/mL. Different locations signi cantly affected the electrical conductivity and optic rotation values of the pine honey samples (p<0.05). However, the effect of location differences on the other analized quality parameters were not statistically signi\_cant (p>0.05). In pollenpreparation made from pine honey samples, it was observed that the highest rate of pollen was seen in Compositae, Fabaceae, Rosaceae, Lamia ceae, Erica and Cistus types. Fungi spores which characterize pine honey were also observed in the samples.

Key words: Apis mellifera.

#### [79] Gecgel, U., O. Daglioglu, D. Apaydin, S. Orcan, 2017. Germ Oils. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May, Tekirdag, Turkey, p. 584.

Plant germ oils are obtained from cereal grains like corn, wheat and rice commercially. In addition to this, the germ oils of grains such as oat, barley and millet are quite valuable even though they don't have commercial importance. The germ, constitutes 2.5–3.0% of the grain and can be separated from flour by using the necessary equipment's during the milling process. Although lipids are small amounts in cereal grains, they play an important role in the final product quality. A large portion of the oil contained in the grain is found in the germ. The germ oil of rice, corn and wheat which have economic importance is highly valuable in terms of bioactive components (tocopherols and sterols). On the other hand, the quantity of oils found in germs of some cereal grains such as oats are quite a lot. Wheat germ oil is one of the richest natural oils in terms of  $\alpha$ -tocopherol (vitamin E). Likewise, corn germ oil has a higher total phytosterol content than other vegetable oils. Both of these germ lipids contain omega-3 (C18: 3, linoleic acid) and omega-6 (C18: 2, linoleic acid) fatty acids which are extremely important for nutrition. Germ oils which are remarkably important in terms of tocopherol, phytosterol and omega fatty acids and the interest on these kinds of oils will increase anymore in the future.

Key words: Germ, germ oil, plant germ oil.

[80] Gecgel, U., S. Kurultay, O. Simsek, G.C. Dulger, D. Apaydin, R. Gunes, I. Yilmaz, 2017. Thyme and Thyme Essential Oil and Their Potential Use in Foods. I. International Congress on Medicinal and Aromatic Plants "Natural and Healthy Life", 10-12 May, Konya, Turkey, p. 439.

Thymus vulgaris L. (thyme), a member of the family Lamiaceae, is broadly used in different countries of the world as folk medicine for its carminative, immunostimulant, digestiveeupeptic, expectorant, antispasmodic, anti-inflammatory, and antitussive-bronchodilator features. Thyme plant includes approximately 100 species, found in Mediterranean countries such as Spain, Italy, Algeria, France, Turkey, Portugal and Morocco. Thyme is cultivated primarily in these countries for the production of fresh and dry herbs, essential oil and oleoresin. On the other hand, it has been generally considered as spice. Many thymus species are used in various regions of the world. There are about 39 species of the genus Thymus grown in Turkey. Additionally, Thyme herb (Thymi herba) is produced from the dried leaves and flowering tops of T. vulgaris. Thyme essential oils have some antiinflammatory and hepatoprotective properties and thyme oils and extracts are thoroughly used in pharmaceutical, cosmetic, perfume and flavor industries. Thyme essential oil extracted from fresh thyme leaves can be used for antioxidant potential and antimicrobial properties in many different food. High antimicrobial activity of thyme species results from their phenolic components. The chemical composition of the thyme oil is reported as thymol, p-cymene, y-terpinene, myrcene, carvacrol and  $\alpha$ -terpinene. Fatty acid composition was analyzed and nine fatty acids were identified. Among these fatty acids, C18:1 and C18:2 were major fatty acids. Because of high C18:1 and C18:2 levels, thyme oil may be nutritionally valuable. And also this oil can be used in food, cosmetics and pharmaceutical products to restrict microbial activity.

Key words: Thyme, thyme oil, chemical properties.

#### [81] Geçgel, Ü., S. Kurultay, O. Şimşek, M. Demirci, M.I. Soysal, M. Taşan, I. Yılmaz, 2017. Conjugated Linoleic Acid (cla) Content in Animal Products. 8<sup>th</sup> Balkan Animal Science Conference Balnimalcon 2017, 6-8 September, Prizren, Kosovo, p. 193.

Conjugated linoleic acid (CLA) is an 18 carbons polyunsaturated FA (PUFA) with two conjugated double bonds, separated by one single bond. The conjugated bonds may be in cis or trans configuration and generally take place at positions 9 and 11 as well as 10 and 12. The cis-9, trans-11 octadecadienoic acid (CLA, denominated Rumenic acid) which is the major and most active isomers of CLA and may represent up to 80% of the total CLA and is derived from linoleic acid (LA) and  $\alpha$ -linolenic acid (LnA). This fatty acid is especially present in meat and dairy products of ruminant animals (such as milk, butter, yogurt and cheese). Amounts of CLA in dairy products range between 3.3 and 8.0 mg/g of fat. On the other hand, CLA is also available in human blood, tissues and breast milk. CLA has positive health effects on widespread diseases such as obesity, diabetes, decreasing body fat and increasing lean body mass, protecting against immune-induced muscle wasting and cardiovascular diseases. Additionally, it has been recommended that CLA not only reduce initiation, promotion, and progression steps of cancer development, but also reduce metastasis of cancer.

Key words: Cla, linoleic acid, dairy products.

# [82] Gecgel, U., O. Simsek, S. Kurultay, D. Apaydin, G.C. Dulger, R. Gunes, I. Yilmaz, 2017. Antimicrobial Properties of Essential Oils and Evaluation of These Oils as a Functional Food Component. I. International Congress on Medicinal and Aromatic Plants "Natural and Healthy Life", 10-12 May, Konya, Turkey, p. 438.

Essential oils are aromatic and volatile liquids obtained from plants or various parts of these plants such as, flowers, roots, shells, leaves, seeds and fruits by solvent extraction, pressing, steam or hydro distillation. Since essential oils are subject for pharmacological studies, testing their antimicrobial activity as well as using them in various foods to extend their shelf life have been studied frequently. On the other hand, many adverse effects of synthetic additives with developing technology and the prevalence of antimicrobial drug resistance against synthetic antibiotics increased the interest in essential oils derived from medical and aromatic plants. A great many research articles investigating the antimicrobial activity of essential oils have demonstrated that the results were very encouraging. In these researches antibacterial, antifungal and antiviral properties of essential oils have been proved and it has been reported that the activity of essential oil depends upon the nature, composition, and synergism of its functional groups such as, terpenes, aldehydes, ketones, esters, phenolic, alcohols, and ethers. Because of these properties of essential oils, their use as a flavoring material and antimicrobial agent in many foods and beverages has been suggested. Recently, food technologists and scientists are formulating functional foods containing these aromatic volatile oils in order to improve nutritional quality, prevent microbial spoilage and risk of food borne infections without causing loss of organoleptic properties of the food. Also, it is stated that these oils can be used in packaging films. For these reasons, it is accepted that the use of vegetable essential oils and their specific compounds may be one of the effective and potential solutions for many unhealthy synthetic food additives. Therefore, it is expected that the use of essential oils in the food industry will increase in the near future.

Key words: Antimicrobial properties, essential oils, functional food.

## [83] Gecgel, U., M. Tasan, D. Apaydin, Y. Rabia Gungor, 2017. The importance of Oil Seeds for Healty Nutrition. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May, Tekirdag, Turkey, p. 596.

Phytosterols and tocopherols are extremely important bioactive compounds in terms of human nutrition. The most important source of tocopherols and phytosterols among all food stuffs in the nature are oil seeds. Owing to these properties, oil seeds and vegetable oils are among the indispensable food components of the human diet. Phytosterol compositions and amounts are affected by plant variety, genetic factors, breeding conditions (such as location, climate), seed or fruit maturity level and some other factors. The total amount of phytosterol in rapeseed (canola), corn, soybean, aspir, sesame, olive and sunflower was reported; 643.0, 774.6, 286.2, 194.2, 493.5, 162.3 and 263.9 mg / 100 g oil, respectively. The main ones of plant sterols found in oil seeds are sitosterols, stigmasterol and brassicasterol.  $\beta$ -sitosterol is the most common one among plant sterols in nature. Due to its beneficial properties on metabolism, phytosterols are now being added to many foods as functional food ingredients. Tocopherols known as vitamin E are the most common natural antioxidants in nature. These substances, which are found in the group of fat-soluble vitamins, are present in the form of tocopherol and tocotrienol in nature. The type of vegetable oil source, maturity stage, climatic conditions, soil conditions and harvesting conditions determine the quantities of these substances. On the other hand, the amounts of these compounds can change depending on the operations such as pressing, extraction and refining applied in oil technology. A number of existing studies have identified positive effects on human health, indicated that these compounds make vegetable oils important.

Key words: Oil seeds, phytosterols, tocopherols, healthy nutrition.

# [84] Gecgel, U., H. Vatanseven, D. Apaydin, 2017. Considerations of the Effects on Physico-Chemical Properties with Human Health and Environment of Olestra as a Fat Substitute. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May, Tekirdag, Turkey, p. 565.

Olestra, a sucrose polyester, is a non caloric fat substitute, made from sucrose and several fatty acid esters. It has been approved by the FDA as a food additive used in preparing low-fat deep-frying foods such as savory snacks. Available literature on olestra was evaluated that had both positive an negative connotations. Clinical trials in numerous species of animals including humans were conducted to determine if olestra would affect the utilization and absorption of macro- and micronutrients; the effects of olestra on growth, reproduction, or its toxicity were also examined. The roles of olestra as a fat substitute, how it could effect on humans and environmental, and the potential impacts from its use in large amounts were assessed. Olestra can be removed from the environment by aerobic bacteria and fungi which may be isolated from activated sludge and soils.

Key words: Olestra, fat substitute, sucrose polyester, food additive.

### [85] Gecgel, U., M. Yilmaz, E. Culpan, D. Apaydin, 2017. Quality properties of safflower seed and oil. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May, Tekirdag, Turkey, p. 602.

Safflower (Carthamus Tinctorius) from Compositae family is an one-year oil seed plant. Yenice, Dincer, Remzibey, Balcı, Linas and Olas varieties which are certified as domestic seeds and Ayaz and Asol varieties with production permit are available in Turkey. Safflower planting area in the world is 816.588 hectares, production is 670.318 tons and yield is 82 kg / da. While safflower seeds have about 25-37% oil content in older varieties, this ratio is up to 46-47% in new varieties which have been reduced shell content, increased oil content. Protein content of more than 200 varieties of safflower in the world varies from 16.7% to 37.6%. Crude oil obtained by pressing or extraction methods from safflower seeds must be refined for edible consumption. Refining is a process of removal of all undesirable substances from the crude oil in order to obtain clear, light-colored, odorless, free fatty acid oil. Refining currently applied as chemically or physically. The most explicit property of safflower oil is that the content of unsaturated fatty acids is high and the content of saturated fatty acids is low. The main unsaturated fatty acids of the safflower oil are linoleic and oleic acid, while the saturated fatty acids are palmitic and stearic acids. Safflower has the highest linoleic acid content (83%) among traditional vegetable oils. On the other hand, sources of variation for very high oleic acid content (> 85%) have been noticed.

Key words: Safflower seed, safflower oil, oil quality.

## [86] Gezer, E., C.B. Sisman, 2017. Agricultural Use of Wastewater Treatment Sludge. 2<sup>nd</sup> International Balkan Agriculture Congress. 16-18 May 2017, Tekirdağ / Turkey.

With the rapid increase in the number of wastewater treatment plants in the World and our country, the amount of treatment wastewater produced in the plants is increasing. The sludge obtained is dispointed of in the different shapes to prevent damage to the environment. Provided that the use of sludge in agricultural areas is caruful, themost appropriate mothod in terms of environment as emerges. Due to the harmful elements and patogens contained in the sludge, attention has to be paid to their use and necessary precautions must be taken to eleminate these demage.

Key words: Waste water, sludge, agriculture, environment.
#### [87] Gıdık, B., Onemli, F. 2017. Evaluation of Some Agronomic Characters in Thrace Region Flora Wild Mustard (Sinapis Sp.) Genotypes under Natural Flora and Field Conditions, 2nd International Balkan Agriculture Congress, Book of Abstract, page 208, 16-18 May 2017 Tekirdağ, Turkey.

This study reports differences in agronomic characters among wild mustard (Sinapis arvensis and Sinapis nigra) populations collected from 20 different locations of the Thrace region. The study was aimed to select superior genotype for subsequent use in breeding; by comparing them for seed yield and quality characters with other species of Brassicaceae family (Brassica napus, S. alba and Camelina sativa) after growing them under field conditions for two years. The first observations of some agronomic characters were taken during collecting wild genotypes under natural flora in 2013. In field trials conducted during 2014 and 2015 as fall crop of wild mustard populations with other Brassica species as standard genotypes, the maximum shoot length of 321.542 and 310.000 cm was measured during first and 2nd year on Sinapis nigra respectively. Maximum number of 22.576 branches were determined during first year on S. nigra; where as, maximum number of 17.75 branches were observed on S. alba during 2nd year. The longest capsules of 7.200 and 7.675 cm were found on B. napus respectively. The maximum thousand grain weight of 3.825 g and 3.600 g were obtained during first and 2nd year from B. napus species. The maximum seed yield with 455.109 kg/ha was observed on B. napus species in 2014 although the maximum seed yield of 82.850 kg/da was noted during 2nd year S. nigra respectively.

Key words: Brassicaceae, Sinapis arvensis, Sinapis nigra, yield components.

This study was prepared from the data collected for Ph. D. thesis of Betül GIDIK 2016, "Evaluation of Thrace Region Flora Wild Mustard (Sinapis sp.) Genotypes for Molecular and Morphological Characterization, Yield and Quality Characters in Field Conditions" under supervision of Prof. Dr. Fadul ÖNEMLİ, supported by project of NKUBAP.00.24.DR.13.04.

[88] Gıdık, B., F. Onemli, 2017. Evaluation of Wild Mustard (*Sinapis* Sp.) Genotypes and Some Brassica Species for Oil Content and Fatty Acid Composition under Field Conditions. 2nd International Balkan Agriculture Congress, Book of Abstract, page 209, 16-18 May 2017 Tekirdağ, Turkey.

This study reports genetic differences for seed oil yield, seed oil content and fatty acid compositions among wild mustard (*Sinapis arvensis* and *Sinapis nigra*) collected from 20 different locations of the Thrace region by comparing them with other members of Brassicaceae family (*Brassica napus, S. alba* and *Camelina sativa*) under field conditions for two years. In field trials conducted during two years including 2014 and 2015 fall growing seasons maximum oil contents of 39.040% and 42.665% were observed on B. napus. Oil content of Sinapis arvensis genotypes were changed from 31.86% to 28.855% although seed oil contents of Sinapis nigra were between 33.66% and 29.35%. Whereas maximum oil yield of 48.696 kg/ha during first year and 25.388 kg/ha during 2nd year were observed on B. napus. In field trials conducted during second breeding year the maximum erucic acid content of 44.07% on Sinapis arvensis and the maximum olic acid and linoleic acid content of 62.19% and 20.55% on Brassica napus.

Key words: Oil contents, Brassicaceae, Sinapis arvensis, Sinapis nigra, fatty acid.

This study was prepared from the data collected for Ph. D. thesis of Betül GIDIK 2016, "Evaluation of Thrace Region Flora Wild Mustard (Sinapis sp.) Genotypes for Molecular and Morphological Characterization, Yield and Quality Characters in Field Conditions" under supervision of Prof. Dr. Fadul ÖNEMLİ, supported by project of NKUBAP.00.24.DR.13.04.

# [89] Gök, Ş., S. Demirbaş, 2017. Seed Priming of *Pancratium maritimum* with GR24 to Alleviate Oxidative Stress in Germination Period. 13<sup>th</sup> International Conference on Reactive Oxygen and Nitrogen Species in Plants: Emerging Roles in Plant Form and Function, 10-13.09.2017, p. 83. Kuşadası, Türkiye

Strigolactones (SLs) are plant growth regulators that serve in response to metabolic and environmental stimuli in plant root and stem. Salinity is the one of the most important environmental factors affecting growth and productivity of several plants and many plant growth regulators are known to be taken part in the formation of the stress response against the salinity. The aim of this study is to determine whether pre-treatment with synthetic strigolactone (GR24) increase the resistance to salt stress conditions or not when the Pancratium maritimum (sand lily, sea lily, sand daffodil) is exposed to saline conditions. In this study, the collected sand lily seeds from Antalya-Belek beach were used. This study aims to increase the resistance of the sand lily against the salty conditions with application of strigolactone before sowing. For the germination test, seeds will be subjected to pretreated with 0-10-20  $\mu$ M GR24 for 0-30-60 min before planting. Seeds, pre-treated with GR24 (10 and 20 µM), will be planted in Petri dishes (5 seeds/Petri dish) containing 0-150-300 mM NaCl. In this study, it was determined that the germination rate decreased in due to the increased salt concentration and that the priming of the seed with 20  $\mu$ M GR24 for 30 minutes eliminated the effect of salt stress on seeds. Although 300 mM NaCl caused increase in TBARS content in roots, total protein content and POX activity also increased in 21 days after sowing. Priming of the seed with 20  $\mu$ M GR24 for 30 minutes increased in POX activity under 150 mM NaCl stress. Consequently, GR24 application to P. maritimum seeds before sowing decreased oxidative stress caused by salt.

Key words: Sand lily, TBARS, POX, antioxidant enzyme, priming.

#### [90] Güder A., R. Işık, F. Özdil, 2017. 16S rDNA and ND5 Genetic Variation of Honey Bee Populations (*Apis mellifera* L.) in Thrace Region of Turkey. 6th International Congress on Molecular Biology and Biotechnology

In this study, it was aimed to determine the genetic variation among honey bee populations in Thrace region of Turkey using mitochondrial 16S rDNA and ND5 gene regions. DNA sequencing and PCR-RFLP was done by Dral, Mboll and Swal restriction enzymes. A total of 100 worker honey bees samples were used from different regions of Tekirdağ, Edirne, Kırklareli, Çanakkale provinces and Gökçeada Island. In this study, two different haplotypes were identified with Dral and Swal restriction enzymes in 16S rDNA and ND5 gene regions. Seven bands of 315, 212, 116, 116, 92, 70 and 44 bp were observed in Type 1 haplotype in terms of 16S rDNA/Dral restriction. In Type 2 haplotype, there is an additional restriction site at position 705 which is a result of  $C \rightarrow T$  transition and this haplotype gave 8 band pattern (215, 212, 116, 116, 100, 92, 70 and 44 bp). For the 16S rDNA/Swal restriction, 3 different bands of 359, 324 and 282 bp was determined in Type 1 haplotype. In Type 2 haplotype, there is an additional restriction site at position 196 which is a result of  $A \rightarrow T$ transition and this haplotype gave 4 band profiles of 359, 324, 195 and 87 bp bands. However, one haplotype was identified in all of the samples for 16S rDNA/Mboll. For the ND5/Dral restriction, 3 bands of 440, 270 and 112 bp was detected in Type 1 haplotype. Single nucleotide mutation at position 383 (T  $\rightarrow$  C transition) resulted the loss of the Dral recognition site in ND5 gene region. Thus, 2 bands of 552 and 270 were observed. No restriction site variation was found in ND5 region with the restriction enzymes Mboll and Swal. In this study different haplotyes were observed in 16S rDNA and ND5 gene regions among honey bee populations in Thrace region of Turkey. Further studies with the large number of sample size are needed and this may reveal more haplotypes in these gene regions.

Key words: Apis mellifera L., mtDNA, 16S rDNA, ND5, PCR-RFLP, Thrace region.

#### [91] Gültekin, M.A., Ö. Sağlam, A.A. Işıkber, 2017. Insecticidal Efficacy of Turkish Diatomaceous Earth Deposits against Cowpea Weevil, *Callosobruchus maculatus* (Coleoptera: Chrysomelidae: Bruchninae) adults on chickpea. 11th Conference of the IOBC/wprs Working Group on the Integrated Protection of Stored Products,3-5 July 2017, Ljubljana, Slovenia, p.46 (Oral presentation)

In this study, insecticidal efficiency of Turkish local diatomaceous earth (DE) deposits, BHN-1, FB2N-1 and BGN-1 against Cowpea weevil, Callosobruchus maculatus (Coleoptera: Chrysomelidae: Bruchninae) adults was determined on chickpea. For this purpose, two different concentrations of BHN-1, FB2N-1 and BGN-1 and commercial DE, SilicoSec®, (500 and 1000 ppm (mg DE/kg chickpea)) were tested under laboratory conditions. Mortalities of *C. maculatus* were recorded after  $1^{st}$ ,  $3^{rd}$ ,  $5^{th}$  and  $7^{th}$  day of DE treatments. Progeny productions of C. maculatus adults exposed to DE's were also assessed after 45 day of treatments. Chickpea treatments results showed that DE deposits and DE concentrations had significant effect on mortalities and progeny productions of *C. maculatus*. After 1<sup>st</sup> day of DE treatments on chickpea, the mortalities of BHN-1were higher than those of FB2N-1, BGN-1 and Silicosec<sup>®</sup>. After5<sup>th</sup> and 7<sup>th</sup> day of DE treatments, mortalities of BHN-1 and SilicoSec<sup>®</sup> generally were similar. After 5<sup>th</sup> day of DE treatment, the complete mortalities of *C. maculatus* were observed at only 1000 ppm concentrations of BHN-1. After 7<sup>th</sup> day of DE treatment at 1000 ppm, all local DEs reached %100 mortality except FB2N-1. The progeny productions of C. maculatus on the control treatments on chickpea were significantly higher than those of all DE treatments. Although the complete mortalities of C. maculatus were recorded at 1000 ppm concentration of BHN-1 after 5<sup>th</sup> day of DE treatments, progeny productions were not completely prevented. In conclusion, these results indicated that Turkish diatomaceous earth, BHN-1, FB2N-1 and BGN-1 would have potential of using for controlling of stored-bean insects as a protectant.

**Key words:** Turkish Diatomaceous Earth, *Callosobruchus maculatus*, chickpea, toxicity, Silicosec.

### [92] Güner, K.G., O. Dağlıoğlu, 2017. The Usage Potential of Different Medicinal Plants as Antifungal Preservative in Fruit Drying. International Congress on Medicinal and Aromatic Plants, May 10-12, Konya-Turkey

In this research the potential usage of various aromatic plants as antifungal preservatives on dried fruits was investigated. Therefore, dried nectarine (Bayramiç beyazı), golden delicious apple, sweet cherry, Stanley plum were treated with Ocimum basilicum L., Origanum majorana L., Origanum vulgare L. subsp. hirtum (LINK) IETSWAART and Rosmarinus officinalis L. Dried fruits were soaked into 80°C hot water which had been treated with aromatic plants for 15 min previously and then dried again. After treatments, dried fruits were inoculated with Aspergillus parasiticus DSM 5771 and Zygosaccharomyces rouxii ATCC 28253 and the change in fungal load was followed during storage time. In addition to antifungal activity, effects of aromatic plant process on the total antioxidant capacity and total phenolic content, also the textural and sensory properties of the dried fruits were examined. As a result of this study, Origanum vulgare L. subsp. hirtum has been determined as most effective natural preservative against fungal infections for dried fruits during shelf life. As well, Ocimum basilicum and Origanum majorana have potential as antifungal preservatives on dried fruits; however they are not as effective as Origanum vulgare L. subsp. hirtum. However Rosmarinus officinalis had limited effects on dried fruits. Zygosaccharomyces rouxii known as high tolerable against osmotic stress, led to highest infection rate. Total phenolic content and total antioxidant capacity analyzes shoved that immersion of dried fruits in hot water impaired the functional food components. Nevertheless, aromatic plants in immersion process caused the improvement of phenolic content and total antioxidant capacity. O. vulgare L. subsp. hirtum, O. basilicum, R. officinalis and O. majorana had decreasing effects on phenolic content and total antioxidant capacity respectively. As stated by sensory evaluation, aromatic plants especially O. vulgare L. subsp. hirtum promoted taste and aroma profile.

Key words: Aromatic herb, dried fruit, natural preservative, antifungal.

#### [93] Gürel, A., E. Irmak, 2017, Sosyal Ekonomik Ağ Açısından Enerji Üreten ve Tüketen Kooperatif Modeli, 22. Milletlerarası Türk Kooperatifçilik Kongresi, 05-07 Ekim 2017 Kapodokya-Nevşehir.

Bilindiği gibi, dünya nüfusu hızla artmaktadır. 1950 yılında 2,5 milyar olan dünya nüfusunun 2020 yılında 7,5 milyar olacağı beklenmektedir. Dolaysıyla artan nüfus ihtiyacı nasıl karşılanır? Sorusuna bilim insanı yanıt aramak zorundadır. Bu bağlamda bitkilerin rolü oldukça büyüktür. Bitkiler, meyve ve sebzeleriyle insanların yiyecek ihtiyacını karşıladığı gibi, iplik, sağlık, doku vb. özellikleriyle giyecek vb. ihtiyaçları da karşılamaktadır. Bitkiler aynı zamanda insanların petrol, yakıt ihtiyaçlarını da karşılaya bilmektedir. Bitkilerin güneşten almış oldukları enerji biyo yakıta dönüştürüle bilmektedir. Kanola (raps), mısır gibi bitkilerden petrolden elde edilen dizele eşdeğer biyo dizel elde edilebildiği gibi, yenilenebilir plastik de üretilmekte olup, atıklar ise değerli gübre olarak kullanılmaktadır. Türkiye yenilenebilir enerjide gelişen dünya ülkelerini takip etmek zorundadır. Yenilenebilir enerjiler arasında önemli yere sahip olan biyo yakıtın hammaddesi çiftçimizin tarlada ürettiği tarımsal ürünlerdir. Günümüzde bu ürünler içinde biyogaz ve bundan elektrik elde edilen "ENERJİ TARIMI" AB ve diğer birçok gelişmiş ülkelerde önemli yere sahiptir. Enerji Tarımı potansiyeli açısından Türkiye zengin bir ülke olmasına karşın, Kooperatifleşmeyi zorunlu kılan küçük tarım işletmeleri yapısı nedeniyle bu alanda dünya ülkelerinin oldukça gerisinde kalmıştır. Kooperatiflerimizi cok yakından ilgilendirecek olan bu sektörün gelişmesi gerek kırsal kalkınma ve gerekse sosyal ekonomik ağın gelişimi açısından oldukça önemli ve gereklidir. Bu bildirinin amacı, elde edilen araştırma bulguları ışığında sosyal ekonomik ağ açısından kırsalda enerji üreten ve tüketen kooperatif modelini irdelemektir. Dünyada enerji krizinden en fazla etkilenen ülkelerden biri de Türkiye'dir. Türkiye'de enerji tarımı alanındaki çalışmalar 1963 yılında Topraksu ve 1968 yılında Ankara Üniversitesi Ziraat Fakültesi nezdinde başlamışsa da, günümüzde gelişmiş ülkelerin oldukça gerisindeyiz. Enerji tarımı ürünleri olarak ABD'de mısır ve soya fasulyesi ön plana çıkarken, Brezilya'da şeker kamışı, Avrupa Birliği ülkelerinde keten tohumu ve kolza (kanola) gibi ürünler önemli rol oynamaktadır. Türkiye'de ise örneğin: Aspir, kanola, mısır, ayciceği, hububat, seker pancarı, gibi önemli enerji bitkileri yanı sıra orman, kağıt, sebze, meyve, tahıl, yağ, gıda ve şeker endüstrisi atıkları, deri ve tekstil endüstrisi atıkları vb. organik maddeler enerji potansiyeli açısından önemli ürünlerdir. Ülkeler bazında Biyoetanol üretiminde ABD 50 milyar lt ile ilk sırada yer alırken bunu 27 milyar lt ile Brezilya ve 4 milyar litre ile AB ülkeleri ve Çin izlemektedir. Dünya tarım alanlarının % 2'sinde enerji bitkileri üretilmektedir. Kırsalda enerji üreten AB ve diğer gelişmiş ülkeler irdelendiğinde, kırsal kesimde bitkilerinden enerji üreten tarım işletmelerinin büyük işletmeler olduğu görülmektedir. Türkiye'de ise tarım işletmeleri küçük tarım işletmelerinden oluşmaktadır. Bu bağlamda AB ülkelerinde tarım işletmelerinin ortalama büyüklüğü 17,4 hektar ve ABD'de 180 hektardır. Türkiye'de ise bu değer 5,9 hektardır. AB'de 50 hektardan daha büyük işletme sayısı (27 ülke) 698'dir. Türkiye'de ise 50 hektardan daha büyük işletme sayısı 22'dir. Yapılan araştırmalar da göstermektedir ki, Türkiye tarım işletmelerinin takriben %60'ı 50-150 da ile küçük işletme oldukları, örgütlenmede sosyal ağın yeterli olmadığı, bazı bölgelerde örgütlenmeye ilgi duyanların oranının %14,3 gibi düşük olduğu ve örgütlenme etkinliğinin de %6,1 gibi düşük olduğu saptanmıştır. Kooperatifleşmeyi zorunlu kılan küçük tarım işletmeleri yapısı yanı sıra kırsal kalkınma ve sosyal ekonomik ağın geliştirilmesi açısından kırsalda enerji üreten ve tüketen kooperatif modelinin geliştirilmesi önemli ve gerekmektedir. Bu model ile kooperatif enerji üreten tesis ile hammadde üreten ve bundan elde edilen enerjiyi tüketen çiftçiler arasında köprü rolü oynamaktır. Kooperatif üreticilerden satın alacağı organik atıkları (bitkisel ve hayvansal) biyogaz tesisine yönlendirecektir. Ayrıca bir tarımsal yayım sürecinde çiftçilere ürettireceği kanola, ayçiçeği, mısır gibi enerji bitkilerini de biyogaz tesisi için satın alacaktır. Kooperatif aynı zamanda biyogaz tesisinde üretilen gaz, ısı, elektrik, akaryakıt ve fermente gübreyi çiftçilere ulaşımını (satışını) sağlayacaktır. Enerji Tarımı potansiyeli açısından Türkiye önemli bir yere sahiptir. Bu enerji potansiyelinden yararlanmak için tarım işletmelerimizin küçük olması önemli bir engel teşkil etmektedir. Gerek kırsal kalkınma ve gerekse sosyal ekonomik ağın geliştirilmesi açısından kırsalda enerji üreten ve tüketen kooperatif modelinin geliştirilmesi önemli ve gerekmektedir.

Anahtar kelimeler: Sosyal Ekonomik Ağ, Enerji Üretimi, Kooperatif, Kırsal Kalkınma, Enerji.

#### [94] Hurma, H., G. Unakıtan, Ç. İnan, 2017. Comparison of Balkan Countries Regarding Sustainable Development Goals (SDGs) About Environment. Jubilee International Scientific Conference Bulgaria of Regions Sustainable Regional Development Perspectives 27-28 October 2017, Plovdiv, Bulgaria.

The concept of sustainability has entered the World Literature at the beginning of the 1970s. Since then, "sustainability" has become the most fundamental element in economic development strategies and processes. In the 1980s, 1990s, and 2000s, the concept of "sustainable development" took place in development debates and policies to be implemented. From 1987 to the present day, many conferences, meetings, and agreements have been made on this issue for the future generations to live in a healthy environment. 17 goals for sustainability were identified in the Transforming our world: The 2030 Agenda for Sustainable Development Summit in 2015. While 12, 13, 14, partially related to the environment regarding their objectives. Various indices are used to evaluate whether the countries have reached these goals. One of these indices is the Environmental Performance Index, and the other is the Sustainable Development Goals Index and Dashboard. These indices, which contain many indicators, reveal the situation of the countries. In this study, the performance of the Balkan countries according to the sustainable development goals of the environment was evaluated. According to the Sustainable Nitrogen Management Index, which envisages sustainable agriculture, all Balkan countries perform deficient performance. In SDG 14 (Life Below Water) Balkan countries have similarly low score in general.

**Key words:** Sustainable Development Goals (SDGs), Environmental Performance Index, Sustainable Development Goals Index, Balkan Countries.

## [95] Hurma, H., D.İ. Abdikoğlu, 2017. Ecotourism Planning for Sustainable Management of Protected Areas, The 3<sup>rd</sup> International Symposium on EuroAsian Biodiversity, (05-08.07.2017).

In this study, the initial planning process has been examined for the purpose of the management of ecotourism activities to be implemented in protected areas. For this purpose, strategies, programs and activities has been mentioned in administrative perspective. This approach has a reference for detailed plans. Publications such as articles, research reports, etc. about the subject has used for study material. The information obtained through the review of these materials has been compiled and interpreted. Protected areas are clearly defined geographical areas governed by legal or other effective means in order to protect nature in the long term together with its ecosystem services and cultural values. These areas are host to many ecosystem services, especially biodiversity. Protected areas play an active role in achieving national and local development goals based on the concept of sustainable development. Ecotourism is defined as trips and visits to natural areas recognizing entertainment and nature which providing benefits to local people through socio-economic attendance of them and has low-level visitor impact. Ecotourism is an ideal component of sustainable development strategy in which natural resources may be used for tourism purposes without harming the natural environment. When approached from managerial perspective, ecotourism is part of the strategy of protected area management. When considering the negativities of ecotourism it is clear that it can not succeed without an appropriate planning and management process. These plans cover specific objectives as well as general objectives and aims established for the protected area system. These plans can be customized according to the nature of the protected area and the activity of the ecotourism.

Key words: Ecotourism, protected areas, sustainable management.

#### [96] Hurma, H., M.Ö. Azabağaoğlu, Ç. İnan, 2017. Green Marketing Approaches to the Development of Sustainable Rural Tourism Activities. International Balkan and Near Eastern Social Sciences Conference Series, Edirne/Turkey 04-05 March 2017.

Rapid urbanization and industrialization caused individuals to have a city-centered life. Urbanization trends lead to reductions in welfare and income levels of rural residents. In many countries, rural areas are less developed and have specific situations. The stress and pressure of urban life have caused people to become more involved in rural areas. One of the essential characteristics of modern society is to focus on sustainable development. Sustainable development is a multidimensional concept that targets the development of rural areas. Rural tourism, one of the major tools for rural development, has the potential for growth in the future. The key to the development of rural tourism is to create tourism products using natural resources and to present them to tourists, benefiting from the local people who produce cultural and historical values. It leads to the rethinking of the basic principles of marketing regarding increases the environmental issues, need for environmental protection and sustainable development. Green marketing concept was born as a result. Briefly, green marketing is the whole set of activities aimed at meeting human needs or demands, aiming at satisfying these needs and desires in such a way as to create the least harmful effect on nature. In practice, it is based on strategies such as creating and developing environmentally sensitive market segments, creating new environmental standards and launching new environmental initiatives, adopting environmental forms of product labeling and evaluating all market activities based on the latest environmental conditions and standards. In this study, it was examined how to combine rural tourism with green marketing approaches aiming at the rational use of natural resources, which is one of the tools of rural development.

Key words: Sustainability, Rural tourism, Green marketing.

#### [97] İnan, İ.H., 2017. Environmental Problems of Thrace Region in Turkey. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May 2017, Tekirdağ, Congress Book, pp. 26-31.

The uncontrolled disposal of urban and industrial wastes represent important sources of pollution that are dangerous for the public health. Soil erosion and associated land slides affect agricultural lands. The impact of the existing mines in some places on agriculture and on the soil quality is very severe. Due to the environmental problems in Thrace region, fishing, swimming, picnic and other social activities around the rivers are negatively affected. Pollution problems needs urgent solution. The collaboration of Research Institutes and the universities in Balkan countries is needed for common projects with funding from the European Union and other International Organizations. Special efforts are needed in order to protect the unique biodiversity of the peninsula. Main environmental issues in Thrace region are industrial pollution, water pollution and residuals respectively. Natural resources and people's quality of life are influenced negatively by pollution in the region. Major investments mostly by the Government are needed for soil conservation and restoration in order to control erosion and consequently landslides. Training is needed for farmers regarding irrigation techniques and for fishermen regarding over fishing and damages produced by the inadequate fishing techniques. Environmental problems caused by intensive agricultural usage and improper cleaning techniques (uncontrolled illegal burning of wheat stalks) lead to the extinction of some animal and plant species. Therefore, absorption capacity of the region must be taken into account in order to regulate industrialization in the region and establishment of joint or cooperative purification plants must be encouraged so as to reduce pollution caused by waste water. The firms must contribute to the funds for the improvement of negative externality created by them so as to transform negative externality to the internality within the context of the principle of "who pollutes, pays" or "who uses, pays" in the solution of environmental problems.

**Key words:** Industrialization, environmental problems, water pollution, sustainable development.

#### [98] Irmak, E., A. Gürel, 2017. Girişimcilik ve Kooperatiflerde Tarımsal Yayımın Mevcut Durumu. 22. Milletlerarası Türk Kooperatifçilik Kongresi, 05-07 Ekim 2017, Kapodokya-Nevşehir.

Günümüzde farklı tanımlar olsa da girişimcilik yaratıcı düşünceyi hayal aşamasından sistemli, mantıklı ve uygulanabilir hale getirilmesi olarak da tanımlanabilir. Bir girişimcinin en temel özelliklerinden biri yaratıcı olmak ve yenilik ya da farklılık yapmaktır. Dolaysıyla girişimcilik bir yenilik faaliyetidir, söylenebilir. Yeni bir üretim metodunun geliştirilmesi, yeni bir malın üretimi, yeni bir hammadde kaynağının keşfi ve yeniden yapılandırılması, yeni bir pazarın oluşturulması vb. birer yeniliktir. Kırsalda yapılan araştırma sonuçlarından elde edilen verilere göre, tarımsal yayım hizmetleri sonucu yeniliklerin kabul ve reddedilmesinde sosyal ağ önemli rol oynamaktadır. Tarımsal yayım bilim alanı ile uygulama arasında bir köprü vazifesi gören, yani: Kırsal kesime götürülen yeniliği bir eğitim sürecinde çiftçilere uygulatan ve kırsal kesimde saptanan sorunları ilgili kurum ve kuruluşlara ileten bir bilim dalıdır, diyebiliriz. Böylece tarımsal yayım bir taraftan yeniliklerin kırsal kesimde bilinçli bir sekilde yayılmasını sağlarken, diğer taraftan araştırma kurumlarında üretilen teknolojinin geliştirilmesine katkı sağlamakta olup, bu faaliyet içerisinde ise girişimciliğe öncülük etmektedir. Bu bildiri ile girişimciliğe öncülük eden tarımsal yayım hizmetinin kooperatiflerdeki mevcut durumu irdelenecektir. Bilimsel arastırmalardan elde edilen verilere göre, kooperatifler, yetistirme, ıslah, ürün işleme, üretim gibi teknik konularda ortaklarını eğiterek önemli yayım hizmetlerinde bulunurlar. Yani girişimciliği teşvik etmektedir. Ancak, araştırma bulguları göstermektedir ki, TMO çiftçiye yayım hizmetleri sunmamaktadır. Ayrıca, Süt Endüstrisi Kurumu, Et ve Balık Kurumu ve Zirai Donatım Kurumu hiçbir zaman tarımsal yayım hizmeti sunmadığı, Tarım satış ve tarım kredi gibi güçlü ve kırsal alanın önemli bir kısmına hizmet veren kooperatif birliklerinde dahi yayım hizmeti ya çok sınırlıdır ya da hiç gündeme gelmediği bildirilmektedir. Buna karşın, gelişmiş ülkelerde çiftçi eğitimi ve çiftçilere tarımsal yeniliklerin ve modern girdilerin kooperatifler kanalıyla götürülmesinin çok önemli olduğu, kooperatif hizmetlerinin, sadece alım, kredi ve pazarlama ile sınırlı kalmadığı, aynı zamanda yayım, eğitim ve danışmanlık hizmetleri de sunulduğu bildirilmektedir. Bu bağlamda Danimarka'da hükümet ve çiftçi örgütleri tarımsal sorunları birlikte ele aldıkları, araştırmalar ve gelişme programlarının finansmanı devletle birlikte ve genelde yarı yarıya karşıladığı, çiftçilerin bilgilendirilmesi için ülke düzeyinde faaliyette bulunan tarımsal yayım örgütleri çoğunlukla çiftçilerin kendi örgütleri olup, çiftçiye verilen hizmet karşılığı alınan bedellerin çok düşük olduğu bildirilmektedir. İrlanda Kooperatif Örgütlerinin ise daha cok kooperatiflerin genel sorunları, kooperatifcilik politikaları, eğitim ve yayım faaliyetleriyle ilgilendiği bildirilmektedir. AB ülkelerindeki tarımsal örgütlenme modellerinin geçmişi, uzun bir sürece dayanmaktadır; yaşanan deneyimler neticesinde her ülke kendi koşullarına uygun bağımsız demokratik çiftçi örgütlerini oluşturmuştur. Eğitim ve yayımdan başlayarak bilinçlenme sürecini tamamlamış olan bu örgütler, kendi sorunlarına sahip çıkarak serbest piyasa ekonomisi içerisinde var olan pazarlara göre üretimlerini gerçekleştirmekte ve bu süreçte hükümetler tarafından maddi olarak desteklenmektedirler. AB de Ziraat Odalarının temel görevi tarım sektöründe çiftçi eğitimi, yayım, üst danışmanlık, araştırma ve denetim hizmetleridir. Çiftçilerin ziraat odası olarak örgütlenmediği verlerde ise Tarım Bakanlıkları bu görevleri üstlenmektedir. AB ülkelerindeki tarımsal örgütlenme modellerinin geçmişi, oldukça eskilere dayanmaktadır. Bu ülkelerdeki üreticiler, yaşanan deneyimler neticesinde ülke şartlarına uygulanabilir bağımsız, demokratik çiftçi örgütlerini yıllar önce oluşturmuşlar ve bu örgütlerin eğitim ve yayımdan başlayarak bilinçlenme sürecini tamamlamışlardır. AB'de Örgütler, kendi sorunlarına sahip çıkarak serbest piyasa ekonomisi içerisinde var olan pazarlara göre üretimlerini gerçekleştirmiş ve bu süreçte hükümetler tarafından özellikle maddi destek sağlamışlardır. AB ülkelerinde, ana hedef kendi kendine çiftçi organizasyonlarının kurulması olmuş ve vaklasık yüzyıllık süre zarfında tabandan tavana bütünlesmeyi sağlamış bir örgütlenme yapısı oluşturulmuştur. Ülkemizde yapılan bir araştırmada çiftçilerin kooperatifler ile olan iletişimleri ve yeniliklere karşı davranışları arasındaki ilişki irdelenmiştir. Araştırma bulgularına göre, çiftçiler en azı bir tarımsal amaçlı kooperatifin ortağıdır. Ancak, Tarım İl Müdürlüğü yayım elamanları ile görüşme sıklığında olduğu gibi, çiftçilerin sadece % 18,4'ü kooperatifler ile çok sık iletişim kurmaktadır. Çiftçilerin kooperatifler ile görüşme sıklığı ve yeniliklere karşı davranışları arasındaki ilişki irdelendiğinde, kooperatifler ile çok sık görüşen üreticilerin yarıdan fazlası (% 61,5'i) yeniliği ilk kabul eden yenilikçiler, yani girişimciliğe eğilimli olan çiftçilerdir. Bu bulgu, çiftçilerin kooperatifler ile görüşme sıklığı ile yeniliklere karşı davranışları, yani girişimcilik eğilimleri arasında anlamlı bir bağıntının olduğunu göstermektedir. Yapılan diğer bilimsel arastırma sonucları da iletisim ve girisimcilik iliskisinin kırsal kalkınmada önemini vurgulamaktadır. Kırsal kalkınmada girişimcilik birçok engelle karşı karşıyadır. Bu engellerin aşılmasında çiftçilerin kooperatifler ile olan iletişimlerinin, yani çiftçilere sunulan yayım hizmetleri önemli rol oynamaktadır. Araştırma bulguları çiftçilerin kooperatifler ile iletişimlerinin yeniliklere karşı davranışlar, yani girişimcilik eğilimleri arasında istatistiksel olarak anlamlı bir bağıntının olduğunu göstermektedir. Ancak, kooperatifler ile iletişim kuran çiftçi sayısının oldukça düşük olduğunu saptanmıştır. Bu bağlamda, kırsal kesimde girişimciliği teşvik etmek amacıyla tarım kooperatifleri, Tarım İl Müdürlükleri, Ziraat Odaları, Üniversiteler, tarım kooperatifleri vb, kırsal kesime tarımsal yayım hizmeti götüren kuruluşlar ile çiftçiler arasındaki iletişimi geliştirme programları hayata geçirmeli ve uygulamalıdır.

Anahtar kelimeler: Girişimcilik, Kooperatif, Tarımsal Yayım, İletişim, Yenilik.

### [99] Işık, R., G. Bilgen, 2017. Investigation of POU1F1/Alul and POU1F1/Pstl Polymorphism in Saanen Goats. 2<sup>nd</sup> International Balkan Agriculture Congress.

POU1F1 (pituitary specific transcription factor-1) has a regulator function for growth hormone (GH), prolactin (PRL) and thyroid stimulating hormone  $\beta$  subunit (TSH $\beta$ ) by binding to the promoter region in mammals. The aim of this study was to determine POU1F1 (also called PIT-1 or GHF-1) gene polymorphism. A total of 108 Saanen goats from two different herds in Turkey were used. The polymorphism at sixth exon and 3' flanking region of POU1F1 gene (GenBank DQ826413.1) was determined using PCR-RFLP with Pstl, Alul restriction enzymes and DNA sequencing techniques. PCR-RFLP method was applied to detect DQ826413.1:g.216T>C synonymous (serine-serine) transition at the sixth exon and g.365C>T transition at the 3'UTR of POU1F1 gene. Two alleles and three genotypes were identified at Alul and Pstl loci of POU1F1 transcription factor gene. Genotype frequencies of TT, TC and CC were 64.8%, 31.5% and 3.7% at Pstl locus, 54.6%, 31.5% and 13.9% at Alul locus, respectively. The T allele frequencies (0.70 for Alul locus, 0.80 for Pstl locus) were high in both loci and herds. In terms of POU1F1/Alul and POU1F1/Pstl loci, herds were found in Hardy-Weinberg equilibrium status (P>0.05). It was concluded that the association between POU1F1 gene polymorphism and production traits was required to evaluate in Saanen goats. Thus, POU1F1 gene could be used as molecular markers for economic features like reproduction, growth, milk content and yield in goats.

