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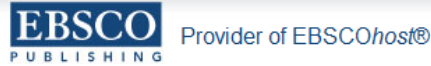
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İÇİNDEKİLER/CONTENTS

<b>H. Çinkılıç, L. Çinkılıç, S. Varış, A. KUBAŞ</b> <b>Trakya Bölgesinde Sera Sebzeciliği ve Sorunları</b> Greenhouse Vegetable Growing and its Problems in Thrace Region .....	1-10
<b>M. F. Baran, M. R. Durgut, İ. E. Kayhan' İ. Kurşun, B. Aydın, Y. Bayhan</b> <b>Determination of Different Tillage Methods In Terms of Technically And Economically in Second Crop Maize For Silage (2<sup>nd</sup> Year)</b> II. Ürün Silajlık Mısır Üretiminde Uygulanabilecek Farklı Toprak İşleme Yöntemlerinin Teknik ve Ekonomik Olarak Belirlenmesi (2.Yıl) .....	11-20
<b>A. Afacan, S. Adiloğlu, A. Hasanghasemi, C. Sağlam</b> <b>Determination of Antioxidant Activity of Sunflower Growing in Hayrabolu District of Tekirdağ Province</b> Tekirdağ İli Hayrabolu İlçesinde Yetişen Ayçiçeği Bitkisinin Antioksidan Aktivitesi Tayini .....	21-26
<b>F. Aydoğan, K. Bellitürk, M. T. Sağlam</b> <b>Edirne İlindeki Bazı Sulama Suyu Kaynaklarının Tuzluluk ve Ağır Metal İçeriklerinin Tespiti</b> The Assesment Of Irrigation Water Salinity And Heavy Metal Contents Of Some Selected Resources In Edirne Region .....	27-37
<b>H. E. Şamlı, M. Terzioğlu, A. A. Okur, F. Koç, N. Şenköylü</b> <b>Effects Of Sweet Apricot Kernel Meal On Performance And Intestinal Microbiota In Broiler Chickens</b> Etlik Piliçlerde Kayısı Küspesinin Performansa ve Bağırsak Mikrobiyotasi Üzerine Etkileri .....	38-43
<b>A. Şahin, M. Kaşıkçı</b> <b>Sivas İli Yıldızeli İlçesinde Halk Elinde Yetiştirilen Esmer Sığırların Çiğ Süt Kompozisyonunu Belirlenmesi</b> Determination of Milk Composition of Brown Swiss Cows Raised in Different Village Conditions Yıldızeli District of Sivas Province .....	44-50
<b>Y. Doğan, Y. Toğay, N. Toğay</b> <b>Mardin Kızıltepe Koşullarında Farklı Ekim Zamanlarının Mercimek (<i>Lens culinaris</i> Medic.) Çeşitlerinde Verim Ve Verim Öğelerine Etkisi</b> Effect Of Different Sowing Time On Yield And Yield Components of Lentil ( <i>Lens culinaris</i> Medic.) Varieties in Mardin Kızıltepe Conditions .....	51-58
<b>E. Torun</b> <b>Determining Fruit Producers' Source of Information in Kocaeli And Evaluating It in Terms Of Agricultural Extension.....</b>	59-70
<b>D. Katar' Y. Arslan, R. Kodaş, İ. Subaşı, H. Mutlu</b> <b>Bor Uygulamalarının Aspir (<i>Carthamus tinctorius</i> L.) Bitkisinde Verim ve Kalite Unsurları Üzerine Etkilerinin Belirlenmesi</b> Determination of Effect of Different Doses of Boron on the Yield and Yield Components of Safflower ( <i>Carthamus tinctorius</i> L.) .....	71-79
<b>T. Kiper</b> <b>Peyzaj Mimarlığı Öğrencilerinin Çevre Tutumlarının Belirlenmesi</b> Determination of Environmental Attitudes of Students of Landscape Architecture .....	80-88
<b>O. Yılmaz, O. Karaca, D. İnce, İ. Cemal, E. Yaralı, M. Varol, S. Sevim</b> <b>Batı Anadolu Göçer Koyuncululuğu ve Islah Planlamalarındaki Rolü</b> Nomadic Sheep Breeding in Western Anatolia and the Role of Animal Breeding Programs .....	89-97
<b>E. E. Şişman, P. Gültürk</b> <b>Tekirdağ Kent Merkezinde Bulunan Parkların Mevcut Durumunun Belirlenmesi ve Öneri Bir Peyzaj Projesinin Hazırlanması</b> Determination of Existing Status of Parks in Tekirdag City Center and Design of Proposal Landscape Project for a Sample Park .....	98-109
<b>E. Kahya, S. Arın</b> <b>Görüntü Renk Kod Analizi İle Meyvenin Yerinin Tespiti Üzerine Bir Araştırma</b> A Research On Image Color Code Analysis With Fruit Locating .....	110-118
<b>B. Çakmak, Z. Gökalp, N. Demir</b> <b>Sınırtaşan Nehir Havzalarında Tarımda Su Kullanımının Değerlendirilmesi</b> Assessment Of Agricultural Water Use In Trans-Boundary River Basins .....	119-129

## Determining Fruit Producers' Source of Information in Kocaeli And Evaluating It in Terms Of Agricultural Extension

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In this research, it is aimed to determine fruit producers' source of information benefited in Kocaeli and evaluating it in terms of agricultural extension. The main material of the study has been constituted by original quality data collected from n=150 business enterprises by means of questionnaires determined with purposeful sampling method. Business enterprises and 10% of the fruit producers in villages, which are determined as study areas, have been analyzed by using random sampling method (n=150 business enterprises).

