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Current Situation of Almond Cultivation in Turkey and World

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Abstract

Although Turkey is the centre of almond gene center, it is the eighth largest almond producer after USA, Spain, Iran, Italy and USA. USA holds seventy one percent of almond export which is totally 3 million dollars per year. On the other hand, Turkey has only one percent of total almond export. In our country although farmers did not attach importance almond production until 1990, the almond cultivation has been increased in recent years due to increased demands in internal and domestic markets. Although almond production was increased in recent years, the production potential of our country cannot be used exactly. While almond is cultivated in Mediterranean and Aegean regions especially in Mersin, Antalya and Muğla cities, also its cultivation in other cities is rapidly spreading. Although establishing of new orchards is carried out with late flowering and imported almond types, because our country has genuine and diversity, the development of new types is very important with reclamation. As a result, Almond cultivation has to be improved to meet the growing demand of inside and outside markets and cultivation areas should be increased rapidly.

Keywords: Almond, cultivation, Turkey, World

Badem Yetiştiriciliğinin Dünya Ve Türkiye'deki Mevcut Ekonomik Durumu

Özet

Türkiye, dünya kabuklu meyve üretiminde önemli yere sahip olan bademin gen merkezi olmasına rağmen dünya üretiminde ABD, İspanya, İran, İtalya ve Suriye'den sonra gelmektedir. 3 milyon $'lık oldukça yüksek dünya badem ihracat gelirinin %71'lik kısmını ABD tek başına elde ederken, Türkiye yaklaşık %1'lik pay ile yetinmektedir. Ülkemizde 1990'lı yıllara kadar yeterince önemsenmeyen bademin üretimi, gerek dış gerekse iç pazarda artan talepler nedeniyle son yıllarda hızlı bir şekilde artış göstermiştir. Artan üretime rağmen ülkemizin badem üretim potansiyeli tam olarak kullanılamamaktadır. Badem üretimi, Akdeniz, Ege bölgelerinde yoğunlaşmakta özellikle Mersin, Antalya ve Muğla illerinde gerçekleştirilirken son yıllarda diğer illerde de hızla yaygınlaşmaktadır. Mevcut durumda, yeni bahçe tesisi, geçci ve ithal badem çeşitleriyle gerçekleştirilmekte fakat zengin çeşitliliğe sahip olan ülkemizde, ıslah programlarında yerli badem çeşitlerinin geliştirilmesine yönelik çalışmalara önem verilmesi gerekmektedir. Sonuç olarak, her geçen gün artan iç/dış pazar talebinin karşılanması ve ülkemizin dünya pazarında yeterince söz sahibi olabilmesi için badem yetiştiriciliğinin geliştirilmesi ve üretim alanlarının artırılması çalışmalarına hız verilmelidir.

Anahtar Kelimeler: Badem,Tarm, Türkiye, Dünya

Introduction

Almond can be defined as a tree which belongs Prunoideae subfamily of (Rosaceae) family and the fruit of this tree. It's motherland is middle and west Asia and southwest of Asia. (Bolu et al, 2010; Yavuz 2011) Almond is initially growed in Iran, industry and medicine industry in addition to fresh and generally dried fruit consuming in our country. Besides, it is a very rich fruit with regard to nutrition content.

Turkey, Syria and Polestine and then brought to North America. Important improvements in Almond growing are recorded in California especially after 1940's. There are many usage areas of almond such as condy, chocolate, pasty industry in food sector, almond oil as cosmetics

It contains, 49% oil, 21% protein, %.. carbonhydrate and 5% water. In addition, almond which contains high level of vitamins and minerals, has many important effects on human health.

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Table 1. Almond production in the world (000 tonnes)

Countries	2000	2005	2006	2007	2008	2009	2010	2011	2012	%
USA	533	703	846	1.213	1.410	1.162	1.414	731	720	37,2
Spain	225	218	313	188	180	271	223	212	215	11,1
Iran	90	109	105	115	127	158	158	92	100	5,2
Italy	105	118	113	113	119	107	108	105	90	4,6
Syria	62	229	107	76	83	97	73	130	86	4,5
Turkey	47	45	43	51	53	55	55	70	75	3,9
Tunisia	60	43	56	58	52	60	52	61	70	3,6
Greece	51	48	51	46	35	40	33	30	29	1,5
Other	320	378	412	438	462	562	548	533	550	28,4
World	1.493	1.891	2.046	2.296	2.519	2.512	2.664	1.964	1.935	100

Producers started to grow almond by establishing whole gardens due to high prices in market and cestificated sapling support of the goverment. (Alt et. Al, 2011)