Key words: POU1F1, transcription factor, Saanen, SNP, Alul, Pstl.

#### [100] Işık, R., G. Bilgen, N. Koşum, Ç. Kandemir, T. Taşkın, 2017. Single Nucleotide Polymorphism of $\beta$ - Lactoglobulin ( $\beta$ -LG) Gene in Saanen Goats. 2<sup>nd</sup> International Balkan Agriculture Congress.

 $\beta$ -LG is one of milk protein and has an important function on technological properties of milk (such as cheese making). The relations between polymorphism of whey protein genes and milk yield and composition have been investigated in previous researches.  $\beta$ -Lactoglobulin can be utilized as a candidate gene for selection and breeding programs to increase milk yield and protein quality. The aim of this study was to investigate the *B-LG* gene polymorphisms. A total of 74 purebred Saanen goats originated from Australia were used as an animal material. The polymorphism was examined using by PCR-RFLP method with *SacII* restriction enzyme in the region 427 bp length of  $\beta$ -LG exon 7 (GenBank: Z33881.1). Two alleles (S1, S2) and 3 genotypes (S1S1, S1S2, S2S2) were determined in  $\beta$ -LG/ SacII locus. The  $\beta$ -LG/S1S1 genotype with only one restriction site revealed two bands 347 bp and 80 bp. The  $\beta$ -LG/S1S2 heterozygote genotype generated three bands i.e. 427 bp, 347 bp and 80 bp. An undigested product sized 427 bp as  $\beta$ -LG/S2S2 genotype was obtained due to a single nucleotide substitution at position g.4601G>A. S1S2 genotype frequency (43.3%) was higher than the other genotypes and S1 allele frequency was determined predominantly. Deviation from Hardy-Weinberg equilibrium was not identified in the Saanen breed in terms of the  $\beta$ -LG /SacII locus. It is concluded that  $\beta$ -LG gene could be used as molecular markers for economic traits such as milk yield and composition.

**Key words:** *β-LG*, PCR-RFLP, Saanen, SNP, *SacII*, milk yield.

# [101] Işık, R., F. Özdil, E. Özkan Ünal, G. Bilgen, S. Arat, 2017. Characterisation of Diacylglycerol Acyltransferase 1 (*DGAT1*) Gene Polymorphism of Donkey (*Equus Asinus*) Populations in Thrace Region of Turkey. 8<sup>th</sup> Balkan Animal Science Conference (BALNIMALCON).

The aim of this study was to identify allelic and genotypic distribution of polymorphism in acyl CoA:diacylglycerol acyltransferase 1 (*DGAT1*) gene in *Equus asinus* populations in Thrace region of Turkey. *DGAT1* is considered as an important genetic marker in milk yield and content at cattle. Lately, some studies were handled on goat and sheep to expose single nucleotide polymorphism (SNPs) that might effect on production traits. A total of 85 donkey samples from three different populations in Trace region of Turkey were used. *DGAT1* gene (GenBank NW\_014636647.1) was amplified and digested with *Eael* restriction enzyme and the same gene region was sequenced. It was concluded that the association between *DGAT1* gene could be used as molecular markers in milk content and yield in donkeys.

Key words: DGAT1 gene, donkey, PCR-RFLP, DNA sequencing, Thrace region of Turkey.

## [102] Işık, R., M. Yılmaz, G. Bilgen, 2017. Candidate Genes Related With Meat Quality in Small Ruminants. 2<sup>nd</sup> International Congress on Advances in Veterinary Sciences & Technics (ICAVST).

Sheep and goat meat industry has a significant share in the global animal protein market. From the point of consumers, meat quality has a great importance most commonly in terms of tenderness and flavoursome. With regard to industrial perspective, colour, pH, water holding capacity, cooking losses, tenderness, marbling, chemical composition, fatty acid composition can be respected as important features of meat quality. Many candidate genes were determined to have effects on meat quality traits in small ruminants such as calpastatin (CAST), insulin-like growth factor I (IGF-I), callipyge (CLPG), myostatin (MSTN) and FABP4 gene (fatty acid binding protein 4). Calpastatin is a specific inhibitor of calpains that has a role in cell spreading, migration, proliferation and apoptosis. CAST has a major effect on muscle growth and meat tenderness after slaughter because of inhibits the calpain activity in post-mortem tissue. IGF-I was found to have a significant effect on foreshank weight, external fatness of carcass, drip loss and subjective assessment of meat colour. Also, it tended to be associated with longissimus dorsi muscle width and flavour. Callipyge gene is caused muscular hypertrophy that is a notable in the muscles of the pelvic limb in sheep and affects tenderness of meat. MSTN is associated with double muscling of carcasses. MSTN not only causes to produce more meat but also leaner and tenderer meat. FABP4 gene encodes the fatty acid binding protein which binds and transports long-chain fatty acids and it is related with intramuscular fat level, tenderness and marbling of the longissimus dorsi muscle. in this review, the association of genes with meat quality features that affected by many quantitative trait loci will be summarized.

Key words: Meat Quality, Candidate Genes, Small Ruminants.

[103] Işıkber, A.A., M.K. Er, Ö. Sağlam, R. Şen, H. Tunaz, 2017. Effect of temperature on insecticidal efficiency of Turkish Diatomaceous Earth against stored grain insects. Proceedings of 66<sup>th</sup> The IRES International Conference, Pattaya, Thailand, 10th-11th April 2017, p. 7. ISBN: 978-93-86291-88-2.

In this study, effect of temperature on insecticidal efficacy of local diatomaceous earth (DE), collected from different locations in Turkey, against the rice weevil (*Sitophilus oryzae* (L.)), the confused flour beetle (*Tribolium confusum* du Val.) and the lesser grain borer (*Rhyzopertha dominica* (F.)) was studied. For that purpose, biological tests were carried out at three temperatures (20, 25 and 30 °C) and %55 relative humidity (r.h.) on wheat treated with 0, 100, 300, 500, 900 and 1500 ppm (mg DE/kg grain) concentrations of Turkish diatomaceous earth. Mortality levels of *S. oryzae* generally increased with increasing temperature for the treatments of Turkish DE and mortality levels at 30°C were significantly higher than those at 20°C and 25°C. For *T. confusum* adults treated with Turkish DE, mortality levels at 20°C were significantly higher than those at 25°C and 30°C. In conclusion, present study indicated that temperature had significant effect on insecticidal efficacy of Turkish DE against tested stored grain insects. Temperature effect on insecticidal efficacy of tested local diatomaceous earths varied with tested insect species and concentration of diatomaceous earth.

**Key words:** Local diatomaceous earth, temperature, *Sitophilus oryzae*, *Tribolium confusum*, *Rhyzopertha dominica*.

[104] Işıkber, A.A., Ö. Sağlam, H. Bozkurt, İ.Ş. Doğanay, 2017. Determining Phosphine Resistance in *Sitophilus oryzae* (L.) Populations From Different Geographical Regions of Turkey. 11<sup>th</sup> Conference of the IOBC/wprs Working Group on the Integrated Protection of Stored Products, 3-5 July 2017, Ljubljana, Slovenia, p.60.

This study was aimed at investigating the status and prevalence of phosphine resistance in Sitophilus oryzae (L.) populations collected from three geographical regions of Turkey (southern (Mersin provinces), south-eastern (Sanliurfa province) and central (Konya province) regions) by conducting the discrimination dose tests and the concentrationmortality bioassays. As a result of discrimination dose tests, six populations of total eighteen S. oryzae populations collected from Mersin Province were moderately resistance to phosphine while twelve S. oryzae populations were highly resistance to phosphine. In the case of Sanliurfa, only one population was susceptible to phosphine out of nine S. oryzae populations while eight populations were determined to be highly resistance to phosphine. Amongst six S. oryzae populations collected from Konya only one susceptible population was determined while one population was moderately and four populations were highly resistance to phosphine. Discriminating dose tests showed that 94% of tested S. oryzae populations (33 population samples) collected from three provinces were resistance to phosphine, which reveals high prevalence of phosphine resistance in the insect sampling locations. The concentration-mortality bioassays indicated that there were significant differences in resistance levels of *S. oryzae* populations collected from different provinces. Based on the resistance factors (RF) calculated by LC<sub>50</sub> values S. oryzae populations from Mersin, Sanliurfa and Konya were 60- to 62-fold, 55- to 57-fold and 35- and 48-fold resistance to physphine, respectively. The highest level of phosphine resistance was determined in S. oryzae populations from Mersin, followed by those from Sanliurfa and Konya, respectively. In conclusion, this study indicated that high levels of phosphine resistance in S. oryzae populations collected from different grain storages in Mersin, Şanlıurfa and Konya provinces of Turkey were prevalent.

**Key words:** Phosphine, resistance, *Sitophilus oryzae*, discrimination dose, Turkey.

[105] Işıkber, A.A., Ö. Sağlam, S. Eroğlu, R. Şen, S. Akçalı, 2017. Insecticidal Effect of Spinetoram Dust Against Granary Weevil (*Sitophilus granarius* L.) and Confused Flour Beetle (*Tribolium confusum* Jacquelin Du Val). 2<sup>nd</sup> International Balkan Agriculture Congress (AGRIBALKAN) Abstract Book, May 16-18, 2017, Tekirdağ, Turkey, p. 125.

In present study, residual contact toxicity of Spinetoram dust applied to wheat grains against S. granarius and T. confusum adults were investigated under laboratory conditions. In laboratory bioassays, S. granarius and T. confusum adults were exposed to wheat grains admixed with Spinetoram dust at 0.5, 1, 2.5, 5 and 10 ppm (mg active ingredient/kg commodity) at 26±1ºC temperature, 65±5% relative humidity and completely dark condition. Knockdown and mortality of the adults were recorded after 1, 3, 5 and 7 day of exposure and 35- 40 day later the wheat was examined for progeny production. The concentration of Spinetoram dust and exposure period had a significant effect on knockdown and mortality rate of S. granarius and T. confusum adults on wheat. Spinetoram dust treatments at all concentrations after 1 day of exposure resulted in low mortality of S. granarius and T. confusum adults. Spinetoram dust at 1 ppm and above concentrations after 3 day of exposure resulted in almost 100% knockdown or mortality of S. granarius and T. confusum adults and completely hindered their progeny production. There was a significant difference in susceptibility of S. granarius and T. confusum adults against Spinetoram dust. The results obtained from biological tests indicated that T. confusum adults generally were more tolerant to Spinetoram treatments particularly at low concentrations and exposure times than S. garanarius adults. In conclusion, this study indicated that Spinetoram dust on commodity would be potential to be used as grain protectant for control of S. granarius and T. Confusum.

**Key words:** Spinetoram, *Sitophilus granarius*, *Tribolium confusum*, wheat, residual contact toxicity.

#### [106] Ivgin Tunca, R., T. Dogaroglu, D. Oskay, S. Arslan, K. Karabag, 2017. A Breeding Study Against Varroa in Mugla Honey Bee (Apis mellifera anatoliaca) Population. 45<sup>th</sup> APIMONDIA INTERNATIONAL APICULTURAL CONGRESS Septembe 29 - October 4, 2017 / Istanbul - TURKEY

This project is being carried out at Breeding Center in Fethiye, Incirköy. 100 colonies, which has not received queen bee from outside of Mugla, were obtained from different beekeepers who has not been practicing migratory bee-keeping for the last 10 years. Instrumental insemination techniques were used for mating control. The breeding values (colony tness and Varroa tolerance) of the colonies were evaluated by means of the Best Linear Unbiased Prediction (BLUP) - Animal Model. Three different methods were used to estimate the mite loads of the colonies. Powdered sugar methods were applied to determine the number of Varroa on the adult bees and brood cells were opened to determine the number of Varroa. Additionally, number of Varroa fallen from nest to bottom board were counted and recorded. First measurements for the initial populations were carried out in April 2016 and the average numbers of the Varroa determined by powdered sugar method, bottom board method and opened brood cells were 15.48, 61.52 and 16.40 respectively. Second measurements were done for the F1 generations in April 2017 and the average numbers of Varroa determined by three methods were 9.28, 45.02 and 3.42 respectively. Results obtained from F1 generations indicate a decrease in the Varroa densities. Winter loss rate were calculated as 3.7%. Our ndings related to high overwintering success of the colonies and good suppression of Varroa populations are promising in terms of breeding studies against Varroa. This Project (TAGEM-15/ARGE/19) is supported by TAGEM (Republic of Turkey Ministry of Food, Agriculture and Livestock) and Mugla Beekeeping Association.

Key words: Apis mellifera.

### [107] Kiper, T., O. Uzun, G. Özdemir, T. Üstün Topal, 2017. The Impact of Natural Landscape Features on the Development of Ecotourism: Kıyıköy Example. Ecology 2017 International Symposium, (Yayın No: 3511563).

Ecotourism is a sustainable form of natural resource based tourism. Biodiversity and the existence of natural landscape values, the naturalization of local architectural features, the traditional forms of production, etc. constitute the basic criteria of ecotourism. These criteria are the conditions that are necessary for ecotourism to develop in rural areas. In the study, it is aimed to reveal the role and importance of natural landscape features in the development of ecotourism in Kıyıköy example. In this sense, the scope of research, answers were searched related to these questions: "What are the natural values that Kıyıköy can provide for ecotourism?" and "What are the effects of natural values on the research area on ecotourism?" The main material of the research is the Kırklareli Province, Vize District Kıyıköy Town and its surroundings. Kıyıköy contributes to ecotourism significantly with its natural resource values as well as its cultural landscapes values. The area is located on a continental and coastal geography and has many different ecosystems such as forest, coast, sea and creek. In the study, topographic, soil, geology and forest management maps with the 1 / 25.000 scale are used. Maps are prepared by using Arcmap 10.0 program with obtained data. The research method has been shaped in 4 basic stages: the purpose and scope of the study, data collection, data processing and presentation, and the development of results and recommendations. The data collection phase was supported by field trips and office work. The topographic, geological, natural vegetation, climate, soil and hydrological structure characteristics of the research area are examined as natural landscape values. All natural data obtained during the data collection phase are transformed into thematic maps (slope, elevation, soil groups, land use ability classes, erosion, hydrological structure, natural vegetation) in the GIS. These thematic maps and the effects of natural landscape features on ecotourism have been evaluated. It has been determined that the natural landscape features of Kıyıköy constitute the power and opportunity for ecotourism in rural areas.

Key words: Ecotourism, natural landscape values, rural area, ecotourism planning, Kıyıköy.

#### [108] Kocaman, İ., C.B. Şişman, C. Kurç, E. Gezer, 2017. A Study on Mist Cooling System in the Water Buffalo Barn, BALNIMALCON, p: 220, Prizren / Kosova, September 6-8.

Water buffaloes are more susceptible to heat stress than other cattle due to their physiological and genetic structures. These animals try to cool off in the lakes, streams or puddles to avoid heat stress. A set of precautions must be taken to tolerate heat stress for the water buffaloes grown in the barns. The most common method is to build cooling ponds in the practice. However, building cooling ponds has some disadvantages, and these are space occupation and extra fund for farmers due to building and operation costs. Also, cooling ponds may cause some problems in terms of environmental pollution, human and animal welfare. To tolerate these problem, mist cooling system could be suggested instead of cooling ponds. This study was carried out in order to determine the effectiveness of mist cooling system which is easy and economical method on summer and transition seasons under high ambition temperature for the current and newly planned water buffalo enterprises. As a result of the study, the ambient temperature could be reduced by 6-8 o C with mist cooling system, depending on moisture content. It has been shown that it is possible to keep the ambient temperature below 25 o C, which is considered to be the starting point of stress for livestock.

Key words: Water buffalo, mist cooling system, heat stress.

#### [109] Kocaman, İ., C. Kurç, 2017. Investigation of Ventilation and Lighting Systems Sufficiency in Closed Type Traditional Water Buffalo Barns in Turkey. BALNIMALCON, p: 218, Prizren / Kosova, September 6-8.

Farm animals emit heat, water vapor and various gases into the barn environment. The heat, humidity, harmful odour and gas given by the animals to the barn environment must be thrown out from barn without reaching the level that could be harmful to the animals. This condition can be achieved by a change of air between the outside environment and barn within certain limits. This research was conducted in order to determine the sufficiency of existing ventilation and lighting from point of animal welfare in Istanbul Province where has great importance for traditional water buffalo husbandry. As a result of the research, it was determined that 38.7% of the barns had no ventilation chimneys and windows were used as air inlet and outlet in these barns. Window areas for lighting had great difference among water buffalo barns and the window area ratio were determined as between 0.66 and 4.80% depending on the floor area. When these data and climate condition of study region were evaluated based on literature knowledges, it was showed that the requirement of climatic condition for animal welfare could not be met at optimal level in the traditional water buffalo barns.

Key words: Water buffalo barns, ventilation, lighting, animal welfare.

#### [110] Kocaman, İ., C. Kurç, C.B. Şişman, 2017. Determination of Project Outdoor Temperature According to Different Seasons for Planning of Animal Production Structures Located in the Thrace Part of Istanbul Province. BALNIMALCON, p: 219, Prizren / Kosova, September 6-8.

It is necessary to prepare animal barn plans which are suitable for the special conditions of the various climatic regions and to improve their existing animal barns in order to ensure the appropriate indoor conditions in our country where has several climatic conditions has depend on regions. The climatic conditions are one of the most effective factors in this regard. Suitable and economic balance should be ensured between indoor and outdoor climatic conditions for planning of animal barns. The determination of project outdoor temperature is one of most important matters with regards to providing climatic conditions in the closed type animal barns, calculation of heat-moisture balance and determination of economic construction for structures. This study was carried out in order to determine the project outdoor temperature related to the planning of animal production facilities in Thrace part of Istanbul Province depend on different seasons. As a result of the study, it was found that the project outdoor temperature could be taken as -1.0 o C for the winter season, 10.0 o C for the transition seasons and 26.6 o C for the summer season.

Key words: Animal barns, project outdoor temperature, heat-moisture balance.

[111] Kok, D., E. Bahar, 2017. Callus Formation and Shoot Characteristics in Grafted Cuttings of Chardonnay/99R Combination as Affected by Different Doses of Salicylic Acid and Putrescine Treatments. 2<sup>nd</sup> International Balkan Agriculture Congress, 16.08.2017, Tekirdag, Turkey.

One of the factors affecting success of omega grafting is the appearance of well affinity between scion and rootstock and there may be failures, resulting from the selection of scionrootstock combinations in omega grafting event. Among the grapevine rootstocks, 99R rootstock is well known for its incompatibility with scions of culture' grapevines in omega grafting treatments. Present study was conducted to determine influences of different doses of salicylic acid (SA) and putrescine (PUT) treatments on callusing and shoot characteristics in grafted cuttings of Chardonnay/99R combination. For this purpose, doses of 0, 2.5, 5.0 and 10 mM were used for both treatments of salicylic acid (SA) and putrescine (PUT). In existing study, callusing room performance of Chardonnay/99R combination was assessed. In terms of shoot characteristics, various results were obtained from doses of salicylic acid and putrescine treatments. However, most of promising results related omega grafting were obviously obtained from SA 5.0 and PUT S.O. With regard to callus growth rate at grafting union, 5.0 doses of both SA and PUT treatments increased callus growth rate (respectively, 90.00 and 89.64%). In point of callus weight of scion, the highest means were obtained from SA 5.0 treatment (110.11 mg) and PUT 5.0 treatment (96.75 mg). On account of callus weights of cuttings, the highest callus weight means of cuttings were also recorded in both SA 5.0 mM treatment (1021.16 mg) and PUT5.0 mM treatment (1004.88 mg). As a result, it can be suggested that 5.0 mM doses of SA and PUT treatments will be suitable for increasing success rates of omega grafting in Chardonnay/99R combination.

**Key words:** *V. vinifera* L, scion, rootstock, salicylic acid, putrescine, callusing, success of omega graf.

## [112] Kok, D., E. Bal, E. Bahar, 2017. Physical and Biochemical Properties of Selected Grape Varieties Cultivated in Tekirdag. 2<sup>nd</sup> International Balkan Agriculture Congress, 16.08.2017, Tekirdag, Turkey.

This research was performed during the 2014 growing season for determining some physical and biochemical properties of some grape varieties, including varieties of Red Globe, Michele Palieri, Balbal, Antep Karası, Alphonse Laval lee, Pembe Gemre, Özbek, Efes Karası grown in Tekirdag province of Turkey. In the study, grape length. grape width, grape weight, grape firmness, cluster length, cluster width, cluster weight was measured as physical properties and total soluble solids, titratable acidity, pH, total phenolic compounds content, total anthocyanin content and total tannin content in the juice of grape varieties were evaluated as the chemical properties. The study results shown that grape weight means varied from 3.30 to 12.90 g, cluster weight ranged from 232 to 863.20 g and grape firmness changed from 367 to 855 g. Research data demonstrated that chemical properties of grape varieties varied highly among the grape varieties. Total phenolic compounds means were between 103.62 and 314.55 mg GEA 100 g<sup>-1</sup>, total anthocyanin means were between 19.92 and 91.22 mg 100 g<sup>-1</sup>

**Key words:** *V. vinifera* L., table grape, phenolic compounds, anthocyanins, tannins, grape quality.

## [113] Kok, D., E. Bahar, 2017. Combined Effect of Various Doses of Thidiazuron and Activated Charcoal Applications On Success of Graft Union in Lival/99R Combination. 2<sup>nd</sup> International Balkan Agriculture Congress, 16.08.2017, Tekirdag, Turkey.

There may be difficulties in performing omega grafting of some scion-rootstock combinations in viticulture and one of these problematic rootstocks with cultured varieties is 99R rootstock. This study was carried out to compare the effects of different doses of thidiazuron (TDZ) applications with or without activated charcoal (AC) on success of omega grafting in Lival/99R combination. For this aim, it was utilized from four doses of thidiazuron (0, 0.75, 1.50 and 3.00 ppm) and from two doses of activated charcoal powder (0 and 0.2 %). In current research, callusing room performance of Lival/99R combination was examined. In terms of callus growth rate at grafting union, all TDZ doses with or without AC enhanced callus growth rate at grafting union from 86.43 to 90.00% except for TDZ 0 ppm + 0 % AC application (66.67 %) and TDZ 0 ppm + 0.2 % AC application (68.36%). In this study, it was observed that increasing doses of TDZ with or without AC positively affected omega grafting parameters. Regarding callus weight of scion, TDZ 3.00 ppm + 0 % AC application (119.81 mg) and TDZ 3.00 ppm + 0.2 % AC application (128.93 mg) resulted the highest callus weight mean of scion. Similarly, callus weights of cuttings were mostly influenced by TDZ 3.00 ppm + 0 % AC application (1110.77 mg) and TDZ 3.00 ppm + 0.2 % AC application (1214.62 mg). Consequently, applications of TDZ 3.00 ppm + 0 % AC and TDZ 3.00 ppm + 0.2 % AC caused in favorable results of omega grafting in Lival/99R combination.

**Key words:** *Vitis vinifera* L., scion, rootstock, thidiazuron, activated charcoal, callus formation, successingrafting.

#### [114] Konyalı, S., 2017. Current Situation of Sugar and Sugarbeet Production in Thrace Region, Problems and Solution Offers, International Balkan and Near Eastern Social Sciences Conference Series Edirne/Turkey 04-05 March 2017.

One of the major income sources of the Thrace Region is agriculture. Despite the fact that the climate and soil conditions in the region are suitable for the cultivation of many crops, wheat, sunflower and paddy come first among the products that produced in terms of economy, width of cropped area and production. When the sugarbeet cultivation ranked fourth in terms of cultivated area in the region between 1990-1998 years, it regressed into tenth rank in 2014 year. The most important reason for this is the quota application begun to be applied in the sugarbeet production in 1998. The policies applied for sugarbeet and sugar are performed according to "Sugar Law" with the number 4634 becoming valid 2001. With this law, while starch based sugar quotas are increased, beet quotas are constricted. As a result of, this affected foreign firms manufacturing sweetener positively while it affected negatively beet producers, beet cultivators cooperatives and livestock sector where sugar sector became input in Thrace Region, as in Turkey. Also this law, brought forward the privatization of the factories. The Alpullu Sugar Factory which is the first factory in Turkey and the only in the region was included in the scope of privatization and in 2013, the activity was suspended. Therefore, the producer of sugarbeet sends the beet to Eskisehir and also this causes the producer to suffer loss of income. In addition, while sugarbeet production has been supported by many countries in the world, sugarbeet production has been kept out from supporting in our country along with the Sugar Law. With the transition to "Turkey Agricultural Basin Production and Support Model" since 2010, Turkey has been divided into 30 agricultural basis based on the climate, topography and soil data. Since 2010, while farmers have benefited from basin-based subsidies for many crops, sugarbeet has not been included of subsidy in any agricultural basin. Due to the agriculture policies applied for sugarbeet and sugar, producers have started to give up sugarbeet cultivation, the sugarbeet production has been kept out of subsidy with the Sugar Law and this was affected the producers, consumers and the regional economy negatively in the country and region. For this, sugarbeet which is a strategic product should be supported in our country and region and the policies to be applied should be determined taking these factors into consideration. In this research, sugar and sugarbeet production, sugar sector were examined in Thrace Region and the problems encountered were determined and solution offers were presented.

Key words: Sugarbeet production, Sugarbeet, Starch based sugar Sugar Law.

#### [115] Konyali, S., B. Başaran, 2017. The Applied Agricultural Policies for Canola in Thrace Region. UARD Jubilee Scientific Conference, Sustainable Regional Development Perspectives 27-28 October 2017, Plovdiv, Bulgaria.

Canola, compared to other oilseeds such as sunflower, peanut, and soybean, takes place on the third place among the most planted oilseeds throughout the world. Canola, due to containing 38-50% oil, 16-24% protein, being rich in oleic and linoleic acid amount, and its boiling point being high, is an essential oil crop plant. It is used for biodiesel production as well. In addition, its yellow flowers are important for beekeeping. Canola is the major plant to be planted for the development of livestock and beekeeping industry as well as to close the oil deficit in our country. Canola, due to its wide temperature range and also because of having winter and summer forms, is an oil crop plant with a potential to be planted in wide areas in our country. In recent years, canola production, plantation and yield have increased gradually in Turkey. Canola (rapeseed) was produced in 2016 in an area of 354.530 decares as 125.000 tonnes. Canola yield per decare was 353 kg. In Turkey, 67% of canola production is made in Thrace region. Canola planting in the region in 2016 was carried out in 256.255 decare field with a production of 84.075 tonnes. Canola yield was determined to be above average in Turkey with 356 kg/da. Canola is an oil crop plant; however, in terms of vegetable oils, our country is in the position of being an explicit importer. Oil crop plant production meets only 40% of consumption. In this respect, every year billions of dollars are spent for importation. As of 2015, 3.5 billions of dollars were spent on oilseeds. However, this deficit can be closed through canola production. In this regard, in Thrace region where production of this plant is widespread, a special importance should be given to the production of canola, which is an alternative plant for the closure of oil deficit. It is necessary to reduce vegetable oil importation by increasing subsidies given for canola production in the region within the budget of basin-oriented subsidy. Thus, contribution will be provided to agriculture and economy of the both the region and the country. Therefore, it is necessary that canola be supported in our country and region, and agricultural policies be determined considering these matters. In this research, the current situation and policies for canola production were evaluated, problems were analyzed, and solutions were offered regarding these problems.

Key words: Canola Production, Vegetable Oil, Agricultural Policies, Thrace Region.

#### [116] Konyali, S., 2017. The Effects of Agricultural Policies Applied in Livestock on Rural Development in Turkey. 8. Balkan Animal Science Conference BALNIMALCON, 06-08 September 2017.

Livestock is an important part of agricultural sector and economy in Turkey. The livestock products including milk, meat, egg, honey, wool and hide play a significant role in Turkish economy. Livestock production constitutes approximately 30% of the value of all agricultural production and contributes to the economic development of rural households. Livestock is also an important sector in national development in producing food, increasing external trade, ensuring a balanced development between areas and sectors, and reducing unemployment in rural areas, in addition to creating new employment opportunities in the industrial and service sectors. The sector's contribution to farm income is substantial, so applied policies related to livestock production and marketing are important to the economic development of rural areas in Turkey. As in the whole of the world, animal production is supported by government in our country. While the ratio of livestock supports was 4.4 % in 2002, the value reached to 29 % in 2015. However, due to the lack of infrastructure for the application of support policies, the supports for livestock have not been achieved of the production increase that desired and have not been solved the problems of livestock. Turkey is one of the biggest live cattle importing countries. Despite the increase in livestock support, livestock import has been increasing gradually in our country. This situation suggests that, livestock policies should be in a structure that will accelerate improvements in the sector. Therefore, government overall objectives for developing livestock sector is need to be reducing rural poverty, increasing development and enhancing sustainability. The main objectives of this study were to determine the effects of agricultural policies applied in livestock on rural development in Turkey and identify opportunities for developing livestock strategie.

Key words: Livestock production, rural development, producer, agricultural policy.

## [117] Konyali, S., 2017. The Role of Sheep and Goat Husbandry in the Reduction of Poverty and in the Rural Development. 8. Balkan Animal Science Conference BALNIMALCON, 06-08 September 2017.

Sheep and goat husbandry has an important role in Anatolian cultural, social and economic life for many years. Turkey is one of the major goat and sheep breeding country in Europe and it has 10.3 million goat and 30.9 million sheep population in 2015. If poverty is to be reduced with a sustainable approach in Turkey, the most important way is to go through livestock. Sheep and goat husbandry is important in Turkey for reduction of poverty in the rural area, contribution to employment and evaluation of weak pastures. Although sheep and goat productions have many advantages in Turkey, the levels of milk production for per head, growth and carcass yield of animals are very low and not enough for intensive production level. Sheep and goat husbandry is still an important source of food and income for rural areas. However, since 2010, customs duties have been reduced in the import of live animals and red meat with policies applied in animal husbandry in Turkey. As a result, 2.2 million head of small cattle imported between 2010 and 2015. For many years, cattleoriented support policies have led to significant reductions in small cattle numbers and almost bring to an end of the angora goat farming. Despite the increase in supports for small cattle breeders, they are lower than the cattle farming support. Supports should be reviewed in consideration of input costs and increased regularly for competing of domestic market prices against to foreign market prices. In addition, imports of animal husbandry should not be allowed and the need must be provided from domestically. Therefore, establishing of strong unions and cooperatives with technical and administrative capacity, improving the efficiency of existing organizations, needing of long-term and consistent agricultural policies have great importance for rural development, poverty and development of livestock in Turkey.

Key words: Sheep and goat husbandry, poverty, rural development, support policy

## [118] Korkmaz, F., A. Ağma Okur, E. Tahtabiçen, H.E. Şamlı, 2017. Nutrigenomics and Animal Feed Applications. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May, s.419, Tekirdag, Turkey.

There are two important developments in the history of feeding about 2 centuries. The first is the clarification of the chemical structures of the foods that are called chemical revolutions. The second is to show that the nutritional items called genomic revolutions interact with and directly influence the molecular mechanisms governing physiological processes. In order to meet the food requirement of the rapidly growing human population, instead of the recent classical studies in the field of animal feeding to be used in animal production systems, new techniques in the areas of molecular genetics and molecular biology have been sought. In classical feeding studies; It was determined that nutrient is one of the most important factors affecting health conditions and yield characteristics of animals in environmental factors. With advanced technical studies; The beegin to illuminate of the genomic sequence of animals has also led to intensive studies on the rapid development of new fields such as genomics, proteomics, metabolomics and bioinformatics, the interaction between food and genes, and the effects of nutrients on gene expression. At the beginning of 2000 years, using a nutrigenomic term, a scientist has emerged who is interested in the role of nutrients in gene expression. In this way; Animal husbandry practices of nutrigenomi have emerged as a new research topic, with a more effective animal production, far from feeding-related diseases, bringing new approaches to animal nutrition.

**Key words:** Nutrigenomic, animal feed, proteomic, metabolamic.

[119] Korkmaz, F., A. Ağma Okur, E. Tahtabiçen, H.E. Şamlı, 2017. Effects of Rhubarb (*Rheum ribes*) Extracts Supplementation on Different Meals Microbiology in Different Storage Conditions. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May, s.453, Tekirdag, Turkey.

Meals are important raw materials in poultry feeds and are used as protein source. Transport and storage conditions have been reported to have significant effects on the quality of the meals. For example, it is known that storage conditions are a factor affecting the species and numbers of microorganisms in meals. This research aims to investigate the effects of rhubarb (*Rheum ribes*) extract under different storage conditions. For this purpose; 2 varieties of meals (sunflower seed, soybean meals) were stored for 60 days under different conditions (21 °C to 37.5 °C) with the supplementation of rhubarb extract. As a result of the study, numbers of microorganisms in meals were determined during the storage with the addition of rhubarb extract.

Key words: Rhubarb extract (rheum ribes), animal feed, antimicrobial, feed storage.

### [120] Korkmaz, F., H.E. Samli, 2017. Usage of Color Additives In Animal Nutrition. 2<sup>nd</sup> International Balkan Agriculture Congress.

Given the consumer's preference, the color from the sensory properties of foods plays an important role in the attractiveness of food. The first impression of a food is seen, and the choice of food depends on whether it is accepted or rejected. Many studies on the subject have revealed that there is a positive relationship between color and flavor. In sensory terms, color creates an expectation on flavor. Egg yolk and skin color are also available for the purchase of trout meat color, natural coloring materials in feed (carotinoids in maize, green plants, pepper, various flowers) and artificial materials in feeds. In addition, these additives enhance the immune system, increase the number and quality of eggs in fish, and positively affect human health.

**Key words:** Pigmentation, animal nutrition, color materials, carotenoid sources, poultry, trout.
### [121] Korkmaz, F., S.M. Topaloglu, B. Okuyucu, A. Fidan, H.E. Samlı, E. Ozkan Unal, 2017. An Investigation of Growth Hormone (*GH*), Leptin Receptor (*LPR*) and Prolactin (*PRL*) Genes Polymorphism In Poultry Species.

The aim of this study was to determine the genetic diversity of some poultry breeds (broiler - layer chicken and quail), based on the growth hormone (*GH*), leptin receptor(LPR) and prolactin (*PRL*), genes. To study the polymorphisms in these genes, the polymerase chain reaction (PCR) and DNA sequencing methods was performed. A 776 bp fragment of *GH*, a 501 bp fragment of *LPR*, and 439 bp fragment of *PRL* genes were amplified via PCR. Comparative sequence analysis of GH, PRL and LP-R fragments in different chicken and quail samples revealed different number of SNPs. The aligned DNA sequences of the 776 - bp fragment of *GH* region showed total of 12 SNPs. All of them are noncoding SNPs. 16 SNPs were detected in *LEPR*, 9 SNPs in PRL gene. The results of the present study will contribute to the polymorphism data on the world's some poultry species/breeds. Furthermore, the above-mentioned SNPs of poultry species are evaluated in relation to their genetic diversity, and to infer their meat and egg production properties on the basis of the available literature.

Key words: Gallus gallus, Courtnix courtnix japonica, PRL, GH, LPR.

# [122] Korkut, K.Z., A. Balkan, I. Başer, O. Bilgin, 2017. Determination of The High Temperature Stress Tolerances of Bread Wheat Genotypes. 3<sup>rd</sup> International Symposium for Agriculture And Food-ISAF 2017, 18-20 October, Ohrid, Rebuplic of Macedonia, page 131.

Thirty bread wheat genotypes (including 15 advanced lines selected from CIMMYT Heat Tolerance Nursery and 15 early, mid-early or late ripening cultivars) were used as material during the 2014-2015 cropping season. The experimental layout was a randomized complete block design with 3 replications. The sowing rate was 500 seeds square meter. Sowing was done in plots of 6 rows (1.2 m x 5 m, spaced 20 cm apart) in Namık Kemal University, Faculty of Agriculture, Field Crops Department experimental area. Two sowing times were performed. First sowing was made in November suggested usual (standard) and second one was made in January as delayed sown in order to push growing stages of plants into periods in which heat stress is expected will be effected. Sowing times were allotted to main-plots while genotypes were allotted to sub-plots. All agricultural and cultural practices were same for all the experimental units. When the bread wheat varieties and lines used in the experiment are evaluated in terms of tolerance to high temperature, it was shown that Dropia and Nota varieties and CIMMYT-HTN 2014/15-2, CIMMYT-HTN 2014/15-6, CIMMYT-HTN 2014/15-10 lines were better tolerance to high temperature. However, it was noticed that these genotypes were not included in the first groups in terms of grain yield. It is possible to utilize these genotypes as a genitor in cross-breeding programs for breeding studies for tolerance to high temperatures.

Key words: Heat tolerance, bread wheat, advanced lines, heat sensitive.

# [123] Korkutal, İ., E. Bahar, N. Güneş, 2017. Different Doses Effects of *Trichoderma Harzianum* and *Bacillus Subtilis* on cv. Syrah II. Young plants properties in Organic Viticulture. 2<sup>nd</sup> International Balkan Agriculture Congress, Book of Abstracts. May 16-18, 658-667 p, Tekirdag-Turkey.

In order to identify the effects of different doses of *Trichoderma harzianum* (5 g/L, 10 g/L, 20 g/L, 0 g/L) and *Bacillus subtilis* (2 %, 4 %, 8 %, 0 %) on plant properties of two year-old cv. Syrah grapevines in organic viticulture, a research was conducted in NKU Agricultural Faculty, Department of Horticulture in 2014 vegetation period. Young plants were dipped into solutions of bio-agents (Sim Bacil and Sim Derma) for 5min before they were planted. Same doses of this bio-agents was repeated 20 days after planting. Main shoot diameter, average shoot diameter, main and average shoot lenghts, rootstock diameter, grafting area diameter, scion diameter, main and average shoot lenght, root fresh and dry weight (bottom and lateral), shoot fresh and dry weight; main shoot fresh and dry weight, average shoot fresh and dry weight were evaluated. It can be said that, 20 g/L dose of *Trichoderma harzianum* and 8 % dose of *Bacillus subtilis* have a positive impact on quality and growth of two year-old Syrah/110R. The study revealed that, 8 % dose of Bacillus subtilis was beneficial to the root growing of young cv. Syrah plants in organic viticulture.

Key words: Syrah, 110R, Vitis vinifera L., Trichoderma harzianum, Bacillus subtilis, root.

[124] Korkutal, İ., E. Bahar, N. Güneş, 2017. Different Doses Effects of *Trichoderma Harzianum* and *Bacillus subtilis* on cv. Syrah I. Young Plants Performance During Growing Period in Organic Viticulture. 2<sup>nd</sup> International Balkan Agriculture Congress, Book of Abstracts. May 16-18, 650-657p, Tekirdag-Turkey.

The research was performed in 2014, at Namik Kemal University, Agricultural Faculty Department of Horticultural practices area in order to identify effects of different doses of *Trichoderma harzianum* (5g/L, 10g/L, 20g/L, 0g/L) and *Bacillus subtilis*' (2%, 4%, 8%, 0%) on growing characteristics of two year-old cv. Syrah grapevines in organic viticulture. For this purpose, young plants were dipped into 4 different doses of bio-agent's (Sim Bacil and Sim Derma) solution for 5min before they were planted. Same doses of this bio-agents was repeated 20 days after planting. Taking ratio of young plants as well as shoot and leaf specifications were evaluated in this study. It can be said that, 20g/L dose of *Trichoderma harzianum* and 8% dose of *Bacillus subtilis* have a positive impact on shoot and leaf specifications on two year-old Syrah/110R young plants. The study showed that, 20g/L dose of *Trichoderma harzianum* was beneficial to the growth of young cv. Syrah plants in organic viticulture.

Key words: Syrah, 110R, Vitis vinifera L., Trichoderma harzianum, Bacillus subtilis, growing.

## [125] Köycü, E., A.R. Önal, A. Şen, Y.T. Tuna, M. Özder. 2017. The Characteristics of Turkgeldi Crossbreed Sheep. BALNIMALCON 2017, 6-8 Eylül 2017, Prizren/KOSOVA.

Crossbreeds can explain like an organism with in general purebred parents of two different breeds, varieties or populations. Many of sheep breeds used for crossbreeding in different countries by different aims. In general the aim of crossbreeding is to improvement or development new genotype from two or more breeds which have good genetic capacity, high production levels and good adaptability of local condition etc. Turkgeldi sheep breed has been improvement by the aim of lamb meat production purpose in Trakya region of the Turkey in 1980s. Tahirova (75%) and Kivircik (25%) breeds used as parents for improvement of Turkgeldi genotype. Tahirova genotype was an also crossbreed of East Friesian (75%) and Kivircik (25%) breeds. Tahirova have good reproductive performance and production level in south of Marmara. Kivircik breed was native breed of Marmara and well adapted in this area and known by meat taste in Turkey. The characteristics of the genotype; color is white, live weight of male are 70-80 kg and female 40-50 kg in average, twin birth rate is 1.40-1.50, mating season period is 200-220 days, milk production in a lactation is 150-180 kg, wool production is 2.5-3 kg. The crossbreeding procedures and characteristics of the genotype were evaluated in this study.

Key words: Turkgeldi, Kivircik, Trakya, crossbreeding, sheep.

# [126] Kurultay, Ş., O. Şimşek, İ. Yılmaz, M. Demirci , M.İ. Soysal, M. Taşan, Ü. Geçgel, 2017. Effect of Fatty Acid Composition on Red Meat Quality. 8<sup>th</sup> Balkan Animal Science Conference Balnimalcon 2017, 6-8 September, Prizren, Kosovo, 194.

Red meats are a perfect source of essential vitamins, minerals, high biological value protein all of which are necessary for good health throughout life. But at the same time red meat, especially from ruminant animals such as pork, beef, goat and mutton, has a bad reputation because of its high saturated fatty acids (SFA, mainly palmitic and stearic acids) content, low ratio of polyunsaturated fatty acid (PUFA) to SFA, and high  $\omega$ -6:  $\omega$ -3 ratio. The composition of fatty acids in the meat and milk of ruminants rely on their nutrition. The fatty acid composition of fats defines its degree of saturation, and thus, considerably affects its quality. Fatty acids, specifically oleic and linoleic acid also influence meat flavor. These fatty acids change sheep and goat flavors. In addition, feeding systems may be able to effect carcass quality and the fatty acids profile of the red meat. Therefore, the fundamental purpose of new feeding strategies of animal nutrition is to increase polyunsaturated fatty acids and to reduce saturated fatty acids in diet. However, fatty acids with double bonds are more susceptible to oxygen incorporation into their structure and oxidation process.

Key words: Red meat, fatty acid, PUFA, SFA.

#### [127] Küçükkarakaş, S., S. Demirbaş, 2017. Effect of Hydrogen Peroxide Pre-Treatment on SOD Activity and Expression Level of Related Genes in Triticale Seedlings under Salt Stress. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18.05.2017, p. 343. Tekirdağ, Türkiye

Triticale is a hybrid of wheat and rye. Salinity inhibiting plant growth and development is an abiotic stress factor that limits crop yield. Hydrogen peroxide  $(H_2O_2)$  acts as a signalling molecule in the plant defence system as well as a stress factor for plants. The application of chemicals such as  $H_2O_2$  to seeds or plants before stress conditions promotes the plant stress tolerance. Superoxide dismutase (SOD), the precursor enzyme of the antioxidant defence system, contributes to  $H_2O_2$  content in plant tissues. In many studies, the increase in the amount of SOD was detected in tolerant plants under salt stress. SOD activity is controlled by the SOD gene family. The aim of this study is to induce antioxidative defence system of triticale plant with  $H_2O_2$  application (0, 50, 100  $\mu$ M) to seeds against to salt stress (0, 50, 100 mM NaCl). In this study, the changes in the  $H_2O_2$  content, SOD activity and the expression of the genes (Mn-SOD, Fe-SOD and Cu/Zn-SOD) encoding the SOD enzyme in two triticale cultivars (Mikham-2002 and Tatlıcak-97) were determined 14 days after salt stress. NaCl application inhibited the SOD activity and relative Fe-SOD gene expression level in both the cultivars. However, 50  $\mu$ M H<sub>2</sub>O<sub>2</sub> application to Tatlicak-97 seeds removed from the stress in the activity and gene expression level. The increase in the SOD activity resulted in an increase in the content of  $H_2O_2$ . In conclusion, low concentration of  $H_2O_2$  may be used to induce antioxidative defence system in triticale against to salt stress.

Key words: Triticale, gene expression, salt stress, priming.

### [128] Maliogka, V.I., N.I. Katis, D. Altenbach, K. Caglayan, C. Chondroudis, F. Codoner, A.T. Cunha, F. Di Serio, B. Dichio, L. Formica, H. Ilbagi, K. Kalantidis, S. Li, A. Olmos, G. Pietersen, C. Ritzenthaler, E. Tanriver, 2017. H2020-MCSA-RISE-2016-Virus Free Fruit Nurseries (VirFree). 33, June 5-9, Thessaloniki-Greece.

Fruit trees and grapevine are propagated vegetatively and are often grafted. As a result they suffer from a high number of pathogens such as viruses and viroids, with some of them causing severe yield losses and reducing the productive life of the affected plants. These pathogens cannot be controlled by the application of chemicals therefore the most efficient way to combat them is the production and commercialization of high quality pathogentested propagative material. VirFree brings together participants from both academia and private companies to collaborate through their expertise on the following objectives: To identify is new viral and viroid strains or species affecting fruit trees and grapevine, to optimize existing and develop novel detection methods and improve propagation and sanitation methods for producing high quality (virus-tested) plant material of fruit trees and grapevine. Diagnostic tools currently used in certification schemes will be combined with cutting edge technologies such as NGS and Nanobodies. So expected benefits are training of a new generation of researchers to fulfill the needs of both industrial and academic sectors, enrichment the knowledge on viruses/viroids associated with different diseases and improvement the sensitivity of detection methods and of the disseminated propagative material of fruit trees and grapevine.

Key words: European Union, VirFree, Virus, Viroid, Fruit trees, grapevine.