With the study carried out, it is determined that there isn't an efficient and conscious fruit production in Kocaeli. It is defined that 86.7% of the producers (farmers) are male, 96.6% of the farmers consist of middle-aged or older people, 54.7% are primary school graduates, 4.7% are illiterate and that 92.7% of them certainly have a social security. It is also found out that mainly indoor gardening and interim agriculture are carried out in the region and the rate of being a Cooperative member is 40%. As for the information source with respect to fruit growing, it is determined that they avail themselves of Provincial and District Directorates of Agriculture extension agents by 48% and of their neighbor's knowledge by 15.3%. It is identified that farmers in Kocaeli do not have enough knowledge about fruit growing and they need information about farming and marketing about which there is a serious lack of education and extension. Therefore, farmer education for fruit growing and marketing should be given importance in the region and extension programs should be developed.

**Key Words:** Kocaeli, Fruit Growing, Information Source, Agricultural Extension

### Introduction

Like in all other fields in life at the present time, there is a fierce competition between the countries in the field of agriculture as well. Besides industry, countries also use developments in the field of agriculture as a competition tool against other countries in their economy. This stems from the fact that the world population has reached 7.167.04.00 and while 46% of this population that is two billion and nine hundred fifty million people live on 2 USA dollars per day below the poverty line, one billion and two hundred million people maintain their lives with 1 USA dollar a day below the poverty line. Each year, approximately 18 million people die at very tender ages because of poverty related reasons. This number is equal to one-third of the world's total human deaths (Arapcioğlu & Yıldırım 2011; Kabaş 2009). The United Nations Food and Agriculture Organization states that nearly 870 million people suffered from chronic poor nutrition between 2010 and 2012. Nearly all 854 million hungry or undernourished people live in developing countries and the rest 16 million undernourished ones live in developed countries (FAO 2012).

In order the world population to be nourished, agricultural production must be sustainable.

Obtaining enough food is possible by using modern agricultural technology and making conscious production. Extension activities have an important role so that farmers, by making conscious production, can follow trainings and innovations in the field of agriculture to obtain enough food.

Conveying and introducing agricultural innovations to farmers and making these adopted are enabled by agricultural extension activities. Agricultural extension is one of the most important tools that can be used to sustain agriculture (Özkaya vd. 2005). In addition to these, agricultural extension activities play an important role in increasing agricultural fertility and enhancing agricultural sector (Bernet vd. 2001; Olgun 1994; Oktay 1995; Boyacı 1998; Wadsworth 2003; Yurttaş 1979). However, it is not so easy to persuade farmers about adopting the suggestions and carrying them into effect by extension activities (Sezgin 2008). Producing knowledge, changing and spreading it in a way that can be understood, and the perception and use of knowledge by the farmer happen in a circle completing each other (Boyacı 1998; Oktay vd. 1995; Bernet vd. 2001; Sezgin, A., Erem Kaya, T., Külekçi, M., & Kumbasaroğlu, H., 2010). Extension agents (Agricultural Engineer, Agricultural Technician, Agricultural Operator etc.), being one

of the information source of the farmers, have a significant place in raising public awareness in rural areas. Carrying out agricultural extension activities, technical staff informs farmers about the innovations happened in technology and in other fields. As well as trying to raise awareness among the people in every respect, they also try to develop methods for regional development. By acquiring awareness, these country people can do research in the field they need and provide economic development by increasing their income, and thus serve for regional development.

The fact that the world population increases constantly suggests that the matter of nutrition is going to be a serious problem in the future as it was in the past and is at the present. Therefore, the resources in agriculture sector must be used in a more productive way. The productive usage of these resources depends on increasing the producers' education level and using techniques and technologies that are proven to be superior to the ones used at present (Özçatalbas 1999). The official body which is responsible for informing the producers about agricultural technology and input usage is Ministry of Food, Agriculture and Livestock. As a result of various researches, it has been seen that relevant departments of the Ministry is not efficient about informing the producers (Özçatalbaş & Sözer 2002). The most important reason behind failing to do agricultural extension activities in an active way is not having an efficient extension policy and the application of flexible extension methods (Yılmaz H, Vecdi Demircan V & Gül M 2009). Since farmers use traditional information sources as a source of information, the renewal of agricultural technologies in rural regions becomes harder. In many researchers conducted, it is determined that farmers use traditional information sources like their own family members, neighbor farmers and relatives about modern agricultural technologies. The rate of farmers' resort to institutions characterized as modern information sources for various agricultural topics like Provincial and District Directorates of Agriculture, faculties of agriculture, input suppliers and irrigation associations, is only 21% (Boz & ark. 2004). High efficiency in agricultural production is possible by the use of advanced technology throughout the manufacturing process. At this stage, the role of agricultural extension is to ensure that the most appropriate technology is determined with farmers and applied, rather than

conveying the technology in question to the farmers. Determining the most appropriate technology for farmer's conditions is possible if participatory methods are used much more in agricultural extension and an organic connection is established between research and extension (Tatlıdil & Ceylan, 2005).