Almond producing is increasing in our country rapidly in recent years due to; suitability of Turkey ecology for almond growing, easily growing of almond almost all of the Anatolian region and increased internal – external demonds

Present Economical Status of Almond Production in the World

Almond production takes an important place among the fruits having shell. According to data of 2012, The Unites States is the biggest almond producer with 37.2 % of total production. Spain is the second biggest producer with 11.1 % of total production and Persia is the third with 5.2 %. Turkey is fourth one with 3.9 % production in the world (Table 1)

As seen in table 2, while total almond production area was 1.7 million hectare in 2000, it was 1.652. million hectare with decreasing by % 7. While the largest production area is in Spain with 32% of total, it was followed by USA, Tunisia and Persia respectively. A steady increase has been observed in Turkey's almond production area since 2010. Total area was increased from 18 000 hectare to 23 000 hectare. This increase was expected to continue in future years. America which takes an important place in almond production has the highest portion in almond exportation with 627 000 tonnes (71.8 %) according to data of 2011. It was followed by Spain, China and Australia respectively (Table3). The countries which do not breed almond like China, Australia, Holland, Belgium and Shili export nearly 13% of total almond exportation with 375 million dollars exportation. However; Turkey exports a small amount of its production and has only 1 % of total exportation in world. Turkey is expected to increase this exportation value in future years

Table 2. Almond Production Areas in World (000 Ha)

Countries	2000	2005	2006	2007	2008	2009	2010	2011	2012	%
Spain	671	625	579	564	567	563	547	536	530	32
USA	202	235	235	259	275	291	291	308	316	19
Tunisia	202	190	165	180	160	190	160	190	190	12
Iran	96	172	130	100	73	73	73	68	70	4
Italy	89	83	82	80	80	79	86	75	68	4
Syria	19	44	44	34	40	42	49	52	52	3
Greece	40	18	17	17	15	15	15	14	14	1
Turkey	18	17	16	18	17	17	18	21	23	1
Other	137	147	159	118	99	76	80	75	74	4
World	1676	1765	1661	1628	1601	1638	1611	1647	1.652	100

Table 3. Unshelled Almond exportation in world.

Countries	Export (Ton)					Export Value (000 $)			
	2008	2009	2010	2011	%	2008	2009	2010	2011
USA	332.652	388.452	396.069	450.551	71,80	1.478.124	1.424.530	1.807.378	2.112.216
Spain	50.051	55.820	61.858	62.081	9,89	275.304	243.923	309.510	350.792
Chia, Hong Kong	8.009	19.253	17.442	23.795	3,79	32.408	71.708	65.719	91.828
Australia	8.732	13.854	16.420	16.371	2,61	39.902	54.341	87.217	75.865
The Netherlands	7.147	9.488	12.956	11.596	1,85	37.911	37.563	45.512	50.101
Germany	7.904	8.558	8.693	9.719	1,55	46.665	41.335	46.257	58.633
Belgium	9.581	8.684	8.299	8.932	1,42	45.071	31.529	35.623	44.838
Chile	5.812	7.688	6.268	8.800	1,40	34.181	33.990	39.519	54.409
Italy	5.009	5.336	5.982	6.500	1,04	35.395	30.242	38.959	45.277
Turkey	2.355	4.054	4.559	5.706	0,91	28.890	38.633	36.451	47.574
Other	35.847	26.010	20.898	23.421	3,73	160.250	133.814	116.700	134.615
World	473.099	547.197	559.444	627.472	100	2.214.101	2.141.608	2.628.845	3.066.148

World imports of shelled almonds examined; According to figures from the year 2011 the total value of imports is found to be 2.845 billion dollars. In the same year, the world's 576.883 thousand tons in imports of shelled almonds takes by Germany the largest share with 14.1%. Shelled almonds world imports in 2011, Spain is ranked 2 with 11.3% and it is followed by China with 7.4% (Table 4).

Due to ecological conditions remain favorable In Turkey, a lot of cultivation of horticultural crops outside tropical fruit can easily be done. This is a great advantage for our country. Nuts is 6.4% of the total fruit production in our country. Almond constitutes 1.2% of the number of trees and 4.3% of the amount of production among the species of nuts. Often consumed as dry shelled almonds, though a small amount is consumed as the green almond. According to statıstıcal regional units classification (IBBS1) in 2011; almond cultivation was done in the area of 255 thousand hectares in Turkey. The maximum area is located respectively, Southeastern Anatolia, the Aegean and the Mediterranean Region. However, the most of the production takes place in the Mediterranean region, where 27% of the production is done. Although the maximum number fruiting trees and total number of trees is in Southeastern Anatolia Region, yield per tree is relatively low, but a maximum yield of 22 kg comes from the Mediterranean region (Table 5).