## [129] Mirik, M., C. Öksel, M. Özdemir, 2017. Identification, genotypic and phenotypic characterization of causal disease agents of bacterial canker on sweet cherry trees in Tekirdağ province of Turkey. 2<sup>nd</sup> International Balkan Agriculture Congress, 37-37.

Cherry is an important fruit trees growing in Tekirdağ. Pseudomonas syringae pv. syringae and Pseudomonas syringae pv. morsprunorum are causal disease agents of sweet cherry trees causing leaf and fruit spot, stem canker, gumming, dieback, blossom blight and reduces the yield and quality of sweet cherry fruit. Bacterial canker which cherry trees causing the yield and quality loses and dieback were investigated in this study. A survey study was conducted in Barbaros, Çanakçı, Karahisarlı, Kumbağ, Merkez, Mermer, Naip and Yeniçiftlik located in Tekirdağ province between 2012-2013 years and 129 infected plant samples were collected and 138 strain were subsequently obtained. Bacterial canker was determined in all orchards with 25-50% disease prevalence and 2075% disease severity. LOPAT and GATTa tests were applied for all strains. As a result of LOPAT tests applied for all isolates, oxidase, pectolytic activite, arginine dihyrolase and hypersensitive reaction on tobacco leaves was positive. According to GATTa, isolates were identified as Pseudomonas syringae pv. syringae (+,+,,-) and Pseudomonas syringae pv. morsprunorum (-,-,+,+). Coincidentally 62-90% of selected nine isolates showed similarity. All isolates were separated into two clusters based on their phenotypic characterization. Molecular studies revealed that seventy-three bacterial strains were determined as *Pseudomonas syringae* pv. syringae and 65 bacterial strains were determined as Pseudomonas syringae pv. morsprunorum. All isolates were separated into two clusters based on their genotypic characterization.

Key words: Sweet cherry, Pseudomonas syringae, PCR, LOPAT, GATTA.

### [130] Nevin Basaran, E., M. Tasan, U. Gecgel, 2017. The usage and critical properties of cocoa butter equivalents in chocolate production. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May, Tekirdag, Turkey, 593.

Cocoa butter is a highly valued ingredient primarily used in confectionary products. But some seasonal changes, shortage of supply, poor quality of individual cocoa butter harvests cause high raw material prices of cocoa butter in the world. Cocoa butter can be replaced by other vegetable fats, collected under the name of cocoa butter alternatives, divided into different categories according to their functionality and similarity to cocoa butter. The first group collects the cocoa butter equivalents. Technological innovations, availability, economic advantages and some technological benefits have prompted using cocoa butter equivalents. Cocoa butter equivalents are combinations of some vegetable fats that have physical and molecular structure which is identical to those of cocoa butter. Cocoa butter equivalents fats are produced using proper combinations of shea stearine, illipe butter, sal, mango and palm fractions (hard palm mid fraction) in the world. All of these vegetable fats are tropical based. Cocoa butter equivalents are used for different purposes like obtaining more consistent and stable tasty chocolate, preventing formation of fat bloom, improving hardness and snap in chocolate products, etc. European Union directive 2000/36/EC specifies that chocolate, milk chocolates - including plain chocolate-, white chocolate, may contain up to 5% vegetable fats. As a consequence, vegetable fats used in chocolate should be non-lauric fats, non-hydrogenated, rich in symmetrical monounsaturated TAGs. This directive declared that only six vegetable fats, more particularly illipe, palm oil, sal, shea, kokum gurgi and mango kernel fat, can be used in real chocolate.

**Key words:** Cocoa butter, Cocoa butter equivalents, chocolate, critical properties, nonlauric fats.

### [131] Oraman, Y., 2017. Consumer Attitudes toward Vegetable Oil in Tekirdag Province. II. International Balkan Agriculture Congress, (16.05.2017-18.05.2017).

This survey examined perceptions and attitudes toward vegetable oil among consumers. In the scope of this study, a survey has been conducted in Tekirdag province among 270 randomly selected households with face to face interviews. The gained data were analysed using SPSS version 18.0 and results presented using descriptive statistics (tables, charts, frequencies and percentages). The empirical evidence suggests that greater majority of consumers (95.6%) generally use refined edible oils in their daily meals. However, these consumers lack the requisite knowledge on saturated fats and unsaturated fats content of edible oils. Besides, results indicate that there are opportunities for producers to modify marketing practices to assist consumers in making better informed vegetable oil purchasing decisions. This survey offers insights into consumer attitudes toward vegetable oil. Survey results suggest a need for clearer information so that consumers can better understand the vegetable oil choices available. About half of consumers bake with olive oil, which may offer producers an opportunity to begin marketing olive oil as a healthy and flavourful baking option. The importance of flavour may provide an opportunity for quality producers to urge consumers to experience the flavour contrast between fresh extra virgin olive oil and the substandard oil familiar to many Turkish consumers. Besides, survey results indicate that vegetable oil producers should consider modifying packaging to: (1) clearly indicate best uses on the package, (2) offer a harvest date to assist the consumer in assessing the freshness of the oil and (3) allow the consumer to see the colour while still protecting the oil from light.

Key words: Consumers choose, vegetable oil, consumer attitude, purchasing decisions.

# [132] Oraman, Y., F. Yılmaz, D.İ. Abdikoğlu, 2017. Wine Branding: Why It's Important for Boutique Wine Sector Growth in Turkey? UARD Jubilee Scientific Conference, Sustainable Regional Development Perspectives, 27-28 October 2017, Plovdiv, Bulgaria.

Turkey has a very long history of vineyard cultivation and wine production. Turkey also has many wine producers from the established companies to the more boutique vineyards. It is big opportunity to provide innovative branding to the boutique wine companies. Wine Industry, focusing on brands that have been fragmented in-half. To introduce them to the emotional-mind, to how consumers really make purchasing decisions. A brand is the most valuable piece of real estate in the world, a small part of someone's brain. Consequently, Turkish boutique wine sector continually has to assess the changing nature world wine markets and respond to emerging new opportunities and threats also. So, it is believed that this study will contribute to explore wine branding's important for the boutigue wine in Turkey.

Key words: Boutique wine, branding, marketing strategies, vineyards.

### [133] Oraman, Y., M.Ö. Azabağaoğlu, 2017. Tips to Deepen Customer Relationships of Turkey Groceries: Examples of Customer Club Membership Card Applications. International Balkan and Near Eastern Social Sciences Conference Series Edirne/Turkey 04-05 March 2017.

While Groceries are getting more and more pressure from customer's increasing demand, highly competitive market and strict regulations – in the current environment, understanding customer behaviour, attitudes and requirements is more vital than ever for Groceries' strategic thinking, operational planning and day-to-day customer treatment. This article provides guidance on how to deepen customer relationships Groceries of Turkey. To make a connection with your customer and deepen the relationship requires time, patience, and commitment, but building those relationships is the cornerstone of an enjoyable career as well as a business strategy that works. What Groceries can do on deepen customer relationships Groceries of Turkey? As a conclusion to help Groceries in their efforts to deepen customer relationship pricing, cross-lob data sharing and building a 360 degree customer view, sophisticated customer segmentation, real time cross –selling/up –selling -innovative reward design, automating customer care, digital revolution, big data and as a finally multi-channel seamless experience. In the context of a customer relationship strategy these tips have been examined in detail for Groceries.

Key words: Groceries, Customer behaviour, Tips to deepen customer relationships.

### [134] Oraman, Y., M.Ö. Azabağaoğlu, 2017. Marketing Strategies Followed by FMCG Companies for Making Their Brands Outstanding in Turkey. International Balkan and Near Eastern Social Sciences Congress Series-Russe/Bulgaria (08-09.04.2017).

Fast moving consumer goods (FMCG) or consumer packaged goods (CPG) are products that are sold quickly and at relatively low cost. That product comprises non-durable goods such as soft drinks, toiletries, and grocery items. Customers noticed or experienced almost every day when visit a shop to purchase some products, they leaves from shop by purchasing some other products which were not on their shopping list or they did not think its need. How many times it has happened that you exited shopping malls with the products or merchandise in your shopping bag which you did not intend to buy or had no idea to buy when you entered that mall just to buy some product/s needed by you or maybe you entered that mall just to stroll and kill time. Delivering a right product to the masses which they required is always a key to success. A full detailed market research report is very effective before any product launch. The aim of paper carried out is to understanding FMCG companies followed some effective strategies which make their brand outstanding as compare to the competition. These strategies are multi-brand strategy, product flanking, brand extensions, building product lines, new product development, product life cycle strategy, taking advantages of wide distribution network. As a result of the paper there were significant positive correlations between the successes of an FMCG depends greatly on its marketing strategy. An FMCG marketer pursues a wide combination of strategies. For example, when prices are competitive, the firm would use an extensive distribution network, design suitable advertising and sales promotion schemes from time to time.

**Key words:** Fast moving consumer goods, marketing strategies, multi-brand strategy, product flanking.

[135] Oskay, D., Y.B. Koru, 2017. The Effect of Pollen and Honey Substitution Feeding on Consumption, Weight and Lifespan in Workers Honey Bees Apis mellifera L.. 45<sup>th</sup> APIMONDIA INTERNATIONAL APICULTURAL CONGRESS Septembe 29 - October 4, 2017 / Istanbul – TURKEY.

Climate changes, diseases, agricultural chemicals effect the honey bees in negative ways. Therefore, honey bees have dif\_culty in get clean, enough nectar and pollen that is crucial for their survival. Under these conditions, beekeepers feed their colonies with pollen and honey substitutes. In this study, we aimed to develop new products by comparing pollen and honey substitutes used in beekeeping sector. We measured the effects of diet on consumption, weight and lifespan in worker honey bees fed either pollen (P), honey (H), pollen substitute with %0,4 (PSL) and %10 (PSH) protein content, inverted sugar syrup produced by processing with invertase enzyme and caffeine (ISSEC), inverted sugar syrup produced by processing with invertase enzyme (ISSE) and without invertase enzyme (ISS). Workers consumed more ISSE than ISS. Workers from groups that had P and PSH with lived longer than bees fed with ISSE and ISS. Bees fed with ISSEC lived longer than ISSE and ISS groups. Bees fed inverted sugar syrup alone had lower weight comparing with the other feeding groups particularly as the bees aged. This study to gives beekeepers an overview of honey bee nutritional requirements and the role of natural substance, various carbohydrate and protein supplements in the management of honey bee colonies.

Key words: Apis mellifera.

#### [136] Öksel, C., F. Korkmaz, H.E. Şamlı, M. Mirik, 2017. Effect Some Plants Extract Againist Escherichia Coli and Salmonella Sp., 8<sup>th</sup> Balkan Animal Science Conference, BALNIMALCON 2017.

The present study describes in vitro antimicrobial activity of *Glycyrrhiza glabra, Eremurus spectabilis,* propolis and apricot karnel paste. Escherichia coli and salmonella sp. Were used as test organisim. Antimicrobial activity was tested by paper disc diffusion method. Bacterial cultures were growth on nutrient agar one dayat 37 °C in 24 hour andsuspend in nutrient broth and that contaraction adjuster to 0,5 Mc Farland standart tube. 100  $\mu$ l of the bacterial suspension was spread on 9 cm diameter petri dishes containing nutrient agar medium. Sterile paper discs (diameter 5 mm) were put on the medium and 20, 50, 70, 90, 110 and 130  $\mu$ l of each extracts was dropped on the discs. Steriled water was used for negative control. All plates were incubated at 37 °C for one day. The diameter of the clear zone around the disc was measured as milimeters.

**Key words:** in vitro antimicrobial activity, Glycyrrhiza glabra, Eremurus spectabilis, propolis, apricot kernel paste, plant extract, Escherichia coli, Salmonella sp.

### [137] Öksel, C., İ. Altin, C. Dolaz, M. Mirik, 2017. Biological Control With Candidate Antagonist Bacteria Against Bacterial Fruit Blotch. VIII International Scientific Agriculture Symposium AGROSYM 2017, 205-205.

Bacterial fruit blotch which is caused by Acidovorax citrulli is a serious disease significantly reducing production of watermelon. Turkey first found in 1995 in Edirne province. The characteristic symptom of bacterial fruit blotch in watermelon is a dark, olive-green blotch on the upper surface of infected fruit. Stages of lesion development, the initial infection site may become necrotic. Cracks in the rind surface may occur, resulting in fruit rot. Rotting watermelon fruit often ooze a sticky, clear, amber substance or an effervescent exudate. Different strategies have been employed for cotrolling the disease such as host-plant resistance, cultural control and sanitary methods, chemical control and biological control. Since antibiotics are restricted in Turkey, investigation of alternative control strategiesis importanat. The aim of this study was to evaluate the effectiveness of rhizosphera associated soils bacteria against Acidovorax citrulli in vitro. Soil samples were collected from different watermelon grown fields in Adana, Edirne and Mersin provinces in Turkey between 2016-2017 years and candidate antagonist bacterial strains were isolated. These candidate antagonist bacterial strains were used against pathogen and measured inhibition zone in plates. As a result of this study, the most effective 6 candidate antagonist bacterial strains inhibited the grown of the pathogen with inhibition zone diameter ranging from 7.1 to 17.0 mm. Also 4 candidate antagonist bacterial strains were effective against Acidovorax citrulli with inhibition zone diameter ranging from 4.0 to 6.3 mm. This study indicated that antagonist bacteria showing potential for biological control was particularly important in the management of disease.

Key words: Watermelon, antagonist, biological control, inhibition zone.

## [138] Öksel, C., İ. Altin, M. Mirik, 2017. Biological Control With Candidate Antagonist Bacteria Against *Pseudomonas syringae* pv. *tomato* and *Pseudomonas syringae* pv. *phaseolicola*. 3rd International Symposium for Agriculture and Food-ISAF 2017, 383-383.

Pseudomonas syringae is a gram-negative bacteria that infects a wide variety of plants and causes necrotic syptoms in leaves, stem and fruit. The pathogen is characterized by the ability to produce toxin such as phaseolotoxin, coronatin, tabtoxin. The strains cause disease on their hosts through the release of toxin. Pseudomonas syringae is globally important plant pathogenic bacteria. Different strategies have been employed for controlling the disease such as cultural control and sanitary methods, chemical control and biological control. Since antibiotics are restricted in Turkey, investigation of alternative control strategies is important. The aim of this study was to evaluate the effectiveness of rhizosphere associated soils bacteria against Pseudomonas syringae pv. tomato and Pseudomonas syringae py. phaseolicola in in vitro conditions. The study consisted of two parts; isolation and purification of the potential antagonist; in vitro screening of potential antagonists. Totally one hundred and twenty four candidate antagonist bacteria were obtained from rhizoshere of healty tomato and bean plants. The effect of candidate antagonist bacteria over phytopathogens P. s. pv. tomato and P. s. pv. phaseolicola were performed by antagonistic activity measured by inhibition zone diameter. Eight of candidate bacterial strains inhibited growth of the pathogen with inhibition zone diameter ranging from 10.0 to 17.7 mm for P. s. pv. phaseolicola. And according to P. s. pv. tomato results, interstingly among effective antagonist bacteria, three of them totally inhibited the growing ability of pathogen P. s. pv. tomato. This study indicated that antagonist bacteria showing potential for biological control was particularly important in the management of diseases.

Key words: Bean, tomato, rhizosphera, candidate bacteria, inhibition zone.

## [139] Öksel, C., İ. Altin, Z. Erdoğan, M. Mirik 2017. Rhizosphera associated soil bacteria effecive against *Pseudomonas syringae* pv. *phaseolicola* in *in vitro* conditions. VIII International Scientific Agriculture Symposium AGROSYM 2017, 204-204.

Bean halo blight caused by *Pseudomonas savastanoi* pv. phaseolicola is an economically important disease of bean. Pseudomonas savastanoi pv. phaseolicola is a seed-borne pathogen. Bean (Phaseolus vulgaris), worldwide and remains difficult to control. Races of the pathogen cause either disease symptoms or a resistant hypersensitive response on a series of differentially reacting bean cultivars. Disease syptoms are typically water-soaked lesions that eventually develop a surrounding yellow halo produced by the release of the non-spesific toxin, phaseolotoxin. Some measure of control is achieved with copper formulations and streptomycin. Pathogen free seed and resistant cultivars are recommended. So, biological control of the disease by treatment with antagonistic bacteria may used. In this study, 120 bacterial strains were isolated from different rhizosphera associated soils from different bean grown fields in Adana, Antalya, Çanakkale, Konya and Mersin provinces in Turkey. Among these strains, 26 candidate bacterial strains were selected according to HR test on tobacco and dual culture methods. The candidate bacterial strains inoculated plates were incubated at 25 °C for 24 hours and 100 ml of the pathogen bacterial suspension (107cfu/ml) sprayed on the same plates. All plates were incubated at 25 °C for 24 hours. The diameter of clear zone around the candidate bacteria was measured as millimeters. All treatments were three times replicated. As a result of this study, 8 candidate strains have been found the most effective against *Pseudomonas savastanoi* pv. phaseolicola in in vitro conditions. Eight candidate bacterial strains inhibited growth of the pathogen with inhibition zone diameter ranging from 10.0 to 17.7 mm.

Key words: Bean, rhizosphera, candidate bacteria, inhibition zone.

#### [140] Önal, A.R., R. Aydın, Y.T. Tuna, A. Şen, M. Özder. 2017. The Relationship Between Body Hygiene Score and Locomotion Score. BALNIMALCON 2017, 6-8 Eylül 2017, Prizren/KOSOVA.

Housing or barn cleaning conditions (manure) effect to body hygiene score and also locomotion score of dairy cows in dairy farm. Body hygiene score, locomotion score and barn hygiene conditions are already the main measurements of welfare parameters in dairy farms. The objective of this study was to investigate the relationship between body hygiene score and locomotion score of dairy cows. The study was conducted on a big commercial dairy farm which has 3000 heads of milking cow capacity in Turkey. This study was carry out in separated one pen by 202 heads of milking cow and the primary cattle breed was Holstein. Chi-square test for independence applied for determine whether there is a significant relationship between body hygiene scores and locomotion scores. SPSS software used for data processed. It was determined that the biggest body hygiene scores for 1,2,3 and 4 locomotion score groups were 1 (38.1%), 2 (50.5%), 2 (43.1%) and 3 (66.7%) respectively and was highly statistical significant relationship between body hygiene scores and locomotion scores (P<0.01). In addition, the 45.5% of total milking cows had 2 body hygiene score and 29.2% had 3, 23.3% had 1 and 2% had 4 body hygiene score respectively. The result indicated that the barn cleaning conditions has an effect on laminitis in dairy farms and the well barn management practices can help to decrease the lame animal numbers.

Key words: Body hygiene score, locomotion score, laminitis, dairy cow.

## [141] Önal, A.R., Y.T. Tuna, A. Şen, M. Özder. 2017. Monitoring of Dairy Cattle Activities by Computer Technology. 2<sup>nd</sup> International Balkan Agriculture Congress 2017, 16-18 Mayıs 2017, Tekirdağ/TÜRKİYE.

Computer technology is a wide field that covers many topics of information technology and used in many different kind of industry. Computers and computer technology in today's world have become much simple and cheap. In animal production systems computer technology used for precision dairy farming. Precision Dairy Farming involves using of computer technologies for determination quality and quantity of production, physiological activities and behavior of individual cow and animal. In current the most used computer technologies in animal production is used for monitoring cow milking performance, reproduction and cow health. Physiological or behavioral parameters from individual cows such as animal position and location, lying and standing behavior and time, rumination, rumination times, rumen activity, jaw movement and chewing activity, temperature,milk components and electrical conductivity, mastitis, body weight, hoof health, lameness, heart rate, body condition score, methane emissions, rectal temperature, respiration rate and rumen Ph etc. monitoring by precision dairy farming systems. The aim of this study is giving information that how are these parameters determine and use in precision dairy farming systems.

**Key words:** Precision dairy farming, monitoring, behavior, dairy cow.

### [142] Önal, A.R., Y.T. Tuna, A. Şen, E. Köycü, M. Özder. 2017. Compost Bedded Pack Barn Concept and Application Possibilities in Turkey. 2<sup>nd</sup> International Balkan Agriculture Congress 2017, 16-18 Mayıs 2017, Tekirdağ/TÜRKİYE.

Dairy housing systems have an important affect on cow comfort, animal welfare, health and longevity of dairy cattle. The compost bedded pack barn is an alternative housing system for lactating dairy cow. This concept of barn applied in Minnesota at first in 2001 and developed by Virginia Dairy farmer in 2002 in United States. The two major diseases of dairy cattle are lameness and clinical mastitis. Both diseases have important relationship with living, resting area and bedding materials. Research show that the compost bedded pack barn concept, improve cow comfort and animal cleanliness and decrease number of animal with lameness and clinical mastitis cows. The success of compost dairy barn has high correlation with type of bedded materials, aeration of pack, biological activity of compostheat, moisture and ventilation. The aim and scope of study is evaluation of this parameters affect on compost dairy barn and the possibilities of application this barn concept in different region of Turkey.

Key words: Compost bedded pack barn, cow comfort, housing, dairy cows.

## [143] Özcan Gökçek, E., R. Işık, B. Karahan, 2017. Growth Related Candidate Genes in Farmed Fish. 6<sup>th</sup> International Congress on Molecular Biology and Biotechnology.

Shortening the production period and developing growth in farm populations are some of the most critical issues for aquaculture industry. Selective breeding is obligatory for sustainable production in the aquaculture sector, which recently indicates a rapid growing. Genetic markers ensures great impetus to selective studies to increase efficiency in aquaculture. The main traits in aquaculture production are growth rate, meat quality, disease resistance and sex determination of populations. Growth rate which is the primarily considered trait in breeding studies is controlled by several genes. Growth hormone (GH), growth hormone receptor (GHR), insulin-like growth factors (IGF-I and -II), growth hormone-releasing hormone (GHRH), growth hormone inhibiting hormone (GHIH), myogenic regulatory factors (MRFs), myostatin (MSTN), myogenin gene (MyoG), somatolactin (SL) and prolactin (PRL) genes are candidate genes to take in account initially for such studies. However, literature on these regions are still insufficient. The candidate gene is a chromosome region and suspected of being linked to a complex trait. SNPs (Single Nucleotide Polymorphisms) are essentially used markers on candidate gene approaches. It is necessary to identify genes that may be involved in growth, in order to maintain markerassisted selection (MAS) studies quickly and effectively. We reviewed previously introduced candidate genes for the further applications on genetic improvement of growth in farmed fish in this study. Therefore, this study could give a start point for other species which weren't subjected before and of economic interest in detecting candidate genes.

Key words: candidate gene, farmed fish, growth traits, SNP.

[144] Özdemir, G., E. Yılmaz, 2017. Women's Working Problems and Solution Proposals in Family Farming Model. Mediterranean International Conference on Social Sciences, Mediterranean Economy, Culture, Architecture and Security, University of Donja Gorica, (19-20.05.2017).

Family farming is defined as a method of organizing production activities directed to and carried out by a family, mainly based on the familial labor force, including men and women, for agriculture, forestry, grassland and fishery. There are approximately 3 million small family businesses in Turkey and a significant part of agricultural production is realized by these enterprises. In the rural farming model, women work more as unpaid family labor force, and patriarchal structure still continues. Women are generally at the forefront of livestock, vegetable and fruit growing activities. A large majority of women working in agriculture are not registered to any social security institutions but benefit from social security through their wives. Women are less likely to make decisions in agricultural processes. In order to ensure sustainability in the model of family farming, due to problems such as this and so on, the solution of the problem of women labor was developed in this study

Key words: Family farming, Women's workforce, Rural area, Agriculture, Sustainability.

### [145] Özdemir, G., Bakır İ. H. (2017). Evaluation of Livestock Farming Organization in Turkey in Terms of Agricultural Supports. 8<sup>th</sup> Balkan Animal Science Conference Balnimalcon, 1, 221-221. (Yayın No: 3581677).

Agriculture has many differences compared to other sectors, especially due to the livestock structure. For this reason, increasing the incomes of producers in our country and all over the world are supported in various forms with purposes such as environment-friendly and sustainable production and self-sufficiency.

Organization has an important role in achieving success in agricultural production as well as in every area. An organized agriculture sector can reduce the disadvantages of the agriculture sector by providing production planning, marketing and efficiency gains. In addition to these, producer organizations; Agricultural support, the keeping of statistical data, and farmer education can share the workload of public administrations. As in the case of animal husbandry support, directing producers to organize can provide many benefits in addition to the main aims of agricultural support. The existing agricultural supports in our country are granted under the name of area based supports, watershed based difference payments, animal husbandry support, compensatory support, insurance support, other support, rural development support and IPARD support. In the year 2015, most important support in agriculture was in livestock farming with TL 2,973,000,000. Various support and duties are given to livestock organizations in support of livestock farming support. These organizations are; Corps of Breeders for Cultivation established in accordance with the Law No. 5996, Farmers Associations established in accordance with the Law No. 5200 and Agricultural Cooperatives established in accordance with the Law No. 1163, which is allowed to be established by the Ministry of Food, Agriculture and Livestock. In order to analyze all these and to evaluate the contribution of agriculture, in this study it was tried to determine the importance and effect of producer organizations in terms of agricultural support in Turkey.

Key Words: Livestock Farming, Organization, Agricultural Supports, Cooperatives.

#### [146] Özdemir, G.,Yılmaz E. (2017). Unseen Women Labor and Organization in Rural Development. 8th Balkan Animal Science Conference Balnimalcon, 1, 67, (Yayın No: 3581653).

Along with the growing population in the world, the importance of rural areas and agricultural production is increasing due to increased demand for food, unbalanced and inadequate food supply, and irregular migration from rural areas to urban areas. There are approximately 3 million small family businesses in Turkey and a significant part of agricultural production is realized by these enterprises. One of the most important ways to increase agricultural production, obtain quality products, and raise the living standards of farmers / rural inhabitants is the effective organization of producers. Generally speaking, while women's contribution to production in the world and our country is at an undeniable rate, their benefiting of social and economic development remains limited. Approximately 2/3 of 6.3 million agricultural workers are women. Effective involvement of women in the social and economic development process, female entrepreneurship, increased participation of women in labor and employment are important factors in achieving sustainable development in terms of individual and socially. In Turkey, the participation of women as workforce and employer in business life is low, immigration and lack of education are the main reasons for these problems and many organizations are involved in for a solution, but the desired outcomes have not been achieved yet. Although the labor force participation rate of women in rural areas is high due to the fact that they work as unpaid family workers in agriculture, the rapid decrease in agricultural employment in Turkey leads to a gradual decline in female employment. Women actually do not see farming as a profession, although they work with their spouses in agriculture. For this reason, in this study, it was studied the things that can be done for women who have a major role in agriculture, especially livestock enterprises, to be noticed, actively participate in decision making mechanisms and in organizations were studied.

Key Words: Rural development, women labor, cooperatives, organizations

[147] Özdemir, G., Yılmaz E. (2017). Aile Çiftçiliği Modelinde Kadın İşgücünün Sorunları ve Çözüm Önerileri. Mediterranean International Conference on Social Sciences, Mediterranean Economy, Culture, Architecture and Security, University of Donja Gorica, 1, 198-198. (Yayın No: 3561182).

Aile çiftçiliği bir aile tarafından yönetilen ve gerçekleştirilen, kadın ve erkekler dahil olmak üzere, ağırlıklı olarak ailesel işgücüne dayalı tarım, orman, balıkçılık, meracılık ve su ürünlerine yönelik üretim faaliyetlerini organize etme yöntemi olarak tanımlanmaktadır FAO (2014). Türkiye'de yaklaşık 3 milyon küçük aile işletmesi bulunmakta olup tarımsal üretimin önemli bir kısmını bu işletmeler gerçekleştirmektedir. Kısal alanda aile çiftçiliği modelinde kadınlar daha çok ücretsiz aile işgücü olarak çalışmakta olup ataerkil yapı halen devam etmektedir. Kadınlar genelde hayvancılık, sebzecilik ve meyvecilik faaliyetlerinde ön plana çıkmaktadır. Tarımda çalışan kadınların büyük bir çoğunluğu herhangi bir sosyal güvenlik kuruluşuna kayıtlı değil, eşleri üzerinden sosyal güvenceden faydalanmaktadırlar. Kadınların tarımsal süreçlerde karar almada söz hakkı daha azdır. Aile çiftçiliği modelinde sürdürülebilirliği sağlamak açısından, bu ve bunun gibi sorunlar nedeniyle, bu çalışmada kadın işgücünün sorunları ele alınarak çözüm önerileri geliştirilmiştir.

Anahtar Kelimeler: Aile çiftçiliği, Kadın İşgücü, Kırsal Alan, Tarım, Sürdürülebilirlik

### [148] Özder, N., E. Tayat, 2017. The Efficacy of Monoterpenoid Componenets on Parasition Performance of *Trichogramma brassicae* (Hymenoptera: Trichogrammatidae). ISAF 2017 Ohrid /Makedonya. (18-20.10.2017).

Synthetic pesticides have been used for 50 year and have provided fast, economical, and effective pest control. However, excessive use ofchemical products has caused some adverse effects such as pesticide resistance, resurgence of new pests, side effects on nontarget organisms, and environmental contamination. Some of the disadvantages ofsynthetic pesticides can be avoided by using more biodegradable pest control materials with greater selectivity Consequently, interest in alternatives to synthetic pesticides has greatly increased in recent years One such alternative is the use ofnew botanical insecticides that are effective against target organisms and have shorter persistence in ecosystems. However, the impact on the natural enemies of these insecticidal compounds haven't been yet fully understood. In this study, Dialil disulfid and Limonen were tested on the egg of *Ephestia kuehniella*. After *Trichogramma brassicae* were interference to the egg, applications were done on within 24 hours respectively. The essential oil Limonen 50 µL and 100 µL including two doses were applied on 2<sup>th</sup>, 4<sup>th</sup>, 6<sup>th</sup> and 8<sup>th</sup> days. The maximum output rate applied to the  $8^{th}$  egg 1  $\mu$ L, it is calculated as %38,43 individuals. The lowest output of the application rate  $4^{th}$  100  $\mu$ L %15,53 units daily egg individuals have been identified. Applied at both doses was observed in the 2 daily eggs any output. Dialil disulfid compounds were previously dealt with another monoterpenoid when applied to the 1 and 2.5 µL doses of scrambled eggs no output has been observed.

Key words: T. brassicae, monoterpenoid components, insecticidal effect.

### [149] Özder, N., E. Tayat, 2017. The Egg Parasitisation Performance of Eugenol, Dialil disulfid and Allyl isothiocyanete Compounds on *Trichogramma evenescens* Westwood. Agribalkan 2017. Tekirdağ/Türkiye.(16-18.5.2017).

Chemical pesticides has led reducing efforts to use them due to their negative impact in environment, human health and the natural enemies. Especially in recent years, due to the potential dangers of synthetic additives in line with growing demand for natural compounds, these oils was investigated toxic effects on agricultural pests and natural enemies. However, the impact on the natural enemies of these insecticidal compounds haven't been yet fully understood. In this study, Dialil disulfid, Cuminaldehyde, Eugenol and Allyl isothiocyanate were tested on the egg of Ephestia kuehniella. After T. evanescens were interference to the egg, applications were done on within 24 hours respectively., the essential oil Cuminaldehyde 1 µL including one dose were applied on 2<sup>th</sup>, 4<sup>th</sup>, 6<sup>th</sup> and 8<sup>th</sup> days . The maximum blakened egg rate applied to the 8<sup>th</sup> day egg, it is calculated as 119±5,01 individuals. The lowest blakened egg of the application rate 6<sup>th</sup> day Dialil disulfid 50 μL 44,5± 3,19 units daily egg individuals have been identified. Applied at both doses was observed in the 2<sup>th</sup> and 4<sup>th</sup> days eggs any output. In Eugenol one dose were applied again (50  $\mu$ L) and the highest blackened rate was obtained as 64,90±6,9 after 8<sup>th</sup> day of parasitization. Each of the four compounds it wasn't shown any hatching on second and fourth day after parasitism. Furthermore, another monoterpenoid compound allyl isothiocyanate was performed at 0,1  $\mu$ L dose respectively, there hasn't been observed any hatching after parasitization.

Key words: T.evanescens, eugenol, dialil disulfid, insecticidal effect.

### [150] Özder, N., E. Tayat, 2017. Effect of Cold Storage on The Quality *Trichogramma pintoi*. Agrosym 2017. Saraybosna/Bosnahersek, (5-8.10.2017).

A mass rearing system for *Trichogramma* spp. using host eggs killed before parasitization could improve current parasitoid production methods by making the system more efficient. Parasitism rates of *Trichogramma pintoi* Voegele reared on dead *Cadra cautella* Walker kept at -20 °C during 1, 2 and 3 hour were compared. The lowest parasitization rate was obtained *Cadra cautella* eggs which had been kept at -20 °C for 3 hour. Parsitization rates were 63.52±4.86, 55.43±5.11 and 36.27±2.43. Subsequent trials focused on fitness of *T. pintoi* reared on killed embryos of *Cadra cautella*. Percentage of parasitized eggs and longevity of females were quantified. Exposure of eggs to low temperatures in freezer reduced fecundity of females.

Key words: Trichogramma pintoi, Cadra cautella, cold storage, parasitized eggs

## [151] Özdinç, N., S. Baytur, H.M. Velioğlu, 2017. The Use of Essential Oils From Thyme (*Thymus Sp.*) and Rosemary (*Rosmarinus Sp.*) for The Prevention of Mold Growth in Tomato Paste. 1<sup>st</sup> International Congress on Medicinal and Aromatic Plants.

Tomato is a seasonal fruit and it is generally processed to tomato paste or sauce to extend the shelf life. Dry matter content of tomato paste is about 28-32 % and it is naturally acidic food product, and these properties protect it from bacterial deterioration. However, tomato paste is suitable medium for growth of molds, especially in aerobic conditions. It is not allowed to use chemical antimycotic agents in tomato paste production that is why natural antimicrobials are of interest to scientific studies in recent years. The aim of the present study was to investigate the effects of essential oils from rosemary and thyme on the mold growth in tomato paste during the storage at different temperatures. The essential oils of rosemary and thyme were added to the tomato paste samples (28 °Bx) at the levels of 0.25, 0.50, 0.75 and 1.00 % and mixed with laboratory homogenizer. Spore solution of Aspergillus foetidus containing 8×105 cfu/ml was inoculated at a level of 1% on the samples. One set of samples was stored at +4°C and the other set was stored at room temperature (25°C). The analyses were done at the day on which the mold colonies could be seen by naked eye (day 5 for 25°C storage and day 15 for +4°C storage). The results showed that essential oils have preventive effect on the growth of mold, especially at a level of 1.00%. Mold counts for the control group without essential oil addition was 4.21 log cfu/g at the end of the storage period while that of the sample containing 1.00% thyme oil was 3.91 log cfu/g. Similar results were found for rosemary essential oil such as the mold count decreased to 3.94 log cfu/g at the end of the storage period. The findings showed that the addition of essential oils to tomato paste is significantly effective (P < 0.05) on the prevention of mold growth during storage.

Key words: Rosemary (Rosmarinus Sp.).

## [152] Özdüven, F.F., L. Arin, 2017. Effect of Salicylic Acid Applications on Leaf Mineral Contents of Summer Squash (*Cucurbita pepo* L.). 2<sup>nd</sup> International Balkan Agriculture Congress, Book of Abstracts. May 16-18, 290p, Tekirdag-Turkey.

Salicylic acid (SA) is recognized as an endogenous regulator of plant metabolism that is produced by plants, and that act as a signal molecule in the mechanism providing tolerance against a lot of biotic and abiotic stress factors. Summer squash is considered one of the most important vegetable crop in the word due to it being a commercial crop for fields and greenhouse. In this study; the effects of salicylic acid applied with different methods (to seed, leaf, seed+leaf) and doses (0; 0,5; 1 mM) on the P, K, Ca, Mg, Cu, Mn, Zn, Fe content of squash leaf were investigated. While salicylic acid affects the K, Ca, Mg and Cu content of leaf, there was no differences among Mn, Zn, Fe amounts

Key words: Salicylic acid, summer squash, leaf, mineral content.

### [153] Özer, S., O. Öztürk, Ü. Kamburoğlu Çebi, E. Yurtseven, S. Altıntaş, 2017. Sera Koşullarında Farklı Tuzluluk Düzeyindeki Sulama Sularının Domates Bitkisinin Kök Gelişimi Üzerine Etkisi. 5. Uluslararası Katılımlı Toprak ve Su Kaynakları Kongresi, Kırklareli.

Bu çalışma Atatürk Toprak, Su ve Tarımsal Meteoroloji Araştırma Enstitüsü seralarında farklı tuzluluk düzeyindeki sulama sularının domates bitkisinin kök gelişimine etkisini izlemek amacıyla yapılmıştır. Çalışmada iki farklı miktarda tuz içeriğine sahip sulama suyu (TI: 0.38 dS/m - T2 : 5.0 dS/m) kullanılmış ve domates bitkisinin kök gelişimi dört farklı derinlikte (0-25, 25-40, 40-55, 55-70, 70-90 cm) minirhizotron kamera yardımıyla izlenmiştir. Elde edilen kök görüntüleri RootSnap programı yardımıyla analiz edilerek 5 farklı derinlikteki kök miktarları yüzdesel olarak hesaplanmışr. Araştırma sonucunda T2 sulama suyu ile sulanan domates bitkisinin kök gelişimi tuz miktarı yükksek katmanlarda (0-25, 25-40 cm) toprakta biriken tuzdan olumsuz olarak etkilenmiş ve buna bağlı olarak kök yüzdesi düşük olmuştur. Tuz miktarı düşük olan alt katmanlarda (40-55, 55-70, 70-90 cm) ise toprakta biriken tuz daha düşük seviyelerde olduğu için kök yüzdesinin arttığı gözlenmiştir. TI sulama sularında isr farklı katmanlardaki tuz miktarları kök gelişimini ve su alımını olumsuz yönde etkilemeyecek düzeylerde olduğundan, kök yüzdesi tüm katmanlarda birbirine yakın oranda elde edilmiştir.

Anahtar kelimeler: Domates, Toprak Tuzluluğu, Kök İzleme, Minirhizotron.

#### The Effect of Irrigation Water of Different SalinityLevel on Root Development Of Tomato Plant in Greenhouses Conditions

The aim of this study is to observe the effect of irrigation water of different salinity level on root development of tomato plant and carried out Atatürk Soil, Water and Agricultural Meteorology Research Institute's Greenhouses. Irrigation water (TI:0.38 dS/m - T2: 5.0 dS/m) with two different amounts of salt was used in the study and the root development of the tomato plant was examined at four different depths (0-25, 25-40, 40- 55, 55-70, 70-90 cm) were monitored with the aid of a minirhizotron camera. The obtained root images are analyzed with the help of the RootSnap program to calculate the root quantities in 5 different depths as a percentage As a result of the research, the root growth of tomato plant with T2 irrigation water was adversely affected by salt accumulation in the soil with high salt content (0-25, 25-40, cm) and accordingly root percentage was low. In the low-salt lower layers (40-55, 55-70, 70-90 cm), the percentage of root was increased because the salt accumulated in the soil was low. In TI irrigation water, the percentages of roots were obtained in close proximity in each layers, since that would not affect root development and water uptake negatively.

Key words: Tomato, Soil Salinity, Root Monitoring, Minirhizotton.

#### [154] Özer, N., T. Şabudak, T.H. Çiftçigil, G. Evci, M.İ. Yılmaz, 2017. Induction of Potential Antifungal Root Metabolites By Biological Control Against Sunflower Downy Mildew Under Field Conditions. Ecology 2017, International Symposium. 11-13 May. Abstract Book, Page: 634.

Downy mildew disease of sunflower (Helianthus annuus L.) caused by Plasmopara halstedii (Farl.) Berl. and de Toni causes important yield losses in the field due to primary infection through the roots. Biological control as an alternative to chemical control is safety for the environment and ecological agriculture. In this study, the effects of some fungal antagonists (Asergillus flavus Link (non-aflatoxigenic isolate; AS3), Trichoderma harzianum Rifai (TRIC7 and TRIC8) from Tekirdağ/Turkey soils, on disease severity were evaluated under field conditions and the metabolites of roots were determined for possible resistance induction in plants. Conidia suspension ((1x107 conidia/ml) of the antagonists was treated to the seeds of downy mildew susceptible line (9661) by shaking them for 6 hours. Treated and non-treated seeds (control) were sown in the experimental fields of Trakya Agricultural Research Institute, where the soil was infested with oospores of P. halstedii for over a decade. The experiment was conducted in a randomized complete block design in 21 m2 plots in four replications with 25 plants in each replication. Disease severity was made by using a 0-3 scale (0: no disease; 1: Light sporulation in 1-2 leaves; 2: Sporulation all of lower leaves but no stunting; 3: Stunting in plant) and effectiveness of antagonists was recorded at 60 days after sowing. The roots of the plants were extracted using ethanol (99%) for three days (10 ml/1 g) and the compounds in the extracts were determined by the gas chromatography/mass spectrophotometer (GC/MS). TRIC8, AS3 and TRIC7 had the effectiveness of 73.6, 51.8 and 41.8%, respectively for controlling downy mildew disease. Extracts from the roots of antagonist treated plants contained 22 terpenes, 13 esters, 11 alcohols, 6 aldehydes, 5 steroids, 5 alkenes, 5 amines, 5 phenols, 3 fatty acids, 3 heterocyclic compounds, 2 ketones, 2 coumarin derivatives, which were not present in the roots of untreated control. The results indicate that the antagonists used in this study induced some potential antifungal metabolites in sunflower. The authors suggest these metabolites will be helpful in the understanding of biochemical bases of defence reactions against downy mildew.

**Key words**: Sunflower (*Helianthus annuus* L.), downy mildew, biological control, root metabolites of mature plants.

Acknowledgement: The authors acknowledge Central Research Laboratory (NABILTEM-NKU) for using GC/MS.

## [155] Özkan, E., Aydın B., Hurma H., Aktaş E., Azabağaoplu M. Ö., Özdemir G. (2017). Environment Perceptions of The Farmers Within Different Organizations In Terms Of Irrigation Management (Sample Study). 2<sup>nd</sup> International Balkan Agriculture Congress, (Yayın No: 3513900).

The research was carried out in order to determine the efficiency and productivity of the irrigation management organizations in Kırklareli, Edirne, Tekirdağ and Çanakkale provinces between 2008 and 2012. The research was carried out by making questionnaire with 914 producers that was determined by sampling in the villages in irrigation areas. It was utilized from descriptive analysis such as t test, anova test, post hoc test and multiple comparison tests in the evaluations. The producers evaluated the irrigation organizations in terms of environmental susceptibility over ten points and they gave 5.80 points to DSI, 6.59 points to municipality, 5.97 points to irrigation cooperative and 5.03 points to irrigation union. According to LSD test results in terms of environmental susceptibility, producers gave higher point to the irrigation management managed by municipality. They gave higher points between 0,36 and 1,52 at 95 percentage confidence level to irrigation cooperatives according to irrigation unions in terms of same feature. Environment perceptions of the farmers were evaluated according to guinary likert scale in various respects and likert scale results according to different irrigation organizations in terms of different environment perceptions were not different and were determined as such. The perception of contribution on environmental conservation was between 2.79 and 4.57, the perception in terms of consciousness on environment subjects was between 1.94 and 2.65 and the perception in terms of the precautions towards the economical usage of irrigation water was between 3.03 and 3.57.

Keywords: Environment perception, Farmers, Irrigation, Management.

### [156] Özkan, E., A. Gürel, 2017. Kırsal Alandaki Bazı Kalkınma Göstergeleri Açısından Arazi Toplulaştırma Uygulamalarının İncelenmesi, Kırsal Alandaki Bazı Kalkınma Göstergeleri Açısından Arazi Toplulaştırma Uygulamalarının İncelenmesi, Uluslararası Bölgesel Kalkınma Kongresi, 21-23 Eylül 2017, Tunceli.

Bildiriye kaynak oluşturan asıl araştırmanın temel amacı, önemli bir tarımsal yatırım olan arazi toplulaştırma projelerinin kullanıcıları olan uygulanacağı yöre üreticilerince benimsenmesinin kolaylaştırılması ve yatırım öncesinde engel oluşturan bazı hususların içeriğinin belirlenmesidir. Hedef olarak da bu sorunlara çözümler üretilerek bu gibi yatırım projelerinin planlama ve uygulanmasına katkıda bulunmak amaçlanmıştır. Ayrıca, arazi toplulaştırması yatırım projelerinin yararlılıklarının bizzat üreticilerin kendi açılarından değerlendirilmesine yönelik sonuçların ortaya konması da amaçlanmıştır. Bu bildiri kapsamında ise daha ziyade, önemli bir tarımsal yatırım olan arazi toplulaştırma projelerinin sağladığı yararların çiftçilerin bakış açısı ile ortaya konulmasına yönelik sonuçlar üzerinde durulmustur. Böylece toplulastırmanın bilinen yararlarının, doğrudan yöre üreticileri açısından değerlendirilerek, diğer yörelerdeki toplulaştırma yatırımlarının gerçekleşmesine katkı sağlanması düşünülmüştür. Çiftçilerin belirttiği bazı olumsuzlukların ve beklentilerinin bilinmesi sonucunda da; çözümler üretilerek, bu yatırım projelerinin planlama ve uygulanmasına katkıda bulunulacağı umulmaktadır. Araştırma, Edirne Merkez İlçeye bağlı 1, Uzunköprü ilçesine bağlı 6 olmak üzere, toplam 7 köyde 188 çiftçi ile yürütülen araştırma projesinin sonuçlarından alınmıştır. Bunların yanında, çeşitli yörelerde arazi toplulaştırma projelerinin ekonomik analizi ya da yararlılık göstergeleri üzerine yürütülmüş olan çeşitli araştırmaların sonuçları ile desteklenmiştir. Köylere göre araştırma kapsamına alınarak anket uygulanan denekler tabakalı örnekleme yöntemi ile belirlenmistir. Değerlendirmelerde; ilk önce yüzde dağılımlar ve çeşitli gruplamalardan yararlanılarak araştırma sahasının sosyo ekonomik, sosyo kültürel yapı özellikleri ve haberleşme davranışları belirlenmiştir. Ardından üreticilerin sosyo ekonomik, sosyo kültürel ve agroekonomik özellikleri ile haberlesme davranıslarının arazi toplulaştırma projelerinin benimsenmesine olan etkileri araştırılmıştır. Ayrıca, toplulaştırma sonrası proje sahasında gerçekleşen tarımsal yapı değişikliği belirlenmeye çalışılmıştır. İstatistiksel analizlerde Khi-Kare bağımsızlık testi kullanılmıstır. Bildiriye konu olan bazı kırsal kalkınma göstergeleri açısından; toplulaştırmadan sonra işletme başına düşen parsel sayıları, dolayısıyla da yol mesafeleri önemli oranda azaldığı ve diğer yandan parsel genişlikleri arttığı için, özellikle makina işgücü gereksinmesinde belirgin düşme olmuştur. Buna bağlı olarak da işletme başına yakıt tüketiminde daha belirgin, diğer girdilerde daha göreceli olmak üzere, tarımsal girdilerde önemli ölçüde azalma olduğu büyük oranda kabul görmektedir.