Most of the food that people consume is provided by agricultural activities directly or indirectly. In order to plant agricultural products in the lands that have the best cultivation opportunities, to obtain a high yield from the unit area, and thus increase the nutrition level and make the manufacturing plans in a healthier way, agricultural areas must be determined. In this sense, determining the areas has become more of an issue both because there is an agricultural activity in fruit manufacturing and Turkey has an important place in fruit manufacturing and exportation among other countries.

Of the fruit species being grown in 140 vineyards and orchards in the world, more than 80 ones are grown in our country. While, on one hand, fruit species growing in warm mild and cold mild climate regions are being grown as wild and cultivated with a rich variety in Turkey, on the other hand, there are also fruit types that come from subtropical and tropical climate regions. Besides the richness of species in our country, there is also variety abundance. The most intensive fruit growing regions in the country are the Mediterranean coastline, Menteşe coastline, Aegean Sea Coasts, the inner Aegean region, South Marmara, Kocaeli-Sinop, Giresun-Ordu, Upper Euphrates and Gaziantep-Şanlıurfa regions. These regions are the areas where certain products come to the forefront and where there is abundant variety (Durmuş E & Yiğit A 2003). According to FAO data regarding the countries manufacturing fresh fruit in the world and world fresh fruit production for 2011; the data showing fresh fruit manufacturing countries are given in Table 1. While China takes the first place with a percentage of 10.5% and 135 million tons of production in fresh fruit, India (74,8 million tons), Brazil (40,9 million tons), USA (27,1 million tons) and Italy (17,3 million tons) follow this country respectively. With 14,4 million tons of fresh fruit production, Turkey ranks 10 in the world and gets 3.2% (4 million tons) of the world production while USA (25,4 million tons) and Italy (16,9 million tons) are just one step behind Turkey (Anonymous, 2012).

Table 1. Countries Which are Manufacturing Fresh Fruit (Tons)

Country	2010	2011	Change Rate%
China	122.178.415	134.950.794	10,5
India	84.791.100	74.836.101	-11,7
Brazil	39.286.781	40.949.296	4,2
USA	25.383.917	27.139.671	6,9
Italy	16.907.895	17.352.686	2,6
The Philippines	16.181.731	16.138.618	-0,3
Mexico	15.255.598	16.117.127	5,6
Spain	15.184.420	15.452.053	1,8
Indonesia	14.867.762	17.196.074	15,7
Turkey	13.945.604	14.388.206	3,2
Thailand	10.273.616	13.090.290	27,4
Iran	12.126.041	11.233.465	-7,4
Uganda	10.203.750	11.123.450	9,0
Nigeria	9.979.700	9.870.000	-1,1
Egypt	9.581.146	9.922.292	3,6
Grand Total	609.369.080	637.864.630	4,8

Source: International Trade Center, 2011.

Data regarding world fresh fruit production amounts and change rates for 2010 and 2011 is given in Table 2. When Table 2 was analyzed, according to Turkish Statistical Institute (TSI) data, world fresh fruit production in 2011 did not show an important change compared to the previous year and decreasing by 0,1%, the production was nearly 16,6 million tons. When looked at the production amounts of important products among fruits, it is observed that apple 6,6%, apricot 31,9%, plum 2% and peach decreased by 1,4% compared to the previous year. As for the citrus group, there was an increase of 1,2% for orange and 1,5 % for mandarin. While there was 4,3% increase in fig and 2,8% in banana production, there was not an important change in grape production. The production amount of fruit products increased by 3,5% in 2011 compared to the previous year and reached nearly 17,2 million tons. When looked at the production amounts of important products among fruits, it is observed

there was an increase of 3,1% in apple, 44,4% in apricot, 11,6% in plum, 4,9% in cherry and 23,7% in olive compared to the previous year (Anonymous, 2012). According to the most current data of FAO for year 2011, fresh fruit production took place in 57,1 million hectares of land in total in the world. Total amount of fresh fruit grown in the area was 638 million tons and with a production amount of 106 million tons, banana takes the first place as the fruit that is mostly being grown in the world. The products following banana are Apple (75,6 million tons), grape (69,7 million tons), orange (69,6 million tons) and plantain (38,9 million tons) respectively. World fresh fruit production increased by 4,8% in 2011 compared to 2010. With 12.319.304\$ in value and 16.015 tons in amount, Pomegranate was the mostly exported fresh fruit in January, 2013 in Turkey. It was followed by Chestnut and quince respectively (Anonymous, 2013).