Table 4. World Wide Shell Almond İmport By Countries

Ülkeler	Import Amount (Ton)					Import Value (000 $)			
	2008	2009	2010	2011	%	2008	2009	2010	2011
Germany	71.536	72.913	73.098	81.119	14,1	333.149	279.097	315.971	384.777
Spain	62.899	71.503	60.263	65.456	11,3	260.419	239.449	222.864	282.953
China,Hong Kong	21.209	37.213	37.296	42.601	7,4	100.724	144.650	166.121	206.257
Arab Emirates	20.630	31.516	35.103	36.316	6,3	69.041	144.243	205.100	204.852
Italy	25.775	27.216	30.797	33.145	5,7	128.591	104.506	146.431	167.763
France	28.285	30.380	27.927	30.355	5,3	143.745	126.833	135.088	161.616
Japan	23.795	23.408	25.611	26.862	4,7	125.340	103.194	138.929	146.161
Canada	18.452	20.149	20.633	23.973	4,2	91.157	84.131	98.713	124.174
The Netherlands	16.049	22.862	20.353	20.453	3,5	78.890	83.509	91.108	101.112
Russia	13.139	12.235	12.960	16.991	2,9	69.600	64.162	73.080	88.450
Republic of Korea	7.490	11.001	12.992	15.478	2,7	66.225	60.790	73.260	83.888
United Kingdom	12.767	13.864	15.193	15.452	2,7	38.300	49.606	66.804	76.678
Belgium	14.924	13.711	13.189	13.860	2,4	73.905	54.677	60.132	72.180
Switzerland	8.768	8.402	8.685	8.689	1,5	48.249	39.375	44.800	48.844
India	5.525	7.753	5.484	8.457	1,5	36.232	43.314	35.593	53.078
Mexico	5.565	7.584	8.560	8.161	1,4	28.827	28.064	35.632	33.463
Denmark	5.788	6.343	6.320	7.896	1,4	37.897	26.039	29.513	40.434
Turkey	3.085	3.568	3.975	4.771	0,8	20.874	24.134	26.890	32.004
Other	87.493	93.442	106.430	116.848	20,3	424.208	370.926	503.376	536.938
World	453.174	515.063	524.869	576.883	100	2.175.373	2.070.699	2.469.405	2.845.622

Table 5. Almond Production Area and Yield in Turkey (2013)

İBBS1 Name	Toplu Meyveliklerin alanı (dekar)	Üretim Ton	Üretim %	Ağaç Başına Ortalama Verim (kg)	Meyve veren yaşta ağaç sayısı	Meyve vermeyen yaşta ağaç sayısı	Toplam ağaç sayısı
Mediterranean	46.898	22.624	27,31	22	1.008.229	685.268	1.693.497
Aegean	66.446	20.547	24,8	16	1.285.048	999.410	2.284.458
Southeastern Anatolia	69.738	13.864	16,73	10	1.352.688	617.082	1.969.770
West Marmara	26.917	9.263	11,18	19	496.774	472.253	969.027
Western Anatolia	19.391	6.201	7,48	16	398.965	320.553	719.518
East Marmara	8.360	2.783	3,36	17	165.143	176.206	341.349
Central Anatolia	4.535	2.777	3,35	18	150.946	75.379	226.325
East Anatolia	10.926	2.528	3,05	11	227.334	215.668	443.002
Western Black Sea	861	2.058	2,48	13	152.940	35.273	188.213
İstanbul	459	147	0,18	19	7.930	3.950	11.880
Northeast Anatolia	39	58	0,07	6	9.595	1.055	10.650
Turkey	254570	82850	100	16	5255592	3602097	8857689

Almond Cultivation Current Economic Condition in Turkey

The distribution by provinces of areas of almonds, Manisa has 8.3% of the total area of almonds, with 21.1 thousand hectares. Manisa is followed respectively, Muğla, Antalya, Denizli, Çanakkale, Karaman and Mersin provinces. These provinces is the owner of 69.3 thousand hectares of almond fields, which almond areas constitutes 27.2% of the total (Table 6). Despite having ahead in terms of the total number of trees of Manisa, the average yield per tree is located below the average in Turkey. In Mersin, where is done 10% of Turkey's total almond production, is obtained yield as high as 30 kg per tree.