Anahtar kelimeler: Arazi toplulaştırması, sosyo ekonmik yapı, işgücü talebi, girdi kullanımı.
#### [157] Özkan, S., B.B. Bilgen, 2017.Determination of Genetic Diversity in Sainfoin (*Onobrychis viciifolia* Scop.) Variaties Using Microsatellite Markers. VI. International Congress on Molecular Biology and Biotechnology, Afyon, Turkey. 22/12/2017-25/12/2017

*Onobrychis viciifolia* Scop., which is widely grown in our country, is used for animal feed, improving soil structure and source of nectar for bees. In this study, genetic structure and genetic diversity of five (Özerbey, Lütfübey, Pleven, Kırşehir-1 and Kırşehir-2) sainfoin populations were determined using 10 SSR loci (OVK036, OVK094, OVK125, OVM033, OVK161, OVM125, OVK046, OVM061, OVK174, OVK101). All of the SSR loci used in the study were polymorphic. A total of 68 alleles were identified for 10 loci in 91 samples analyzed. Genetic diversity parameters such as; mean number of alleles per locus (N<sub>a</sub>=1.365), effective allele number (N<sub>e</sub>=1,348), Shannon information index (I = 0.322), Nei's genetic diversity level (h = 0.210), and Nei's unbiased genetic diversity level (uh=0,222) were calculated. It was observed that the genetic diversity of the populations was mainly due to within population variation (92%) and the remaining portion was due to variation between populations (8%). According to the UPGMA dendrogram obtained from the study, Özerbey and Lütfübey occurred in one cluster, Pleven and Kırşehir-2 populations occurred in the second cluster. The results obtained from this study provided important information on the genetic structure of the studied sainfoin populations.

Key words: Genetic diversity, molecular markers, Sainfoin, SSR.

### [158] Öztürk, İ., K.Z. Korkut, 2017. Response of bread wheat genotypes to various drought stress conditions. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 MAY, Tekirdağ, Turkey, Book of Abstracts, page 153.

Drought is the main abiotic stress factor affected bread wheat production throughout the world. This research was carried out with fifteen genotypes in the experimental field of Trakya Agricultural Research Institute, Edirne (Turkey) during 2008-2009 and 2009-2010 growing seasons. Experiments were set up in a RCBD split-plot with three replications. The main plots were assigned to five moisture regimes, which included 3 drought stress environments (GS30-94, GS30-51 and GS51-94), one non-stress and one non-treatment (control) environment. Droughts were created artificially by mobile rain shelter at various plant growth stages from shooting up to maturating stage. Characters such as grain yield, biomass, harvest index, spike number per square meter, number of kernel and spikelet per spike, flag leaf area, test weight and 1000-kernel weights and their correlations were investigated. Drought stress at shooting, heading and grain filling stage caused significant reduction for grain yield, biomass, flag leaf area, plant height and other yield components investigated. When compared to non-stress condition, full drought stress condition caused significant reduction in grain yield by 39.6%, at GS30-GS51 (shooting and heading) by 27.2% and at GS51-GS94 (grain filling) by 25.3%. These results showed that droughts stress compared to non-stress condition caused close grain yield decrease at GS30-GS51 and GS51-GS94 stages under fertile soil environmental condition. Also, drought stress at GS30 and GS94 (from shooting up to grain filling) stages caused significant decrease for biomass (45.8%), flag leaf area (18.9%), plant height (11.3%), spike length (14.8%), spikelet number per spike (17.1%), spike per square meter (24.0%), number of kernel per spike (28.7%) and 1000-kernel weights (15.4%) yield components and 1000-kernel weights compared to nonstress condition.

Key words: Bread wheat, drought, yield loss, agronomic traits, environment effect.

### [159] Öztürk, İ., K.Z. Korkut, 2017. Ekmeklik Buğday (*Triticum aestivum* L.) Genotiplerinde Farklı Bitki Gelişme Dönemlerinde Kuraklık Uygulamalarının Kalite Karakterlerine Etkisi. Tarla Bitkileri Merkez Araştırma Enstitüsü Dergisi, 26(2): 170–179.

Ekmeklik buğdayda kalite, genetik ve çevre koşullarından etkilenmekte olup çevre koşullarına bağlı olarak kalite değerleri değişmektedir. Araştırmada farklı bitki gelişme dönemlerindeki kuraklığın bazı kalite karakterlerine etkileri incelenmiştir. Araştırma 15 genotip ile tesadüf bloklarında bölünmüş parseller deneme desenine göre üç tekrarlamalı olarak Edirne'de 2009 ve 2010 vejetasyon yıllarında yürütülmüştür. Denemede ana parselde kuraklık uygulamaları, alt parsellerde genotipler yer almıştır. Ana parsellerde sapa kalkma döneminden (GS31) fizyolojik olgunluk dönemine (GS94) kadar farklı dönemlerde kuraklık stresi uygulanmıştır. Tane verimi, bin tane ağırlığı, hektolitre ağırlığı, ham protein oranı, tane sertliği, glüten miktarı, glüten indeksi ve sedimantasyon değeri ve bu karakterler arasındaki ikili iliskiler incelenmistir. Arastırma sonucunda en fazla protein oranı (%12.5), tane sertliği (55.4) ve glüten miktarı (%33.7) başaklanma döneminden itibaren fizyolojik olum dönemleri arasında kuraklık uygulamalarında belirlenmiştir. En yüksek sedimantasyon değeri kontrol uygulamasında ölçülmüştür. En yüksek glüten indeksi (%85.7), bin tane ağırlığı (40.9 g) ve hektolitre ağırlığı (81.2 kg/hl) kuraklık stresi uygulanmayan koşullarda elde edilmiştir. Araştırmada incelenen kalite özelliklerine göre Aldane en yüksek kaliteye sahip çeşit olarak belirlenmiştir. Farklı dönemlerdeki kuraklık uygulamaları genotiplerde kalite özelliklerini farklı oranlarda etkilemiştir. Araştırma sonucuna göre buğdayda sapa kalkma döneminden başaklanma dönemine kadar kuraklık stresinin olmadığı ve tane dolum süresinde toprak neminin kısmen azaldığı koşullarda ekmeklik buğdayda kalite değerlerinde artma olduğu görülmüştür.

Anahtar kelimeler: Ekmeklik buğday, kuraklık uygulamaları, verim, kalite.

## [160] Öztürk, E., M. Şener, 2017. Investigation of some soil and topographic parameters in GIS environment. 2<sup>nd</sup> International Balkan Agriculture Congress 16-18 May 2017. Tekirdag/Turkey.

The most effective input to increase crop production is accepted as irrigation. However, it is very important to determine the most suitable irrigation method in order to be able to carry out effective irrigation activities. With accurate choice of irrigation method, while on the one hand, maximization is achieved in plant production, on the other hand, help to optimize the use of water and land resources. In this study, some effective soil and topographic parameters in the selection of suitable irrigation methods were tried to be created in the GIS environmentDuring the study, soil factors that affecting to selection of suitable irrigation methods such as, infiltration rate, available water-holding capacity, soil texture and slope are determined by tests and laboratory studies from 83 points to represent the project area. Data for each factor were entered into the ArcGIS program and data layers were created. Point data are transformed into spatial form and created thematic maps by IDW interpolation method in ArcGIS program.

Key words: irrigation, soil, topographic, gis.

# [161] Pehlivan, E. C., B. Kunter, S.D. Royandazagh, 2017. Choise of Explant Material and Media for *in vitro* Callus Regeneration in Sultana Grape Cultivar (*Vitis vinifera* L.). 2<sup>nd</sup> International Balkan Agriculture Congress, Abstract Book, p: 409, Tekirdağ, Turkey.

The study was carried out to choise of explant material and culture media for callus regeneration in Sultana grape varieties. Leaf disc and node explants were the main explant materials which were taken from in vitro shoots which were obtained from macroshoot tip explants. The initial macroshoot tip were cultured on Murashige and Skoog (MS) medium including 1 mg/L 6-benzylaminopurine (BAP) and in vitro shoots were subcultured on shoot multiplication medium with 1 mg/L BAP and 0,1 mg/L Indole-3-butyric acid (IBA). In order to investigate callus regeneration potential of Sultana grape cultivar, leaf disc explants were cultured on two different MS medium including BAP in combination with 2,4dichlorophenoxyacetic acid (2,4-D) (0,5 mg/L BAP + 1 mg/L 2,4-D and 1 mg/L BAP + 2 mg/L 2,4-D) whereas node explants cultured on four different MS medium including BAP in combination with 2,4-D and naphthalene acetic acid (NAA) (0,5 mg/L BAP + 1 mg/L 2,4-D; 1 mg/L BAP + 2 mg/L 2,4-D; 1 mg/L BAP + 0.1 mg/L 2,4-D and 2 mg/L 2,4-D + 0,3 mg/L BAP + 0,2 mg/L NAA). The intensity of callus proliferation was greater in leaf disc culture than in node culture. In all media combinations, MS medium including 1 mg/L BAP + 0.1 mg/L 2,4-D were found to be the most effective on callus induction. In this medium, callus regeneration rate was found to be %94,6 and the average diameter of callus was found to be 6,3 mm.

Key words: Vitis vinifera L., tissue culture, callus, leaf disc, node.

### [162] Pehlivan, E., S. Haşimoğlu, B. Bayram, V. Aksakal, A.K. Öztürk, G. Dellal, A. Şen. 2017. Organic Animal Production in Turkey: Problems and Solution Proposals. 2<sup>nd</sup> International Balkan Agriculture Congress 2017, 16-18 Mayıs 2017, Tekirdağ/TÜRKİYE.

Organic animal production is an alternative management system with the aim of improving and protection of human health, animal health and welfare, environment as sustainable manner. The production and marketing of organic animal production in the world has not been sufficient progress yet. A limited level progress has occurred mainly in hot climates countries. In the recent years there have been increases in organic livestock production volume in Turkey as in the EU. However the highest progress was realized in organic poultry industry. This paper will be emphasized on current state of the organic animal production in Turkey and given some strategies and opportunities for its development.

Key words: Turkey, organic animal production, problems and solution proposals, livestock.

### [163] Perez, M., A. Melendez, D. Oskay, A. Gosto, 2017. The Role of a Protein Diet on the Survival and Ontogeny of Circadian Rhythm in *Apis mellifera*. The Society for Integrative and Comparative Biology (SICB) 2017 Meeting, New Orleans, LA, USA.

Circadian rhythms in honey bees are involved in processes that impact colony survival. Young bees take care of the brood constantly throughout the day and lack circadian rhythms, while foragers use the circadian clock to remember and predict food availability in subsequent days. Based on previous work, it is thought that development of circadian rhythms both in field and laboratory began at around 8-9 days of age for young workers. However, not much is understood about the postembryonic development of circadian rhythms in honeybee workers. Recent studies provide evidence that the colony environment may play a role in enabling the circadian rhythms long before onset of foraging. However, the factors in colony environment that regulate development of circadian rhythm is still unknown. Young bees tend to have a protein-rich diet compared to foragers but whether this diet plays a role in the ontogeny of the circadian rhythm remains to be elucidated. We examined the effects of a protein diet on the ontogeny of circadian rhythms of young bees under controlled laboratory conditions. We hypothesized that the protein diet will increase the number of rhythmic individuals and improve rhythmicity. In addition to increase their survivability. We fed one-day-old honey bees with either sugar diet, sugar with 5% protein and sugar-pollen mixture. Results show that there was no significant difference in the quality or the number of individuals in the development of the rhythm. However, the mortality rate of the bees that had the sugar with 5% protein and sugar-pollen mixture improved significantly in comparison with the bees that were fed only sugar. The data presented in the current study shows that the food given to the honey bees do make a difference in the survivability yet does not affect the development of their circadian rhythm.

#### Keywords: Apis mellifera.

### [164] Polat, R., M. Güner, D. Erdoğan, İ. Gezer, Ü. Atay, T. Aktaş, 2017. Determination of Optimum Shaking Frequency And Amplitude of Prototype Body Shaker Used for Mechanical Harvesting of Pistachio. Actual Tasks On Agricultural Engineering, 21st-24th February 2017, Opatija, Croatia 597-604.

Important problems have been seen during harvesting of different fruit trees in Turkey. The highest cost in fruit growing constitutes harvesting process as 43.99% of total cost. In this research, a body shaker which was mounted to tractor three-point linkage system and driven by power take off system was designed and manufactured to decrease the cost of harvesting of tree fruits. A tractor with 70 BG power is enough to transport and operate this body shaker. This prototype was functioned with a system including a hydraulic pump taking movement from power take-off and hydraulic motor. Body shaker could be controlled by only one person. Harvesting tests using different frequencies and amplitudes were carried out with body shaker. Two pistachio tree cultivars namely Siirt and Kirmizi were used during the harvesting tests. Pistachio fruits which remained on the branch and leaved from branch were weighed separately to determine of harvesting efficiency. For this aim, performance of body shaker was determined. As a result, the best performance result was determined using 40 Hz frequency and 20 mm were calculated 93.27% for pistachio cultivar of Siirt and 87. 06% for pistachio cultivar of Kirmizi.

Key words: Body shaker, Fruit harvesting, Pistachio nut.

### [165] Polat, S., N. Şahin, P. Örkçü, M. Tuna, G. Savaş-Tuna, 2017. Flow Cytometric Analysis of Nuclear DNA and Morphological Characterization Between Some Okra Genotypes (*Abelmoschus esculentus* L.) The 3<sup>rd</sup> International Symposium on EuroAsian Biodiversity, 05-08 July 2017, Abstract Book, 463p. Minsk-BELARUS.

In this study, morphological and cytological characterizations of 20 different okra genotypes gathered from different regions of Turkey were performed. In morphological characterization genotypes were evaluated by 18 different quantitative and qualitative traits regarding plant's growth habits, fruit's properties and five other phenological properties. Variations were observed almost in all characters among the genotypes were done by determining the ploidy levels of each subject species using flow cytometry method. There was no significant difference found between the genotypes in terms of ploidy levels. Besides the chromosome count of a genotype was done and found to be 2n = 128. This result was also correlated to the chromosome numbers of the other okra genotypes having the same ploidy levels.

**Key words:** Okra, flow cytometry, *Abelmoschus esculentus* L., morphological characterization, nuclear DNA content.

### [166] Rahsan Ivgin Tunca1, O. Özgül, Ö. Ceylan, D. Oskay, M. Avcı, 2017. A Study on Geometric Morphometric Analyses of Some *Marchalina hellenica* Populations in Mugla. 45th APIMONDIA INTERNATIONAL APICULTURAL CONGRESS Septembe 29 - October 4, 2017 / Istanbul - TURKEY

Marchalina hellenica Gennadius (Hemiptera: Marchalinidae) is the main species for producing of pine honey. It is widely spread in Southwest Anatolia, especially in Mugla, Turkey. Determination of morphometric and genetic variation of the Marchalina hellenica is very important for economic contribution producing pine honey. The aim of this study was to determine morphometric variation of Marchalina hellenicapopulations collected from 9 locations (Datca, Fethiye, Kavaklidere, Koycegiz, Marmaris, Mentese, Milas, Ortaca, Ula) in Mugla located in Southwest of Turkey. A total of 267 of samples were used for the geometric morphometry analysis. The samples were photographed under the microscope camera and 12 landmarks were recognized on body of insect for geometric morphometric analysis and were added using Tpsdig v.2.05. Canonical Variate Analysis (CVA) analyses and distances were done MorphoJ. CVA result for total individual values illustrated that the samples collected from Milas region separated from other populations. First three eigen values of CVA explained 80,09 % of total variation. The procrustes distances were ranged between 0.2181 (Milas and Fethiye) and 0.0301 (Kavaklıdere and Köycegiz). In conclusion, the first data on the determination of population differences in insects in Mugla has been submitted. The more information about Marchalina hellenica population structures will be given using Classical morphometric and mtDNA analyses in future.

#### Key words: Apis mellifera.

This study was supported by Research Fund of the Mugla Sıtkı Koçman University. Project Number: BAP-15/204.

[167] Rişvanlı, M.R., Ö. Sağlam, H. Tunaz, A.A. Işıkber, K. Özcan, M.K. Er, 2017. Determination of Residual Contact Toxicity of Semi-Synthetic Spinosyn Insecticide, Spinetoram Against 3-4 Nymph Stages of American Cockroaches, *Periplaneta americana* L. 11<sup>th</sup> Conference of the IOBC/wprs Working Group on the Integrated Protection of Stored Products, 3-5 July 2017, Ljubljana, Slovenia, p. 107.

In present study, residual contact toxicity of Spinetoram suspension, which is semisynthetic spinosyn insecticide, on three different surfaces (concrete, ceramic floor tile and laminate flooring) against nymph stages of P. americana were investigated under laboratory conditions. P. americana nymphs were exposed to concrete, ceramic floor tile, laminate flooring surfaces treated with Spinetoram suspension at the rates of 0.01, 0.0075, 0.005, 0.002, 0.001 mg Al/cm<sup>2</sup>. In surface treatment of Spinetoram, exposure time and concentration had significant effect on mortality rates of *P. americana* nymphs on treated surfaces. On all treated surfaces, lower concentrations of Spinetoram (0.002 and 0.001 Al/cm<sup>2</sup>) resulted in low and moderate mortality of the nymphs. On the other hand, 0.005 mg/cm<sup>2</sup> and above concentrations approximately 100 % mortality of *P. americana* nymphs. On all treated surfaces, there were significant differences in the efficacy of Spinetoram against *P. americana* nymphs at different concentrations. In general, between 7<sup>th</sup> and 9<sup>th</sup> days of on all applied surfaces 0.005 mg/cm<sup>2</sup> and higher concentrations caused 100% or almost 100% mortality of P. americana nymph stages. In conclusion, this study indicated that Spinetoram suspension treatment on different surfaces to have potential to be used in control of P. americana and to be an alternative for conventional synthetic residual insecticides.

Key words: Spinetoram, P. americana, residual contact toxicity.

# [168] Saglam, C., F. Tan, T. Aktas, 2017. Influence of Harvesting Methods and Waiting Period of Olive after Harvesting on the Viscosity and Thermal Properties of Olive Oil. International Advanced Researches & Engineering Congress, 16-18 November 2017,Osmaniye/TURKEY.

The aim of this work is to determine how harvesting methods of olive and waiting period before extraction the extra virgin olive oil affect the viscosity and some thermal properties namely thermal conductivity and thermal resistivity of olive oil. Olive trees in the Aegean region of western part of Turkey were harvested using the 6 methods of harvesting by hand, harvesting by beating pole on a synthetic fabric, harvesting by beating pole on a platform, harvesting by machine on a synthetic fabric, harvesting by machine on a platform and direct collecting of dropped olives by hand. Olive oil samples was obtained in certain interval between harvesting and processing. Olive oil samples were processed using a laboratory type system. Viscosity values of oil samples were measured using vibroviscometer. The thermal conductivity and thermal resistivity of oil samples were measured simultaneously using the KD2 Thermal properties Analyzer. As a result, viscosity, thermal conductivity and thermal resistivity values changed related to harvesting method and waiting period after harvesting to obtain olive oil. While viscosity (dynamic) and thermal conductivity values increased by increasing of waiting time, thermal resistivity values decreased. The lowest viscosity and thermal conductivity values, and the highest resistivity values were found for oils that were obtained from olives harvested by hand.

**Key words:** Olive oil, Dynamic viscosity, Thermal conductivity, Thermal resistivity, Harvesting methods, Extraction time.

[169] Sağlam, Ö., A.A. Işıkber, H. Tunaz, M.K. Er, F. Bahadır, R. Şen, 2017. Preliminary check some Turkish diatomaceous earth similarities with commercial diatomaceous earths under scanning electron microscope (SEM). 2nd International Balkan Agriculture Congress (AGRIBALKAN) Abstract Book, May 16-18, 2017, Tekirdağ, Turkey, p. 147.

Diatoms are dead bodies of unicellular algae's and made up of fossilized diatoms in aquatic ecosystems. Diatomaceous earth (DE) is a dust varying in color depending on composition, from white-grey to yellow to red and active ingredient is amorphous silicon dioxide. DE are commonly used for purification of water, the purification of juices, separation of various oils and chemicals and also used as an insecticide. Mode of action as insecticide which damage occurs to the insects protective wax coat on the cuticle, mostly by sorption and to a lesser degree by abrasion, or both. The result is the loss of water from the insect's body through desiccation resulting in death. The efficacy of DE against insects depends on different physical and morphological characteristics of the diatoms. In this study, DE samples were scanned under Scanning Electron Microscope (SEM) which is a type of electron microscope that produces images of a sample by scanning it with a focused beam of electrons. The electrons interact with atoms in the sample, producing various signals that contain information about the sample's surface topography and composition. In present study, image properties of 10 different Turkish DE samples under SEM were checked and compared similarities with commercial SilicoSec, Insecto and Pyrisec.

Key words: Turkish diatomaceous earth, SEM, diatom, composition, insecticide.

[170] Sağlam, Ö., F. Bahadır, N. Işık, E. Bulut, E. Nal, A.A. Işıkber, 2017. Efficacy of some Turkish diatomaceous earth deposits against adults of Confused Flour Beetle (*Tribolium confusum* Du Val) on concrete surface. 2nd International Balkan Agriculture Congress (AGRIBALKAN) Abstract Book, May 16-18, 2017, Tekirdağ, Turkey, p. 15. ISBN: 978-605-4265-46-6.

In this study, insecticidal efficacy of some Turkish diatomaceous earth (DE) deposits against adults of Confused Flour Beetle (Tribolium confusum Du Val) on concrete surface was investigated. Three Turkish diatomaceous earths with code namely AGN1, ACN1, FB2N1 and commercial diatomaceous earth namely SilicoSec® (Biofa Company, Germany) were used in biological tests. Biological tests were performed on concrete surface, which was placed in petri dishes with 9 cm diameter. Recommendation dose of commercial DE (SilicoSec) with 3 g DE /m2 was applied on the petri dishes and spread by using fine brush. Ten adults of T. confusum were transferred to DE-applied petri dishes by using fine brush and 0.5 g broken wheat was used as food. Biological test were carried out under laboratory conditions (25 °C ±1 temperature and 55 % relative humidity). Dead adults of T. confusum were counted on 1st, 3rd, 5th, 7th, 10th, 14th and 21st day after DE treatment. The results indicated that adult mortality was increased with increasing exposure time. The complete adult mortality for ACN-1 and AGN-1 was observed on 10th and 21st after DE treatment, respectively. However, adult mortality for SilicoSec was observed with % 98 at 21 days later. In conclusion, Turkish diatomaceous earth, namely AGN-1 and ACN-1 showed higher residual toxicity than commercial DE, SilicoSec and can be potential as surface treatment for control of *T. confusum* adults.

**Key words:** *Tribolium confusum*, adults, turkish diatomoceus earth, silicosec, surface treatment.

# [171] Sağlam, A.C., B.S. Cabar, 2017. Determination of Yield and Yield Components of Some Sweet Basil (*Ocimum basilicum* L.) Lines from Different Origins in Thrace Region. International Symposium on Medicinal, Aromatic and Dye Plants, 5-7 October 2017, Malatya.

This study was carried out to determine yield and yield components of some basil (*Ocimum basilicum* L.) lines in Gümüşyaka- Silivri in 2015. The experiment was arrange in split plots with four replications in randomized blocks design main parcels for lines and sub-parcels for cutting times (1st cutting 24 July, 2nd cutting 2 September, 3rd cutting 2 October). Four lines with USA (1) and TURKISH (3) origins were used as plant materials. In the study, significant differences were determined for investigated features in lines and cutting times. In the study, plant height (27,98-48,61 cm), branch number (7,65-11,10 piece), leaf size (2,34-5,55 cm), leaf width (1,04-3,04 cm), flower spica length (2,90-14,20 cm), crown diameter (33,94-46,64 cm), green herb yield (2318,06-2874,3 kg/da), dry herb yield (643,14-945,16 kg/da), green leaf yield (564,56-1386,10 kg/da), dry leaf yield (195,75-333,85 kg/da) were investigated

Key word: Basil, Ocimum basilicum L., yield, yield components.

### [172] Sancar, E., M. Mirik, C. Öksel, İ. Altin, 2017. Prevalence of bacterial knot disease and identification of *Pseudomonas savastanoi* pv. *savastanoi* in Tekirdag. 2<sup>nd</sup> International Balkan Agriculture Congress, 89-89., Doi: 978-605-4265-46-6.

Olive knot disease on olives (*Olea europaea*) is caused by the bacterium *Pseudomonas savastanoi* pv. *savastanoi* (syn. *P. syringae* pv. *savastanoi*) which infects through wounds. The galling typical of this disease is caused by phytohormones produced by the bacteria, which cause proliferation of cells surrounding the infection. This study was conducted in 2015- 2016 in several provinces of Tekirdag in Trakia region. To investigate the identification and prevalence of *Pseudomonas savastanoi* pv. *savastanoi*, totaly 256 infected knot samples collected from several olive cultivars and 52 isolates of bacterium were detected with classical characterization tests. All bacterial strains were pathogenic on olive plants and produced fluorescent pigments on King's B medium. Biochemical test results showed that the isolates were gram negative, oxidase negative, pectolytic activity negative, levan negative and arginine dehydrolase negative, but hypersensitive reaction on tobacco leaves was positive. Additionally, prevalence of the disease was determined in Tekirdag.

**Key words:** *Pseudomonas savastanoi* pv. *savastanoi*, olive knot disease, olive, lopat, identification.

## [173] Sevim Tüten, E., F. Özdil, E. Özkan Ünal, S. Arat, 2017. Characterization of Cloned Cattle Produced by Nuclear Transfer and Their offspring by Using mtDNA and Microsatellit Markers. 2. International Balkan Agriculture Congress, 365-365.

Although the cloning technology has tried to be improved till the production of the first clone sheep "Dolly", the succes rate is not at the desired level. Therefore, cloning technology can be made more understandable and controllable with a more detailed manner identifying of obtained clones and their offspring. The purpose of the study is to characterize the clones and their generations molecularly to reveal whether it is possible or not that creation of a normal race population through clones which acquired as a result of cloning individuals of one race by using ovular source which belongs to a different race, and thus to try to understand better that possible potential of this technology to reinstate an extincted race. For this purpose, 5 clone grey cattles (1 male, 4 female ) and their offsprings (2 male, 4 female) which generated with TUBITAK TOVAG-104O360- project had been used as material. First of all 10 microsatellite markers were used to test the clones, their offspring and donor cells which were used for producing the clones. It has been confirmed that the clones are the copy of donor cells and all offspring belong to the clones and by sequencing of D-Loop region of mtDNA, it has been determined that the origin of mtDNA from clones are eggs and therefore are different than donor cell. In addition the presence of mtDNA difference has been observed in offspring of the clones.

Key words: Cloned Cattle, Nuclear Transfer, mtDNA, Microsatellit Markers.

## [174] Sevim Tüten, E., S. Arat, 2017. The Effect of differen cryoprotectant combinations on the viability of bovine cartilage cells. 6th International Congress on Molecular Biology and Biotechnology, December 22-25, Afyon.

Cryopreservation is based on the ability of certain small molecules to enter cells and prevent dehydration and formation of intracellular ice crystals, which can cause cell death and destruction of cell organelles during the freezing process. One common cryoprotective agent is dimethyl sulfoxide (DMSO) and it is used for protection of most type of cells and tissues. A sugars are also used for freeze-drying methods of cryopreservation. They stabilise membranes by interacting with the polar head groups of phospholipids and increase the osmolality of the extracellular space that results in cell dehydration and lower the incidence of intracellular ice. The aim of the study is to cryopreserve bovine cartilage cells by using differen cryoprotectant combinations and to investigate the effect of serum and sugars presence used in combination with DMSO for cryopreservation. While the ratio of necrotic and apoptotic cells was increased when the serum ratio in the freezing solution decreased. The highest cell viability was obtained from freezing solution containing 10% DMSO, 40% serum, in dextran 40 or dextrose.

Key words: cryopreservation, DMSO, cartilage cells, cryoprotectans, sugars.

### [175] Sevim Tüten, E., F. Özdil, E. Özkan Ünal, S. Arat, 2017. Nükleer Transfer ile Elde Edilen Klon Sığır ve Yavrularının mtDNA ve Mikrosatellit Belirteçlerle Karakterizasyonu. Journal of Tekirdag Agricultural Faculty, 2017: 14 (02)150-157.

Klonlama teknolojisi; erişkin bir hücre çekirdeğinin yumurta hücresi içerisine konulup geriye programlanarak embriyonal döneme geri döndürülmesi prensibine dayanmaktadır. Ancak bu geri programlamayı etkileyen faktörler tam olarak aydınlatılamamıştır. Bu nedenle elde edilen klonlar ve klonların yavrularının daha detaylı bir şekilde tanımlanması ile klonlama teknolojisi daha anlaşılır ve kontrol edilebilir hale getirilebilir. Bu çalışmanın amacı bir ırkın bireylerinin farklı bir ırka ait yumurta kaynağı kullanılarak klonlanması sonucu elde edilen klonların normal bir ırk populasyonu oluşturmasının mümkün olup olmadığını ortaya koymak adına klon ve jenerasyonlarını moleküler olarak karakterize etmek ve böylece ileride bu teknolojinin nesli tükenmiş bir ırkın geriye getirilmesindeki muhtemel potansiyelini daha iyi anlamaya çalışmaktır. Bu amaçla çalışmada daha önce TÜBİTAK-TOVAG-104O360- projesi ile üretilmiş 5 klon boz sığır (1 erkek, 4 dişi) ve bu klonların yavruları (2 erkek, 4 dişi) materyal olarak kullanılmıştır. Öncelikle klonlar, onların yavruları ve klonların üretilmesinde kullanılan verici hücreden elde edilen genomik DNA'larda 10 mikrosatellit belirteç kullanılarak klonların genomik DNA açısından verici hücrelerin birebir kopyası olduğu ve yavrularında bu klonlara ait olduğu teyit edilmiş ve mtDNA D-loop bölgesi dizi analizi ile de klonların mtDNA'larının yumurta kaynaklı olduğu ve dolayısıyla verici hücreden farklı olduğu tespit edilmiştir. Ayrıca bu farklı mtDNA varlığı klonların yavrularında da izlenmiştir.

Anahtar kelimeler: Klonlama, boz sığır, mtDNA D-Loop, mikrosatellit.

#### [176] Sevim Tüten, E., V. Sönmez, S. Arat, 2017. Genetic Characterization of Cloned Cattle and Their Generations. 6th International Congress on Molecular Biology and Biotechnology, December 22-25, Afyon.

The result of 10 microsatellite marker analysis confirmed that the clones are the copy of donor cells and all offspring belong to the clones and the sequencing of D-Loop region of mtDNA shown that the origin of mtDNA from clones and their offspring were eggs and therefore, were different than donor cell. The analysis of single strand conformation polymorphism (SSCP) showed that there was no evidence of the donor mtDNA existance in the blood samples of one male and two female clones and their offspring, on the other hand the heteroplasmy was detected in the other two female clones. But heteroplasmy was not observed in the blood samples of the offspring of the clones. The results indicate that mtDNA heteroplasmy has not an important negative effect on the health, development and reproduction of the animals. In addition, the results of the haplotype analysis shown that some of the clones are the same as the cell donor, some are in different haplotypes, and therefore the haplotype difference is not remarkable for the success of the technology.

Keywords: Genetic Characterization, Cloned Cattle, mtDNA.

### [177] Sivri, N., M. Mirik, 2017. Comparison of isolation methods of crown gall of grapevine disease agent *Rhizobium vitis* in trace region. 2<sup>nd</sup> International Balkan Agriculture Congress, 91-91.

Turkey is among the prominent countries for the production of grapes worlwide and *Rhizobium vitis* caused by crown gall of grapevine is a important plant pathogen bacteria. The pathogen bacteria is responsible for crown gall on grapevine orchards. Infected grapevines that have been affected by crown gall disease produce fewer grapes than unaffected plants. The study was carried out with the aim of detection and identification of R. vitis. This study was made in 2014- 2016 growing seasons and vineyard areas were surveyed in Tekirdağ (Şarköy, Malkara, Süleymanpaşa), Kırklareli (Center) and Edirne (İpsala). Isolation from infected plant samples were made on RS, PDA or King's B medium and inoculated plates were incubated at 28 °C until bacterial growth developed. Colonies having opaque red center, domed, mucoid, white translucent margin were identified. The prevalence of crown gall of grapevine disease was determined as 55% in Tekirdağ, 88% in Kırklareli, 4% in Edirne.

Key words: Rhizobium vitis, grapevine crown gall, bacterial isolations, root isolations.

### [178] Soycan Önenç, S., 2017. The Role of Hormones and Metabolites on Regulation of Feed Intake in Animal. Balnimalcon 2017.

Animal feed intake and energy balance is an important in digestive physiology. Control mechanisms of feed intake and feeding behavior were discovered using different techniques. Many of these control mechanisms involve molecular signals from the periphery to the central nervous system (CNS), including glocose, triglycerides, leptin, insülin, amylin, enterostatin, ghrelin and cholecystokinin released from different tissues. The anorectic hormones leptin, insülin and the orexigenic hormone ghrelin act on specific receptors on neurons in the arcuate nucleus (ARC) of the hypothalamus. First identified as an endogenous growth hormone secretatogue, ghrelin is powerful orexigen recently recognized as a regulator of feed intake and energy balance. Ghrelin is mainly secreted from the stomach and its plasma levels rise during fasting or weight loss and decrease after feding. It has been shown that ghrelin stimulates appetite and feed intake when it peripherally or centrally administered to humans and animal. Recently, cholecystokinin (CCK) has been shown to inhibit the orexigenic effect of peripheral ghrelin. Leptin is an adiposity signal secreted into the plasma in proportion to the body fat stores. It reduced feed intake and regulates energy expenditure by the activation of pro-opiomelanocortin (POMC) neurons and the inhibition of neuropeptid Y neurons in the ARC. Insulin is pancreatic hormone cosecreted with amylin into the blood during meals. It is highly efficacious in reducing feed intake and body weigth when infused chronically by peripheral and central administration. Insulin receptors have been located in the ARC and insülin, like leptin, exerts its catabolic action by stimulating the hypotalamic melanocortin system. Insulin and leptin both seem to reduce feed intake at least in part by increasing the hindbrain response to the stating signal CCK. Leptin seems to enhance the satiation response to CCK also by acting directly on the same vagal afferent neurons. Many studies reported that interaction between CCK and ghrelin, leptin, and insülin and because of the modulation of CCK's satiating effect by endogenous amylin.

Key words: Feed intake, feeding behavior, anorectic hormone, orexigenic hormone.

## [179] Soysal, M.I., O. Şimşek, Ş. Kurultay, M. Demirci, İ. Yılmaz, M. Taşan, Ü. Geçgel, 2017. Buffalo Meat and its Characteristic Properties. 8<sup>th</sup> Balkan Animal Science Conference Balnimalcon 2017, 6-8 September, Prizren, Kosovo, 195.

Buffalo farming is a traditional activity in the city of Istanbul, which nowadays includes about 10% of the total buffalo population in Turkey. The main objective of this is the production of meat, which can be an alternative resource of animal protein for Turkish population. Meat quality is a term used to define the range of features such as palatability, flavour, juiciness, appearance and tenderness. Buffalo meat is richer in iron, includes higher amount of high biological value protein and essential fatty acids, lower fat, cholesterol and calories than cattle meat (beef). Additionally, the fatty acid composition of buffalo fat influences the nutritional value of the meat and affects flavour and shelf life. On the other hand, buffaloes have low economic value since historically there has been a very restricted market for buffalo meat, in spite of the fact that different studies have focused on its highquality standards which are comparable to beef. In recent years, due to human health and product quality, the fatty acid composition and cholesterol levels in meat have received rising concern and buffalo meat could respond to consumer demands.

Key words: Buffalo, meat, properties.

# [180] Sönmez, V., F. Özdil, R. Bircan, E. Özkan Ünal, S. Arat, 2017. Investigation of mtDNA Heteroplasmy and Haplotype Difference in Clone Cattles Produced by Nuclear Transfer and Their Offspring. 2<sup>nd</sup> International Balkan Agriculture Congress, 396-396.

The cloning technology is based on the principle of returning back to the embryonel period of an adult cell nucleus into an egg cell via reprogramming. However, the factors that effect this programming are not clarified exactly. The aim of the project is to identify the effect of the mtDNA differences between donor and recipient cells in reprogramming process and to find out the differences that play important role in different parameters such as development, performance and yield traits and to introduce the effects of heteroplasmy and mtDNA variations in two clones and in their offspring. In this project, 5 clone Anatolian Grey cattle (1 male and 4 female) and their 6 offspring is used for the identification of mtDNA gene region consisting of D-Loop and Single Strand Conformation Polymorphism-SSCP is used for detecting the existence mtDNA heteroplasmy. The results showed that there is no evidence of the donor mtDNA existance in the blood samples of one male and two female clones and their offspring, on the other hand the heteroplasmy is detected in the other two female clones. But heteroplasmy is not observed in the blood samples of the offspring of the female clone that heteroplasmy is detected. The results indicate that either there is no cell mediated mtDNA transition to the clones or it may be very low so that it cannot be detected and if there is any transition there is no remarkable negative effect on the health, development and reproduction of the animals

**Key words:** mtDNA heteroplasmy, clone cattles; nuclear transfer, clone offspring, mtDNA, heteroplasmy.

# [181] Sözeri, D., N. Akın, M. Demirci, 2017. Antimicrobial Effect of Essential Oil Extracts of Onion and Garlic, 1st International congress on Medicinal and Aromatic Plants. "Natural and Healty Life" (IMAPCON'17) Abstract Book, pp: 860, 9-12 May 2017. Konya, TURKEY.

Physical and chemical preservative methods were used for many years to protect foods from spoilages and pathogens. Essential oil extracts which extracted from various part of plants have been considered as natural preservatives or food additives. They are mixture of numerous components and aromatic oily liquids. They also contain alkoloids, flavonoids, isoflavonoids, tannins, cumarins, glycosides, terpens and organic acids which may have antimicrobial and antioxidant properties. Distillation, extraction and pressing methods are used in extraction of essential oils from matrix. Allium family have more than 500 species although have similar biochemical, nutraceutical and phytochemical properties. Many are known to have antibacterial and antifungal effects because of containing antioxidants, sulphur and phenolic components. Onion and garlic are members of Allium family and also contain medically important organosulfur including components. The aim of this study was to discussed area of utilization and antimicrobial effect of essential oil extract of onion and garlic.

Key words: onion, garlic, essential oil, antimicrobial.

### [182] Şatana, A., B. Arslan, E. Ateş, E. Üzen, C. Çırak, 2017. Identification and Distribution of Hypericum perforatum L. on Mount Işıklar (Ganos), Tekirdağ, Turkey. XIII. Congress of Ecology and Environment with International Participation, 12-15 September 2017, Edirne, Turkey.

This research was conducted in 2012. In order to gather Hypercium species from the natural areas, the field trip to Kumbag-Yenikoy, Yenikoy-Nisantepe, Ucmakdere, Bakacak Tepe, Ormanli (Dolapdere), Guzelkoy-Gazikoy, Isiklar village-Yenice and Palamut (16-22 July 2012) was conducted. Each locaion was screened during a day. The field trip is made between 12 and 16 July 2012 during flowering period of the species. During the study, the specimens of herbarium were collected on the order of more than 10 plants for diagnosis by determining the places of each species with GPS technology. Collected plant speciments were dried on the same day. After the drying process is completed, specimens were sent to the Department of Biology, Istanbul University, Turkey. Plant species identification were conducted in this department. In the research records, the name of plant, the number of plant, coordinate, height, locality, habitat, collecting date and species name were recorded. The results indicate that Hypericum perforatum L. was identified in 8 locations, particularly in the east-west and northsouth of Mount Isiklar. H. perforatum L. was found in Kumbag at an altitute of 13 m in the location that is called Bakacak Tepe, the summit of Mount Isiklar with an altitude of 932 m. It was determined that this species spreads at each location from the sea level to the peak point. The results also indicate that H. perforatum L. is spotted at each and every location. H. perforatum L. is a species that has the largest distribution area. This species spreads to each location at Mount Isiklar. It spreads to each location from the sea level to the summit. However, due to the factors such as increased human activities at and around of Mount Isiklar, urbanization, industrialization and climate change, it has been indicated that the risk of extinction of Hypericum perforatum L. in the near future is high.

Key words: Hypericum perforatum L., Mount Işıklar, Ganos, Tekirdağ.

### [183] Şatana, A., B. Arslan, 2017. Effects of Zinc and Boron Foliar Application in Sugar Beet under Tekirdağ Ecological Conditions, 3rd International Conference on Environmental Science and Technology, Book of Abstract, page 180, 19-23 October 2017, Budapest.

The some soils of Turkey have deficient zinc and boron. This study aims at detecting the constituents of yield and quality obtained at different harvest times from boron and zinc fertilization. The experiments were conducted during two years (2008 and 2009) in Hayrabolu, Tekirdag, Turkey. The sowing date was on March 1, 2008 and April 1, 2009. The sowing density was 45 x 25 cm. There were 6 rows in a plot, and each plot was 13.5 m2. The study was conducted with three replications. Zinc (zinc sulphate, 5.5 % w/w) and boron (boron-ethanolamine, 8 % w/w) were sprayed to sugar beet's leaves in the form of fluid and solution. Doses of zinc and boron were 0, 1000, 2000 and 3000 ml ha-1. Zinc and boron were entitled as Zn0, Zn1, Zn2, Zn3 and B0, B1, B2, B3, respectively. The fertilizers were sprayed at three different times (the 60th, 120th and 180th day after sowing date as first time, second time and third time, respectively) to the plants' leaves. In both of the years, the crops were harvested on September 15th. According to the results of the study; the presence of the highest sugar content was obtained in the dose of Zn2B1 (18.8 %) in the third applied time in 2008. The highest beet yield was obtained in the dose of Zn2B2 (89.87 t ha-1) in the first applied time in 2008. The highest sugar yield was obtained in the dose of Zn2B2 (15.52 t ha-1) in the second applied time in 2008. In this study, the effect of the nutrition elements of zinc and boron on the yield and quality of sugar beet was investigated.

Key words: Sugar Beet, Zinc, Boron, Fertilizer.

### [184] Şen, A., A.R. Önal, M. Özder, E. Pehlivan, G. Dellal, 2017. Sheep and Goat Production in Balkan Countries and the Status of Turkey. BALNIMALCON 2017, 6-8 Eylül 2017, Prizren/KOSOVA.

Sheep and goat production is the most important animal production in Balkan countries cause the cultural conception choice. Mainly the production made for dual purpose as wool and lamb. The number of the live animals changes in the Balkan and east European countries by different factors. According to the statistical data the biggest number of sheep with 31.140.244 heads, and goat with 10.344.936 heads in Turkey. The structure of pasture has a big role in this factor. The length of the green grass in pasture areas was mainly short and available for sheep and goat feeding. Greece and Bulgaria follow Turkey with 9.072.000 and 1.369.578 heads of sheep respectively and 4.255.000 and 289.308 heads of goat respectively in 2014. The aim of this study was evaluation of goat and sheep numbers, product such as milk, meat, wool and skin data in Turkey and other Balkan countries from 1960s to 2014.

Key words: Balkan countries, goat, sheep, wool, meat, milk.

#### [185] Şener, M., 2017. A review on agricultural usage of vegetative indices. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May 2017. Tekirdag/Turkey.

In order to increase crop production and minimize costs, each plant development stage needs to be investigated based on time, accurate and low cost possibility. In this study, vegetative indices are enable to provide more effective and timely information according to the traditional methods, studies on using of plant production were reviewed. Vegetative indices are calculated with using mathematical transformations of reflectance from especially Visible, Near-Infrared and Swir bands of electromagnetic spectrum. Each vegetative indices which are related to different plant physiological characteristics are used for different special purposes because of difference of reflectances. Numerous vegetative indices have been developed until today. The most commonly used indices are Band Ratio (RATIO), Band Difference (DVI), Normalized Difference Vegetation Index (NDVI), Chlorophyll Absorption in Reflectance Index (CARI), the Transformed Vegetation Index (TVI), Perpendicular Vegetation index (PVI), Tasseled Cap, Soil Adjusted Vegetation Index (SAVI), Infrared Percentage Vegetation Index (IPVI), Transformed Adjusted Vegetation Index (TAVI), Stress Related Vegetation Index (STVI), Weighted difference Vegetation Index (WDVI), the Normalized Difference Red Edge Index (NDRE), The Green Normalized Vegetative Index (GNDVI). These developed vegetation indices have been used extensively to predict, vegetation cover, Photosynthesis activity, plant biomass, green leaf area index, plant stress.

Key words: vegetative indice, reflectance, remote sensing, plant.

#### [186] Şener, M., 2017. Ground water usage of agriculture in Turkey. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May 2017. Tekirdag/Turkey.