Table 2. Top 10 Products in World Fresh Fruit Production (Tons)

Product Name	2010	2011	Change Rate(5%)
Banana	102.114.819	106.541.709	4,34
Apple	69.567.526	75.635.283	8,72
Orange	69.507.617	69.605.815	0,14
Grape	68.350.535	69.654.926	1,91
Mango	38.673.116	38.899.593	0,59
Plantain	36.561.851	38.901.406	6,40
Pear	22.638.098	23.896.556	5,56
Mandarin	21.317.592	24.580.204	15,30
Peach	20.278.439	21.528.690	6,17
Pineapple	19.418.306	21.582.237	11,14
Grand Total	608.926.157	637.864.630	4,8

Source : FAO, 2011

Table 3. Fresh Fruit Production Amount and Change Rate in 2002-2012 (A thousand Ton, According to TSI Data)

PRODUCTS	2002	2009	2010	2011	2012	Change % (2002/ 2012)
Citrus	2.493	3.514	3.572	3.614	3.475	39
Apple	2.200	2.782	2.600	2.680	2.889	31
Apricot	315	661	450	650	760	141
Grape	3.500	4.265	4.255	4.296	4.185	20
Fig	250	244	255	260	275	10
Chestnut	47	62	59	60	58	21
Olive	1.800	1,291	1.415	1.750	1.820	1
Others	2.668	3.569	3.779	3.687	4.349	63
Total	13.273	16.388	16.385	16.993	17.811	34

Anonymous, 2013a. (Source: T.R. Ministry of Food, Agriculture and Livestock, 2013.)

In this research, a study has been carried out in order to show the fruit production between 2002 and 2012 in Turkey and the changes between these years; Table 3, Table 4 and Table 5 were drawn up according to Fresh Fruit and Vegetable Exporters Association Evaluation Report of Turkey in general (2012-2013, January) and General Secretariat of Mediterranean Exporters Association Data. With 35%, berry fruits have the most important share in Turkey's fruit production with nearly 13 million tons, as of 2003. Grape has the most important commercial value in this group. Fig is the second most important product of berry fruits group both in terms of production and exportation. Pome fruits constitute 23% of Turkey's fresh fruit production and apple is the most important fruit of this group (See Table 3).

The amounts and values of top 10 Fresh Fruit Items exported in 2012-2013 (January) in Turkey are given in Table 4 respectively according to 2013 fob (\$) values. When Table 4 was analyzed, it is seen that Pomegranate was the most exported product in Fresh Fruit group in Turkey, with a value of 12.319.304\$ and an amount of 16.015 in 2013, January. It is followed by chestnut and quince respectively.

Top 10 countries which were mostly exported fresh fruit by **Turkey in 2012 – 2013 (January)** are given in table 5 according to 2013 fob (\$) values. The most exportation was made to Iraq in 2013, January, and Russian Federation, Ukraine and Germany followed it respectively.

Table 4. Top 10 Fresh Fruit Items Exported in 2012 – 2013 (January) in Turkey

Item	01.01.2012/31.01.2012		01.01.2013/31.01.2013		Increase-Decrease (%)		Share in 2013 (%)	
	Amount (Kg)	Value (\$)	Amount (Kg)	Value (\$)	Amount (Kg)	Value(\$)	Amount (Kg)	Value (\$)
1 Pomegranate	10.955.458	7.099.417	16.015.617	12.319.304	46	74	74	68
2 Chestnut	456.456	796.681	534.218	1.752.114	17	120	2	10
3 Quince	2.060.483	1.631.140	1.965.561	1.604.656	-5	-2	9	9
4 Apple	2.285.130	908.415	1.398.494	704.783	-39	-22	6	4
5 Pear	156.099	121.732	602.217	563.067	286	363	3	3
6 Grape	955.872	601.710	573.774	510.177	-40	-15	3	3
7 Date	166.594	275.934	219.927	322.249	32	17	1	2
8 Strawberry	19.030	20.953	99.565	119.083	423	468	0	1
9 Other Fresh Fruits	27.137	18.778	48.009	46.078	77	145	0	0
10 Plum	80.717	44.658	74.805	42.212	-7	-5	0	0

Anonymous, 2013a. Source: (T.R. Ministry of Food, Agriculture and Livestock, 2013, Items are arranged according to 2013 fob values (\$))



Table 5. Top 10 Countries which were Exported Fresh Fruit by Turkey in 2012 – 2013 (January)

Item	01.01.2012/31.01.2012		01.01.2013/31.01.2013		Increase-Decrease (%)		Share in 2013 (%)	
	Amount (Kg)	Value (\$)	Amount (Kg)	Value (\$)	Amount(Kg)	Value(\$)	Amount(Kg)	Value(\$)
1 Russian Federation	3.749.320	2.128.609	4.683.662	4.516.995	25	112	22	25
2 Iraq	4.974.397	2.148.467	6.596.982	2.952.880	33	37	31	16
3 Germany	1.129.713	1.427.791	1.214.354	1.592.763	7	12	6	9
4 Lebanon	331.278	468.279	419.974	1.389.751	27	197	2	8
5 Ukraine	1.459.202	848.922	1.607.940	1.252.158	10	47	7	7
6 The UK	313.957	420.398	450.092	658.315	43	57	2	4
7 Azerbaijan-Nakhichevan	250.535	193.584	379.204	570.663	51	195	2	3
8 Holland	238.898	272.078	352.934	436.786	48	61	2	2
9 Saudi Arabia	460.472	184.253	828.435	410.172	80	123	4	2
10 TRNC	240.344	174.852	380.460	342.964	58	96	2	2
11 Turkey	652.650.4	611.236	726.938.4	708.544.9	11	16	22	30

Anonymous, 2013a. NOTE: Countries are arranged according to 2013 fob (\$) values.