Table 6. Almond Production Area and Yield In Turkey By Cities

City	Whole Fruıt Garden Area	Production		Average Yield Per Tree	fruit-bearing trees	Non - fruit-bearing trees	Total
	(decare)	(Ton)	%	(kg)			
Mersin	7.966	8.835	10,66	30	294.006	79.675	373.681
Antalya	12.121	5.398	6,52	23	236.315	94.860	331.175
Muğla	19.854	5.250	6,34	12	452.488	143.008	595.496
Çanakkale	9.583	5.246	6,33	24	222.910	135.584	358.494
Denizli	10.250	4.910	5,93	20	246.843	167.829	414.672
Isparta	6.966	4.108	4,96	19	220.767	135.104	355.871
Diyarbakır	7.729	3.370	4,07	11	312.360	117.028	429.388
Manisa	21.105	2.860	3,45	15	194.940	515.626	710.566
Balıkesir	10.917	2.856	3,45	15	196.722	218.669	415.391
Afyon	4.014	2.272	2,74	25	92.503	44.836	137.339
Karaman	9.541	2.351	2,84	14	172.329	104.363	276.692
Elazığ	5.615	1.342	1,62	10	137.850	110.295	248.145
Diğer	154.982	34.052	41	16	2.672.281	1.735.220	4.210.779
Türkiye	254.570	82.850	100	16	5.255.592	3.602.097	8.857.689

Kaynak: Tuik 07 Nisan 2014

In recent years, our country, besides the increase in almond production was also increase in per capita consumption value. Almond's high nutrient content, the presence of many benefits in terms of health and because of use in many consumer products is increasing demand of almonds daily. Turkey's almond production is insufficient depending on the growing demands. Despite the fact that a country is in proportion as 93.79% self-sufficient for the period 2005–2006, this ratio declined to 81.97% in 2011–2012. This supply-demand gap is expected to grow further in the coming years (Table 7).

Tablo 7. Türkiye Badem Dış Ticareti, Tüketim ve Yeterlilik Derecesi

Yıllar [1]	Production (Ton)	Import (Ton)	Export (Ton)	Consuption (Ton)	Per – Capita Consuption (kg)	self-sufficient (%)
2011/2012	69.838	34.626	19.537	81.997	1,10	81,97
2010/2011	55.398	23.030	13.433	62.718	0,85	85
2009/2010	54.844	22.035	9.475	65.088	0,90	81,09
2008/2009	52.774	19.674	9.349	60.906	0,85	83,39
2007/2008	50.573	10.130	6.653	52.250	0,74	93,48
2006/2007	43.285	6.312	2.024	45.858	...	90,84
2005/2006	45.000	4.996	2.072	46.172	...	93,79

Table 8 . Commercial Almod Types Grown in World

Types	**Class**	**Origin**	**Time of Flowering**
Nonpareil	Paper-shell	USA	Geççi
Teksas	Hard-shell	USA	Geççi
Ferraduel	Hard-shell	France	Geççi
Ferragnes	Hard-shell	France	Geççi
Ne Plus Ultra	Hard-shell	USA	Erkenci
Drake	Hard-shell	USA	Geççi
Tuono	Hard-shell	Italy	Geççi
Ferrastar	Hard-shell	France	Geççi
Gülcan-1	Hard-shell	Turkey	Geççi
Marcona	Hard-shell	İspanya	
Peerles	Paper-shell		
48-2(Akbadem)		Datça	Erkenci
48-5(H.Alibey)	Hard-shell	Balıkesir	Erkenci
101-9	Hard-shell		Geççi
101-13	Hard-shell	USA	Geççi
Carmel	Paper-shell		
Genco	Hard-shell		Geççi
Picantili	Hard-shell		Geççi
Primorski	Paper-shell		Geççi
Yaltinski	Paper-shell		Geççi
Cristomorto	Hard-shell	Italy	Geççi

The types and proporties of almond produced in our country and world are given in Table 8. It's widespread of growing import types of almond, due to absence of whole gardens with domestic types in our country. The most widespreat types that are produced Nonpareil, Teksas, Ne Plus Ultra, Drake, Fransa orijinli Ferraduel, Ferragnes, Ferrastar and İtalya origin Tuono. In our country later types are preferred in regions of late frost are dominated in spring seasons because of economic restrictys. Almond is classified as hand, tooth, Stone and hard shell in accordance to shell hardnees, and in our country producing of Stone and hard shell types are widespead.

Results

In recent years, in addition to the leaderslip of ABD on almond producing and trade, the interest of almond producing is rising in other countries. Almond producing is getting cammon day by day in our country which has an important place in shell fruit producing which is dane on third class agriculture regions in the past, is done on first class agriculture regions today. Cultural prossesing is getting easier by establishing whole almond gardens and in doing so, producing is increased. By this increase, our country will be self sufficient and after this situation our country will be arbiter for almond export. In this situation, it will contribute for both farmers and economics of our country. Consequently, almond producing should be getting common, farmers should be supported and

researchers on improving domestic almond types should be noticed.

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