Turkey is one of the countries that have water scarcity with existing water resources. Irrigation is an irrevocable factor that ensuring food security of increasing population in the countries have water scarcity problem like our country. In this study, the situation of groundwater irrigations were investigated in Turkey. Turkey has 98 billion m3 surface and 16.4 billion m3 groundwater source potential. Our country has used 44 billion m3 of total water potential (144 billion m3 ) and the biggest user of this water is agriculture sector with 73%. 13.56 billion m3 of total groundwater reserves (14.7 billion m3 ) has been allocated by DSI. 3.82 billion m3 of groundwater reserves were used for irrigation and also, 9.74 billion m3 of groundwater reserves were used for drinking-use and industrial purposes. A total of 667,080 hectares have been irrigated by groundwater reserves. As it is seen, almost all groundwater reserves were put into services. In order to protect the clean groundwater reserves, it is planned to reduce groundwater use by 5% under the program for the Activation of Water Use in Agriculture, prepared by the Ministry of Development throughout the plan period.

Key words: Groundwater, irrigation, water scarcity, turkey.

#### [187] Şener, M., E. Göçmen, 2017. Agricultural use of unmanned aerial vehicles. 8th International Conference on Biosystems Engineering (BSE 2017) Estonian University of Life Sciences. May 11–13, 2017 Tartu, Estonia

Developments in science and technology make moder life easier and they help us to bring new applications into our lives. In recent years, an innovation that has come into human life is the Unmanned Aerial Vehicle (UAV). When it was used for only military services at the beginning stages, it has been started to be used for commercial or individual purposes in many different areas such as photography, marketing, edu cation, environmental, insurance, tourism, mining, mapping, construction and meteorology depending on technological developments. In this study, UAVs usage in agriculture will be explained. The main objective in agricultural activities is to increase the farmer's welfare by achieving maximum crop and animal production output per unit area with minimum cost. However, many variations in agricultural production require frequent monitoring and this process causes excessive time and expense by conventional methods. In particular, by the evolving of UVAs and adopting the fully-controlled imaging systems for these vehicles, UVAs could frequently reveal the current situation of field nowadays. UAVs are using for different purpose such as plant count and data selling, Crop and soil type, growth stage, plant health, plant cover, plant height, canopy cover, leaf area index, soil moisture, water stress and nitrogen deficiencies in agriculture. Thus, helping to minimize the damage because of users can make by quickly making the necessary interventions in time.

Key words: UAV, remote sensing, agriculture, image process.

### [188] Şimşek, O., Ş. Kurultay, M. Demirci, M.İ. Soysal, İ. Yılmaz, M. Taşan, Ü. Geçgel, 2017. Nutritional facts of goat meat. 8<sup>th</sup> Balkan Animal Science Conference Balnimalcon 2017, 6-8 September, Prizren, Kosovo, 191.

According to TUIK statistics, Turkey's goat population was around 10.137.534 heads in 2016. In Turkey, the goats are bred particularly in mountainous areas, forests and pastures due to unavailability for other agricultural products. Turkey traditional goat husbandry has been oriented into a double production objective, meat and milk. In addition, in the other some developing countries, goats are used also for fibre or skin. Goat meat composes one of the main origins of animal protein in the human diet in these countries. In recent years, increasing demand of cheese from goat milk, more caution is given by the breeders in Turkey. The quality of goat products is affected by various factors. These are environmental conditions, soil characteristics, biotic and abiotic factors. Goat meat has an important role in human nutrition because it includes necessary amino acids such as lysine, threonine and tryptophan. At the same time, goat meat is considered lean with just the 1% fat. Moreover, it is known from lower fat and cholesterol content, and lower saturated fatty acid levels in comparison with other red meats. Therefore, the goat meat is considered to be the perfect healthy option owing to its lower intramuscular fat levels.

Key words: TUIK, goat, meat.

# [189] Tayat, E., N. Özder, Ö. Sağlam, 2017. Effect of some monoterpenoids on parasitization performance of *Trichogramma brassicae*. VIII. International Scientific Agricultural Symposium "Agrosym 2017" October 05-08, 2017, Jahorina, Bosnia and Herzegovina, p. 211. ISBN: 978-99976-632-9-0.

Chemical pesticides have led in their reducing efforts to use due to their negative impact in environment, human health and the natural enemies. Especially in recent years, due to the potential dangers of synthetic additives in line with growing demand for natural compounds, these oils were investigated regarding toxic effects on agricultural pests and natural enemies. However, the impact on the natural enemies of these insecticidal compounds has not been fully understood yet. In this study, Cuminaldehyde, Eugenol and Allyl isothiocyanate were tested on he eggs of Ephestia kuehniella. After Trichogramma brassicae had interference with the egg, applications were done within 24 hours. The essential oil Cuminaldehyde 1  $\mu$ L and 2,5  $\mu$ L including one dose were applied on 2th, 4th, 6th and 8th days. The maximum output rate applied to the 8th egg 1  $\mu$ L, was calculated as 50,37±4,01 individuals. The lowest output of theapplication rate 4 daily 2.5 µL 27,66±3,18 units daily egg individuals have been identified. Applied at both doses was observed in the 2 daily eggs any output. In Eugenol two doses were applied again(50,100  $\mu$ L) and the highest parasitisation rate was obtained as 64,90±6,9 after 8th day 50µL of parasitization. Allyl isothiocyanate compounds were previously death with anothermonoterpenoid when applied to the 0.1 and 0.3  $\mu$ L doses of scrambled eggs no output has been observed.

Key words: T. brassicae, monoterpenoid compouns, cuminaldehyde, eugenol.

### [190] Taşan, M., 2017. Tekirdag Cuisine and Nutrition Culture. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May, Tekirdag, Turkey.

There are varieties of cultural values in each city. These cultural values keep cities alive, introduce them and bring them to future. One of these cultural values is the cuisine and nutrition culture. This culture is an important element of the Turkish cultural life. Variety of sources of foods of vegetable and animal origins has affected the Tekirdag cuisine and nutrition culture. The geographical location of Tekirdag has caused a very rich culture of cuisine and nutrition to emerge. It is very rich not only in variety and taste, but also in terms of food preparation and cooking techniques, special day meals and kitchen tools and utensils. It is known that the nutrition culture of Anatolia was carried to the Balkans in their conquering period. As a result, a new composite cuisine and nutrition culture has come into view. Being together of people out of a diversity of cultural origins has contributed richness to the Tekirdag cuisine and nutrition culture. The cuisine and nutrition culture have a tendency to preserve the cultural values of societies for a very long time. Despite this, interaction between nutrition cultures across the world has emerged due to the effect of globalization. With technological developments that rapidly proceed today, some changes have been observed in the cuisine and nutrition culture as in many other things. It is necessary that we should preserve our cuisine and nutrition culture and that further scientific research should be conducted in order to prevent our cultures from losing its values.

Key words: Culinary culture, food, nutrition culture, Tekirdag cuisine.

### [191] Taşan, M., 2017. Sulfonamide Residues Affecting Food Safety in Food Producing Animals. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May, Tekirdag, Turkey.

Consumers want a safe food supply that is free of herbicides, pesticides, and drugs. Scientific studies demonstrated several chemical residues in food and their potential adverse effects on human health, such as resistance development, and toxicity. The most important sources of chemical residues in food products of animal origin include veterinary drugs such as antibiotics and hormones, pesticides, mycotoxins and dioxins. These drugs are applied to animals or fish by various forms such as injections, additives in animal feed. Sulfonamides are the first antibacterial drugs and widely used as veterinary drugs for the treatment of infections and the promotion of growth of livestock and fish. Sulfonamides can be easily absorbed and distributed through the body of animals, accumulate in various tissues and transferred into their products. These sulfonamides or their metabolites left over in the body after their administration for a long time are termed as residues. After the treatment of infected animals with sulfonamides, the residues of sulfonamides are present at some level in edible products like milk, eggs and meat of treated animals. Many countries, including Turkey, have established allowed maximum residue limits (MRL) of 100 ng/g for most sulfonamides in food producing animals. The purpose of the MRL is to limit the exposure of consumers to residues of drugs used in food animals, to concentrations that do not pose human health risk. In this context accurate and precise analysis of sulfonamides is very important. This paper presents chemical compositions of sulfonamides use in food animals, the causes of residues in food producing animals and their regulations to protect the safety of food for human consumption.

Key word: Food safety, food producing animals, regulations, sulfonamides.

## [192] Taşan, M., 2017. Acrylamide in Coffee: Formation, Preventive and Removal Strategies. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May, Tekirdag, Turkey.

Coffee bean is the second most traded commodity in the world after petroleum. Coffee together with tea is one of the most consumed food beverages worldwide. Coffee brewing is consumed from hundreds of years and their moderate consumption is beneficial for human health. However, the high consumption of coffee in many countries makes it a potentially significant source of daily exposure to acrylamide ( $C_3H_5NO$ ; 2-propenamide). Also, recent reports showed that coffee is among the highest contributors to the acrylamide intake in some countries in Europe. Acrylamide is classified as a probable human carcinogen (Group 2A) by the International Agency for Research on Cancer (IARC). Acrylamide is also a well-known neurotoxin. Acrylamide, which is formed during normal cooking practices, such as roasting, baking or frying, was found primarily in carbohydrate-rich foods prepared or cooked at high temperatures. Coffee beans are subject to relatively higher temperatures than other foods in that they are roasted in the range 200-250°C. Due to the use of roasted and ground coffee beans in making coffee, the probability of significant levels of acrylamide being present was considered to be high. It is generally accepted that the main route for the formation of acrylamide in coffee is the early Maillard reaction, initiated by the condensation of asparagine and reducing carbohydrates, such as fructose or glucose, or, alternatively, reactive carbonyls. This paper summarized the progress made in understanding the formation of acrylamide in coffee, as well as potential preventive and removal strategies.

Key word: acrylamide, coffee, preventive strategies, removal strategies.
## [193] Taşan, M., A.S. Aksoy, 2017. The Effect of Chemical Refining Steps on Some Elements Contents of Corn Oil. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May, 2017, Tekirdag, Turkey.

Crude vegetable oils intended for usual consumption are refined. Most consumers use refined oils. Thus, it is especially important to evaluate the quality of refined vegetable oils. The quality of edible oils is directly related to the concentration of elements. Contents of elements like Fe, Cu, Mg, Ni and Mn are known to increase the rate of oil oxidation while other elements such as Cr, Cd, and Pb are very important on account of their toxicity and metabolic role. The aim of this study was to determine the contents of some elements in during chemical refining process of crude corn oil, and to compare these properties for each step in the refining process. For the reason, corn oils were obtained from processing lines of factory using chemical refining including degumming-neutralizing, bleaching, winterizing and deodorizing steps. Namely, crude corn oil was industrially subjected to conventionally chemical refining. The content of elements (Na, Mg, K, Ca, Fe, Pb, Cd, Ni, Mn, Zn, Co, Cr, P, Cu) in the corn oil samples of individual refining steps was determined, using inductivelycoupled plasma-mass spectrometry (ICP-MS) and inductively-coupled plasma-optical emission spectrometry (ICP-OES) after microwave digestion. Clearly, the contents of the heavy metals showed a drastic decrease at the end of the chemical refining process. The contents may be reduced by more careful refining processing of crude vegetable oils. The obtained these results were compared between the values reported in literatures, and were also evaluated the changes of some elements of corn oils in the chemical refining operations.

Key words: corn oil, refining, heavy metal, ICP-MS, ICP-OES.

### [194] Tasan, M., U. Gecgel, 2017. Thermal Process Contaminants and Food Safety. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May, Tekirdag, Turkey, p. 589.

Heating induces chemical changes that may lead to the formation of potentially harmful compounds, as a result of reactions between compounds that are natural components of the food. On the other hand, the household and industrial thermal processes have a critical role in ensuring that foods are safe from microbiological contamination and remain high in nutritional and sensory attributes. When foods are heat-processed (cooking, roasting, baking, frying, pasteurization, sterilization), from the home kitchen to industrial food processing facilities, reactions occur between components of the food, resulting in the desired flavor, appearance and texture of the food. However, some of these reactions can lead to the production of undesirable compounds, so-called thermal process contaminants, like acrylamide, heterocyclic aromatic amines, polycyclic aromatic hydrocarbons, hydroxymethylfurfural, furan, trans fatty acids, free and bound chloropropanols. Some of these thermally induced contaminants can be formed under severe thermal conditions. Also, in many cases, the presence of thermally induced contaminants in food cannot be avoided. Due to their health concern, authorities reported that their formation needed to be minimized. Recently, the amounts of thermally induced contaminants in foods are one of the major concerns for consumers and food industry. To optimize or adjust food preparation methods, formula and processes in food industry for minimizing the formation of such chemicals in heat-processed food, researchers presented variable suggestions. This paper summarized developments regarding the formation and elimination of thermally induced contaminants in foods.

Key words: food, food safety, heat-processed, thermal process contaminants.

## [195] Taşan, M., Ş. Kurultay, O. Şimşek, M. Demirci, M.İ. Soysal, İ. Yılmaz, Ü. Geçgel, 2017. Nutritional Value of Offal Products. 8<sup>th</sup> Balkan Animal Science Conference Balnimalcon 2017, 6-8 September, Prizren, Kosovo, 196.

Offal, or organ meats, refers to the internal organs such as liver, kidney, heart, lungs, spleen, and entrails of a butchered animal, composes of a substantial portion of an animal's meat weight. It is also defined as those parts of a meat from a carcass which are not skeletal muscle. Edible offal meats have recently received important concern, especially those for human consumption, owing to their nutritional qualities and the worldwide emphasis on decreasing economical losses from wasting food. Efficient utilization of edible offal is necessary in order to support economical and viable meat production system. These products are sold in local meat markets and they are widely consumed in traditional Turkish meals like soups and kebabs. Offal consumption in Turkey is generally higher than in most of other countries. Offal products are good source of protein, and especially very valuable for its nutrition. They are also good source of B-groups vitamin, dietary phosphorus and iron. Moreover, they are rich in fat and cholesterol content.

Key words: offal products, nutrirional, organ meat.

### [196] Taşan, M., Y. Imer, 2017. Çeşitli Soğuk Pres Yağların Bazı Mikro ve Makro Element İçeriklerinin Belirlenmesi. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May, Tekirdag, Turkey.

Bu çalışmada soğuk pres yöntemiyle üretilmiş dokuz farklı yağ çeşidinin bazı ağır metal ve mikrobesin element miktarlarının belirlenmesi amaçlanmıştır. Çalışmada materyal olarak kullanılan soğuk pres yağlar Türkiye'de üretilmiş ve yerli piyasadan temini kolay, özellikle yemeklik olarak kullanılan ayçiçeği, aspir, keten tohumu, fındık, susam, ceviz, badem, kabak çekirdeği ve yerfistiği soğuk pres yağlarıdır. ICP-OES cihazı kullanılarak yağların sodyum (Na), kalsiyum (Ca), magnezyum (Mg), potasyum (K), fosfor (P), aluminyum (Al), demir (Fe), çinko (Zn), cıva (Hg), kurşun (Pb), nikel (Ni), kalay (Sn), kükürt (S), arsenik (As), kadmiyum (Cd), kobalt (Co), bakır (Cu), mangan (Mn), krom (Cr) element düzeyleri ölçülmüştür. Ağır metallerden kurşun (Pb), cıva (Hg) ve aluminyum (Al) bazı soğuk pres yağ çeşitlerinde tespit edilmezken; bazı soğuk pres yağ çeşitlerinde ilgili elementlerin yüksek miktarlarda mevcut olduğu belirlenmiştir. Ağır metal ve mikrobesin elementleri miktarlarının hem soğuk pres yağ çeşidi, hem de markalara göre farklılık gösterdiği tespit edilmiştir. Yapılan varyans analizlerine göre bu farklılıklar istatistiksel açıdan önemli bulunmuştur. Elde edilen element değerlerinin literatür verileri ile kıyaslaması ve yasal limitlere göre değerlendirmeleri yapılmıştır.

Anahtar kelimeler: Soğuk pres yağ, ağır metal, makro element, ICP-OES.

### [197] Taşan, M., Y. Imer, 2017. Determination of Some Micro and Macronutrient Elements in Various Cold Press Vegetable Oils. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18 May, Tekirdag, Turkey.

The aim of this study was to determine the amount of some heavy metals and macro elements in various cold pressed vegetable oils produced by cold pressing. For this reason, commonly consumed nationally available brands of cold pressed vegetable oils were selected for analysis and purchased locally. These cold pressed vegetable oils are easily obtainable from local market and using edible; sunflower oil, safflower oil, flax seed oil, hazelnut oil, walnut oil, almond oil, pumpkin seed oil, peanut oil and sesame oil. The content of elements such as sodium (Na), calcium (Ca), magnesium (Mg), potassium (K), phosphorus (P), aluminum (Al), iron (Fe), zinc (Zn), mercury (Hg), lead (Pb), nickel (Ni), tin (Sn), sulphur (S), arsenic (As), cadmium (Cd), cobalt (Co), copper (Cu), mangan (Mn), chromium (Cr) in the cold pressed vegetable oils were determined by using inductivelycoupled plasma-optical emission spectrometry (ICP-OES). Based on the results, the elements contents varied among cold pressed vegetable oil types and brands. According to the analysis of variance, the differences among samples were statistically significant. According to the finding of the research, any amount of lead, mercury, aluminum and iron were not detected in some of cold pressed vegetable oils. However, these elements contents in some cold pressed vegetable oils were detected on high level. The obtained these results in the research were compared with values in literatures and were evaluated according to legal limits. Potential sources of heavy metals contamination in the cold pressed vegetable oils were also discussed.

Key word: cold press oil, heavy metal, macronutrient element, ICP-OES.

### [198] Tırpancı Sivri, G., D.D. Altan, S. Duraklı Velioglu, 2017. Detection of Milk Origin in Dairy Products. 2<sup>nd</sup> International Balkan Agricultural Congress, pp: 618. 16-18 May, 2017. Tekirdağ, TURKEY.

Food ingredient adulteration is an emerging risk, because addition of low cost ingredients creates not only an economical problem but also a health risk for consumers. Hence, detection of origin in animal products has become an important issue regarding the assessment of food composition and the protection of consumer rights. The substitution of bovine milk for ovine and caprine milk is one of the most common fraudulent practices in the dairy industry. Different methods are currently used for detection of adulteration in milk and dairy products, which include immunological, electrophoretic, and chromatographic techniques. Among these, isoelectric focusing of y-caseins after plasminolysis is the European Community reference method for cows' milk detection. In recent years, molecular techniques have been applied to detect the origin and proved to be reliable, sensitive and fast. The discovery that the somatic cells present in milk may be used as source of DNA led to the development of several PCR-based techniques to allow milk origin identification in dairy products. Other analytical techniques based on protein analysis for species identification in milk products, such as, High-Performance Liquid Chromatography with Electro Spray Ionization Mass Spectrometry (HPLC/ESI-MS) and Matrix-Assisted Laser Desorption/Ionisation Time-Of-Flight Mass Spectrometry (MALDI-TOFMS) have also been applied. There are also some other methods which rely on the interpretation of triglyceride and fatty acid profiles by Nano Electro Spray Ionization QqTOF Mass Spectrometry (NanoESI-MS). The aim of the present study is to evaluate and review the methods used for the detection of milk origin in dairy products.

Key words: milk, dairy products, origin, adulteration.

### [199] Tırpancı Sivri, G., S. Duraklı Velioglu, K.G. Güner, H.M. Velioğlu, 2017. Nutraceutical properties of Black Elderberry (*Sambucus nigra* L.). 2<sup>nd</sup> International Balkan Agricultural Congress, pp: 618. 16-18 May, 2017. Tekirdağ, TURKEY.

Sambucus nigra L. known as the black elderberry, has been utilized as dietary supplements because of its characteristic chemical composition, which includes essential oils, free fatty acids, flavonoids and their glycosides, phenolic acids, carotenoids, vitamins and minerals Elderberries possess countless beneficial effects on human health, which are due to their many phytochemicals, such as flavonoids, phenolic acids, and vitamins. Sambucus nigra L. has shown contribute to the prevention of several degenerative diseases such as cancer, inflammatory and cardiovascular diseases, and diabetes. Moreover, its extract has proven to increase mineral density of the bone, improves insulin release, so used in the anti-diabetic therapy. It also increases glucose uptake and usage in the muscle and acts as a free radical scavenger decreasing oxidative stress. In addition to nutraceutical properties, it has been used as food colorants in the preparation of concentrates, jams, juices, pies, yoghurts, syrup, wines and dried powders, due to their high content in anthocyanins, which can function as both natural pigments and natural antioxidants.

Key words: Sambucus nigra L, Black Elderberry, nutraceutical properties.

# [200] Tırpancı Sivri, G., S. Duraklı Velioğlu, K.G. Güner, 2017. Physico-chemical Properties of Goji Berry and its Health Benefits. 1<sup>st</sup> International congress on Medicinal and Aromatic Plants "Natural and Healty Life" (IMAPCON'17) Abstract Book, pp: 695, 9-12 May 2017. Konya, TURKEY.

Berries and red fruits are rich sources of polyphenols which are known with their health benefits. Goji berry (Lycium barbarum or Lycium chinense), belongs to Solanacea family which is deciduous shrubbery growing in China, Tibet, and other parts of Asia. Goji berry is known with its health-promoting properties, which comes from high content of phytochemical substances. Berry fruits are often the richest source of antioxidant among fruits and vegetables. There are many studies present on phenolic profiles of Goji berry extracts which indicate a strong capacity to scavenge oxygen radical species and to inhibit oxidation as well as growth of pathogenic bacteria. Based on the available data from several studies, total phenolic content of goji berries around 281.91•mg GAE/100•g FW, total bioactive compound content 6048.24•mg/100•g FW and antioxidant capacity 2300 mg/mL IC 50 of DPPH radical scavenging. The major antioxidant compound identified in commercially available goji berries was N-feruloyl tyramine. In recent years, popularity of Goji berry was increased because people's awareness on its various health-promoting properties among several illnesses (reduced risk of cancer, cardiovascular disease, heart disease and stroke). Important health-promoting properties are related to phenolics, including antioxidant activity, regulation of some metabolizing enzymes, and modulation of gene expression and subcellular signaling. The aim of this review is to discuss phytochemical profile of goji berry and its potential health effects.

Key words: Goji berry, Phytochemicals, health benefits.

[201] Tuğ, S., B. Kayişoğlu, I.S. Dalmış, T. Aktaş, M.R. Durgut, F. Taşçı Durgut, 2017. Influences of Airflow Path and Equivalence Ratio on Gasification Performance of Rice Straw Pellets. 13<sup>th</sup> International Congress on Mechanization and Energy in Agriculture & International Workshop on Precision Agriculture, September 13 - 15, 2017 Izmir, TURKEY

Rice straw is one of the most important agricultural residue in Thrace Region in Turkey that can be evaluated by biomass gasification technologies. Every year, about 180 000 tons of rice straw are burned that has 2,5.109 MJ energy content in Edirne. If rice straw gasification could be applied by efficiency of 65%, 1,625.109 MJ of energy would be saved for Thrace region every year. Optimization of gasification parameters is critical in order to keep the gasification efficiency maximized. Especially the path that gasification agent follows and flow rate strongly effects the gasification reactions and performance characteristics. In this research, rice straw collected from Thrace region were pelletized and gasified by using air as gasification agent. A prototype throathless type downdraft gasifier which has 350 mm as reactor diameter was designed, constructed and used for gasification experiments. Two different airflow paths were selected and five different equivalence ratios were applied for each path. Air intake was done from the top of the reactor as the first path. For the second path, air intake was done from 10 nozzles that positioned around the reactor. Performance values like gas flowing rate, fuel consumption rate, cold gas efficiency, temperature distribution and gas components were determined during experiments. The best cold gas efficiency was obtained as 65,4% in gasification process performed with first airflow path with equivalence ratio of 0,20±0,02. Maximum lower heating value of generated syngas was determined as 4,430 MJ/m3.

Key words: Biomass, gasification, equivalence ratio, rice straw, airflow, syngas.

## [202] Tuna, Y.T., A.R. Önal, F. Avcı, A. Şen, E. Pehlivan, G. Dellal, 2017. The Effect of Skin Color Proportion of Holstein Cow on Production Parameters. BALNIMALCON 2017, 6-8 Eylül 2017, Prizren/KOSOVA.

The aim of this study was determination of the effect of color proportion (black-white) on reproductive performance and milk production levels. The material of study was 61 heads of Holstein cows and their records of first and second lactation. The two side of each animal recorded by video camera and transferred to computer than got to images per cow. Proportion black and white color counted by image processing methods. The stepwise method applied for improvement regression model to estimate effect color proportion on yield. The parameters evaluated for reproductive performance were first insemination age, age at first calving, time period between two calving, service period, insemination number per pregnancy and milk production parameters were lactation period, total lactation milk yield, 305 days milk yield. The descriptive statistics were 15.58±0.36; 24.56±0.38; 94.43±2.61; 433.31±10.35 and 2.47±0.09 determined for first insemination age, age at first calving, time period between two calving, service period, insemination number per pregnancy respectively, 362.07±9.81; 61.09±0.61; 11190.78±233.67 and and 9816.03±159.35 for lactation period, total lactation milk yield, 305 days milk yield respectively for production levels. The result indicated that no statistical significant between white color rate and age at first calving, first insemination age and time period between two calving (p>0.05). It was high statistical significant calculated between white color rate, service period and insemination number per pregnancy (P<0.01; P<0.05). The study show that the change one 1% of white color on positive way effect 1.9 It daily milk production and the white color rate can be used for a selection dairy cows.

**Key words:** Holstein, Color proportion, image processing, morphometric measurements, reproduction, milk production.

### [203] Turan, D.Ç., H. Hurma, 2017. Tarımsal Risk Yönetimi İle İlgili Genel Bir İnceleme. V. Uluslararası Katılımlı Toprak ve Su Kaynakları Kongresi, (12.09.2017-15.09.2017).

Türkiye'de ekonomik ve sosyal açıdan önemli yere sahip tarım sektörünün en temel özelliklerinden biri bu sektördeki risk ve belirsizlik düzeyinin diğer sektörlere göre fazla oluşudur. Bu durum, gelişmiş ülkeler ile birlikte Türkiye gibi gelişmekte olan ülkelerin tarımı için geçerlidir. Tarım sektöründe ürününün üretimden pazarlanması aşamasına kadar birçok risk ve belirsizlik unsuru ile karşılaşılmaktadır. Risklerin tamamıyla kontrol edilmesi olanaklı olamamakla beraber risk yönetimi yoluyla etkilerinin azaltılması mümkün olabilir. Bu çalışmada başlıca tarımsal risk ve belirsizlikler ve bu faktörlere karşı uygulanabilecek stratejiler konusunda genel bir değerlendirme yapılarak konunun önemi hakkında farkındalık yaratmaya çalışmıştır. Yapılan değerlendirmede tarım sektörünün; üretim teknolojisine bağlı riskler, pazarlama ve fiyat riskleri, finansman riskleri, resmi ve sosyal riskler ve insan kaynaklı riskler olarak beş temel risk grubuna ayrıldığı görülmüştür. Tarımsal risklere karşı uygulanan başlıca risk yönetim stratejileri; tarımsal işletme yönetiminin planlanıp organize edilmesi, mali kayıplara karşı sigortalama, tarımsal teknolojiyi etkin ve verimli kullanabilmek için bilgi sahibi olmak, ileriye yönelik fiyat sözleşmelerinin yapılması, üreticilerin örgütlenmesi, harcamaların planlanması, yasal gelişmeleri takip etmek, konusunda uzman, sigortalı daimi işgücü ile çalışmak, etkin iletişim şeklinde özetlenebilir.

Anahtar kelimeler: Tarım, Risk Yönetimi, Tarımsal risk yönetimi stratejileri.

## [204] Turan, D.Ç., H. Hurma, 2017. The Effects of Global Climate Change on Agriculture and Food Security. 2<sup>nd</sup> International Balkan Agriculture Congress, (16.05.2017-18.05.2017).

Agriculture is an important sector both economically and socially, which depends on nature. Climate is an important factor of agricultural productivity. Food security—the ability to obtain and use sufficient amounts of safe and nutritious food—is a fundamental human need. Climate change is very likely to affect global, regional, and local food security by disrupting food availability, decreasing access to food, and making food utilization more difficult. Climate change is very likely to affect global, regional, and local food security by disrupting food availability, decreasing access to food, and making utilization more difficult (USDA 2015). The agricultural sector is not only a negative impact, but also one of the reason for climate change. The destructive effects of climate change on agriculture; should be review together with the sustainability of development, food security, environment, bio diversity and ecosystem services. Notably food security, production, consumption, price, insurance systems, farmer support and market policies, productivity and competition, drought and desertification, protection of biodiversity, plant and animal health and plant production, animal husbandry and research development need to be addressed for adapting effects of climate change in agricultural sector. In this study, the significance of the subject will attempt to explain in order to examine the possible effects of climate change on agriculture and food security. The previous studies as regards adaptation to climate change in agriculture will be summarized. Some suggestions will be made about the activities to be carried out for reducing the impact of climate change. Keywords: climate change, global warming, agriculture, food security.

Key words: Climate change, global warming, agriculture, food security.

### [205] Unakıtan, G., 2017. Evaluation of Agriculture Sector and Agricultural Policy in Turkey. Jubilee International Scientific Conference BULGARIA of REGIONS Sustainable Regional Development Perspectives, 27-28 October 2017, Plovdiv, Bulgaria.

The agricultural sector has undertaken very important tasks in the economic and social development of countries, and will continue to undertake these tasks in the future. There have been significant changes in the agricultural sector in the last 50 years. With the rapid growth of industrialization in developing countries and the services sector in developed countries, the share of the agricultural sector in global economy has declined considerably. Increasing urbanization rates have also led to a decline in agricultural land. In this study, it was aimed to investigate changes in Turkish agriculture, changes in the share of agriculture in Gross National Product and foreign trade, changes in agricultural production areas and fluctuations in important crop and animal products. It is seen that there is premium payment and field based support to direct producers in Turkey. These type policies are affected short run but it's damaged to sector in the long run. Instead of short-term premium support policies, the long-term effect policies should be adopted to strengthen the agricultural sector.

Key words: Gross national product, agricultural land, sufficiency ratio, agricultural supports.

### [206] Unakıtan, G., D.İ. Abdikoğlu, 2017. Co-integration Analysis of Rice Sowing Area in Turkey. 2<sup>nd</sup> International Balkan Agriculture Congress, (16-18.05.2017).

Rice production is made all irrigated regions of Turkey due to very climatic conditions in Turkey especially on Marmara region. Rice sown area, which has been produced for many years, has increased rapidly in recent years in Turkey. Over a period of 35 years, rice sown areas have increased from 60 thousand hectares to 110 thousand hectares and rice production has increased from 300 thousand tons to 900 thousand tons. The primary reason for the increasing production is the increase in rice sown areas. In this study, it was aimed to determine the effect of rice prices on the sown areas and to determine the tendency of rice sown areas in Turkey. The long-run effect of rice prices on the sowing areas was measured using the error correction model with data between 1990 and 2014. According to the model results, it is estimated that in the case of a 10% increase in the price of rice in the long term, the rice sown areas will increase by 9.4%. Price support policy will not affect on rice sown areas a significant increase in long-term due to the low elasticity coefficient. It is estimated that the sown area, which has already increased to 110 thousand hectares, will not increase much more in the near future.

**Key words:** paddy production, vector error correction, agricultural policy, Johansen Method.

### [207] Unakıtan, G., M.Ö. Azabağaoğlu, D.İ. Abdikoğlu, 2017. Analysis and Future Outlook of Milk Consumption in Turkey. International Balkan and Near Eastern Social Sciences Congress Series-Russe/BULGARIA, (08-09.04.2017).

Milk and dairy products is one of the four main food groups that need to be taken in a healthy diet. Milk and dairy products include the nutritional requirements for the development, the strengthening and the protection of health of the body from infancy to old age. Milk has a very important place in agriculture and industry as well as in nutrition. Although Turkey ranks in first ten countries in the world in milk and dairy products production, it is far behind developed countries in terms of milk consumption per capita with 18.4 lt/year. However, total consumption of milk and dairy products is 236 kg/year per capita. The population of Turkey in 2015 is 78 million. It is estimated that the population will be 88 million in 2023. The aim of this study is to estimate the sufficiency of milk production and consumption in Turkey against the growing population.

Key words: dairy products, arima, econometric model, forecast.

## [208] Ünal, G., F. Özdil, 2017. Genetic characterization of honey bees in Thrace region of Turkey using inter cytochrome C oxidase subunit I and II genes. 2nd International Balkan Agriculture Congress

In this study, the genetic variation of Thrace honey bees from Turkey were identified between mitochondrial DNA (mtDNA) Cytochrome C Oxidase I (CoxI) and Cytochrome C Oxidase II (CoxII) genes by using PCR-RFLP (Xbal digestion) and DNA sequencing. A total of 322 worker honey bees were collected from 5 different localities; 4 provinces (Tekirdağ, Kırklareli, Edirne and Çanakkale) and Gökçeada island near Thrace. Three different haplotypes were identified using Xbal restriction in inter CoxI-CoxII genes. In most of the samples there is only one restriction site in position 195 of the 857 bp PCR product which gives 662 and 195 bp band profile. We called this haplotype as Type 1 as common haplotype. In Type 2 haplotype, there is an additional restriction site at position 115, this haplotype gives 662, 115 and 80 bp. The rarely seen third haplotype is found only in two samples. DNA sequencing of three different haplotypes and the Caucasion (A. m. caucasica), Carniolan (A. m. carnica), Macedonian (A. m. macedonica) and European dark bee (A. m. mellifera) reference samples in inter CoxI-CoxII were revealed. According to Neigbour Joining Dendogram which were constructed on the basis of allele sharing distances, Type 1 haplotype was clustered in the same branch with Caucasion (A. m. caucasica) honey bees wheras Type 2 and Type 3 haplotypes were found in the same branch with Macedonian (A. m. macedonica) and Carniolan (A. m. carnica) honey bees. Type 1 haplotype was found as common haplotype (58%) in all the samples that were analyzed from Thrace. But on the other hand Type 2 haplotype was widely seen in Kırklareli and Edirne provinces. These results may indicate that Carniolan or Macedonian honey bee subspecies or their ecotypes can be found in Thrace region of Turkey.

**Key words:** Honey bee, *Apis mellifera* L., mtDNA, Thrace, CoxI-CoxII genes, *Xba*I restriction, DNA sequencing.

## [209] Ünan, R., T. Gençtan, 2017. Evaluation of cold tolerance at germination stage in rice. 3<sup>rd</sup> International Symposium for Agriculture and Food-ISAF 2017, 18-20 October, Ohrid, Rebuplic of Macedonia, Book of Abstract, page 142.

Cold weather stress at the germination stage is important in temperate rice growing countries where temperatures below 15 oC inhibit and reduce germination rate and plant establisment in early sowing dates before mid-may. The aim of this study was to evaluate of cold stres on rice genotypes (Oryza sativa L.) by laboratory trials. Rice cold tolerance at the germination stage has been studied under controlled temperature degree and duration. Totally 237 genotypes were used as materals at germination stage in rice. Cold tolerance was evaluated by two methods which firstly it is coleoptiles lenght differences (CLD) based-method and secondly it is cold severity-duration (CSD) based-method at germination under laboratory conditions. Results were showed second method is more useful for cold tolerance classified at germination stage. The percentage of all genotypes that were found as tolerant, moderately toleranst, susceptible and highly susceptible were 20%, 53%, 22% and 5%, respectively. Cold stress delayed or aborted the germination in some genotypes; especially indica types are more susceptible than japonica types. Genotypes which were determined as cold tolerant in germination stage by means of laboratory tests can be suggested for using as breeding material.

Key words: Cold tolerance, germination stage, rice, QTL.

#### [210] Uzun, H.I., N. Özer, M. Akkurt, C. Özer, S. Aydın, B. Aktürk, 2017. Breeding Alphonse Lavallée and Regent for Downy Mildew-Resistant Table Grape Genotypes: Comparing Seedling Shoot Growth Under White and Blue LED Lamps. 8<sup>th</sup> International Table Grape Symposium 1-7 October 2017, Abstract Book, Page: 100-101.

Grapevine has a juvenile period covering 3-4 years and it serves as an important barrier for breeding works in seedling growth. Several studies for shortening juvenile phases of Grapevine by genetically or using plant regulators have been reported (1, 5). Improving plant cultivation techniques can accelerate plant growth and also shorten the juvenile period. After seed germination, growing of seedlings consecutively in growth room, greenhouse and open field can accelerate plant growth and reduce the length of the juvenile phase especially in subtropical ecologies. But, seedlings need artificial lighting in growth room. Nowadays, Using light emitting diode (LED) lamp is an economical solution for illumination in growth rooms and greenhouses for plant cultivation along with energy saving and functionality (4). Cope and Bugbee reported that blue light has speciesdependent effect and may interact with other wavelengths of light. In addition, they stated that light quantity and quality interact to determine plant morphology (2). Dong et al stated that Red, blue or white light treatments have no significant effects on the straw height of wheat plants (3). Light quality means relative spectral irradiance of LED lamps. Blue LED lamps (425-490 nm) have been reported to positively affect vegetative plant growth in lettuce and Chinese cabbage (4). The main objective of this study was to investigate the effects of cool white and blue LED lamps on grapevine seedling shoot length in the growth room. Hybrid seeds of Alphonse Lavallée x Regent grape varieties were sown in torf pots filled with a substrate mixture of peat: perlitte(1:1,v/v). Pots were watered and then allowed to passively drain. Pots were placed in plastic boxes wherein temperature and relative humidity were maintained at 25 oC and 70%, respectively. Cool white( PAR=317 μmol m-2 s-1) and blue (PAR=135 μmol m-2 s-1) LED lamps were placed 10 cm above the plant canopies. Shoot lengths were measured with a vernier caliper at 3 week intervals during the seedling growth in the growth room for two months in 2017. The experiment was designed in randomized plots with three replications and ten pots in each plot. Tests were performed using the MINITAB statistical software package. Means of measurements were compared at each date with t test with 95 % confidence level. Blue light had no remarkable positive effect on the growth of hybrid grape seedlings in the growth room. There was no significant difference between white and blue light data at each measurement day. Cumulative shoot length of seedlings grown in the growth room ranged from 15.4 to 29.0 cm under blue light and from 25.4 to 36.0 cm under white lamp. Shoot elongation varied from 3.0 to 4.2 cm under white light and from 4.2 to 5.1 cm under blue light every three-week. White and blue LED lamps have a similar effect on shoot growth of hybrid seedlings growing in growth room. Various light intensities or combination of light quality should be tested on shoot length for improving seedling growth.

#### Key words:

This study was funded by the National Scientific and Technological Research Council of Turkey (Project number 1150176).

# [211] Uzun, H.I., N. Özer, M. Akkurt, C. Özer, S. Aydın, B. Aktürk, 2017. Effect of Chemical Treatments on Germination of Alphonse Lavallée x Regent Hybrid Grape Seeds. 8<sup>th</sup> International Table Grape Symposium, 1-7 October 2017, Abstract Book, Page: 98-99.

Crossing for disease resistance of grape cultivars is one of the main interests of grape breeding. Improving germination parameters of hybrid seeds are useful in increasing the breeding success. Germination of standard grape seeds can be increased up to 90% by GA3 and H2O2 applications before stratification and alternating day and night temperatures during germination (2). But hybrid grape seeds have a lower germination rate ranging from 37% to 60%, depending on pollen sources (4). Akkurt et al. reported an increase in the germination rate of up to 64% in Kalecik Karası grape variety using BAP+GA3 combination (1). The main goal of this study was to investigate the effects of some chemical treatments on the germination of hybrid seeds of Alphonse Lavallée x Regent crossed to obtain mildew resistant table grape genotypes. Seeds were soaked in Gibberellic acid (GA3, 1000 ppm), Benzylaminopurine (BAP, 1000ppm) and Hydrogen peroxide (H2O2, 1 M) solutions and water(control) for 24 hours after stratification (4 months at 5 oC) and then sown in Perlitte:Peat moss (1:1) potting soil. Germination was carried out in the plastic boxes with constant temperature (27 oC) and relative humidity (99%). Germinated seeds were transferred to LED-illuminated growing room with constant temperature (25 oC) and relative humidity (99%). Total Germination (TG), Germination Speed (GS) and Germination Period (GP) were calculated using formulaeas described by Rusdy (3). Total germination data were converted into arcsinus values before statistical analysis was conducted. Means differing significantly were compared to the Tukey test at 5% probability level using statistical software program MINITAB. Seed germination started on the eleventh day after sowing and continued until the 31st day. Total germination ranged from 60.39% to 78.32% in the control and GA3, respectively. GA3 significantly increased total germination when compared to the other treatments. The germination speed varied from a minimum of 1.79 in BAP to the maximum of 2.91 in GA3 treatment. Based on the statistical analysis, the chemical treatments had no significant effect on the germination periods, which ranged between 11 days in BAP+GA3 combination and 18 days in the control treatment. The results of the study indicated that the rate and speed of germination of Alphonse Lavallée x Regent hybrid seeds could be increased by GA3 applications just before sowing and then growing the seedlings in plastic boxes.

#### Key words:

This study was funded by the National Scientific and Technological Research Council of Turkey (Project number 1150176).

### [212] Üder, F., S. Demirbaş, 2017. Determination of The Germination Potential of *Orobanche cumana* Wallr. Seeds Collected from Thrace Region. 2<sup>nd</sup> International Balkan Agriculture Congress, 16-18.05.2017, p. 397. Tekirdağ, Türkiye.

Broomrapes are the members of the Orobanchaceae, obligate root parasites, completely devoid of leaves and chlorophyll. Orobanche cumana Wallr. is a sunflower-specific root parasite and the most widespread and destructive of broomrape species. Broomrape seeds are germinated by strigolactones (SLs) released by the host plant. Typical examples are strigol, orobanchol, alectrol and sorgolactone. The Gerald Rosebery (GR) compounds constitute the first series of such SL analogues with high germination activity. The most well-known are GR24, GR7, and Nijmegen-1. The aim of the study is to determine the germination potential of O. cumana seeds collected from five different location in Thrace region (Tekirdağ, Kırklareli, Edirne) in 2003-2016 by GR24 applied in vitro. All collected seeds were stored at 4 °C in dark condition until study. Before the study, the seeds were sterilized and then rinsed three times with distilled sterile water. The seeds were sown sterile 9 cm diameter Petri dishes containing two wetted paper. Every Petri dish was stored for seven days in dark and at 22±2°C condition for stratification. One week after sowing, 3 mL GR24 (5 ppm) was applied to each Petri dish. After application, the germination was monitored under light microscope for six days. Germination percentage was recorded in the total number of the seeds. After six days of GR24 application, the germination rate of the broomrape seeds reached maximum level. The germination percentages of the seeds collected from Lalapaşa-2013 (Edirne), Hayrabolu-2016 (Tekirdağ), Lüleburgaz-2013 (Kırklareli), Muratlı-2013 (Tekirdağ) and Avarız-2003 (Edirne) locations were 71%, 59%, 58%, 46% and 16% respectively. Our results indicated that Lalapaşa (Edirne) location had the most aggressive broomrape seeds and selection of the most tolerant sunflower varieties against to broomrape in sunflower cultivation to be done in this location is more appropriate compared to other locations.

Key words: Orobanche cumana, germination, GR24, Thrace.

### [213] Ünal, H.H., A. Sezgin, E. Kabil, T. Bakirel, D. Oskay, 2017. Investigation of Neonicotinoid Insecticide Toxicologies in Honeybees. 45<sup>th</sup> Apimondia International Apicultural Congress, Septembe 29 - October 4, 2017 / Istanbul – TURKEY.

Neonicotinoid group of insecticides are used to fight against pests in agricultural production as licensed in Turkey. Also, they are used to indicate as off-label to pest control for some products such as sun flower, cotton, corn that honey bees provide to pollination and much benet from them. Effects of imidocloprid which in member of neonicotinoid class pesticide are required to investigate thoroughly on the bee deaths and colony losses in these areas. Neonicotinoids are a class of insecticides which effect on the central nervous system of insects with lower toxicity to mammals. Neonicotinoids are among the most widely used insecticides worldwide, but recently the uses of some members of this class have been restricted in some countries due to a possible connection to honeybee colony collapse disorder. This research was carried out to determine the toxic effects of neonicotinoid on the bee health especially sunflower, corn and cotton as illegally used in the field Imidocloprid residues were dedected as positive results more than other neonicotinoid group pesticides in sunflower in Thrace Region in Turkey. Positive results were obtained on average 35% in which were found 40% on the level of limit of quantitation (LOQ) that cause poisoning of the bees. Imidocloprid residues positive results were obtained in soil samples taken from sun ower cultivation areas on the level of 25%. The most positive results are imidocloprid, thiomethoxam, acetamprite compounds, respectively. Dinotefuran, Nitenpyram, Clothianidin, Thiachloprid could not be detected positively.

Key words: Apis mellifera.