Turkey ranks first in cherry production and it is the most exported fruit. Turkey ranks first in fig, apricot, cherry and quince production. A large proportion of cherry production takes place in Kocaeli. In this study, certain types of fruit grown and exported in Turkey are given in Table 6.

Banana, grape, orange, apple, mandarin, pear, peach, nectarine, lemon and plum are the most produced fruits in the world. Turkey provides 5,4% of grape, 2% of orange, 3,7% of apple, 2,5 % of mandarin, 1,8% of pear, 2,4% of peach, 4,3% of lemon and 2,1% of total plum production in the world. Yearly fresh fruit production amounts in Turkey are given in Table 7.

Most imported fruits are banana 229.409 tonnes, orange 126.374 tonnes, apple 73.012 tonnes.

The percentage of amount imported from EU countries to total imported amount is 19.5% for orange, and 3.4% for apple. Besides, 45.9% of the 8.920 tonnes of exported grapes are imported from EU.

#### Material And Method

The main material of this study is formed by the producers who make a living by fruit growing in Kocaeli and neighbor villages. By relying on the records of Provincial and District Directorates of Kocaeli and Metropolitan Municipality, Districts and villages where fruit growing is mainly done were determined by purposeful sampling method.

Table 6. Certain types of fruit grown and exported in Turkey

Pome Fruits	Stone Fruits	Berry Fruits
Pear	Plum	Pomegranate
Quince	Apricot	Mulberry
Apple	Cornelian Cherry	Fig
Medlar	Angustifolia	Banana
Maltese Plum	Cherry	Grape
	Peach	Strawberry
	Sour Cherry	
	Wild Apricot	

Anonymous, 2013 . (Source: Fresh Fruit and Vegetable Exporters Association, 2013. (<http://www.yms.gov.tr>))

Table 6. Yearly fresh fruit production amounts (10<sup>6</sup> Tonnes)

Year	2009	2010	2011	2012	Total
Production (106 Tonnes)	16.6	16.6	17.2	18.0	69.4

Anonymous, 2013b. ( Source: issue: E.3.8/374 02.01.2013 ( <http://www.tobb.org.tr> ) )

10% of the producers (150 producers) growing fruit in the villages, which was determined as the study area, were included in the research by random sampling method. N=150 of the producers were interviewed face to face and applied a questionnaire in 4 districts (Karamürsel, Kartepe, Gölcük and İzmit) and in 8 villages of these districts (Kulfalı, Avluburun, Karaahmetli, Eşme, Halidere, İhsaniye, Akpınar and Pazarköy). By conducting face to face interviews with n=150 producers, a questionnaire consisting of 32 questions was applied. Questionnaires were evaluated and analyzed in SPSS 16.0 program. In the analyses, crosstabs were arranged and analyzed in chi-square between 95% confidence interval.

## Research Findings and Discussion

Since Kocaeli is an industrial zone, it is a highly developed city. Therefore, there are differences between individuals living in this city in terms of their socio-economic and socio-cultural conditions. Age, education level, social insurance, monthly income level, non-agricultural annual income, the amount of land owned and joint ownerships in any cooperatives, which are seen as criteria that determine socio-economic and socio-cultural conditions of individuals that form the society, are given in Table 7, which shows the socio-economic characteristics of the producers in these districts and villages.

Table 7. Distribution of the Producers According to Socio-Economic Indicators

Distribution of The Producers According to Gender		
Gender Distribution	Number	%
Male	130	86.7
Female	20	13.3
Total	150	100
Distribution of the Producers According to Age		
Age Distribution	Number	%
20-30	5	3.4
31-40	23	15.3
41-50	49	32.7
51-60	50	33.3
61 and older	23	15.3
Total	150	100
Distribution of the Farmers According to Education Level		
Education Level	Number	%
Illiterate	7	4.7
Primary School	82	54.7
Secondary School	41	27.3
High School	14	9.3
Academy /Faculty	6	4.0
Total	150	100
Social Security Institution that Producers are Dependent on		
Social Insurance Status	Number	%
Retirement Fund	26	17.3
Social Insurance Institution	74	49.4
Social Security Organization for Artisans and the Self-Employed	36	24.0
Other (Private Insurance)	3	2.0
None	11	7.3
Total	150	100

When socio-economic factors of the producers were analyzed by the data in Table 7, it was determined that the age distribution of the producers were analyzed, producers between 51-60 age range (33.3%) take the first place and those between 41-50 (32.7%) take the second; the rate of the producers who are between 31-40 (15.3%) and those who are 61 and older (15.3%) are the same and thus they share the same place. People between 20-30 age range (3.4%), the young group, take the fourth and last place.