### [214] Velioğlu, H.M., 2017. Biogenic Amines in Foods. 1<sup>st</sup> International Health Sciences Congress.

Son dönemde gıda güvenliği açısından büyük önem kazanan ve birçok gıda üreticisi ve tüketicisini karsı karsıya getiren konuların basında gıda alerjileri gelmektedir. Alerji terimi, 1906 yılında, Avusturyalı pediatrist "Clemens von Pirquet" tarafından ortaya atılmıştır. Clemens von Pirquet'e göre gıda alerjisi; "aşırı duyarlılık (hipersensitivite), alerjen veya antijene karşı vücudun abartılı veya beklenmeyen immün cevabı" olarak tanımlamıştır. Gıda alerjisi büyük oranda çocuklarda gözlenmekte olup, bunun % 75'i yumurta, fıstık, inek sütü, 37 balık ve farklı türdeki kabuklu yemişlerden kaynaklanmaktadır. Yetişkinlerde görülen gıda alerji reaksiyonları ise, % 50'si lateks grubu meyveler, Rosaceae (gülgiller) ve Apiaceae (maydanozgiller) familyası sebzelerden, farklı yemişler ve fıstık kaynaklı ortaya çıkmaktadır. Fakat gıda alerjilerinin oluşmasından genetik özelliklerin yanı sıra beslenme alışkanlıkları da önemli rol oynamaktadır. Çoğu insanda gıdalara karşı istenmeyen reaksiyonlar gözlenmezken, bazı insanlarda da anafilaksi gibi ciddi olabilen, farklı klinik bulgulara da rastlanabilmektedir. Bu alerjik reaksiyonlar vücutta farklı etkilerde ve farklı belirtileri de oluşabilmektedir. Örneğin, solunum sisteminde; saman nezlesi, gözlerde kaşıntı, kulak ağrısı, deride; egzama, kurdesen, isilik, sindirim sisteminde; kabızlık, bulantı, kusma, sinir sisteminde; migren, sinirlilik ve diğer belirtiler de baş ağrısı, ses kısıklığı, düşük dereceli ateş, solukluk ve göz çevresinde koyu halkalar şeklinde oluşmaktadır. Bu derlemede, turizm sektörünün de önemli bir ayağını oluşturan beslenme hizmetleri ve özellikle toplu tüketim alanındaki profesyoneller ve hizmet alanların gıda alerjisi hakkında bilinçlendirilmesi hedeflenmistir. Bu amacla alerjen özellik gösteren gida bilesenleri, alınabilecek önlemler ve tüketicileri bilgilendirme yolları üzerinde detaylı olarak durulmuştur.

Key words: logenic Amines.

### [215] Velioğlu, H.M., 2017. Discrimination of Cold-Pressed Oils Using Raman Spectroscopy. 1<sup>st</sup> International Congress on Medicinal and Aromatic Plants.

Numbers of cold pressed oil are commercially produced and sold in Turkish food and medical market. Among those the oils of black cumin and almond are the well-known examples of publicized dietary supplements. However, availability of cold pressed oil is limited due to its high price and so it is an attractive target for fraudulent activities. In this study, we investigate the authenticity of the cold pressed oils sold in Turkish food and medical market using Raman spectroscopy combined with principal component analysis (PCA). For this purpose, cold-pressed oils of black cumin and sweet almond were produced in laboratory conditions and compared with the samples collected from Turkish market. The equipment used for Raman analysis was DeltaNu Examiner Raman Microscopy system with 785 nm laser source and a CCD detector. The spectrum obtained was in the range of 2002000 cm-1 at a resolution of 2 cm-1. Validation of the study was done using fatty acid methyl esters by GC. PCA was applied to evaluate the Raman data where the GC results were subjected to ANOVA. Eleven commercial samples of almond oil and 8 commercial samples of black cumin oil were compared with the oils produced in laboratory. While both almond and cumin oils were found to be rich in linoleic acid (C18:2n6) and oleic acid (C18:1) according to GC results, they could be classified using chemometric applied to Raman spectrum. The signal obtained at 1300 cm-1 showed higher intensity for almond oil where the signal at 1021 cm-1 was stronger for cumin oil. The first one was associated with twisting of -CH2 and the second one, probably, related with bending of -CH. Briefly, it can be concluded that the use of Raman spectroscopy in authentication of cold-pressed oils is possible.

Key words: Raman Spectroscopy.

## [216] Yatkın, S., F. Özdil, D. Oskay, A. Güler, 2017. Phylogenetic Relationships of Honey Bee Populations in Thrace Region of Turkey Based on Sequencing of tRNALeu-Cox2 Genes. 2<sup>nd</sup> International Balkan Agriculture Congress.

In this study, we identified the genetic structure of Thrace honey bee populations (Tekirdağ, Kırklareli, Edirne and Çanakkale provinces and Gökçeada Island) in Turkey. Here we analyzed the mitochondrial gene region, inter tRNA<sup>Leu</sup>-Cox2 (formerly called COI-COII intergenic region), that is widely used for the discrimination of honey bee species and subspecies. A total of 217 worker honey bees were analyzed from 133 apiaries in 79 localites for DNA sequencing to infer honey bee evolutionary relationships. A total of 18 different haplotypes were found in inter tRNA<sup>Leu</sup>-Cox2 genes which 11 of them were firstly detected in this study. The samples that were included in 8 different haplotypes ( $H_3$ ,  $H_4$ ,  $H_5$ ,  $H_7$ ,  $H_8$ ,  $H_9$ ,  $H_{10}$ ,  $H_{11}$ , were found similar to *A. m. carnica* honey bees. These honey bees were mostly collected in Kırklareli, Tekirdağ and Edirne provinces which can be inferred that these honey bees might be A. m. carnica or their ecotypes. On the other hand, the samples that were collected from Anatolian part of Canakkale and in some regions of Edirne, were found similar to Caucasion honey bees. As a result, the evaluation of genetic analysis showed that Thrace honey bees mainly collected from Kırklareli, Tekirdağ and Edirne provinces were found different from A. m. caucasica and A. m. anatoliaca but they were found similar to A. m. carnica honey bees or their ecotypes. We also found intense hybridization between Caucasian and Thracien honey bees. This hybridization may be due to the migratory beekeeping that is widely conducted in Thrace and also Caucasian queen import to the region may have negative effect on the conservation strategies of Thrace honey bees. It is necessary and essential that the endemic honey bees of different regions which are a part of Anatolian genetic resources might be conserved in their local regions.

Key words: Honey bee, Apis mellifera L., mtDNA, Thrace, Turkey, DNA sequencing.

### [217] Yatkın, S., R. Işık, F. Özdil, 2017. Epigenetic Mechanisms of Honey Bee (*Apis mellifera* L.). 6<sup>th</sup> International Congress on Molecular Biology and Biotechnology.

Epigenetics is a very new subject that continues to be explored with curiosity with the opportunities provided by technology today. The epigenetic phenomenon plays an important role in changes in the expression of genes, especially during cell differentiation, which are observed in the developmental process of living organisms that progress towards the adult individual. Epigenetics determine when and how activation of certain genes occurs. These epigenetic mechanisms are DNA methylations and local histone modifications such as DNA and RNA level modifications. In order to investigate the effects of epigenetic mechanisms it has been need a genome and model system that can be manipulated and these effects can be easily observed. Having honey bees as social organisms and being one of the model organisms that can be studied in genetic researches, honey bees have become very popular in this regard. Especially in the larval stage, female bees have provided a unique feature for the investigation of the epigenetic mechanisms of nutrient exchange and longlasting queen bee phenotype and short-lived worker bee phenotype. For these reasons epigenetic phenomenon is a very important issue that needs to be investigated in detail. In this review epigenetic mecanisms are classified and discussed in terms of honey bees as social organisms.

**Key words:** Epigenetics, Honey bee, DNA modifications, Histone modification, RNA induced silencing.

# [218] Yılmaz, G., U. Çakırlar, B. Akdemir, 2017. Comparison of Constant and Adjustable Drawbar for a Domestic Horticulture Tractor. 8<sup>th</sup> International Conference on Biosystem Eng. 2017, 11-13<sup>th</sup> Nay 2017, Book of abstracts, p.47, Tartu, Estonya.

Abstract. In this study, adoption study of drawbar pull from constant height to adjustable height was investigated for improving mechanical structure, increasing efficiency of fuel consumption, decreasing slippage of domestic horticulture tractors. Materials were Taral VST 81 8horticulture tractor, Taral 1200 orchard sprayer, speed measurement sensor, load cell and fuel consumption. In this research; Aqua Metro Contoil VZD 4 flow meter, ESIT SC load cell capacity 10 t, Baykon bx1T interface, MEFA approximation sensor for speed and HBM SPIDER 8 interface were used. Taral VST 818 garden tractor, New drawbar connection height can be adjustable was designed and manufactured for horticulture tractor. Constant and adjustable drawbars for connection height were compared by moving with orchard sprayer. Tests were carried out for 2 km, 1 hour, 3rd gear at 2500 rpm of engine. Drawbar pull and fuel consumption were measured for concrete road and field in three replications. Forward speed was 15 km/h for drawbar pull and fuel consumption tests. Forward Speeds of the tractor with constant drawbar were determined 13 km/h for field and 14 km/h for concrete road. Fuel consumption was determined 2.41 l/h at field condition and 2.23 l/h for concrete road for constant drawbar. Forward speeds of constant drawbar were measured 13 km/h for field and 1 km/h for concrete road. The forward speeds of adjustable drawbar were measured as 14.7 km/h and 16 km/h for field and concrete road condition, respectively. Maximum drawbar pull of constant drawbar were measured 187.23 N and maximum 1328 N for sprayer in field. Drawbar pull at concrete road were measured 168.09 N as minimum and 1219.58 N as maximum for the constant drawbar. Maximum drawbar pull of adjustable drawbar were measured 172.23 N and maximum 1253.71 N for field. Drawbar pull at concrete road were measured 161.2 N as minimum and 1183 N as maximum for the constant drawbar. According to the fuel consumption results; the adjustable drawbar designed for this research project was better 0.29 l/h in field and 0.34 on concrete road than constant drawbar. Forward speed of horticulture tractor was faster 1.7 km/h for field and 2.0 km/h for concrete road than constant drawbar. Drawbar pull of the adjustable drawbar was less than constant drawbar 36.58 N on concrete road and 74.29 N in field condition even there wasn't any problem for pulling sprayer. Work was performed with less drawbar pull and less fuel consumption. Adjustable drawbar suggested to manufacturer for investigated horticultural tractor because of its advantages due to constant drawbar.

**Key words:** Adjustable drawbar, orchard tractor, drawbar force, fuel consumption, forward speed.

### [219] Yılmaz, E., Yılmaz İ., Geçgel Ü., Kurultay, Ş., Şimşek O., Soysal M. İ., 2017. Food Security and Food Supply Sustainability. Mediterranean International Conference on Social Sciences, (19.05.2017-22.05.2017).

The most basic needs for people to continue their lives are nutrition, clothing and shelter. Nutrition is the most important of these basic needs. For the continuity of life, food safety must be sustainable. Food security is a condition related to people's physical and economic access to enough, healthy, safe, and nutritious food and its sustainability so that people can meet food urgencies and food requirements which are necessary to lead an active and healthy life. In today's world, more than 1 billion people live under hunger limit and every minute 18 people starve to death. 113 out of 250 newborns are forced to live under hunger limit. Food sector, which has been discussing food safety recently, is going to discuss food security in the years ahead. There has been a global rise. in agricultural products due to fires, monsoon rain regime changes, drought, flood, earthquake, tsunami, and nuclear risk in recent years and uprisings or regime shift movements in some countries, which shows that warning signs for the future have escalated now. Food security is not achieved due to reasons such as the decrease of usable water, the use of food sources as raw materials for biofuels, unstable and high food prices, increased waste, global warming, a contradiction between obesity and hunger the inefficiency and salinization of the soil, erosion, resistance of crop diseases and pests, rapid population increase, increase in rural to urban migration, low income and unemployment. Providing and sustaining food security in the globalizing world is possible only through national and international cooperation. Therefore, necessary production enhancing measures must definitely be taken worldwide, especially in our geographies and sustainability of the production must be provided

**Key words:** Food security, food consumption, sustainability, hunger.

### [220] Yılmaz, E., İ. Yılmaz, M.İ. Soysal, Ş. Kurultay, O. Şimşek, 2017. Geleneksel Gıdaların Coğrafi İşaretlenmesi ve Sürdürülebilirlik. Mediterranean International Conference On Social Sciences (19.05.2017-22.05.2017).

Günümüz teknolojisinin gelişmesi ve iş hayatının çok hızlı yaşanmasından dolayı yerel, yöresel ve geleneksel yöntemlerin yok edilip, tümüyle endüstriyel işlem ve yöntemlerin uygulandığı bir dönemden geçmekteyiz. Geleneksel gıdalar kültürel mirasın en önemli unsurlarından birini oluşturmaktadır. Özellikle son yıllarda yaşam tarzlarındaki hızlı değişim birçok yöresel tatların unutularak yok olması tehdidini beraberinde getirmiştir. Geçmişten günümüze tarihi mirasımız olan geleneksel gıdalar; spesifik özelliklere sahip olması, üretiminde geleneksel hammadde ve bileşenlerin kullanılması, üretiminde veya işlenmesinde geleneksel metotların kullanılması nedeniyle benzer gidalardan açık bir şekilde ayrılan gıda maddeleridir. Coğrafi İşaret; belirgin bir niteliği, ünü veya diğer özellikleri itibariyle kökeninin bulunduğu bir yöre, alan, bölge veya ülke ile özdeşleşmiş bir ürünü gösteren işarettir. Coğrafi işaretleme ile üreticiler arasında adıl rekabeti teşvik etmek, ürünlerin özgün nitelikleri konusunda tüketicileri bilgilendirmek ve ulusal ve ekonomik mirasa sahip cıkmak amaçlanmaktadır. Coğrafi işaret Menşe işareti ((Protected Designation of Origin-PDO) üretim-İşleme ve hazırlama süreçlerinin tanımlanmış coğrafi alanda gerçekleşmesi gerekir) ve Mahreç işareti ((Protection of Geographical Indications-PGI) üretim ve /veya işleme ve/veya hazırlama süreçlerinin tanımlanmış coğrafi alanda gerçekleşmesi gerekir) olmak üzere iki grupta verilmektedir. Bu derlemede coğrafi işaretlerin geleneksel gıdalar açısından üretici ve tüketici bilinirliğinin sağlanması, sürdürülebilirlik ve ülkelerin kültür ve ekonomilerine yapabileceği katkılar üzerinde değerlendirmeler yapılmıştır.

Anahtar kelimeler: Coğrafi işaret, geleneksel gıdalar, sürüdürülebilirlik, PDO, PGI.

## [221] Yılmaz, F., H. Hurma, 2017. Dynamic Programming Applications in Agribusiness Management. IV. International Balkan and Near Eastern Social Sciences Congress Series, Series-Russe/BULGARIA (08-09.04.2017).

In agribusiness management, optimization is a very important subject that helps solving various problems like profit maximization, cost minimization etc. In perennial crops farming, farmers have to make crop decision plans for many years. Dynamic programming is an optimization method for solving complex problems by breaking them down into a collection of simpler subproblems. After that, solving each of the subproblems and storing their solutions will help to reach the optimal solution of complex problem. To solve multi periodic problems in farm management, dynamic programming can be used for optimization. In this study, dynamic programming in agribusiness management is discussed and a software is developed for solving dynamic problems.

Key words: Dynamic Programming, Agribusiness Management, Crop Decision.

### [222] Yılmaz, E., G. Özdemir, Y. Oraman, G. Unakıtan, S. Konyali, 2017. Participation of Women from the Countryside of Tekirdağ City in Livestock Activities and Their Expectations for the Future. 8<sup>th</sup> Balkan Animal Science Conference BALNIMALCON, 06-08 September 2017.

Women in the country work free of charge as family workers in many areas. While being engaged in domestic responsibilities such as cleaning, child care, fuel supply, making bread and nutrition on the one side, women make contributions to family budget by participating in such activities as agricultural production and handicrafts which yield income on the other side. This research covers 255 women who live in 55 villages affiliated to the centre of Tekirdağ City. The aim is to determine the position and role that women in the countryside of Tekirdağ assume in the present agricultural production and life stages and to specify their activities in agricultural production and expectations for the future. According to the result of the research, women join in each stage of plant and animal production. While hoeing and sowing-planting gain importance in plant production, works connected with milking stand out in animal production. Whereas women and their husbands make shared decisions about the number of children they will have and household goods, men are dominant over organizing the family budget. Being hopeful for the future, women's preoccupation with the future is mainly concerned with their children. When they were asked about what they think about the future, 48.2% of them said that wanted their children to study, 21.1% expressed that they did not want to work after their children's marriage, 15.7% stated that they wanted to settle down in the city, and 15% had no idea about the future because of economic factors. The participation of women, who assume less responsibility than men in each area of family and society, in production and making decisions is an important factor in the development of the country's agriculture and rural development. Thus, women must be allowed to take part in decisions that concern both family and production.

Key words: Rural woman, agricultural production, rural development, social roles.

### [223] Yilmaz, E., I. Yilmaz, R. Sıralı, U. Gecgel, 2017. Rural development and Beekeeping İn Turkey. 8th Balkan Animal Science Conference Balnimalcon 2017, 6-8 September, Prizren, Kosovo, 79.

Rural development has become more important in last decades. Particularly, it is the only one that prevents immigration from the village to the city. Efforts to raise the economic levels of rural residents continue to increase throughout the world. Considering the conservation of natural resources and the environment, it is important to support small and medium-sized enterprises in order to raise the level of rural area income, to provide agricultural integration based on agricultural production and agriculture, to develop agricultural marketing infrastructure, to strengthen food safety, to create alternative income sources in rural areas, rural development activities is aimed at raising the activities. One of the activities that do not require much capital for rural development is beekeeping. Beekeeping has many attractions for rural farmers. Bees do not require daily attention and beekeeping does not take up valuable land or time which would have been spent on other farming activities. It can be practiced by males and females of all age groups and it helps generate self-reliance. Beekeeping can contribute effectively to the empowerment of disadvantaged people and communities, and makes a multifaceted contribution to rural livelihoods. Honey, pollen, propolis, and royal jelly from bee products are high economic value products. In this paper, examines the importance of beekeeping and rural development in Turkey.

Key words: rural development, beekeeping, bee products, economical value

# [224] Yılmaz, İ., Ş. Kurultay, O. Şimşek, M. Demirci, M.İ. Soysal M. Taşan, Ü. Geçgel, 2017. Meat Quality and Physicochemical Properties of Lamb Meat. 8th Balkan Animal Science Conference Balnimalcon 2017, 6-8 September, Prizren, Kosovo, 189.

All over the word especially industrialized countries has increased the demand for high quality and healthy organic and traditional food. Lamb diet is one of the major environmental factors which affect carcass and meat quality. It is believed that meat of lamb and sheep produced on pasture has an excellent nutritional quality and better taste. Nowadays, a growing concern of consumers is shifting on the relation between the proportion of lipid consumption and effects on human health. Lamb meat quality and carcass depend on many physicochemical factors such as feeding system, breed, age, sex, live weight, and muscle location. These factors can particularly affect meat quality features such as color, water-holding capacity, sensory characteristics, oxidative stability and fatty acid profile. Especially fatty acid composition of lamb fat is directly affected by diet. As a consequence of this, saturated (SFA) and polyunsaturated (PUFA) fatty acids are proportionally changed. The recommended ratio of PUFA to SFA should be above 0.4.

Key words: lamb meat, quality, physicochemical properties.

[225] Yılmaz, K., F. Korkmaz, A. Ağma Okur, E. Tahtabiçen, H.E. Şamlı, 2017. Effects of Liquorice Root Extracts (*Glycyrrhiza Glabra* L.) Use on Quality Parameters in Stored Hen Eggs. International 8<sup>th</sup> Balkan Animal Science Conference (BALNIMALCON 2017), 6-8 September, p. 95, Prizren, Kosova.

The study evaluates the efficacy of Liquorice root extracts (*Glycyrrhiza glabra* L.) in preserving the internal quality of hen (*Gallus gallus domesticus*) eggs coated with them and stored under room conditions of 21°C for 7-14 days. In other words 50 eggs were collected and used in 4 treatments (2 storage time x 2 coating of Liquorice root extracts+ 10 fresh eggs) with 10 eggs examined in each. In this study analysed that internal and external egg quality parameters.

Key words: Egg quality, storage time, Liquorice root extracts, hen.

## [226] Yılmaz, M., R. Işık, G. Bilgen, 2017. Epigenetics and Its Applications in Livestock. 2<sup>th</sup> International Congress on Advances in Veterinary Sciences & Technics (ICAVST).

Epigenetics is based on regulation of gene expression via mechanisms free from altering the sequence of DNA. Epigenetic changes include DNA methylation, genomic imprinting, histone modifications, chromatin remodeling and non-coding RNA regulation are induced by environmental effects and they are potentially inheritable. in animal genetic and breeding studies, epigenetics takes an important place of understanding how environmental factors affect traits of economic importance including development, health, fertility and behaviour. Epigenetic modifications can alter the quality and quantity of commercially important traits in livestock such as carcass and milk yield, marbling in meat, fat and protein yield in meat and milk. in recent years, due to the rapid development of molecular technologies and bioinformatic tools, applications of epigenetics in animal science studies have become more practicable and popular. in this review, we discussed the effects of epigenetic mechanisms on economic traits in livestock along with present and potential applications of epigenetics in animal breeding and selection.

Key words: Epigenetics, Modifications, Inheritance, Livestock, Animal Breeding.

C. Yazılan uluslararası kitaplar veya kitaplarda bölümler
### [1] Abdikoğlu, D.İ., G. Unakıtan, 2017. Studies on Balkan and Near Eastern Social Sciences, Bölüm: Analyzing of Hazelnut Foreign Trade in Turkey with Competitiveness Indices, Yayın Yeri: Peter Lang, 2017. (Kitap Bölümü)

Turkey has chosen the export-led growth model since the 1980s. In economy, ensuring development with export depends on the fulfillment of some conditions It's necessary to compete with foreign markets for ensuring a high and sustainable export growth rate.

Hazelnut is one of the major products exported by Turkey. The aim of this study is to determine the competitiveness of Turkey comparing with other hazelnut exporting countries. In this study, international competitiveness in the hazelnuts of Turkey was determined by using Balassa Revealed Comparative Advantage Index (RCA), relative export advantage (RXA), relative import advantage (RMA), relative trade advantage (RTA) and relative competitive advantage (RC) developed by Vollrath and Comparative Export Performance (CEP) between the years 2004-2013. When the hazelnuts exporting countries are compared, it is seen that Turkey is the second country having the highest competitiveness after Georgia. Turkey's competitiveness is declining in recent years. In analyzed countries, relative export index and relative trade index show that Turkey has advantage while relative import index shows Germany and Italy have. According to comparative export performance index, it's seen that Turkey has a comparative advantage against Georgia in all years except 2004. Comparative advantage between Turkey and Azerbaijan varies by the years. Turkey should develop agricultural supporting policies for hazelnut production and foreign trade in order to increase the international competitiveness in hazelnut exports.

**Key words:** comparative export performance index, revealed comparative advantage index, competitiveness.

#### [2] Çelen, S., İ.H. Çelen, E. Önler, 2017. Researches on Science and Art in 21<sup>st</sup> Century Turkey. Bölüm adı: (Agricultural Applications of Microwave Energy) (2017). Gece Kitaplığı Yayınevi, Basım sayısı: 1, İngilizce (Bilimsel Kitap), (Yayın No: 3626559).

The microwave is a non-nuclear, non-ionizing radiation and it is a type of energy that spreads in the form of electromagnetic waves like TV and FM radio waves. The heat to be transferred from the ambiance to the food or from the food to the ambiance, as known, is carried by 3 different mechanisms as conduction, convection, and radiation. The energy carried by electromagnetic waves is called radiation. Electromagnetic waves consist of fluctuating electric and magnetic fields that are perpendicular to each other and to the direction of spreading. The electromagnetic spectrum also contains gamma rays, X-rays, ultra-violet rays, visible light, infra-red rays, microwaves and radio waves. Microwaves are electromagnetic waves whose wavelengths change between 1 mm and 1 m and frequencies are in the range of 300 MHz to 300 GHz (Kuslu & Bayramoğlu, 2002; Konak et al., 2009). As in other electromagnetic waves, they have wave and particle properties. In the electromagnetic spectrum, microwaves stand between infra-red rays and radio waves. The Federal Communication Commission (FCC – the USA) allowed only the usage of 915, 2450, 5800 and 24225 MHz frequencies in Northern America. In general, while household microwave ovens use 2.45 GHz and industrial processes of 2.45 GHz or 915 MHz, the last two frequencies are used only in laboratories and research projects (Alifakı, 2013). The International Telecommunication Union also brought some regulations about specific bands of frequency to be used for industrial, scientific and medical purposes (Konak et al., 2009).

Key words: Microwave, electromagnetic spectrum, heat transfer.

#### [3] Çelen, İ.H., E. Önler, S. Çelen, 2017. Researches on Science and Art in 21<sup>st</sup> Century Turkey. Bölüm adı: (Usage of Electrostatic Charching Technique at Agricultural Pesticide Applications) (2017). Gece Publishing, Basım sayısı: 1, İngilizce (Bilimsel Kitap), (Yayın No: 3665047).

The constant increase in the world population, while the limited availability of suitable areas of agriculture on the globe, causes inadequate nutrition and serious hunger, especially in the under-developed and developing countries. In addition, available arable areas are gradually decreasing due to erosion, opening of new settlements, establishment of new factories, opening of new roads. Elsewhere in the world, about one third of the products taken every year are lost due to diseases and harms, giving an important dimension to the problem of nutrition. As is the case in the world, as the suitable areas for agriculture are limited in our country, increasing the agricultural production has great importance. In modern agriculture; The crop protection against diseases and harms is very important as well as the use of basic production inputs such as machinery, fertilizer, energy and water in order to increase the quantity of products and increase the quality of the products. There are 300 different kind of disease factors causing crop loss in our country. Nearly 50 of these factors have economic importance. Besides, it is known that there are about 500 pest species (80-100 of them have economic importance) that damage about 60 crops in our country Within the overall loss value of 35 % globally, pest is 13.8 %, diseases 11.6% and weeds 9.5% respectively. Disease and weed protection is very important in agricultural production for increasing the quantity and quality of the products received from the unit area. The most common method used today is pesticides because of the ease of application and the short-term effect of the disease, harmful when compared to cultural, physical, biological and biotechnical methods. \$ 25 billion a year is spent on pesticides used in agriculture. Because of the chemical methods, 22.500 tons of active substance are mixed into our ecosystem every year. When chemical methods is used unconsciously, expected benefits cannot be provided, environmental pollution occurs due to pesticide losses, resulting in deterioration of natural balance within the ecosystem and human health is threatened. In addition, the number of pesticide applications increases due to the inadequate amount of chemical residue on the target surfaces and biological efficacy due to pesticide losses, and consequently excessive pesticide consumption increases the product costs and leads to an uneconomical crop production. A successful pesticide application is possible by using the least amount of chemicals, ensuring the highest biological efficiency, minimizing environmental pollution and successing an economic crop protection. This purpose can be achieved by spraying at right time by using appropriate dose of pesticide and equipments for implementation. In addition, it is not enough to select suitable spraying equipment, but also it is necessary to operate these equipment under the most suitable operating conditions by making the correct settings and maintenance. The main purpose of the crop protection; to protect crops from diseases, harms and the effects of weeds in economic measures, to minimize the loss and to increase the guality of the products. Cultural, physical, biological, quarantine and chemical methods are used to achieve this goal. Although the methods mentioned above are applied in a balanced and conscious way in modern crop protection, in the view of sustainable agriculture, the crop protection in our country mostly rely on chemical methods. When crop protection chemicals are consciously used as an effective tool that guarantees the crop protection, on the other hand if it is used randomly, the expected benefit cannot be obtained, the natural balance in the ecosystem deteriorates, human health is threatened and production costs are increasing. For this reason, in order to achieve the expected benefits of crop protection chemicals, plants must be distributed at appropriate doses to appropriate surfaces, and these processes must be applied in the most economical way with minimal environmental contamination. Reducing the effects caused by spraying drifts (off-target spray) in the crop protection requires the use of more sensitive techniques to target the target surface in an appropriate and more efficient manner.

Key words: Charged droplets, charge-to-mass ratio, deposition rate, electrostatic spraying.

#### [4] Kiper, T., O. Uzun, G. Özdemir, 2017. Ecology, Planning and Design, Bölüm adı: (Ecological-Social-Cultural-Economic (ESCE) Method in Ecological Planning Based Rural Development). St. Kliment Ohridski University Press, Editör: Irina Koleva, Ülkü Duman Yüksel, Lahcen Benaabıdate, Basım sayısı: 1, Sayfa Sayısı 428, Yayın No: 3599858.

Ecological, social, cultural, and economy centred approaches should be taken as basis in rural development centred studies. Similarly, only economy centred strategies will only be beneficial for a short period. In the recent days of the information age, it is also necessary to make multidimensional scrutinising in ecotourism planning used as a tool for rural development. Ecotourism planning and management should be maintained in such a way as to match the ecological, economic and social requirements with the potential of the location or the area of study in a sustainable manner. The method developed in this study will be favourable for the sustainable use of natural and cultural resources in ecotourism. According to Kiper et al. (2017); ecotourism is an important instrument in sustainable rural development and ecological, social, cultural, and economy based landscape planning approaches which take the objectives of socio-economic development and nature conservation have an effective role on this issue. Within this context, it is suggested that, as mentioned above, ESCE method can be used in different geographies, especially in studies of rural development centred ecotourism planning. The method developed in this study was used in the project of Scientific and Technological Research Council of Turkey under the title 'Rural Development Aimed Ecotourism Planning: Kıyıköy Case' (Kiper et al., 2015).

From this general perspective, this method provides the following results:

- Ecological based approach by considering the micro basin's border instead of town's border,
- Formation of a base for future planning studies by digitizing the quantitative and qualitative data of the fi eld on CBS medium,
- Determination of the area's ecological-social- cultural- economic structure which will create resources for ecotourism through field trips,
- Carrying out of suitability analyses with the ECOS method on micro basin scale,
- Providing ecological, social, cultural, and economy basis in the creation of tourism routes and combination of cultural and natural constituents of landscape increases the sustainability of natural resources and provides applicable decisions to be taken,
- The created corridors where ecotourism routes are identified will provide a fundamental base for decision-makers and practitioners in the fields of tourism and rural development.

#### [5] Konyalı, S., 2017. Studies on Balkan and Near Eastern Social Sciences. Bölüm: "Evaluation of Wheat Agriculture in Turkey with SWOT Analysis". Yayın Yeri: Peter Lang, 2017.

Wheat is one of the most important agricultural commodities in Turkey, and the country ranks among the top ten wheat producers in the world. When there is a decrease in wheat production globally, for any reason, there is an increase in the price of bread and also of foods made from flour, which has a direct effect on consumers. In many other countries, wheat has been deemed to fall within the scope of "special support" from the government and, in the case of Turkey, wheat production has been supported by the Turkish state throughout the history of the Republic. Support programs are offered by the Soil Products Office (SPO), which aims to protect and regulate the markets for wheat and other cereals. Turkey operates a number of premiums and input subsidies programs, including premiums to producers, seed subsidies, soil analysis subsidies, diesel (fuel) subsidies and fertilizer subsidies. But some years subsidies are insufficient for producers.

In this study, SWOT method was adopted to analyze factors affecting wheat agriculture and production in Turkey and consequently some strategies and suggestions for furthering wheat agriculture and production were proposed in the near future. Results of SWOT analysis showed that the strengths of wheat agriculture is higher than the weaknesses of wheat agriculture. The most important problem that seen in the threats, is incoherent government policies in Turkey. So, agricultural policies should be consistent, determined production according to consumption and prices parallel to the world price, given importance to structural and social policies, adopted long-term agricultural policies instead of daily or short-term policies so shouldn't be changed according to the government.

Key words: wheat agriculture, wheat policy, SWOT analysis, Turkey.

## [6] Oraman, Y., D.Ç. Turan, 2017. Studies on Balkan and Near Eastern Social Sciences, Bölüm: Role of Packaging in Sales of Industrial Foodstuffs, Yayın Yeri: Science, Society and Culture, Peter Lang, Editör: Yilmaz Rasim and Löschnigg Günther, 2017.

The objective of this study was to establish if consumers understand the role of packaging and various forms of labelling currently presented on foodstuffs on Turkish consumer's purchase decisions. In the scope of this study, a survey has been conducted in Istanbul province among 270 randomly selected consumers with face to face interviews. The gained data has been evaluated with linear regression analysis using PASW 18.0 package program. The aim of this research is to examine the fundamental factors, which are driving the success of a brand and how these factors motivate the consumers while he/she involves in purchase decisions for any particular brands of foodstuffs. This research also identified the relationship between the dependent and independent variables who are main presenter in this whole purchase behaviour. Accommodated to the finding of these research, the main reasons consumers do consult foodstuffs labels, are to obtain information on the nutritional content, or to look for specific elements. Besides, it has been observed that the packaging and labelling are the most important factors for some foodstuffs. It is further make a decision that the packaging elements like it, packaging material, colour, design of wrapper and innovation are more important factors while consumers making any buying decision. Eventually it has also been terminated that the packaging is one of the most important and effective factor, which influences consumer's purchase decision.

**Key words:** consumer's purchase decision, packaging & labelling for foodstuffs, motivation, linear regression analysis.

### [7] Turan, D.Ç., Y. Oraman, 2017. Studies on Balkan and Near Eastern Social Sciences. Bölüm: Factors Determining Customers' Shopping Behaviour of Food Products Through E-Commerce: A Case Study. Yayın Yeri: Peter Lang. Editör: Yilmaz Rasim and Löschnigg Günther, 2017.

Recently food industry has become an important part of e-commerce sector. Thanks to the development of internet technology, the purchase and sale of food products are being made at virtual platform. Food companies have started to take part effectively in e-commerce area. In the scope of this study, it is aimed to analyse the approach of consumer's perception about food products by ecommerce in Turkey.

The study has been carried out using subjects of 167 consumers in Tekirdağ province with the application of a face to face survey. A Likert type scale was used to evaluate each of the questions. The collected data was analysed in terms of the means, standard deviation and percent were calculated for the scores from the ecommerce knowledge, attitude and behaviours. In this study, possibilities offered by e-commerce to the food sector, opportunities, threats, deficiencies and contributions to agricultural sector have been addressed with Swot analysis. As a result, it has determined that nowadays the purchasing behaviours of the consumers have changed. Since it is easier, effortless, practical and gain of time, consumers prefer alternative shopping options. This paper provides a unique insight into a wide range of e-commerce of some food products and habits among consumers.

Key words: e-commerce, food products, consumer perception.

D. Ulusal hakemli dergilerde yayımlanan makaleler

#### [1] Adiloğlu, A., Y. Cerit, M.R. Karaman, Y. Solmaz, A. Korkmaz, 2017. An Investigation of Irrigation Waters Quality Used for Vegetables Irrigation in Hafik District, Sivas Province. 2<sup>nd</sup> International Balkan Agriculture Congress, Abstract Book, p: 524, 16- 18 May, Tekirdağ.

The aim of this research was to determine the water quality of irrigation waters used for vegetables irrigation in Hafik district, Sivas province. For this purpose, irrigation water samples were taken from 12 different irrigation water sources in may, june, july, august and september months and total 60 water samples collected in 2014 year, Hafik district, Sivas. According to the analysis results, pH values of irrigation water samples were between 7.12 and 9.18 and these values were determined neutral, slightly alkaline and strong alkaline. EC values of water samples were between 185 and 501 µmhos/cm and these values were evaluated little salty and middle salty classes. Sodium Absorbtion Ratio (SAR) of water samples were between 0.96 and 3.78. Residual Sodium Carbonate (RSC) values were obtained between 0.00 and 6.01 me/L and Precipitation Index (PI) values of all irrigation water samples were determined positive (+). As a result, according to the USA Salinity Laboratory Classification irrigation water samples classified C1-S1 and C2S1 classes. Therefore, it should be attention sodium damage during the irrigation season.

Key words: EC, water quality, RSC, SAR, PI.

## [2] Adiloğlu S., K. Bellitürk, Y. Solmaz and A. Adiloğlu, 2017. The Effect of Increasing Dose Gyttja Application on Some Nutrient Element Contents of Triticale (*Tritico secale* L.) Plant. 2nd International Balkan Agriculture Congress, Abstract Book, p: 539, 16- 18 May, Tekirdağ.

This research was done to determine effect of gyttja application on some nutrient element contents of triticale (Tritico secale L.) plant. For this purpose, a pot experiment was done in greenhouse conditions. Five gyttja (I. dose: 0 %, II. dose: 4 %, III dose: 8 %, IV dose: 12 % and V. dose: 16 % (w/w) doses were applied to the soil samples and pots were incubated 30 days. Triticale plants were harvested 60 days after planting. Some macro and micro nutrient element (N, P, K, Ca, Mg, Fe, Cu, Zn, Mn and B) contents of plant samples were determined. According to the analyzing results, average of three replications, total nitrogen (N) (1.89 %, 2.65 %, 2.92 %, 3.56 and 4.42 %), phosphorus (P) (0.33 %, 0.51 %, 0.57 %, 0.60 and 0.71 %), potassium (K) (2.03 %, 2.51 %, 2.97 %, 3.11 and 3.30 %), calcium (Ca) (0.76 %, 1.02 %, 1.10 %, 1.23 and 1.28 %) and magnesium (Mg) (0.19 %, 0.28 %, 0.30 %, 0.38 and 0.47 %) were determined, respectively. Some micro element (Fe, Cu, Zn, Mn and B) contents of triticale plant, iron (Fe) (39.63, 56.74, 72.02, 89.55 and 102.41 mg kg-1) copper (Cu) (4.87, 6.12, 9.67, 12.70 and 27.01 mg kg-1 ), zinc (Zn) (24.10, 33.70, 42.98, 50.21 and 64.43 mg kg-1 ) Mn (28.66, 35.40, 39.60, 58.13 and 64.75 mg kg-1) and boron (B) (4.86, 5.29, 9.90, 12.57 and 12.45 mg kg-1 ) were determined, respectively. As a result, some macro and micro nutrient element content of triticale plant increased with increasing dose application of gyttja to the soil.

Key words: Gyttja, macro element, micro element, triticale.

### [3] Albut, S., F. Konukcu, 2017. Sustainable Land Use Management and Guide for GIS-Based Decision Support System. 8<sup>th</sup> International Conference on Biosystems Engineering, (11.05.2017-13.05.2017).

Decision Support System (DDS) provides a custom, flexible and dedicated management system, to assist managers, decision makers and policy makers in: provide timely, transparent, well informed and reproducible answers to important questions, quickly and effectively land use planning, reduce time and cost requirements transform data and information into knowledge and produce understandable results and decisions. Typical DSS interactive and integrated components are data and information management, analysis and modelling and scenario management and alternative formulation. GIS-Based Web Software was developped to supply the Corine Land Cover 1990-2000-2012 data, to present the results of the models created within the scope of Integrated Land Use Management Modelling of Black Sea Estuarie ILMM-BSE Project BlackSea project and to make spatial analyses using geographic data. Application is comprises of two parts. One of them is GIS services that present the data and the other one is GIS interface that use for monitoring of the presented data and make analyses. Land-use management of estuaries/deltas areas is a multi-component and multidisciplinary process that requires more than a single method for successful results. Thus, an integrated GIS-based analysis system was developed in this project for a more efficient and scientific management of such areas from a holistic point of view.

Key words: Decision Support System (DSS), CORINE, GIS-Based Web, Turkey.

### [4] Alpaslan, D., N. Özer, 2017. Trakya Bölgesi'nde Hasat Edilmiş Kanola (*Brassica napus* L.) Tohumlarında Tohum Kökenli Fungal Etmenlerin Tespiti. Bitki Koruma Bülteni 57, No 3, 263-277.

Bu çalışmada 2013 yılında Trakya Bölgesi'nde bulunan Edirne, Kırklareli ve Tekirdağ illerinden toplanan kanola tohumu örneklerinde fungal etmenlerin tespiti ve patojenisitelerinin belirlenmesi amaçlanmıştır. Çalışmada ayrıca yüksek derecede patojen bulunan fungus türlerinin kültürel ve morfolojik özellikleri tanımlanmıştır. Çalışma sonucunda Trakya Bölgesi'ndeki illere ait tohum örneklerinde yapılan incelemelerde tohumların en yüksek oranda *Alternaria* cinsi içindeki alternata türleri grubundan *A. alternata* ile bulaşık olduğu, bunu infectoria türleri grubundan *A. ethzedia* ve *A. infectoria*'nın izlediği belirlenmiştir. Tohum örneklerinde tespit edilen diğer funguslar ise *Arthrinium arundinis, Cladosporium* sp., *Curvularia* sp., *Fusarium* sp., ve *Phomopsis* sp. olarak tanımlanmış olup, bunlar arasında en yaygın türün *A. alternata* izolatları %52.2-%76.0, *A. ethzedia* izolatları %31.5-%82, *A. infectoria* izolatları %24.7-%70.5 ve *A. arundinis* izolatları %56.20-%69.20 arasında değişen oranlarda hastalık şiddeti oluşturmuşlardır.

Anahtar kelimeler: Kanola (Brassica napus L.), tohum kökenli funguslar, patojenisite.

#### [5] Alkan, Ç., 2017. WinTR-55 Modeli ile Mockus Yönteminin Karşılaştırılması: Ankara Polatlı Kargalı Göleti Havzası Örneği. IX. Ulusal Hidroloji Kongresi, 04-06 Ekim 2017, Dicle Üniversitesi, Diyarbakır.

DSİ (Devlet Su İşleri) gibi kurumlarda pik taşkın debisinin belirlemesinde kullanılan Mockus yöntemine alternatif yöntem sunmanın amaçlandığı bu çalışmada, Ankara Polatlı Kargalı Göleti havzasında 1931-1987 yılları arasındaki yağış verileri kullanılarak Mockus yöntemiyle belirlenmiş pik debiler, WinTR-55 modeliyle belirlenen pik debilerle kıyaslanmıştır. WinTR-55 modelindeki pik debi ve konsantrasyon süresinin belirlenmesinde kullanılan eşitlikler, Mockus yöntemindeki pik debi ve konsantrasyon süresinin belirlenmesinde kullanılan eşitlikler, Mockus yöntemindeki pik debi ve konsantrasyon süresinin belirlenmesinde kullanılan eşitliklerden daha çok ve etkin parametreler içerdiği için WinTR-55 modelinin daha doğru sonuçlar ürettiği tahmin edilmektedir. Bu çalışma sonucunda tüm tekerrür periyotları için kıyaslama yapıldığında WinTR-55 modeliyle, Mockus yöntemi sonuçlarından daha büyük pik debiler hesaplanmıştır. Sonuç olarak; pik taşkın debisi hesaplanırken, WinTR-55 modelinin Mockus yönteminden daha güvenilir sonuçlar üreteceği düşünüldüğünden Ankara Polatlı Kargalı Göleti havzasında kullanılması tavsiye edilmektedir.

Anahtar kelimeler: Mockus yöntemi, su havzası, WinTR-55 modeli, yağış-akış ilişkisi.

#### [6] Bellitürk, K., S. Adiloğlu, Y. Solmaz, A. Adiloğlu, 2017. The Effect of Gyttja Application on Some Chemical Properties of the Soils. 2<sup>nd</sup> International Balkan Agriculture Congress, Abstract Book, p: 540, 16- 18 May, Tekirdağ.

This research was done to determine the effect of gyttja application on some chemical properties of agricultural soils. For this purpose, a pot experiment was done with three replications in greenhouse conditions. Five gyttja (I. dose: 0 %, II. dose: 4 %, III dose: 8 %, IV dose: 12 % and V. dose: 16 % (w/w) were applied to the soil. Then 90 days after some chemical properties of the soil samples were determined. According to the results, pH value of soil samples, average of three replications, were 7.40, 7.37, 7.32, 7.33 and 7.30, respectively for increasing doses of gyttja. Available Phosphorus (P) (9.91, 10.03, 10.75, 11.03 and 11.87 kg P2O5/da), exchangeable potassium (K) (51.20, 51.72, 52.45, 52.92 and 53.79 kg K2O/da), exchangeable calcium (Ca) (1.80, 1.87, 1.94, 2.06 and 2.09 %) and exchangeable magnesium (Mg) (0.28, 0.30, 0.30, 0.36 and 0.36 %) were determined, respectively. Organic matter amount of soil samples 1.08, 1.12, 1.25, 1.84 and 2.13 % were obtained, respectively. As a result, some macro nutrient element contents of the soil samples increased and pH value decreased with gyttja application to the soil samples.

Key words: Gyttja, macro nutrient element, soil, organic matter.

## [7] Boyraz Erdem, D., 2017. Classification of the Soils Formed in Toposequence Kayi and Aydinpinar Streams (Tekirdag) and Classes of Suitability to Agricultural Uses. BSE 2017. 8<sup>th</sup> International Conference Biosystems Engineering, 2017. Book of Abstracts. P. 16. 11-13 May 2017 Tartu, Estonia.

The soils formed in the vicinity of Kayı and Aydınpınar streams were investigated in transects formed toposequence splitting vertically towards the coastal line of Thrace region. On the characteristic points of topography formed by the Kayı and Aydınpınar streams, five soil profiles were described, the two on the Oligocene marine deposits, the two on side stream creeks and the one on the alluvial bed representing low land. The morphological, physical and chemical properties of the samples taken from these profiles according to the genetic horizon principle were determined. The classification of these soils formed in the toposequence relationship and their suitability to various plants varieties were determined. The 4th profile in subgroup of Typic Xerofluvent were formed in alluvial land, The 2nd profile in subgroup of Calcic Haploxerept, 1st, 3rd and 5th profiles in subgroup of Typic Haploxerept were classified. The soil formed in a toposequence is different for suitability of plant cultivation varies. KA1, KA2 and KA5 soils are highly suitable for grass families expect maize and sudan grass while KA3 soil is medium suitable for grass families. KA1 and KA2 soils (expect soybean) are highly suitable, KA3 (expect alfalfa and sainfoin) and KA5 (expect alfalfa) soils are medium suitable and KA4 soil is marginal suitable for legume plants.

Key words: Soil genesis, toposequence, entisols, inceptisols.

### [8] Can, N., S. Duraklı Velioğlu, 2017. Determination of Aflatoxins in Linden (*Tilia* spp.) and Rosehip (*Rosa canina*) Samples Sold in Tekirdag Province, GIDA, 42(3): 287-296 (DOI: 10.15237/gida.GD16087).

Bu çalışmada, Tekirdağ ili ve ilçelerindeki farklı satış noktalarından temin edilen 15 adet Ihlamur ve 15 adet kuşburnu örneğinde, aflatoksin B1 (AFB1), B2 (AFB2), G1 (AFG1) ve G2 (AFG2) varlığı HPLC yöntemi ile araştırılmıştır. Ayrıca, örneklerde nem, su aktivitesi (aw) tayini, toplam mezofilik aerobik bakteri ve toplam maya küf sayımı da yapılmıştır. Aflatoksin analizi sonucunda, ıhlamur örneklerinden birinde 0.158 µg/kg AFG1 ve 0.168 µg/kg AFG2, bir diğerinde ise 0.162 µg/kg AFG2 bulunmuş, örneklerdeki aflatoksin miktarlarının yasal limitlerin altında olduğu belirlenmiştir. Diğer ıhlamur ve kuşburnu örneklerinde ise, düzeyi tayin limitinin (AFB1, AFB2, AFG1 ve AFG2 için sırasıyla 0.155, 0.168, 0.156, 0.162 µg/kg) altında olmakla birlikte, incelenen aflatoksinlerden en az biri tespit edilmiştir. Bu çalışmada incelenen örneklerde düşük düzeyde de olsa aflatoksinlerin tespit edilmesi, özellikle hassas tüketici grupları tarafından bitki çayı olarak tüketilebilen ıhlamur ve kuşburnu gibi ürünlerde aflatoksinlerin bulunabileceğini göstermektedir.

Anahtar kelimeler: Aflatoksinler, ıhlamur, kuşburnu, mikotoksin.

### [9] Güder, A. R. Işık, F. Özdil, 2017. Trakya Bölgesindeki Bal Arılarında (Apis mellifera L.) mtDNA 16S rDNA ve ND5 Genleri Analizi. Hayvansal Üretim 58(2): 7-14, 2017.

Bu çalışmada, Türkiye'nin Trakya bölgesinde bulunan bal arısı populasyonlarında genetik varyasyon mitokondriyel genomda 16S rDNA ve ND5 gen bölgeleri kullanılarak araştırılmıştır. PCR-RFLP ve DNA dizi analizi yöntemlerinden yararlanılarak 16S rDNA ve ND5 gen bölgeleri Dral, Mboll ve Swal restriksiyon enzimleri ile incelenmiştir. Trakya bölgesinin Tekirdağ, Edirne, Kırklareli illeri ile Çanakkale ve Gökçeada'nın farklı yörelerinden olmak üzere toplam 100 adet işçi arı örneği materyal olarak kullanılmıştır. Bu çalışmada, 16S rDNA ve ND5 gen bölgelerinin Dral ve Swal restriksiyon enzimleri ile kesiminde iki farklı haplotip elde edilmiştir. 16S rDNA/*Dra*l kesimi bakımından Tip 1 haplotipinde 6 kesim noktası tespit edilmiş ve 315, 212, 116, 116, 92, 70 ve 44 bç'lik kesim profili elde edilmiştir. Tip 2 haplotipinde ise, C → T transisyonu sonucu 705. pozisyonda meydana gelen nokta mutasyonu sonucu ilave bir kesim noktası daha oluşmuş ve bu haplotipte 8 bantlık kesim profili elde edilmiştir (215, 212, 116, 116, 100, 92, 70 ve 44 bc). 16S rDNA/Swal bakımından Tip 1 haplotipinde iki kesim noktası sonucu 359, 324 ve 282 bç'lik bant profili tespit edilmiş, aynı gen bölgesinin 196. nükleotidinde meydana gelen A→T transversiyonu sonucu yeni bir kesim noktası daha oluşmuş ve 359, 324, 195 ve 87 bç'lik 4 bant veren kesim profili elde edilmiştir. Fakat bu bölgenin Mboll restriksiyon enzimi ile kesimi sonucunda tüm örneklerde 16S rDNA/Mboll bakımından tek tip haplotip belirlenmiştir. ND5 gen bölgesinde ise sadece Dral restriksiyon enzimi ile kesim sonucunda varyasyon elde edilmiştir. ND5/Dral kesimi bakımından Tip 1 haplotipinde 440, 270 ve 112 bç'lik bant profili elde edilirken, aynı gen bölgesinin 383. pozisyonda meydana gelen  $T \rightarrow C$  transisyonu sonucu Dral restriksiyon enzimi kesim noktası kaybolmuş ve 552 ve 270 bç'lik 2 banttan oluşan kesim profili elde edilmiştir. ND5 bölgesinin Mboll ve Swal restriksiyon enzimleri ile kesiminde varyasyon bulunmamış ve tüm örneklerde tek tip haplotip elde edilmiştir.

Anahtar kelimeler: Apis mellifera L., mtDNA, 16S rDNA, ND5, PCR-RFLP, Trakya Bölgesi.

#### [10] İlbağı, H., 2017. Tahıl Üretim Alanlarında Sarı Cücelik Virüs Hastalıkları (*Yellow dwarf virus* diseases) Epidemisi ve Mücadelesi. Bitki Koruma Bülteni. 57(3): 317-355.

Dünyada olduğu gibi Türkiye'deki tahıl üretim alanlarında da zaman zaman epidemiler oluşturarak verim ve kalite kayıplarına neden olan sarı cücelik virüslerinin (Yellow dwarf virus, YDVs) neden olduğu hastalıklar tahılların en önemli hastalıkları arasındadır. 2016 yılı üretim döneminde, Türkiye'nin tahıl üretim potansiyeli yüksek olan illerinde de görüldüğü gibi, Trakya Bölgesi'nin Edirne, Kırklareli ve Tekirdağ illerindeki tahıl üretim alanlarında sarılık ve cüceliğe neden olan bu hastalıkların epidemileri meydana gelmiştir. Tahıl tarlalarında zaman zaman yaygın hale gelen bu virüs hastalıkları başta buğday olmak üzere tüm tahıl türlerinde verim ve kaliteyi düşürerek ekonomik kayıplara neden olmaktadır. YDVs hastalık epidemisinin görüldüğü Edirne ili başta olmak üzere Kırklareli ve Tekirdağ illerindeki tahıl tarlalarında arazi gözlemleri yapılmıştır. Hastalanan bitkilerin sergilediği sarılık, cücelik ve kızarıklık belirtilerinin görüldüğü kışlık buğday, arpa ve yulaf üretim alanlarından 187 adet enfekteli bitki yaprak örneği toplanmıştır. 138 buğday (Triticum aestivum L.), 19 arpa (Hordeum vulgare L.), 10 adet vulaf (Avena sativa L.) yaprak örneği ile birlikte YDVs'nin konukçusu çok yıllık Poaceae yabancı ot türü kamış (Phragmites austrialis (Cav.) Trin ex.Steudel)'tan da 20 adet yaprak örneği toplanmıştır. Enfekteli yaprak örneklerinde, YDVs'den Barley yellow dwarf virus-PAV (BYDV-PAV), Barley yellow dwarf virus-MAV (BYDV-MAV) ve Cereal yellow dwarf virus-RPV (CYDV-RPV) öncelikle Double antibody sandwich enzyme linked immunosorbent assay (DAS-ELISA) testi ile araştırılmıştır. Enfekteli olduklarından şüphelenilen örnekler Reverse transcription polymerase chain reaction (RT-PCR) testine tabi tutulmustur. DAS-ELISA ve RT-PCR testleri sonucu toplam 187 adet örnekten 89 adedinde ve %47.59 oranında BYDV-PAV, 30 örnekte %16.04 oranında CYDV-RPV ve 4 örnekte ise %2.14 oranında BYDV-MAV virüsleri bireysel olarak saptanmıştır. Bunun yanısıra 187 adet örnekten 14 adedinde ve %7.48 oranında ise YDVs (BYDV-PAV, BYDV-MAV ve CYDV-RPV)'nin karışık enfeksiyonları saptanmıştır. 2016 yılında Edirne ilindeki tahıl üretim alanlarında YDVs enfeksiyonu %36.89 ile en yüksek orana sahipken Kırklareli'nde %21.93, Tekirdağ ilinde ise bu oran %14.44 olarak tespit edilmiştir. YDVs ile etkin ve uygulanabilir mücadele yöntemleri, önceki çalışmalarla saptanmıştır. Trakya Bölgesindeki tahıl üreticileri, çiftçiler ve sektörün diğer paydaşları hastalık etmenleri ve mücadelesi ile ilgili olarak sürekli bilgilendirilmektedir.

Anahtar kelimeler: Tahıl, YDVs, BYDV, CYDV, mücadele

#### Epidemic of Yellow dwarf virus diseases in Cereal Growing Areas and Their Control

Yellow dwarf virus (YDVs) diseases are one of the most important diseases which have reduced crop yield and quality in the cereal growing areas by causing epidemics from time to time on all over the world as well as in Turkey. Just as prevailing in some potential cereal producer provinces of Turkey as well as in Edirne, Kırklareli and Tekirdağ provinces of Trakya Region during the year of 2016, yellow dwarf virus epidemic diseases were taken place. Those virus diseases in cereal fields have become widespread especially in wheat fields which have reduced the yield and quality and caused economic losses. Survey studies were conducted and observation on YDVs disease epidemics in cereal fields especially in Edirne, Kırklareli and Tekirdağ provinces. At least 187 plant leaf samples were collected from the symptomatic winter bread wheat, barley and oat plants exhibiting yellowing, dwarfing, reddish symptoms and signs in the cereal growing areas. So, beside 138 bread wheat (Triticum aestivum L.), 19 barley (Hordeum vulgare L.) and 10 oat (Avena sativa L.) leaf samples, 20 samples were obtained from the perennial Poaceae weed host common reed (Phragmites austrialis (Cav.) Trin ex. Steudel). Barley yellow dwarf virus-PAV (BYDVPAV), Barley yellow dwarf virus-MAV (BYDV-MAV) and Cereal yellow dwarf virus-RPV (CYDV-RPV) from YDVs were searched by employing Double antibody sandwich enzyme linked immunosorbent assay (DAS-ELISA) test. Reverse transcription polymerase chain reaction (RT-PCR) test was implemented for suspected leaf samples. As a result of DASELISA and RT-PCR tests, 89 out of 187 leaf samples at the rate of 47.59% were found infected with BYDV-PAV. As 30 samples at the rate of 16.04% had CYDV-RPV and 4 of 187 leaf samples at rate of 2.14% were infected with BYDV-MAV viruses individually. Merely 14 out of 187 leaf samples at the rate of 48% were found infected with these tested YDVs (BYDV-PAV, BYDV-MAV and CYDV-RPV) as mixed infections. During the year of 2016, YDVs infections were determined at the highest level of incidence rate being 36.89% in the cereal growing areas of Edirne province. As in Kırklareli, YDVs incidence rate was 21.93% and in Tekirdağ province, incidence rate of YDVs was determined as 14.44%. Effective and appropriate control measures against YDVs infections were determined with previous researches. So cereal producers, farmers and the other beneficiaries of food production sector in the Trakya Region have been informed steadily.

Key words: Cereal, YDVs, BYDV, CYDV, control.

#### [11] Kamburoğlu Çebi, Ü., B. Aydın, R. Çakır, S. Altıntaş, 2017. Örtü Altı Baş Salata (*Lactuca sativa* cv. Salinas) Üretiminin Enerji Kullanım Etkinliği ve Ekonomik Analizi. Türk Tarım ve Doğa Bilimleri Dergisi, 4(4): s.426-433.

Bu çalışma, Kırklareli ilinde Atatürk Toprak Su ve Tarımsal Meteoroloji Araştırma Enstitüsü arazisine kurulan plastik örtülü, yay çatılı sera tesisinde yürütülmüştür. Çalışmada, örtü altı baş salata üretiminde enerji kullanım etkinliği belirlenmiş ve ekonomik analiz yapılmıştır. Değerlendirme sonuçlarına göre örtü altı baş salata üretiminde toplam enerji girdisi 26.548,95 MJ/ha, enerji çıktısı 60.800,00 MJ/ha, enerji çıktı/girdi oranı 2,29, enerji verimliliği 2,86, spesifik enerji 0,35 ve net enerji 34.251,05 MJ/ha olarak hesaplanmıştır. Doğrudan enerjinin toplam enerji içindeki payı % 45,20, dolaylı enerjinin payı % 54,80, yenilenebilir enerjinin payı % 61,58, yenilenemeyen enerjinin payı % 38,42 olarak belirlenmiştir. Örtü altında baş salata yetiştiriciliğinde bir kg ürünün maliyetinin 1,13 TL, toplam masrafların 86.141,10 TL/ha, gayri safi üretim değerinin 152.000,00 TL/ha, brüt kârın 102.513,50 TL/ha, net kârın ise 65.858,90 TL/ha olduğu belirlenmiştir. Yapılan çalışmada örtü altında baş salata yetiştiriciliğinde nispi kâr 1,76 olarak hesaplanmıştır. Enerji kullanım etkinliği ve ekonomik analiz sonuçlarına göre örtü altı marul yetiştiriciliğinin avantajlı olduğu belirlenmiştir.

Anahtar kelimeler: Baş salata, enerji analizi, maliyet, örtü altı.

### [12] Kara, G., N. Özder, 2017. *Trichogramma brassicae*, *Trichogramma cacoecia* ve *Trichogramma evanescens*'in Konukçu ve Yumurta Yaşı Tercihi Üzerinde Araştırmalar. Türkiye Bitki Koruma Bülten, 57(4), 423-432.

Bu çalışmada *Trichogrammma brassicae* Bezdenko, *T. cacoeciae* Marchal ve *T. evanescens* Westwood (Hymenoptera: Trichogrammatidae)'in (25±1°C sıcaklık, %65-70, 16/8 saat (aydınlık/karanlık) aydınlanma periyotu) laboratuvarda *Ephestia kuehniella* Zeller ile *Cadra cautella* Walker (Lepidoptera: Pyralidae)konukçu ve yumurta yaşı tercihleri araştırılmıştır. Değişik yaşta yumurta verilmiştir. Her üç parazitoit türü de 1 günlük *E. kuehniella* ile *C. cautella* yumurtalarını 2 ve 3 günlük yumurtalardan daha çok tercih etmiştir. *Trichogrammma brassicae, T. cacoeciae* ve *T. evanescens* konukçusu *E. kuehniella* ile hedef konukçusu *C. cautella* üzerinde yetiştirilmiştir. Alternatif konukçu (*C. cautella*) üzerinde yetiştirilen parazitoitlerin hedef konukçu *E. kuehniella* yumurtasında parazitledikleri yumurta sayılarında bir düşme bulunmuştur.

Anahtar kelimeler: Trichogramma brassicae, T. cacoecia, T. evanescens, konukçu yaşı, konukçu tercihi.

#### Investigations on host and host egg preference of *Trichogramma brassicae*, *T. cacoeciae* and *T. Evanescens*

This study was designed to determine the preference of host and host eggs of *Trichogrammma brassicae* Bezdenko , *T. cacoeciae* Marchal and *T. evanescens* Westwood (Hymenoptera: Trichogrammatidae) at laboratory condition  $(25\pm1^{\circ}C$  temperature, %65-70 relative humidity, 16/8 hour light and dark period) on *Ephestia kuehniella* Zeller and *Cadra cautella* Walker (Lepidoptera: Pyralidae).Eggs of different ages were evaluated. All of the three parasitoids species preferred to 1 day old eggs than the 2 or 3 days old eggs of *E. kuehniella* and *C. cautella*. Significantly higher parasitized eggs were determined 1 day old eggs of *E. kuehniella*. Wasps reared from each source were tested on the source host and target host. Under the conditions *E. kuehniella* was a good host. We found that being reared on alternate host (*C. cautella*) decreased the parasitized eggs on the target *E. kuehniella*.

**Key words:** *Trichogramma brassicae, T. cacoecia, T. evanescens,* host age, host pereference.

## [13] Kiper, T., O. Uzun, G. Özdemir, 2017. Ecological-Social-Cultural-Economic (Esce) Method in Ecological Planning Based Rural Development). St. Kliment Ohridski University Press, Editör: Irina Koleva, Ülkü Duman Yüksel, Lahcen Benaabidate, Basım sayısı: 1, Yayın No: 3599858.

Ecological, social, cultural, and economy centred approaches should be taken as basis in rural development centred studies. Similarly, only economy centred strategies will only be beneficial for a short period. In the recent days of the information age, it is also necessary to make multidimensional scrutinising in ecotourism planning used as a tool for rural development. Ecotourism planning and management should be maintained in such a way as to match the ecological, economic and social requirements with the potential of the location or the area of study in a sustainable manner. The method developed in this study will be favourable for the sustainable use of natural and cultural resources in ecotourism. According to Kiper et al. (2017); ecotourism is an important instrument in sustainable rural development and ecological, social, cultural, and economy based landscape planning approaches which take the objectives of socio-economic development and nature conservation have an effective role on this issue. Within this context, it is suggested that, as mentioned above, ESCE method can be used in diff erent geographies, especially in studies of rural development centred ecotourism planning.

Key words:

# [14] Konukcu, F., S. Albut, B. Alturk, 2017. Land Use/Land Cover Change Modelling of Ergene River Basin in Western Turkey Using CORINE Land Use/Land Cover Data. 8<sup>th</sup> International Conference on Biosystems Engineering, (11.05.2017-13.05.2017).

Land use planning is a useful tool to find a balance among the competing and sometimes contradictory uses in order to achieve food security, economic growth, energy supply, nature conversation and other objectives. In this study, modelling land use/land cover change of Ergene River Basin in Western Turkey between the years of 1990 and 2012 was investigated. The CORINE land use/landcover data and ArcGIS software were used to detect land use/land cover change between the years, 1990–2000, 2000–2006 and 2006–2012. As a results, the artificial area (including settlement area and industrial zone) and water bodies increased by 39.4% and 47.9%, due to industrial development and new reservoirs construction, respectively, while wetlands and agricultural areas decreased by 1.1%, 1.0% and 32.1%, respectively. The change in the agricultural areas into industrial area corresponds to about 13,000 hectares, which is considered threatening not only natural resources but also food security since the basin has the most productive arable land of Turkey.

**Key words:** Land use/land cover change, CORINE, Ergene, Turkey.

#### [15] Konyalı, S., 2017. Studies on Balkan and Near Eastern Social Sciences. Bölüm: "Evaluation of Wheat Agriculture in Turkey with SWOT Analysis", Yayın Yeri: Peter Lang, 2017.

Wheat is fundamental to human civilization and has played an outstanding role in feeding a hungry world and improving global food security. The crop contributes about 20% of the total dietary calories and proteins worldwide (Shiferaw, 2013). It is also an important commodity and is consumed by households in almost all countries in several forms (bread, pasta, breakfast cereals, chapati, and bakery products) (Gomez-Plana and Devadoss, 2004). When there is a decrease in wheat production globally, for any reason, there is an increase in the price of bread and also of foods made from flour, which has a direct effect on consumers. It is therefore important for countries to produce sufficient wheat to meet the demand, or to have sufficient quantities of wheat in their stocks. In Turkey, wheat has been grown on about 7.9 million ha with production of around 22 million metric tons annually. The average yield of the wheat is 2870 kg/ha (TSI,2016). It is strategic product that consumed mostly as bread, but also as bulgur, yufka (falt bread) and cookies. Wheat is generally produced in Thrace, Mediterranean, Aegean and Marmara Seaside places as spring type and in the other places it is produced as winter type. In many other countries, wheat has been deemed to fall within the scope of "special support" from the government and, in the case of Turkey, wheat production has been supported by the Turkish state throughout the history of the Republic. Support programs are offered by the Soil Products Office (SPO), which aims to protect and regulate the markets for wheat and other cereals. SPO buys grains from producers who are not able to obtain higher prices on the commercial market (USDA, 2015). Nevertheless, SPO didn't purchase domestic wheat in 2014 due to significant decreases in the domestic harvest. In 2015, SPO was re-started wheat purchases. Turkey operates a number of premiums and input subsidies programs, including premiums to producers, seed subsidies, soil analysis subsidies, diesel (fuel) subsidies and fertilizer subsidies. But some years subsidies are insufficient for producers. In this study it was aimed to evaluate of the problems of wheat agriculture in Turkey by using SWOT analysis and to present suggestions for problems.

Key words: wheat agriculture, agricultural policy, SWOT analysis, Turkey.

### [16] Korkmaz, F., S. Soycan Önenç, 2017. Raf Ömrü Dolan Gıdaların Alternatif Yem Kaynağı Olarak Ruminantlarda *İn Vitro* Sindirilebilirliğinin Belirlenmesi. *Hayvansal Üretim* 58(1): 28-32, 2017.

Bu araştırmanın amacı, makarna, puding, gofret unu, dondurma-kepek karşımı, sebze ve yoğurt çorbalarının ham besin madde içeriklerinin ve in vitro metabolik enerji değerinin belirlenerek ruminant beslemede kullanılabilirliğini ortaya koymaktır. Örnekler Hohenheim Futterwerter Test (HFT) yöntemine göre in vitro koşullarda 24 saatlik inkübasyona bırakılmıştır. Toplam gaz oluşum miktarları 3., 6., 9., 12., 24. saatlerde ölçülmüştür. Örneklerde 24. saatteki toplam gaz oluşumuna göre organik maddelerin sindirim derecesi (OMS), metabolik enerji (ME), net enerji laktasyon (NEL) içerikleri hesaplanmıştır. Örnekler arasındaki GO farkları istatistiki olarak önemli bulunmuştur (P<0.05). Aynı zamanda net GO miktarları değerlendirildiğinde ise, en yüksek GO miktarı 53,69 ml/ 200 mg KM makarnada, en düşük ise 25,76 ml/ 200 mg KM dondurma kepek karışımında bulunmuştur. Belirlenen GO miktarlarından yararlanılarak hesaplanılan OMS, ME ve NEL içerikleri incelendiğinde, en yüksek OMS değeri (92,00) sebze çorbasında belirlenirken en yüksek ME makarnada (13,06 Mcal/kg KM), en yüksek NEL ise gofret ununda (38,68 MJ/kg KM) bulunmuştur. Ruminant rasyonlarına enerjice zengin yem kaynaklarına alternatif olarak makarna, puding, sebze ve yoğurt çorbası, gofret unu ve dondurma-kepek karışımının kullanılabileceği sonucuna varılmıştır.

Anahtar kelimeler: Alternatif yem kaynakları, ruminant besleme, rumen fermantasyonu, HFT.

#### Determination of *In Vitro* Digestibility of Shelf Life Ended Food as Alternative Feedstuff Sources in Ruminants

The aim of this study is to reveal the possibility of pasta, pudding, wafer meal, ice-cream bran mixture, vegetable and yoghurt soups after determining their crude nutrient components and in vitro metabolic energy values. Samples were left for 24 hour incubation under in vitro conditions according to Hohenheim Futterwerter Test (HFT). The amount of total gas production was recorded at the 3<sup>rd</sup>, 6<sup>th</sup>, 9<sup>th</sup>, 12<sup>th</sup> and 24<sup>th</sup> hours. Digestible organic matter (DOM), metabolic energy (ME) and net energy lactation (NEL) ingredients were predicted according to total gas production (GP) at the 24<sup>th</sup> hour. The GO differences among the samples were found statistically significant (P<0.05). When net GP amounts of the 24-hour-period were evaluated, the highest GP value was found out as 53.69 ml/ 200 mg DM in pasta, whereas the lowest value was found out as 25.76 ml/ 200 mg DM in icecream bran mixture. When DOM, ME, and NEL ingredients were calculated using GP amounts determined at the 24<sup>th</sup> hour, the highest value of DOM was found out (92.00) in pasta, the highest value of ME was found out in pasta (13,06 Mcal/kg KM), and the highest value of NEL was found out in wafer meal (38.68 MJ/kg KM). It has been concluded that pasta, pudding, vegetable and yoghurt soups, wafer meal and ice-cream bran mixture can be used as alternatives to ruminant rations, feedstuff sources rich in energy.

Key words: Alternative feedstuff sources, ruminant feeding, ruminant fermentation, HFT.

#### [17] Korkutal, İ., E. Bahar, S. Bayram, 2017. Farklı Toprak İşleme ve Yaprak Alma Uygulamalarının Syrah Üzüm Çeşidinde Su Stresi, Salkım ve Tane Özellikleri Üzerine Etkileri. Ege Üniversitesi Ziraat Fakültesi Dergisi, 54(4): 397-407.

Bu araştırma Tekirdağ koşullarında Syrah üzüm çeşidinde farklı toprak işleme ve yaprak alma uygulamalarının su stresi, tane ve salkım özellikleri üzerine etkilerini belirlemek amacıyla gerçekleştirilmiştir. Toprak işleme uygulamaları korumalı toprak işleme (KTİ), korumalı toprak işleme+geleneksel toprak işleme (KTİ+GTİ) ve geleneksel toprak işleme (GTİ) uygulamaları olmak üzere 3 farklı şekilde yapılmıştır. Yaprak alma uygulamaları ise kontrol (AY+KY) uygulaması (ana yaprak ve koltuk yaprakların omca üzerinde bırakıldığı uygulamalar), AY (ana yaprakların omca üzerinde bırakıldığı uygulamalar) ve KY (koltuk yaprakların omca üzerinde bırakıldığı uygulamalar) olmak üzere 3 farklı şekilde yapılmıştır. Buna göre; KTİ+GTİ uygulamasının yaprak su potansiyelini, tane kabuk alanının tane eti hacmine oranını, tane iriliğini azalttığı görülmüştür. KTİ uygulaması ise yaprak su potansiyelini, tane kabuk alanının tane eti hacmine oranını azaltmış; tane iriliğini artırmıştır. Yaprak alma uygulamalarından AY uygulaması tane iriliği ve verim değerlerini azaltırken; tane kabuk alanının tane eti hacmine oranını ve salkım iriliğini artırmıştır. KY uygulamasının tane iriliğini artırdığı, tane kabuk alanının tane eti hacmine oranını azalttığı tespit edilmiştir. Sonuç olarak, kırmızı şaraplık üzüm çeşidi olan Syrah için toprak işleme uygulamalarında KTİ uygulaması, yaprak alma uygulamalarında ise Kontrol (AY+KY) uygulaması önerilebilir.

Anahtar kelimeler: Syrah, yaprak su potansiyeli, toprak işleme, yaprak alma, tane, salkım.

### [18] Kuloğlu, İ., N. Özder, 2017. Aphids (Hemiptera: Aphididae) on Ornamental Plants from Yalova Province, Turkey. ÇOMÜ Zir. Fak. Derg. 5(2): 69–72.

This study was carried out to determine the aphid species feeding on ornamental plants in parks of Yalova (Centrum), Armutlu District and Çiftlikköy province from 2009 to 2010. As a result of this survey 21 aphid species belonging to 13 genera Aphididae family were determined. Of these species *Macrosiphum euphorbiae* Thomas1878, *Aphis fabae* Scopoli 1763, *Aulacorthum solani* Kaltenbach, 1843, *Aphis gossypii* Glover, 1854 were found as the most common aphid species. Among the ornamental plants *Rosa* sp, *Yucca flamentosa*, *Begonia semperflorens* were found heavily infested by aphids.

Keywords: Yalova, Aphid, Aphididae, Ornamental plants.

#### Yalova İlinde Bazı Süs Bitkilerinde Görülen Aphidoidea (Hemiptera) Türleri Üzerinde Araştırmalar

Yalova ilinde bazı süs bitkilerinde görülen Aphidoidea (Hemiptera) türlerini saptamak amacıyla, 2009-2010 yıllarında Yalova (merkez),Armutlu ve Çiftlikköy ilçelerini kapsayan bir çalışma yürütülmüştür. Bu çalışma sonunda Aphidoidea üst familyasında bağlı 13 cins ve bu cinslere bağlı 21 yaprak biti türü tespit edilmiştir. *Macrosiphum euphorbiae* Thomas 1878, *Aphis fabae* Scopoli 1763, *Aulacorthum solani* Kaltenbach, 1843, *Aphis gossypii* Glover 1854 türleri en yaygın yaprakbiti türleri olarak tespit edilmiştir. Araştırma sırasında yaprakbitlerinin özellikle *Rosa sp, Yucca flamentosa, Begonia semperflorens* bitkilerinde önemli ölçüde zarar yaptığı belirlenmiştir.

Anahtar kelimeler: Yalova, Yaprakbiti, Aphididae, Süs bitkisi.

#### [19] Malhatun Çotuk, G., S. Soycan Önenç, 2017. Yonca Silajına Kepek ve Puding İlavesinin Silaj Fermantasyonu, Aerobik Stabilite ve *İn Vitro* Sindirilebilirlik Üzerine Etkileri. Hayvansal Üretim 58(1): 15-21.

Bu araştırmanın amacı, kepek alternatifi olarak gıda endüstrisi atığı olan (son kullanım tarihi dolmus) pudingin yonca silajinin fermantasyon kalitesi, aerobik stabilitesi, in vitro metabolik enerji içerikleri ve nispi yem değeri üzerine etkilerini belirlemektir. Çalışma laboratuvar koşullarında (16±2 °C) gerçekleştirilmiş, silolamanın 60. gününde açılan silajlara fiziksel, kimyasal ve mikrobiyolojik analizler yapılmıştır. Ayrıca, 7 gün süre ile aerobik stabilite testi uygulanmış, enzimde çözünen organik madde miktarı, metabolik enerji içerikleri ve nispi yem değeri saptanmıştır. Yoncaya kepek ve puding katılması nötr deterjan lifi (NDF), asit deterjan lifi (ADF) ve asit deterjan lignin (ADL)'i düşürmüştür (P<0.05). Bu silajların pH ve suda çözülebilir karbonhidrat (SÇK) içerikleri ile NH<sub>3</sub>-N miktarı kontrole göre düşmüş, laktik asit (LA) içeriği ise puding grubunda yüksek (P<0.05) bulunmuştur. Kepek ve puding ilavesiyle laktik asit bakteri (LAB) sayısı artmış (P<0.05), enterobakteri, maya ve küf sayıları ise kontrole göre azalmıştır (P<0.05). Aerobik dönemde özellikle puding ilavesi kuru madde kaybı (KMK), pH, CO<sub>2</sub> çıkışını düşürmüş ancak maya ve küf gelişimini engelleyememiştir (P<0.05). Yonca silajına kepek ve puding katılması silajların enzimde çözünenen organik madde (EÇOM) miktarını, in vitro metabolik enerji (ME) içeriğini, sindirilebilir kuru madde (SKM), kuru madde tüketimi (KMT) ve nispi yem değeri (NYD)'ni artmıştır (P<0.05). Yapılan calışma, özellikle yağışların bol olduğu ve kurutma imkanının olmadığı ilk baharda, gıda endüstrisinin yoğun olduğu bölgelerde, yoncanın 50 g/kg puding ilave edilerek silolanmasının kontrol grubundan daha avantajlı olduğunu, kepek yerine kullanılabileceğini ortaya koymuştur.

Anahtar kelimeler: Yonca silajı, silaj fermantasyonu, kepek, puding, aerobik stabilite.

#### Effects of Bran and Pudding Addition on Silage Fermentation, Aerobic Stability and In Vitro Digestibility in Alfalfa Silage

The aim of this study is to determine the effects of pudding as a food industry waste (with expired shelf life) on the fermentation quality, aerobic stability, *in vitro* metabolic energy contents, and relative feed value (RFV) of alfalfa silages. The study was carried out under laboratory conditions ( $16\pm 2$  °C); physical, chemical and microbiological analysis were conducted on the silages uncovered on the  $60^{th}$  day. Furthermore, aerobic stability test was carried out for 7 days, and enzyme-soluble organic matter (ESOM), metabolic energy contents (ME) as well as RFV were determined. The addition of bran and pudding into alfalfa led to a decrease in neutral detergent fibre (NDF), acid detergent fibre (ADF) and acid detergent lignin (ADL) (P<0.05). The pH level, water soluble carbohydrate (WSC) contents, and NH<sub>3</sub>-N amount decreased in comparison to the control group, yet lactic acid bacteria (LAB) increased with the addition of bran and pudding (P <0.05); however, the number of enterobacter, yeast and mould decreased when compared to control (P <0.05). Within the aerobic period, the addition of pudding decreased particularly dry matter loss (DML), pH, and the release of CO<sub>2</sub>, but could not prevent the development of yeast or

mould (P<0.05). The addition of bran and pudding into alfalfa silage increased the amount of ESOM, *in vitro* metabolic energy (ME) content, digestible dry matter (DDM), dry matter intake (DMI), and relative feed value (RFV) in silages (P<0.05). The study revealed that in spring when precipitation is abundant and there is no possibility of drying, in the regions where food industry is intensive, it was more advantageous to ensilage alfalfa with an addition of 50 g/kg pudding when compared to the control group, and that it could be replaced with bran.

Key words: Alfalfa silage, silage fermantation, bran, pudding, aerobic stability.

## [20] Oraman, Y., D.Ç. Turan, 2017. Studies on Balkan and Near Eastern Social Sciences, Bölüm: Role of Packaging in Sales of Industrial Foodstuffs. Yayın Yeri: Science, Society and Culture, Peter Lang, Editör: Yilmaz Rasim and Löschnigg Günther, 2017.

The objective of this study was to establish if consumers understand the role of packaging and various forms of labelling currently presented on foodstuffs on Turkish consumer's purchase decisions. In the scope of this study, a survey has been conducted in Istanbul province among 270 randomly selected consumers with face to face interviews. The gained data has been evaluated with linear regression analysis using PASW 18.0 package program. The aim of this research is to examine the fundamental factors, which are driving the success of a brand and how these factors motivate the consumers while he/she involves in purchase decisions for any particular brands of foodstuffs. This research also identified the relationship between the dependent and independent variables who are main presenter in this whole purchase behaviour. Accommodated to the finding of these research, the main reasons consumers do consult foodstuffs labels, are to obtain information on the nutritional content, or to look for specific elements. Besides, it has been observed that the packaging and labelling are the most important factors for some foodstuffs. It is further make a decision that the packaging elements like it, packaging material, colour, design of wrapper and innovation are more important factors while consumers making any buying decision. Eventually it has also been terminated that the packaging is one of the most important and effective factor, which influences consumer's purchase decision.

**Key words:** Consumer's purchase decision, packaging & labelling for foodstuffs, motivation, linear regression analysis.

#### [21] Oskay, D., G. Sönmez Oskay, 2017. Bal Arisi Ek Beslemesinde Sorunlar ve Çözüm Önerileri. Arıcılık Araştırma Dergisi, Cilt: 9, Sayı: 1, Sayfa: 1-8.

Bal arıları, yabani ve kültür bitkilerinin tozlaşması ve ürünleri için gereklidir. Bu yüzden arı kolonileri ülkemizde ve dünya üzerinde yönetilmektedir. Böcek ilaçları, genetik çeşitliliğin daralması ve hastalıklar arı sayılarının düşmesinin nedeni gibi görülmektedir. Beslenme stresi diğer bir neden olabilir. İklim değişimleri, yaşam ortamı kaybı ve şiddetli tarım arıların yiyecek kaynaklarının azalmasına neden olmaktadır. Bu ek stres onların böcek ilaçlarına ve hastalıklara olan direncini azaltmaktadır. Bu makale arıcılara; bal arısı kolonilerinin yönetiminde çeşitli karbonhidrat ve protein ek besinlerinin rolü ve bal arısı besleme gereksinimlerinin verilmesi amacıyla yazılmıştır.

Anahtar kelimeler: Bal arısı, besleme.

#### Problems and Solution Proposal on Honey Bee Supplementary Feeding

Honey bees are essential for pollination of wild and cultivated plants, and honey bee products. Therefore bee colonies are managed in our country and all over the word. Pesticides, restriction of genetic variation and diseases seem to draw the most attention as the cause of declining bee numbers. Nutritional stress could be another reason. Climate changes, habitat loss and intensified agriculture lead to diminishing food resources for bees. This additional stress lowers their resistance to pesticides and diseases. This article is written to give beekeepers an overview of honey bee nutritional requirements and the role of various carbohydrate and protein supplements in the management of honeybee colonies.

Key words: Apis mellifera.

## [22] Polat, S., E. Bal, 2017. Soğukta Muhafaza Edilen Brokoli Çeşitlerinin (*Brassica oleracea* L., var. italica cvs. Belstar ve Beaumont) Depolama Süresi ve Kalite Özellikleri Üzerine Modifiye Atmosfer Paketlemenin Etkisi. Türkiye Tarımsal Araştırmalar Dergisi, 4(2): 103-108.

Bu çalışmada, Tekirdağ ekolojisinde yetiştirilen Belstar ve Beaumont brokoli çeşitlerinin soğukta muhafaza süresi ve kalite özellikleri üzerine modifiye atmosfer paketlemenin (MAP) etkileri araştırılmıştır. Ambalajlanan ve kontrol grubu oluşturulan brokoli taçları 2±10C sıcaklık ve %90-95 oransal nemde 4 hafta süre ile muhafaza edilmiştir. Soğukta muhafaza süresince birer haftalık aralıklar ile ağırlık kaybı, toplam fenolik bileşik miktarı, antioksidan kapasitesi, toplam klorofil miktarı ve dış görünüş değerlerindeki değişimler belirlenmiştir. Araştırma sonucunda, kontrol grubu taçlarında modifiye atmosfer paketler de muhafaza edilen taçlara göre daha yüksek ağırlık kaybı meydana gelmiştir. İncelenen her iki çeşitte, depolama süresince toplam fenolik bileşik, antioksidan kapasitesi ve toplam klorofil miktarı bakımından değişkenlikler gözlemlenmekle birlikte, muhafaza süresi sonunda her iki çeşitte MAP uygulanmış taçların daha yüksek içeriğe sahip olduğu tespit edilmiştir. Soğukta muhafaza süresince hem açıkta hem de MAP'da muhafaza edilen brokoli taçlarının dış görünüşünde kayıplar belirlenmiştir. Fakat MAP uygulaması ile dış görünüşte meydana gelen kayıp sınırlandırılmıştır. Sonuç olarak MAP, soğukta muhafaza edilen brokoli taçlarının kalitesini korumak için bir araç olarak kullanılabileceği önerilebilir.

Anahtar kelimeler: Brokoli, MAP, Antioksidan, ağırlık kaybı, klorofil miktarı.

## [23] Sarı, H., D. Boyraz Erdem, 2017. Assessment of Chemical Properties of The Soils In The Catena Which Forms Tekirdağ Değirmenaltı-Muratlı Intersection Ringroad. SEAB2017. 3<sup>rd</sup> International Symposium on EuroAsian Biodiversity. 05-08 July 2017. Belarus. P:276.

In this study, the chemical composition of Inceptisol, Entisol and Vertisol type soils in the catena established from the İstanbul entrance of Tekirdağ ringroad to Bağlar district and the Muratlı crossroad have been investigated. For determining locations of model profiles, 1 / 100.000 and 1 / 25.000 scaled Tekirdağ Land Soil Inventory topographic maps which were produced by the General Directorate of Soil Water were used. After detailed field observations ten points were chosen to extract soil properties and they were described and sampled based on the genetic horizon designations. Among the sampled soils, Ca, Mg, Na, K and CEC (Cation Exchange Capacity), Organic matter, lime, total N and salt; available Fe, Mn, Zn, Cu are determined as the chemical parameters. As results, the pH of the soils were generally neutral, the salinity problem was not detected, the scale of the lime was generally less calcified, organic matter was detected moderately and less. Na, Fe and Mn values in Vertisol type soils and CEC, N, Ca, Mg, K, Cu, and Zn values in Inceptisol type soils were observed as lowest values. The highest values were observed for all elements in Inceptisol type soils.

Key words: Chemical composition, Soils, Catena, Tekirdağ.

# [24] Solmaz, Y., A. Adiloğlu, 2017. Determining Boron (B), Molybdenum (Mo) and Sodium (Na) Nutritional Status of Walnut Orchards in Tekirdağ Province by Leaf Analysis. 2<sup>nd</sup> International Balkan Agriculture Congress, Abstract Book, p: 542, 16-18 May, Tekirdağ.

This study was conducted to determine the B, Mo and Na nutritional status of walnut orchards in Tekirdağ province by leaf analysis. For this aim leaf samples taken from 46 different orchards in all walnut grown districts at Tekirdağ were analysed. The results were compared with the critical limit values for each element and nutritional problems of walnut have tried to be determined. According to the results of leaf analysis, Molybdenum (Mo) element was found insufficient in 15 %, sufficient in 26 % and high in 59 %; Boron (B) element was determined sufficient in 93 % and high in 7 %; Sodium (Na) element was identified sufficient in 59 % and high in 41 % of leaf samples.

Key words: walnut, nutrient element, leaf analysis, Tekirdağ.
#### [25] Soycan Önenç, S., F. Koc, L. Coşkuntuna, L. Özdüven, T. Gümüş, 2017. Kekik ve Tarçın Uçucu Yağlarının Yem Bezelyesi Silajlarının Fermantasyon Kalitesi ile *In Vitro* Metabolik Enerji İçerikleri Üzerine Etkileri. Hayvansal Üretim. 58(2): 39-44.

Bu araştırma kekik (KK) ve tarçın (TRN) uçucu yağlarının, organik asit (OA) alternatifi olarak yem bezelyesi silajlarının fermantasyon kalitesi ve *in vitro* metabolik enerji (ME) içerikleri üzerine etkilerini belirlemek amacıyla yapılmıştır. Araştırmada kullanılan yem bezelyesi bakla oluşum döneminde hasat edilmiş (48 saat soldurma) ve yaklaşık 1.5-2.0 cm boyutunda parçalanmıştır. Parçalanan taze materyale 5g/kg düzeyinde organik asit, 400 mg/kg kekik uçucu yağı, 400 mg/kg tarçın uçucu yağı ve 400+400 mg/kg kekik+tarçın uçucu yağı (KKTRN), kontrol (KON) grubuna ise saf su katılmıştır. Yaklaşık 2 kg örnek plastik torbalara konularak vakumla içindeki hava alınmış ve 2-3 kat streç filmle kaplanmıştır. Silolamadan 120 gün sonra açılmıştır. Araştırmada kullanılan kekik ve tarçın uçucu yağı, yem bezelyesi silajlarının asetik asit (AA) ve Enzimde Çözünen Organik Madde (EÇOM) içeriklerini olumlu yönde etkilemiştir. Ancak, bütün sonuçlar birarada ele alınarak değerlendirildiğinde, silajların sarıldığı kat sayılarının arttırılarak çalışmanın tekrarlanmasının gerekli olduğu sonucuna varılmıştır.

Anahtar kelimeler: Yem bezelyesi, silaj fermantasyonu, uçucu yağ, metabolik enerji.

#### Effects of Essential Oils of oregano and Cinnamon on Fermentation Quality and In Vitro Metabolic Energy of Field Pea Silages

This study was performed to determine the effect of field pea silages which are the organic acid alternative of Oregano and cinnamon essential oils on fermentation quality and metabolic energy (ME). Whole field pea was harvested at full pod stage and wilted in the laboratory at the 48 h. The chopped pea was mixed and divided into equal portions for application of five treatments: CON; distilled water, denoted as treatment control; treatment OA; organic acid, 5 g/kg of fresh forage, treatment ORE; *origanum onites* L. essential oil at 400 mg, treatment CIN; *cinnamon* essential oil at 400 mg, treatment ORECIN; ORE + CIN, a mixture of ORE and CIN applied at an equal rate of 400 mg of fresh forage. The oregano and cinnamon essential oil used in the research affected the acetic acid and Enzymatic solubility of organic matter (ESOM) positively in the 120 day silage of the field pea silages. However, when all the results of the research were evaluated together, it was concluded that it is necessary to repeat the work by increasing the number of layers in which the silages are wrapped.

Key words: Field pea silage, silage fermantation, essential oil, metabolic energy.

#### [26] Şahin, G., N, Özder, 2017. Düzce İlinde Fındık Üretim Alanlarında Görülen Yazıcıböcek Türleri (Coleoptera: Scolytidae) Üzerine Araştırmalar. Journal of Tekirdag Agricultural Faculty, 14(03): 27-37.

Düzce ili Esentepe, Çamlıpınar ve Hamamüstü köylerindeki fındık üretim alanlarındaki yazıcıböcek türleri (Col: Scolytidae) 2013 ve 2014 yılında yapılan bu çalışma ile tespit edilmiştir. Çalışma sonucunda, *Xyleborus dispar* Fabricius, *Xyleborus saxeseni* Ratzeburg, *Xyleborus germanus* Blanford ve *Lymantor coryli* Perris olmak üzere 4 tür saptanmıştır. Bu zararlılardan *L. coryli*' ye sadece Çamlıpınar köyünde çok az oranda rastlanılmıştır. 2014 yılında Esentepe köyünde diğer türlere oranla *X. dispar* erginlerinin sayısı fazla iken Çamlıpınar ve Hamamüstü köylerinde *Xyleborus saxeseni* erginlerinin sayısı daha fazla bulunmuştur. Çamlıpınar köyündeki yazıcıböceklerin 2013 yılındaki ilk ergin çıkışları 13-18 Mart arasında belirlenmiştir. 2014 yılında *X. dispar* ve *X. saxeseni*'nin ilkbahardaki ilk ergin çıkışları Mart ayının ikinci haftasından itibaren (13-19 Mart) saptanmışken, *X. germanus*'un ilkbahardaki ilk ergin çıkışları Mart ayının son haftasında (21-27 Mart) olmuştur. *X. dispar*'ın yaz dönemindeki çıkışı Temmuz ayının ilk haftasından itibaren başlamıştır.

**Anahtar kelimeler:** Düzce, Fındık, *Xyleborus dispar, Xyleborus saxeseni, Xyleborus germanus*, *Lymantor coryli*.

#### Research on Bark Beetle Species (Coleoptera: Scolytidae) Seen in Hazelnut Orchards in Düzce

This study was carried out to determine the bark beetles species collected in Düzce (Esentepe, Çamlıpınar and Hamamüstü) during the 2013-2014. Four bark beetles (Col: Scolytidae), were determined at the end of this study. These species are *Xyleborus dispar* Fabricius, *Xyleborus saxeseni* Ratzeburg, *Xyleborus germanus* Blanford and *Lymantor coryli* Perris. *L. coryli* was found very few rate in only Çamlıpınar village. The number of *X. saxeseni* adults was found much more in the village of Hamamüstü and Çamlıpınar while in Esentepe the number of *X. dispar* bark beetles was more compared to the rate of other species in 2014. First adult flights of bark beetles in Çamlıpınar village were determined between 13-18 March in 2013. First adult flights *X. dispar* and *X. saxeseni* in spring were determined from the second week of March (13-19 March), the first adult flights of *X. germanus* happened at the last week of July. The harm rate of bark beetles were determined in hazelnut orchards in 2013 and 2014.