According to these results, it was determined that young people are not interested in agricultural production, while middle aged ones do agricultural activities just as an additional contribution to their incomes besides their actual jobs. When the education level of these individuals were analyzed, it was seen that n=82 of the producers (54.7%) are primary school, n=41 of them (27.3%) secondary school, n=14 (9.3%) of them high school, and n=6 of them are college graduates (4.0%), while n=7 of them (4.7%) are illiterate. When the results were analyzed in terms of social insurance status, it was determined that, n=11 of the producers (7.3%) do not have any kind of social insurance, n=136 of them (90.7%) are dependent on official institutions like retirement fund, Social Security Institution and Social Security Institution for Artisans and the Self-Employed and n=3 of them (2.0) have private insurance.

In a similar study, Torun (2011) has stated that the education level of the farmers is not so high and that mainly men have a say in the decision making process. She also indicated that all of the farmers are male and no female farmer was encountered; although Kocaeli is a developed city, farmers in the provinces and districts have a patriarchal family structure.

In the research, the relationship between the professional status of the producers and gender is given in Table 8 by doing chi-square analysis between 95% confidence interval. After the analysis, the relationship between the professional status and gender was analyzed and it was seen that the relationship between the two variables was significant and thus the H0 hypothesis was acceptable. According to the data given in Table 8, n=22 of the male producers (17%) and n=14 of the female producers (70%) stated that they had no additional jobs except from farming, while the distribution for the self-employed producers (those who run any business

determined that of the n=150 producers, n=130 were male and n=20 were female.

firm) besides farming was N=20 (15.4%) for males and n=2 (10%) for females. As for the rate for those who are retired, the number of males are quite high; n=80 of the males (61,5%) and n=2 (10%) of the females were retired from any social security institution. Those who are working at the present (as an officer or employee), the number of the producers was determined as n=8 (6,1%) for males and n=2 (10%) for females. Thus, it is understood that a large majority of the fruit producers were retired from any job and that they carry on farming. Therefore, the majority of the families (76%) obtain incomes besides agricultural activities. This situation can be attributed to the fact that the city is an industrial zone and job opportunities are much more abundant compared to the other regions and cities.

In the study, the professional status of the producers, income levels besides agricultural activities and their agricultural incomes were analyzed and given in Table 9. According to Table 9, 24% of the producers, who stated that they earn their incomes by fruit growing, have no incomes except from agricultural activities. The rate for those who have a monthly income between 500-1000 TL from non-agricultural activities is 42.7%. It was determined that these producers are employee in any business and work for minimum wages, and they grow fruit in the lands they own in order to contribute their incomes. 24.7% of the producers expressed that they have a monthly income between 1001-2000 TL, and they grow fruit to improve their living standards. The monthly income of the rest was determined as 2001-3000 TL for 4.7%, 4001 TL for 3.3%, and 3001-4000 TL for 0.7% of the producers, forming the lowest rate. Therefore, except from 24% of the farmers, it can be said that n=36 of the producers have a monthly income from non-agricultural activities. This situation can be attributed to the fact that individuals can easily find jobs in other fields since Kocaeli is an industrial zone, which creates opportunities that provide producers with incomes besides their agricultural activities. When data regarding the income level obtained from fruit growing was analyzed, those getting an annual income between 1001-2000 TL takes the first place with a rate of 32%.

Table 8. Gender Distribution According to the Occupations of the Producers

Occupations	Gender Distribution				Total	
	Male		Female		N	%
	N	%	N	%		
Farmer	22	17.0	14	70	36	24.0
Self-Employed	20	15.4	2	10	22	14.7
Retired	80	61.5	2	10	82	54.7
Other (Officer-Employee)	8	6.1	2	10	10	6.6
Total	130	100	20	100	150	100

Chi-Square: 18,983 df: 9 P= 0. 025 P< 0.05 H<sub>0</sub> Hypothesis is acceptable. (The relationship is significant.)

Table 9. Producers' Non-agricultural and Agricultural Income Levels

Distribution of the Producers According to Their Monthly Non-Agricultural Incomes		
Monthly Non-Agricultural Income Status (TL)	Number	%
Not having	36	24.0
500-1000	64	42.7
1001-2000	37	24.7
2001-3000	7	4.7
3001-4000	1	0.7
4001 and more	5	3.3
Total	150	100

Distribution of the Producers According to Their Agricultural (Obtained by Fruit Growing) Incomes		
Annual Income Obtained by Fruit Growing (TL)	Number	%
Unanswered	16	10.7
500-1000	15	10.0
1001-2000	48	32.0
2001-3000	21	14.0
3001-4000	7	4.7
4001 and more	43	28.7
Total	150	100

Those who get 4001 TL and more annual income take the second place with a rate of 28.7%, 2001-3000 TL take the third with 14%, 500-1000 TL take the fourth with 10% and 3001-4000 TL take the last place with 4.7%. 10.7% of the producers did not want to state their annual agricultural incomes.