**Key words:** Düzce, Hazelnut, *Xyleborus dispar*, *Xyleborus saxeseni*, *Xyleborus germanus*, *Lymantor coryli*.

#### [27] Tan, F, I.S. Dalmış, B. Kayışoğlu, E. Okur, 2017. Toprak Üstü Beton Siloda Sıkıştırma Kuvvetinin Belirlenmesi. 2<sup>nd</sup> Ulusal Biyosistem Mühendisliği Kongresi, 29 Haziran-1 Temmuz 2017. s.76, Tokat.

Sıkıştırma işlemi silaj yapımında en önemli uygulamadır. Eğer sıkıştırma gereğinden az olursa kayıplar artmakta ve silaj kalitesi kötüye gitmektedir. Bu çalışmada sıkıştırma aşamasında uygulanan sıkıştırma kuvvetinin belirlenmesi temel amaçtır. Bunun için basınç ölçüm sistemi geliştirilmiştir. Silonun farklı bölgelerini karakterize edebilmek amacıyla silo içerisinde ölçüm noktaları belirlenmiştir. Bu noktalara basınç ölçüm sensörleri yerleştirilmiştir. Silajlık kıyılan mısır toprak üstü beton siloda CAT 955 L sahip iş makinesi (2,03 m2 yüzey alanına) ile sıkıştırılmıştır. Sıkıştırma süresince algılayıcı kürelere gelen basınç veri toplama ünitesinde kayıt edilmiştir. Ölçümler silolama süresince devam etmiştir. Silolama aşamasında ve sonrasında materyal üzerinde kalan toplam basınç belirlenmiştir. Araştırmada veri toplama ve depolama sisteminde Labview programı kullanılmıştır. Silo içerisinde uygulanan sıkıştırma işlemine bağlı olarak farklı basınç değerleri ölçülmüştür. Bölgelere ve katmanlara göre basınç değişimi istatistiki olarak (P>0.05) önemli bulunmuştur.

Anahtar kelimeler: Toprak üstü beton silo, Sıkıştırma, Basınç, Silaj.

#### [28] Tenikecier, H.S., A. Orak, H.H. Orak, L. Özdüven, 2017. Farklı Fosfor Dozlarının Tekirdağ Koşullarında Bazı Ak Acıbakla (*Lupinus Albus* L.) Genotiplerinin Verim ve Verim Unsurlarına Etkisinin Belirlenmesi. 12. Tarla Bitkileri Kongresi, 12-15 Eylül, Kahrmanmaraş, Türkiye.

Bu araştırma, 1 farklı çeşit ve 1 ekotipin Tekirdağ koşullarında verim ve verim unsurları performanslarının belirlenmesi amacıyla yürütülmüştür. Araştırmada, 1 ak acıbakla çeşidi (Lolita) ve 1 ak acıbakla genotipi (Konya) materyal olarak kullanılmıştır. Araştırmada fosfor kaynağı olarak DAP gübresi (18-46-0) ve Timac Eurocereal Plus MPPADUO gübresi (10-20-0+(2 MgO)+(20 SO<sub>3</sub>)+ME) kullanılmıştır. Çalışmada Kontol, 3,50 kg/da, 7,00 kg/da, 10,50 kg/da, 14,00 kg/da saf fosfor olacak şekilde gübreleme yapılmıştır. Çalışma 2016 – 2017 yetiştirme döneminde Namık Kemal Üniversitesi Ziraat Fakültesi Tarla Bitkileri Bölümü deneme alanında tesadüf blokları bölünmüş parseller deneme desenine göre 3 tekrarlamalı olarak yürütülmüştür. Ele alınan çeşitler 5 m uzunluğundaki parsellere 25 cm sıra arası olacak şekilde 20 sıra olarak ekilmiştir. Çalışmada, bitki boyu, meyve boyu, meyve eni, yan dal sayısı, bitkide meyve sayısı, meyvede tane sayısı, meyvede tane ağırlığı, tane verimi özellikleri incelenmiştir.

Anahtar kelimeler: Ak Acıbakla, Verim, Yeşil ot, Kuru Ot, Fosfor.

[29] Turan, D.Ç., Y. Oraman, 2017. Studies on Balkan and Near Eastern Social Sciences, Bölüm: Factors Determining Customers' Shopping Behaviour of Food Products Through E-Commerce: A Case Study, Yayın Yeri: Peter Lang, Editör: Yilmaz Rasim and Löschnigg Günther, 2017.

Recently food industry has become an important part of e-commerce sector. Thanks to the development of internet technology, the purchase and sale of food products are being made at virtual platform. Food companies have started to take part effectively in e-commerce area. In the scope of this study, it is aimed to analyse the approach of consumer's perception about food products by ecommerce in Turkey. The study has been carried out using subjects of 167 consumers in Tekirdağ province with the application of a face to face survey. A Likert type scale was used to evaluate each of the questions. The collected data was analysed in terms of the means, standard deviation and percent were calculated for the scores from the ecommerce to the food sector, opportunities, threats, deficiencies and contributions to agricultural sector have been addressed with Swot analysis. As a result, it has determined that nowadays the purchasing behaviours of the consumers have changed. Since it is easier, effortless, practical and gain of time, consumers prefer alternative shopping options. This paper provides a unique insight into a wide range of e-commerce of some food products and habits among consumers.

Key words: e-commerce, food products, consumer perception.

E. Ulusal bilimsel toplantılarda sunulan ve bildiri kitaplarında basılan bildiriler

#### [1] Arat, S., 2017.Hayvan Biyoteknolojisinin Dünyada ve Ülkemizdeki Gelişimi. 6. Ulusal Moleküler Biyoloji ve Biyoteknoloji Kongresi, 5-7 Ekim, Adana.

Biyoteknoloji, insan sağlığını, hayvan sağlığını ve refahı ve hayvancılıkta verimliliği artırmak için yeni araçlar sunmaktadır. Hayvanlar, biyoteknolojinin ilerlemesinde ve biyoteknolojiden gittikçe daha fazla fayda sağlanmasında artan bir rol oynamaktadır. Biyoteknoloji, yediğimiz yiyecek - et, süt ve yumurta - geliştirir. Biyoteknoloji bir hayvanın çevre üzerindeki etkisini artırabilir. Ve biyoteknoloji, hastalıkları saptama, tedavi etme ve önleme yeteneklerini geliştirir. Suni dölleme, embriyo transferi ve in vitro fertilizasyon, embriyo ve sperma cinsiyet ayrımı, genetik materyallerin kriyoprezervasyonu, hayvan klonlaması gibi diğer yardımcı üreme tekniklerinde olduğu gibi hayvan yetiştirme programları da gelişir. Hayvanlar uzunca bir süre tarım için seçilmiş olup, büyüme hızı, süt veya yumurta verimi ve diğer üretkenlikle ilgili özelliklerde çarpıcı bir iyileşmeye neden olmuştur. Gen aktarım tekniklerindeki ilerlemelerle birlikte, biyoteknoloji ile güvenilir ve kaliteli ürün veren hayvanların üretimi daha mümkün hale gelmiştir. Biyoteknolojide rekombinant DNA teknikleri, bir bitkiden, hayvandan veya mikroorganizmadan alınan DNA'nın başka birine aktarılmasıdır. Bu teknoloji, gıda üretimini veya kalitesini arttırmak için kullanılabilir (örn., Daha hızlı büyüme, iyilestirilmis hastalık direnci); Terapötik kullanım için farmasötik ürünler üretmek; Hayvanlarla insan etkileşimini arttırmak (örneğin, yeni renk çeşidi akvaryum balıkları); Biyomedikal araştırmalar için hayvan modelleri geliştirmek; Veya endüstriyel veya tüketici ürünleri (örneğin, çoklu kullanımlar için lifler) üretmek için kullanılabilir. Birçok transgenik hayvan, hastalık modelleri olarak hizmet ederler. Bu hayvanlar genellikle yeni ilacların nasıl isleyeceğini ve insanlar için güvenli olup olmadıklarını ve hastalıkların tedavisinde etkili olup olmadıklarını anlamamıza yardımcı olmak için kullanılmaktadır. Biyoteknologlar ayrıca bağışıklık sistemi tarafından üretilen ve biyoteknolojide birçok açıdan kullanılan proteinler olan antikorlar üretmek için hayvanlardan elde edilen hücreleri kullanıyorlar. Tarımda, genetik test gibi biyoteknoloji yöntemleri, süt veya et üretmek için en iyi hayvanları tanımlamak ve hastalığa karşı en dayanıklı olan hayvanları bulmak için kullanılır. Biyoteknoloji, çevreye zarar vermeyen hayvanları üretmenin yanında nesli tükenmekte olan türlerin korunmasına da yardımcı olabilir. Ülkemizde de çeşitli transgenik hayvan modeli üretilmiş, Anatolian yerli sığır ırkı dünyada ilk defa somatik hücre nükleer aktarımıyla klonlanmış, ilk ulusal hayvan gen bankası kriyoprezervasyon teknolojileri kullanılarak kurulmuştur. Gelinen nokta hayvan biyoteknolojinin tüm dünyada girerek artan bir ivme ile gelişmesine devam edeceğini göstermektedir.

Anahtar kelimeler: Hayvan, biyoteknoloji, gen transferi, hayvan klonlama.

# [2] Arın, L., H. Balcı, 2017. The Effect of Some Organic Acid and Plant-Derived Material Treatments on the Germination, Emergence and Seedling Traits of Broccoli. I. Uluslararası Organik Tarım ve Biyoçeşitlilik Sempozyumu, 27-29 Eylül 2017, Bayburt.

The research was carried out to investigate the effect of plant materials which are used as an alternative to synthetic chemicals in organic agriculture (thyme, mint, basil and garlic oil, hot pepper, and neem tree seed extract) and some organic acids (salicylic and jasmonic acid) on the germination, emergence, and seedling traits in broccoli (Brassica oleracea var. italica) cv Jade. The seeds of broccoli treated with these materials were subjected to germination and emergence tests at 20±1 °C and 60±5 RH in autumn period. After that, all seeds (including untreated) were kept at 5±1 °C and again evaluated for germination, emergence, and seedling traits in spring period. In spring period, the seeds treated with neem seed extract gave highest germination percentage (91,75 %). Also, they germinated shortest time (3,80 days). The lowest germination/emergence percentage and highest mean germination/emergence time was obtained from the seeds treated with thyme oil in both periods. The seeds treated with basil oil had the higher infected seedlings than others. There were no significant differences among treatments in term of seedling traits (except leaf number).

Anahtar kelimeler: Brassica oleracea var. italica, seed, organic treatments.

### [3] Arslan, B., E. Culpan, 2017. Salisilik Asit Uygulamasının Aspir (*Carthamus tinctorius* L.) Çeşitlerinin Verim ve Bazı Kalite Özelliklerine Etkisinin Araştırılması. Türkiye 12. Tarla Bitkileri Kongresi, 12-15 Eylül 2017, Kahramanmaraş.

Bu çalışma, Namık Kemal Üniversitesi Ziraat Fakültesi Tarla Bitkileri deneme alanında 2014 ve 2015 yıllarında olmak üzere iki yıl süreyle yürütülmüştür. Deneme Tesadüf Bloklarında Bölünmüş Parseller Deneme Desenine göre 3 tekrarlamalı olarak kurulmuştur. Araştırmada salisilik asidin aspir çeşitlerinin verim ve kalite özelliklerine etkilerinin belirlenmesi amaçlanmıştır. Çalışmada metaryal olarak iki aspir çeşidi (Dinçer ve Balcı) ve salisilik asidin 4 dozu (0, 0.1, 0.5 ve 1 mM) kullanılmıştır. Belirtilen bu dozlar çiçeklenme öncesi dönemde bitkiye püskürtme yoluyla uygulanmıştır. Bu amaçla çalışmada, tabladaki tohum sayısı, tabla çapı, 1000 tane ağırlığı, tohum verimi, kabuk oranı, yağ oranı ve protein oranı gibi karakterler incelenmiştir. Sonuçlar incelendiğinde SA uygulamasının aspir tohumlarında protein oranını artırıcı yönde teşvik ettiği görülürken, tohum verimi ve yağ oranı ortalamaları arasındaki fark önemsiz bulunmuştur. Her iki yılda da en yüksek tohum verimi Dincer ceşidinden elde edilmiştir (sırasıyla 120,49 ve 122,89 kg/da). En yüksek yağ oranı ise 2014 yılında Balcı çeşidinden (% 43,83), 2015 yılında ise Dinçer çeşidinden (% 35,99) elde edilmiştir. Çeşit x doz interaksiyonlarının protein oranına etkisi önemli bulunmuş ve her iki yılda da en yüksek protein oranı 0,1 mM SA uygulamasıyla Balcı çeşidinden elde edilmiştir (sırasıyla % 17,15 ve % 16,83)

Anahtar kelimeler: Aspir, salisilik asit, yağ oranı, protein oranı.

#### [4] Bahadır, F., Ö. Sağlam, 2017. Depolanmış Ürün Zarlılarının Kontrolünde Diatom Toprağı. 7. Ulusal Tarım Öğrenci Kongresi, 3-5 Mayıs 2017, Konya.

Tarımsal ürünler, beslenme konusunda ülkemizde ve dünyada büyük öneme sahiptir. Bu tarımsal ürünlerden özellikle buğday, pirinç, arpa, yulaf, çavdar, mısır insanların beslenmesinin başlıca kaynaklarını oluşturur. Bu tarımsal ürünlerde depolanmış ürün zararlıları yaklaşık % 10 oranında kayıplara neden olmaktadırlar. Depo zararlılarının bu ürünler ile beslenmeleri sonucunda ürünlerde ağırlık kayıplarına, tohumluk özelliğinin düşmesine, kalite ve besin değerlerinde olumsuz değişimlere yol açarak ticari değerinin düşmesine neden olmaktadır. Türkiye'de depolanmış ürün zararlılarıyla mücadelede insektisitlerle birlikte yaygın ve ucuz fumigant olarak alüminyum ve magnezyum fosfin kullanılmaktadır. Ancak son yıllara Fosfinin böceklerde dayanıklılığa neden olması ve etki etmemesine ilişkin yayınlar artmış ve dünya genelinde yüksek dayanıklı popülasyonlar tespit edilmiştir. Bunlara karşı güçlü bir alternatif olan diatom toprağı; zararlıların daha az direnç göstermesi, üründen kolay uzaklaştırılması ve kalıntı bırakmaması nedeniyle depolanmış ürün zararlısı böceklerin mücadelesinde kullanılmaya başlanmıştır. Kimyasal olarak incelendiğinde bünyelerinde yüksek miktarda Silisyum oksit (SiO<sub>2</sub>) içermektedir. Diatom toprağının böceklerin vücut duvarlarına yapışarak ve yağ hücrelerini absorbe ederek su kaybından ölümüne neden olduğu bilinmektedir. Ülkemizde henüz ticari bir formu satılmayan diatom toprağının; kullanımının kolay olması, depolanmış ürünlerde uzun süre kalabilmesi, dayanıklılık sorunu olmaması ve insanlara toksik kalıntı sorunu olmaması nedeniyle depo zararlılarıyla mücadelede kullanımının yaygınlaşacağı düşünülmektedir.

Anahtar kelimeler: Diatom toprağı, Tahıl, Depo Zararlıları, Fumigant.

#### [5] Baytur, S., K.G. Güner, H.M. Velioğlu, 2017. Geleneksel Antalya Mutfağı ve Turizme Tanıtımı. Turizm ve Mikrobiyal Gıda Güvenliği Kongresi.

Binlerce yıldır birçok kültür ve medeniyete ev sahipliği yapmış ülke coğrafyamız bu medeniyetlerin içinde sadece bilim, edebiyat ve sanat mirasçısı olmakla kalmamış, yemek kültürünü de adeta günümüze taşımıştır. Antalya bölgesi yayla kültürü yanında Girit göçmenlerine ait geleneksel yemekleri de mutfak kültürü içerisinde harmanlamıştır. Antalya mutfağında öne çıkan yemeklerin başında piyaz gelmektedir. Ülkenin diğer bölgelerinde yapılan benzer isimli yemeklerden farkı Antalya piyazının taratorlu (tahinli) olmasıdır. Bunun yanı sıra cive (fesleğen ile yapılan), enginarlı Girit kebabı, laba dolması (kuzu kaburgadan), biber frigya dolması, Alanya bohçası, Gökçesu pilavı, kabak çiçeği dolması, testi kebabı, alafaşı, borana, labada (ilibada otuyla yapılan) aşı, kirkitle (çivirdik), Askolibrus-kenger, Vruvez, Rapanovruvez, çulama, yörük kebabı, leğen kömbesi, hülüklü çorba, sedik aşı çorbası, tarhana çorbası, yayla çorbası, göce çorbası (alaçorba), yarpızlı çorba (dağ nanesi ve mısır ile yapılan), su böreği, salata ve mezelerden ise toros salatası, hibeş (Antalya mezesi), şakşuka yörenin bilinen ve tüm ziyaretçilere tanıtılması gereken yemeklerindendir. Reçellerden, patlıcan, bergamot, turunç reçeli, tatlılardan ise arap kadayıfı, kabak tatlısı, şilofta, Finike usulü muz tatlısı, aside, mizisra ve keşkek Antalya'da yaşayan halk tarafından beğenilerek tüketilen yöresel lezzetlerdir. Antalya'nın mevcut turizm potansiyeline olumlu katkılar yapacağı düşünülen yöresel mutfak kültürü tanıtımının bölge ziyaretçileri açısından da ilgi odağı olacağı düşünülmektedir. Bu derlemede Antalya mutfağına ait başlıca geleneksel yemek çeşitleri, tarihsel altyapıları da incelenerek tanıtılmıştır

Anahtar kelimeler: Antalya mutfağı.

#### [6] Dülger, G.Ç., Ü. Geçgel, 2017. Uçucu Yağların Elde Edilmesinde Kullanılan Modern Teknolojiler. YABİTED III. Bitkisel Yağ Kongresi, 12-15 Nisan, İzmir, 51.

Uçucu yağlar; hidrodistilasyon, buhar distilasyonu, organic-çözücü ekstraksiyonu, presleme ve es zamanlı distilasyon-ekstraksiyon teknikleri gibi geleneksel yöntemlerle elde edilmektedir. Uçucu yağlar; bitkilerin karışık kompleks yapılarında az miktarda bulunan özellikle hidrokarbonlar ve oksijenle yükseltgenmiş bileşikler gibi maddelerden oluşan kompleks yapıda yağlardır. Bitkinin karmaşık yapısına çözücünün ulaşamaması, uçucu yağları oluşturan bazı bileşiklerin tam olarak ekstrakte edilememesi, ısı uygulaması ile meydana gelen termal bozulmalar, yüksek işlem maliyeti gibi dezavantajlar nedeniyle geleneksel yöntemler yerine modern çevre dostu teknolojiler geliştirilmiştir. Bu nedenlerle, uçucu yağların ekstraksiyonunda kullanılmak üzere; ultrason destekli ekstraksiyon, ohmik destekli ekstraksiyon, yüksek basınç çözücü ekstraksiyonu, süper kritik akışkan ekstraksiyonu ve mikrodalga destekli ekstraksiyon gibi yöntemlerle ile ilgili birçok araştırma ve uygulama yapılmıştır. Ohmik ve mikrodalga uygulamaları genellikle hidrodistilasyon yöntemiyle birlikte kullanılmakta, işlemin başlangıcında uygulanan ısıtma işleminin daha hızlı gerçekleştirilmesinde yararlanılmaktadır. Ultrason ve yüksek basınç uygulamaları, kullanılan cözücünün bitkinin kompleks yapısına difüzyonunu kolaylastırmakta böylece elde edilen uçucu yağ miktarını arttırmaktadır. Süper kritik akışkan ekstraksiyonunda ise uçucu yağları oluşturan tüm maddeleri çözebilecek süper kritik akışkanların kullanılması ya da bu akışkanlarla birlikte farklı çözücülerin kullanılması mümkündür. Böylece uçucu yağları oluşturan ya da uçucu yağlarla birlikte istenen farklı bileşiklerin de ekstraksiyonu kolaylaşmaktadır. Bu çalışmada geçmişte yapılan çalışmalar incelenerek; bahsedilen yeni tekniklerin uçucu yağların eldesinde kullanımları karşılaştırılarak değerlendirilmiştir.

Anahtar kelimeler: uçucu yağ, ekstraksiyon, ultrason, süperkritik akışkan, mikrodalga.

#### [7] Geçgel, Ü., R. Güneş, Ş. Kurultay, 2017. Yumuşak Çekirdekli Meyvelerden Elde Edilen Çekirdek Yağlarının Fizikokimyasal Özellikleri. II. Ulusal Yumuşak Çekirdekli Meyve Türleri Sempozyumu, 26-28 Ekim, Tokat, 42.

Gülgiller (Rosaceae) familyasında ekonomik değeri olan ve yaygın bir şekilde tüketilen elma, armut, ayva gibi yumuşak çekirdekli meyveler yer almaktadır. Gıda endüstrisinde her yıl bu meyvelerin işlenmesi sonucunda önemli miktarda yan ürün açığa çıkmaktadır. Bu yan ürünlerin içerisinde yer alan çekirdekler, özellikle içerdikleri yağ oranı ve diğer bileşenler açısından yakın zamanda oldukça önem kazanmış ve birçok çalışmada araştırma materyali olarak yer almıştır. Yapılan araştırmalarda etkin bir şekilde değerlendirilemeyen çekirdeklerin önemli oranda yağ içerdiği ve bu yağlardan elde edilebilecek yağ asitleri bileşimi incelenmiş ve doymuş yağ asitleri oranın düşük, doymamış yağ asitleri oranının ise yüksek çıktığı görülmüştür. Özellikle tekli doymamış yağ asiti olarak bilinen Oleik asit (C18:1) bazı elma çekirdekleri yağında en yüksek % 38,00, çoklu doymamış yağ asitlerinden olan Linoleik asit ise (C18:2) bazı armut çekirdekleri yağında % 63,00 olarak bulunmuştur. Bu nedenle söz konusu meyvelerin çekirdek yağları sahip oldukları özellikler bakımından sadece gıda amaçlı olarak değil, aynı zamanda ilaç ve kozmetik gibi farklı endüstrilerin de ilgisini çekmektedir. Bu çalışmada, doğal bileşenlerin elde edilmesinin yanı sıra önemli ekonomik avantajların da sağlanabileceği elma, armut ve ayva çekirdeklerinin, içermiş olduğu yağ miktarı ile bu yağların fizikokimyasal özellikleri araştırılmış ve birbiri ile kıyaslanması amaçlanmıştır.

Anahtar kelimeler: Gülgiller (Rosaceae), meyve çekirdeği, yağ asitleri bileşimi.

#### [8] Geçgel, Ü., R. Güneş, Ş. Kurultay, 2017. Muşmula (*Mespilus germanica* L.) Meyvesinin Kimyasal Özellikleri ve Sağlık Üzerine Etkileri. II. Ulusal Yumuşak Çekirdekli Meyve Türleri Sempozyumu, 26-28 Ekim, Tokat, 81.

Gülgiller (Rosaceae) familyasının bir üyesi olan ve yumuşak çekirdekli meyveler arasında yer alan Muşmula (Mespilus germanica L.), Güneybatı Asya, Güneydoğu Avrupa ve Kuzey Amerika'da, kayalık ve kıraç topraklarda yaygın olarak yetişen bir meyve türüdür. Türkiye'de ise özellikle Kuzey ve Batı Anadolu ile Marmara bölgelerinde bol miktarda bulunmaktadır. Muşmula meyvesi küremsi veya armut şeklinde olup genellikle 3-5 cm çapındadır. Muşmulanın en yaygın kullanımı, olgunlaşma tamamlandıktan sonra taze tüketim şeklindedir. Diğer yandan meyvelerin reçel, marmelat, jöle ve şurup yapımında da kullanımı mevcuttur. Muşmulanın sağlık üzerine etkileri antik zamanlardan beri bilinmektedir. Modern tıpta kabızlık, diüretik tedavi ve böbrek ile mesane taşlarının atılmasında yaygın bir biçimde kullanılmaktadır. Muşmuladan yapılan ezme veya şurup, bağırsak iltihabının tedavisinde önerilmektedir. Son zamanlarda ise yenilebilir meyveler arasında muşmulaya yönelik artan bir ilgi olmuştur. Yapılan çeşitli araştırmalarda muşmula meyvelerinin kimyasal bileşimi, vitamin ve mineral komposizyonu, toplam fenolik madde miktarı, antioksidan aktivitesi, yağ asidi içeriği gibi çeşitli özellikleri ortaya konmuştur. Genel olarak muşmula meyvesinin bileşiminde % 3,7 protein, % 4,9 yağ ve % 11,4 ham selüloz bulunmaktadır. Bu çalışmada, ülkemizde yaygın bir şekilde yetişebilen ve sağlık üzerine olumlu etkileri bulunan ancak tüketimi sınırlı kalan muşmulanın kimyasal bileşiminin derlenmesi ve bu özelliklerin insan sağlığına yönelik etkileri hakkında bir fikir verilmesi amaçlanmıştır.

Anahtar kelimeler: Muşmula, kimyasal bileşim, antioksidan aktivite.

#### [9] Geçgel, Ü., Ş. Orcan, D. Apaydın, G.Ç. Dülger, M. Taşan, 2017. Enzimatik Degamming. YABİTED III. Bitkisel Yağ Kongresi, 12-15 Nisan, İzmir, 60.

Yağlı tohumlardan pres, solvent ekstraksiyon sonucunda elde edilen ham yağlar; trigliseritler, fosfolipitler, steroller, tokoferoller, serbest yağ asitleri, renk maddeleri, mineral maddeler ve diğer minör bileşenlerin karışımından oluşmaktadır. Ham yağın içerisinde bulunan bu maddelerin bazıları (uçucu bileşenler, vakslar, renk maddeleri, metaller) yağın tat, koku, lezzet, görünüş ve depolama stabilitesi üzerine olumsuz yönde etki etmektedirler. Bu nedenle, bu tür maddelerin ham yağlardan uzaklaştırılması ve yağın tüketiciler tarafından kullanılabilir hale getirilmesi gerekmektedir. Rafinasyon işleminin ilk aşaması olan degamming yağın yapısında yer alan fosfolipitlerin kısmen ya da tamamen yağdan uzaklaştırılması işlemidir. Bitkisel yağ fabrikalarında degamming işlemi su ve asit degamming olmak üzere başlıca iki şekilde gerçekleştirilmektedir. Degamming aşamasında fosfolipitlerin bu yöntemlerle uzaklaştırılması ile birlikte bir miktar trigiliserit kaybı da söz konusu olabilmektedir. Son zamanlarda bazı yağ fabrikalarında yağ verimi olumlu yönde arttırdığından dolayı fosfolipitlerin hidrolizi için enzimler kullanılmaya başlanmıştır. Bu amaçla Fosfolipaz A<sub>1</sub> ve Fosfolipaz C enzimleri yağ endüstrisinde ağırlıklı olarak kullanılan iki önemli enzim konumundadır. Bu enzimlerin yanında Fosfolipaz A2, Fosfolipaz B ve lipit açiltransferaz gibi enzimler de yağ endüstrisinde ticari olarak kullanılmaktadır. Ticari enzimlerin degamming aşamasında kullanımının diğer avantajları arasında biyolojik güvenlik, çevreye zarar vermeyişi (yeşil teknoloji) ve çevreyle dost olması, düşük enerji tüketimi ile birlikte daha risksiz (ılımlı) reaksiyon şartları sayılabilir.

Anahtar kelimeler: Degamming, fosfolipitler, rafinasyon, enzimler

#### [10] Geçgel, Ü., Y. Güngör, G.Ç. Dülger, D. Apaydın, M. Taşan, 2017. İnteresterifikasyon Yöntemi ile Üretilen Yağların Sağlık Üzerine Etkisi. YABİTED III. Bitkisel Yağ Kongresi, 12-15 Nisan, İzmir, 61.

Trans yağ asitlerinin insan sağlığı üzerindeki olumsuz etkilerinin bilimsel olarak ispatlanması sonucunda margarin endüstrisinde uygulanan hidrojenasyon tekniğinin yerini interesterifikasyon tekniği almıştır. İnteresterifikasyon, yağ modifikasyon teknikleri arasında yer alan ve gliseritlerdeki yağ asiti köklerinin yer değiştirmesi ile istenen fiziksel özellikte ve değişik kristalizasyon davranışlarında margarin hammaddesi katı yağ üretimini mümkün kılan bir dizi reaksiyon tepkimesidir. İnteresterifikasyon tekniği günümüz margarın endüstrisinde kimyasal ve enzimatik olmak üzere iki şekilde yapılmaktadır. Enzimatik proses için işlem sıcaklığı yaklaşık 70°C iken, kimyasal prosesin uygulanması daha yüksek sıcaklıklarda gerçekleştirilmektedir. Kimyasal interesterifikasyonda katalizör olarak genellikle metal alkolat kullanılırken, enzimatik interesterifikasyonda bu işlem için biokatalizörlerden yararlanılmaktadır. Her iki yöntemin birbirine göre avantaj ve dezavantajları olmakla birlikte kimyasal interesterifikasyon, enzimatik interesterifikasyona göre margarin sanayinde daha fazla uygulanma alanına sahiptir. İnteresterifikasyon tekniğinin margarin endüstrisinde uygulanmaya başlaması ile birlikte özellikle trans yağ asitleri oluşumunda ciddi oranda azalmalar meydana gelmiş ve bu tekniğin uygulanması sonucu üretilen gıda ürünleri tüketiciler açısından daha güvenilir bulunmuştur. İnsan sağlığının gittikçe önemli hale geldiği günümüzde tüketicilerin beslenme alışkanlıklarına daha fazla dikkat etmesine bağlı olarak margarin endüstrisi de bu bağlamda üzerine düşen sorumluluğu yerine getirmek için yeni teknolojileri uygulamakla birlikte daha sağlıklı yağları tüketicilerin beğenisine sunacaktır.

Anahtar kelimeler: Transyağ asidi, yağ, interesterifikasyon.

#### [11] Özdinç, N., S. Baytur, H.M. Velioğlu, 2017. Tekirdağ İli Ceviz (*Juglans regia* L.) Meyvesinin Mikrobiyolojik Açıdan Değerlendirilmesi. Turizm ve Mikrobiyal Gıda Güvenliği Kongresi.

Ceviz ağacı (Juglans regia L.) Güneydoğu Avrupa, Asya, Hindistan ve Çin gibi ülkelerde doğal yetişen bir bitkidir. Türkiye'de ise her bölgede doğal yetişen bitkidir. Ülkemizde ceviz, özellikle kuru meyve seklinde tüketilmektedir. Bitkinin meyve özellikleri son derece değerlidir. Bu çalışmada Tekirdağ İli sınırları içinde 5 farklı bölgeden ceviz numuneleri toplanmıştır. Ceviz örneklerinde toplam mezofilik aerobik bakteri (TMAB) ve küf-maya sayımları yapılmıştır. Mikrobiyolojik ekim sonuçlarına göre, deneysel olarak numuneler arasında istatiksel farklılık tespit edilmiştir (P< 0,05). Örneklere ait TMAB sayım sonuçları incelendiğinde tespit edilen değerlerin 1,15 ile 5,68 log kob/g aralığında olduğu görülmüştür. Diğer taraftan küf-maya sayımı sonuçlarına göre ceviz örneklerinde en düşük 2,20 en yüksek ise 5,36 log kob/g toplam küf-maya sayısına ulaşılmıştır. Özellikle kabuklu yemişlerde ciddi bir sağlık riski oluşturan mikotoksijenik küfler dikkate alındığında, tüketime hazır haldeki cevizlerde küf varlığının mikrobiyolojik gıda güvenliği açısından önemli olduğu kabul edilmektedir. Araştırma sonucunda elde edilen mikrobiyolojik sayım sonuçları değerlendirildiğinde, yüksek miktarda mikroorganizma içeren ceviz örneklerinin hasat, kurutma, depolama, taşıma ve satış aşamalarında gerekli hijyenik koşullara uyulmadığı düşünülmektedir. Diğer taraftan sayım sonuçları düşük çıkan örneklerde daha yüksek bir hijyen pratiği uygulandığı kabul edilebilir. Ancak bazı mevzuat dışı uygulamalar yaparak üründe küf oluşumunu engellemek için kimyasal kullanımı ihtimalinin de bulunduğu dikkate alınmalı ve mikrobiyolojik analizler yanında kalıntı analizlerinin de rutin olarak yapılması gerektiği düşünülmektedir. Tüm veriler analiz edildiğinde doğrudan tüketiciye sunulan ve genelde yerel olarak işleme ve satışı yapılan bu tip ürünlerde üreticilere gerekli hijyen pratiklerinin öğretilmesinin önemli olduğu düşünülmektedir.

Anahtar kelimeler: Ceviz, (Juglans regia L.).

### [12] Özdinç, N., H.M. Velioğlu, K.G. Güner, 2017. Çağımızda Gıda Alerjileri. Turizm ve Mikrobiyal Gıda Güvenliği Kongresi.

Son dönemde gıda güvenliği açısından büyük önem kazanan ve birçok gıda üreticisi ve tüketicisini karsı karsıva getiren konuların basında gıda alerjileri gelmektedir. Alerji terimi, 1906 yılında, Avusturyalı pediatrist "Clemens von Pirquet" tarafından ortaya atılmıştır. Clemens von Pirquet'e göre gıda alerjisi; "aşırı duyarlılık (hipersensitivite), alerjen veya antijene karşı vücudun abartılı veya beklenmeyen immün cevabı" olarak tanımlamıştır. Gıda alerjisi büyük oranda çocuklarda gözlenmekte olup, bunun % 75' i yumurta, fıstık, inek sütü, 37 balık ve farklı türdeki kabuklu yemişlerden kaynaklanmaktadır. Yetişkinlerde görülen gıda alerji reaksiyonları ise, % 50'si lateks grubu meyveler, Rosaceae (gülgiller) ve Apiaceae (maydanozgiller) familyası sebzelerden, farklı yemişler ve fıstık kaynaklı ortaya çıkmaktadır. Fakat gıda alerjilerinin oluşmasından genetik özelliklerin yanı sıra beslenme alışkanlıkları da önemli rol oynamaktadır. Çoğu insanda gıdalara karşı istenmeyen reaksiyonlar gözlenmezken, bazı insanlarda da anafilaksi gibi ciddi olabilen, farklı klinik bulgulara da rastlanabilmektedir. Bu alerjik reaksiyonlar vücutta farklı etkilerde ve farklı belirtileri de oluşabilmektedir. Örneğin, solunum sisteminde; saman nezlesi, gözlerde kaşıntı, kulak ağrısı, deride; egzama, kurdesen, isilik, sindirim sisteminde; kabızlık, bulantı, kusma, sinir sisteminde; migren, sinirlilik ve diğer belirtiler de baş ağrısı, ses kısıklığı, düşük dereceli ateş, solukluk ve göz çevresinde koyu halkalar şeklinde oluşmaktadır. Bu derlemede, turizm sektörünün de önemli bir ayağını oluşturan beslenme hizmetleri ve özellikle toplu tüketim alanındaki profesyoneller ve hizmet alanların gıda alerjisi hakkında bilinçlendirilmesi hedeflenmiştir. Bu amaçla alerjen özellik gösteren gıda bileşenleri, alınabilecek önlemler ve tüketicileri bilgilendirme yolları üzerinde detaylı olarak durulmuştur.

Anahtar kelimeler: Gıda alerjileri.

F. Diğer dergiler

[1] Arat, S., 2017. Hayvan Klonlama. Güncel Biyoteknoloji ve Uygulamaları, Mgrup Matbaacılık, Kayseri.

[2] Arın, S., 2017. Tarımda Çağdaş Yaklaşımlar ve Geleceğin Tarımı. ZMO İstanbul Şubesi, Barış Manço Kültür Merkezi, 18.04.2017. İstanbul.

[3] Arın, S., 2017. Ölçme Bilgisi. Namık Kemal Üniversitesi, Ders Kitabı, Tekirdağ.

#### [4] İnan, İ.H., 2017. Tarım, Hayvancılık ve Gıda Sanayi Yatırım Projeleri Hazırlama Tekniği. İdeal Kültür & Yayıncılık, 160 s, İstanbul.

Bu kitabın amacı, Ziraat Fakültelerinde *"Yatırım Projeleri Hazırlama Tekniği"* dersini alan lisans öğrencilerine temel bilgiler vermektir. Bununla birlikte; kitapta tarım ekonomistleri, ziraat ve gıda mühendisleri, kısaca yatırım projeleri fizibilite raporları hazırlamak isteyenlere yararlı bilgiler de bulunmaktadır. Kitapta yer verilen bilgilerin öğrencilere ve konuya ilgi duyanlara ışık tutacak nitelikte ve uygulamalı olmasına dikkat edilmiştir. Konuları daha iyi anlayabilmek ve kitaptan daha iyi yararlanabilmek için ekonominin temel ilke ve kavramlarını bilmek gerekir. Bu nedenle öğrencilerin bu dersten önce "Ekonomi" dersini almaları iyi olur. Kitapta işlenen konular; Proje Hazırlamaya Giriş, Proje Konusu, Piyasa Etüdü, Proje Kapasitesi, Proje İçin Kuruluş Yeri Seçimi, Teknik Analiz, Proje Giderleri ve Gelirleri, Proje Finansmanı, Proje Analizi, Çevresel Etki Değerlendirmesi, Gıda Sanayi Projesi Örneği, Hayvancılık Projesi Örneği olmak üzere 12 bölümden oluşmaktadır.

Anahtar kelimeler: Yatırım projesi, fizibilite, proje analizi, Çevresel Etki Değerlendirmesi.

#### [5] İnan, İ.H., 2017. Tarımsal İşletme Yönetimi. İdeal Kültür & Yayıncılık, 120 s., İstanbul.

Bu kitap, Ziraat Fakültelerinin Tarım Ekonomisi Bölümü öğrencileri başta olmak üzere Tarımsal İşletme Yönetimi dersini alan öğrenciler için hazırlanmıştır. Eser tarım işletmelerinin yönetimi ve işletmelerin ekonomik analizi konusunda temel bilgileri içermekte ve yedi ana bölümden oluşmaktadır. Birinci bölümde "Tarımsal İşletme Yönetimine Giriş" hakkında bilgi verilmiş, İkinci Bölümde "Tarımsal Üretim Ekonomisinin İlkeleri" uygulamadan örneklerle açıklanmıştır. Üçüncü bölümde "Tarımsal İşletme Performans Analizinin Temelleri" konusu örneklerle işlenmiş ve bu bilgilere dayalı olarak dördüncü, beşinci ve altıncı bölümlerde sırasıyla "Tüm İşletme Analizi", "Bilânço Analizi" ve "Brüt Kâr Analizi" konuları uygulamadan örneklerle açıklanmıştır. Yedinci bölümde "Tarımda Maliyet Hesabı" konusu kapsamlı olarak uygulamaya dönük örneklerle işlenmiştir. Bu şekilde bu dersi alan öğrencilerin ve tarımsal üretim alanında çalışan ziraat mühendisleri ile önder çiftçilerin tarım işletmelerinin yönetimi ve işletmelerin yıllık faaliyet sonuçlarının ekonomik analizi konusunda pratik yaşamlarında kullanabilecekleri özlü bilgilerle donatılmaları amaçlanmıştır.

Anahtar kelimeler: Tarım işletmesi, yönetim, işletme analizi, maliyetler, gelirler.

#### [6] Kocaman, İ., C. Kurç, 2017. Manda Barınaklarında Havalandırma ve Sisleme Sistemleri. İstanbul Manda Dergisi, 2017, 3(5): 12-17.

Manda barınaklarında, havalandırma ve sisleme sistemlerinin projelendirilmesinde amaç, iç ortamdaki sıcaklık, nem ve gazların istenen sınırlardan olan sapmalarını en düşük düzeylerde tutarak, hayvanlar üzerindeki iklimsel zorlamaları azaltmak ve daha rahat yaşam koşullarını sağlamaktır. Hayvansal üretimin ekonomik sınırlar içinde arttırılması, ıslah ve besleme ile ilgili çalışmaların yanında, barınaklarda iklimsel çevrenin optimal sınırlar içinde tutulması ile olasıdır.

[7] Orta, A.H., 2017. Rekreasyon Alanlarında Sulama. Namık Kemal Üniversitesi, Ders Kitabı.

## [8] Sağır, F.S., S. Varış, 2017. Perlitte Ortanca Tarımı. Plant Dergisi, (25): s.218-234.

Perlit ortamında ortanca yetiştirilmesi, genellikle ithal edilen diğer ortamlar yerine, ülkemizde bol miktarda bulunan perlitin kullanılmasıyla, daha ekonomik olarak yapılacaktır. Perlit ortamının en büyük avantajları; steril, iyi havalanan, az su tutan, KDK (Katyon değişim kapasitesi) düşük olduğundan bitki beslenmesi kolayca ayarlanabilen ve pH'sı nötr olan bir ortam olmasıdır. Ülkemizde büyük şirketler, ortancayı soğuklama süresini geçirmiş, torf doldurulmuş 10 cm'lik (400 ml) saksılarda, dormant bitki olarak yurt dışından ithal edip, 20 cm (4 L), 22 cm (5.5 L) veya 25 cm (8.5 L)'lik torf doldurulmuş saksılara dikerek, 2-3 aylık zorlamadan sonra satışa sunmaktadır. Bu şirketlere perlitte köklendirilip, 10 cm (400 ml) veya 12 cm (700 ml)'lik perlit doldurulmuş saksılarda yetiştirilen soğuklama süresini geçirmiş, dormant bitkiler de satılabilir. Bu da, döviz kaybını önler.

Anahtar kelimeler: Perlit, ortanca ve topraksız tarım.

### [9] Tan, F., F. Koç, 2017. Silaj Yapım Tekniği ve Mekanizasyonu. İstanbul Manda Dergisi, Ocak 2017, Yıl: 3, Sayı: 5, s.7-11.

Hayvan beslemede silaj yemlerin öneminin anlaşılması, silaj makinelerine yönelik teknolojinin hızla gelişmesine neden olmuştur. Silaj makinesi, silaj yapmak amacıyla yem bitkisini veya silajlık ürünü biçerek, kıyan ve üfleyerek taşıma aracına ileten makinelerdir. Günümüzde farklı özelliklere sahip çeşitli tiplerde silaj makineleri bulunmaktadır. Silaj makineleri genel olarak sıraya ekilmiş ürünlerin hasadına yönelik ve serpme ekilmiş ürünlerin hasadına yönelik olarak geliştirilmiş makinelerdir. Genel olarak sıraya ürünlerin hasadına yönelik olan silaj makineleri mısır silaj makinesi, serpme ürünlerin hasadına yönelik olan silaj makineleri ise ot silaj makinesi olarak bilinmektedir. Silaj makinelerinin; namlu toplama, sabit tip, kendi yürür tipleri ve kombine tip olmak üzere çeşitli tipleri bulunmaktadır.

### [10] Tan, F., 2017. Gübre Yönetimi. İstanbul Manda Dergisi, Ocak 2017, Yıl: 3, Sayı: 5, s.32-35.

Entegre Atık Yönetiminin temel prensibi atık oluşumunun önlenmesi, oluşumu önlenemeyen atıkların kaynağında azaltılması, oluşan atıkların mümkün olan en yüksek oranda yeniden kullanımı, geri dönüşümü ve geri kazanılması, değerlendirilemeyen atıkların ise çevre dostu yöntemlerle bertarafının sağlanmasıdır. Entegre atık yönetiminin temel bileşeni olan geri kazanım, aynı zamanda çevre kirliliğini uzun vadede azaltımanın da bir yoludur. Bu anlamda hayvan gübrelerinin üretimde bir girdi olarak kazanımı sağlanmalıdır.

#### [11] Varış, S., 2017. Sera Sebzelerinin Perlit Doldurulmuş Torbalarda Topraksız Yetiştirilmeleri. Köyüm Dergisi (15; 17; 18; 19): (70-77; 70-74; 52-56; 48-55).

Perlit torba kültüründe, 5-10 litre çok iri (hacimdeki taneciklerin % 80'i 1,5 - 5 mm çapında) perlit içeren naylon torbaların yan kısımlarında, yerden 3 cm yukardan ve yatay alarak 3 cm uzunluğunda yarıklar açılarak, diplerinde tüm ana ve iz elementleri içeren besin çözeltisi için, bir havuz oluşturulur. Başarının sırrı, bu havuzlarda sürekli besin çözeltisi bulundurmaktadır. Bu da, her bitkiye bir damlatıcı yerleştirerek, kışın günde 1-2, yazın ise 3-4 defa, % 10 dışarı akacak şekilde, sulu gübre uygulamasıyla yapılır. Bu perlitteki, pH, tuzluluk ve besin seviyesini istenen sınırlarda tutup, bitkiye sürekli optimum nem sağlar. Tüm hidroponik sistemlerin teknik bilgi istemesine karşın, perlit torba kültüründe bunun en az ve en basit olması, perlit sisteminin avantajlarının çokluğu ve ülkemizdeki perlit yataklarının bolluğu, seralarımızda en çok kullanılan en uygun hidroponik yöntemin, perlit torba kültürü olmasına yol açmıştır.

Anahtar kelimeler: Perlit, Topraksız kültür.

## [12] Varış, S., 2017. Saksılı Bitkilerde Sulama Bilimi ve Sanatı. Plant Dergisi (22): s. 204-211.

Bitkiseverin satın aldığı veya yetiştirdiği saksılı bitkinin ölümüne yol açan faktörlerden ilki, hatalı sulamadır. Sulama ve su kalitesi, bitki yetiştiriciliğindeki en önemli çevre faktörüdür. Sulama, bilim (kök ortamı ve su kalitesi) ve sanat (zamanında yeterli su verilmesi) olarak düşünülebilir. Bilimsel kısmı öğrenilebilir fakat sanatsal yönü için kabiliyet ve tecrübe gerekir. Bu makalede saksılı bitkilerde sulama, bilimsel ve sanatsal yönden açıklanacaktır.

Anahtar kelimeler: Sulama, saksılı bitki.