Size of the gardens, the source of producers' agricultural incomes, was analyzed in the research and given in Table 10. When Table 10 was analyzed, it was seen that 32% of the producers own 1-10 da lands, 31.3% own 10.1-20 da, 17.3% own 20.1-30 da, 8.8% own 30.1-40 da, 5.3% own 40.1-50 da and 5.3% own 50.1 da or more lands. Besides the results of inheritances law in Turkey, the fact that Kocaeli allows a great number of immigrants has a big influence on the smallness of land size in this city.

Differences between income statuses between sectors increase the rate of immigration from

rural areas to urban areas (Anonymous, 2006; Yıldırım, 2006). Because the flow of immigration from rural areas to urban areas is unbalanced, today many city centers face numerous socio-economic and cultural problems (Günaydın, 2006). Nowadays, these problems also apply to Kocaeli. Being an industrial city, the increasing rate in the need of housing as a result of internal migration causes agricultural lands to be subdivided and sold as building plots and leads to land smallness or misuse of lands. Although the land owners seemed quite satisfied in the beginning for the subdivision and the sale of these places since they yielded higher profits, the acceleration of house construction on these lands and environmental and socio-cultural problems brought with it caused them to feel regret for what they did since these lands are considered as building plots now.

Table 10. The Distribution of the Producers According to the Size of Agricultural Lands (Fruit Garden)

The Size of Agricultural Lands (da)	Number	%
1-10	48	32.0
10.1 -20	47	31.3
20.1 -30	26	17.3
30.1 -40	13	8.8
40.1 -50	8	5.3
51 and Bigger	8	5.3
Total	150	100

In the research, the production approach of producers for fruit gardens was asked and the data obtained is given in Table 11.

When table 11 was analyzed, it was seen that n=65 of the producers (43.3%) do indoor agriculture, n=48 (32%) do interim agriculture, n=22 (14.7%) do mixed agriculture and n=5 (3.3%) of the producers do gardening as a hobby while n=10 (6.7%) did not give any information about their production approaches. In the study, the organizational level of the producers was analyzed and the data obtained is given in Table 12. According to Table 12, it is seen that 50% of the producers (n=75) are not a member in any cooperative, 40% (n=60) of them are members in an agricultural cooperative and 10% (n=15) did not answer this question. Thus, it can be said that cooperative membership is highly adopted by the producers because the level of education is low, there is no specialization in the field but the middle-aged group carry on doing agricultural activities, and fruit growing is done to obtain an additional income. It was determined that producers become cooperative members since it is seen as intermediary to get more fertilizer and agricultural pesticide.

In this research, the relationship between information sources of the producers regarding fruit growing and their education levels were analyzed and given in Table 13 by the Chi-Square analysis between 95% confidence interval. When Table 13 was analyzed, it is seen that regardless of their education level, Provincial and District Directorates of Agriculture staff takes the first place in producers' information source about fruit growing. As for the information source, 48% (n=72) of the producers stated that they gather information from Provincial and District Directorates of Agriculture, 15.3% (n=23) from their neighbors, 10% (n=15) from Provincial and District Directorates of Agriculture and pesticide dealers, 9.4% (n=14) from Provincial and District Directorates of Agriculture, their own knowledge and Written and Visual Media, 7% (n=10) from neighbors and their own knowledge, 3.3% (n=5) from Written and Visual Media, 3.3% (n=5) from pesticide dealers, 2.7% (n=4) from their own knowledge, and lastly 1.3% (n=2) from neighbors and Provincial and District Directorates of Agriculture staff.

Table 11. The Distribution of the Producers According to Their Production Approaches in the Gardens

Your Production Approach in the Garden	Number	%
Unanswered	10	6.7
Hobby Gardening	5	3.3
Mixed Agriculture	22	14.7
Indoor Gardening	65	43.3
Interim Agriculture	48	32.0
Total	150	100

Table 12. Distribution of the Producers According to Their Cooperative Membership

Cooperative Membership Status	Number	%
Unanswered	15	10.0
Yes	60	40.0
No	75	50.0
Total	150	100

Table 13. The Relationship between the Information Sources Regarding Fruit Growing and Education Levels

Information Sources Regarding Fruit Growing	Education Level										Total	
	Illiterate		Primary School		Secondary School		High School		Academy /Faculty			
	N	%	N	%	N	%	N	%	N	%	N	%
Neighbor	1	14.3	15	18.2	5	12.1	1	7.1	1	16	23	15.3
Written and Visual Media	0	0.0	3	3.6	0	0.0	2	14.3	0	0.0	5	3.3
Provincial and District Directorates of Agriculture	5	71.4	43	52.4	16	39.0	5	35.8	3	50	72	48
My Own Knowledge	0	0.0	2	2.3	0	0.0	0	0.0	2	34	4	2.7
Pesticide Dealers	0	0.0	1	1.3	4	9.8	0	0.0	0	0.0	5	3.3
Neighbor's and My Own Knowledge	0	0.0	2	2.4	7	17.1	1	7.1	0	0.0	10	7
Provincial and District Directorates of Agriculture, Pesticide Dealers	0	0.0	7	8.5	7	17.1	1	7.1	0	0.0	15	10
Neighbor and Provincial and District Directorates of Agriculture	0	0.0	2	2.4	0	0.0	0	0.0	0	0.0	2	1.3
Provincial and District Directorates of Agriculture, My Own Knowledge, Written and Visual Media	1	14.3	7	8.54	2	4.9	4	28.6	0	0.0	14	9.4
<b>Total</b>	<b>7</b>	<b>100</b>	<b>82</b>	<b>100</b>	<b>41</b>	<b>100</b>	<b>14</b>	<b>100</b>	<b>6</b>	<b>100</b>	<b>150</b>	<b>100</b>

Chi-Square: 2,186 df: 66 P= 0. 000 P< 0.05 H<sub>0</sub> Hypothesis is acceptable. (The relationship is significant.)

The chi-square analysis done between 95% confidence interval showed that there is a significant relationship between the two variables. As the level of education increases, the variety of information source increases, and thus the right information source is reached.

### Conclusions And Suggestions

Turkey has a significant place in world fresh fruit production and exportation. According to FAO data, Turkey ranks 10 among the countries growing fresh fruit with nearly 14,2 million tons of production and gets 3.2% share from the world's production.

Pomegranate was the mostly exported product in Fresh Fruit with 12.319.301\$ in value and 16.015 in amount in January 2013 in Turkey. It was followed by chestnut and quince respectively. Iraq was the most exported country in January 2013 and it was followed by Russian Federation, Ukraine and Germany.

It was determined that of the 150 producers (farmers), 130 (86.7%) were male and 20 (13.3%) were female. According to this result, it was determined that men are the ones who are interested and have a voice in fruit growing much more. Being one of the agricultural activities, it can be said that fruit growing is an another male-dominant activity because of the nature of the work.

96.6% of the fruit growing farmers consist of middle-aged and older people. According to the results, it was seen that 54.7% of the farmers are primary school graduates, 4.7% are illiterate, 27.3% are secondary school graduates and the rest 13.3% are high school or faculty/academy graduates. A low education level limits the variety in the use of information sources. Therefore, the producers do not or barely use information sources such as written and visual media and internet.

According to research results, there is not an efficient and conscious fruit production in the research area. It was determined that the producers do fruit growing in order to get an additional income; the field is not specialized, but an income is obtained.

While 24% of the producers do not get a monthly additional income from non-agricultural activities, 76% of them obtain it. It was determined that 92.7% of the producers certainly have a social insurance and 54.7% were retired from one of the social security institutions.

The production approaches of the producers are as indoor, interim and mixed agriculture. Those who take place in the production as hobby gardening have a quite low rate with 3.3%.

It was found out that producers consider cooperative membership as an intermediary to get fertilizers or pesticides and become

cooperative members for this reason. This is a fairly thought-provoking situation in our day because the cooperative system is highly significant in Europe, America or in other world countries in product terms, but the rate of becoming cooperatives in the field of agriculture is quite low in Turkey.

With respect to the most significant information sources of the producers; Provincial and District Directorates of Agriculture takes the first place with 48% (n=72), neighbors are the second with 15.3% (n=23), Provincial and District Directorates of Agriculture and Pesticide Dealers share the third place with 10% (n=15), Provincial and District Directorates of Agriculture, Their Own Knowledge, and Written and Visual Media take the fourth place with 9.4% (n=14) and finally Neighbors and Their Own Knowledge take the fifth place with 7% (n=10).

63.3% of the producers have a land size between 1-20 da. The lands owned are fragmented and small. Being an industrial city, the research area has fragmented and small lands mainly because the city allows immigrants and these lands are subdivided and transformed into building plots to obtain high-rents.

Necessary precautions should be taken to remove the view that like all other fields, agricultural activities depend on gender. In addition, those who work in the field of agriculture should be provided with social insurance. Individuals should be helped to become specialized in this area.

The lands should not be used for housing or for other reasons by industrial enterprises.

Fruit growing, one of the important items of Turkey's export, should be encouraged in all regions and agricultural specialization should be provided.

Production materials, which are used in fruit growing, should be provided to the producers with affordable prices and technical support should be given during garden making.

Necessary legal steps should be taken to encourage the cooperation system in the field of agriculture.

Information sources should be accessible to the producers and the number of agricultural extension agents (Agricultural Engineers, Agricultural Technicians, Agricultural operators) in

Provincial and District Directorates of Agriculture should be increased to a sufficient level.

Terms of reference and field of pesticide dealers should be determined and legal sanctions should be applied to hire employee who can help the producers.

Agricultural activities should be given place in written and visual media and periodical broadcast should be provided in local and national channels.

Inputs used in agricultural activities should be tailored to farmers' conditions and resources should be created to encourage agricultural production. Individuals living in rural areas and doing agricultural activities should be helped to improve their economies so as to prevent internal immigration.

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