

CURRENT SITUATION, PROBLEMS AND SOLUTIONS OF SUNFLOWER IN THE CENTRAL ANATOLIAN REGION

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ABSTRACT

Sunflower, with holding the first position in terms of cultivation area and production of oilseed crops in our country, is the primary oil plant in Central Anatolia Region. It constitutes the 46.7% of the total oil crops production in Turkey. The seed yield is 196.8 kg.da⁻¹ in The Central Anatolia Region, where owns 30,3% of cultivation area and 19,5% of sunflower production in Turkey. Konya has the first rank in terms of cultivation area and as well as production amount in the sunflower with 36.8% of cultivation area and 58.7% production amount. Diverse cultivation of sunflower in fallow fields will make great profits to both farmers in the region and country's economy in Central Anatolia Region of Turkey, which has the 30,3% of arable land.

Key words: Sunflower, Oilseed, Confectionary sunflower, Central Anatolia

INTRODUCTION

World annual sunflower production is about 23 million tonnes and of, 1 million production have accomplished each year in Turkey which places it among top ten important sunflower producing country (Anonymous, 2014). There are two major uses of sunflower: oilseed and confection sunflower consumption. Oilseed having black and thin sheath around kernel and which is abundant for linoleic and oleic fatty acid content is a major source for oil production while confection sunflower which is comparably big and has a very thick sheath is mostly used for food consumption and animal feeding (Anonymous, 2007). Sunflower production in Turkey differs in planting region with varying oilseed and confectionary sunflower purposes. Trakya and Marmara regions are the biggest oilseed production areas, however confectionary sunflower production areas mostly localize in Middle Anatolia region of Turkey. Several studies have showed that even under drought conditions, sunflower production can be maintained but with low yield however after even one time irrigation of water may be enough to get high yield of sunflower (Anonymous). Besides, less demand on labour force with very suitability to mechanization makes sunflower a promising crop to increase its production rates in Turkey for near future (Anonymous, 2014).

AGRICULTURAL SITUATION OF MIDDLE ANATOLIA REGION AND PRODUCTION OF THE COMMON OIL CROPS IN THE REGION

Making 20% of whole country land, Middle Anatolia region composes 30.3% of arable area of Turkey and around half of this area has access to proper irrigation (TÜİK,

2015). Precipitation of this region is about 300-400 mm and the least precipitation falls at summer days. Aksaray, Ankara, Cankiri, Eskisehir, Karaman, Kayseri, Kirikkale, Kirsehir, Konya, Nevsehir, Nigde, Sivas and Yozgat- with diverse cultivation areas and crops like potato, apple, bean and sunflower- are the provinces of Middle Anatolia region. About 60% of planting area includes the area for crop cultivation, and nearly 30% is fallow area (Gultekin et al. 2013). Figure 1 shows the main crops produced in Middle Anatolia region and different cultivation areas in terms of only Middle Anatolia and in respect M. A. to Turkey.

a)

	Total area (m da)	Crop (m da)	Fallow (m da)	Vegetable (m da)	Fruit (m da)	Ornamental plants (m da)
2015 Middle Anotolia	72.602	47.399	21.672	1.532	2.007	1.324
2015 Turkey	239.486	157.377	41.139	8.085	32.838	45.972
Within Middle Anotolia		65,29	29,85	2,11	2,76	1,82
Middle Anotolia/Turkey	30,32	30,12	52,68	18,95	6,11	2,88

b)

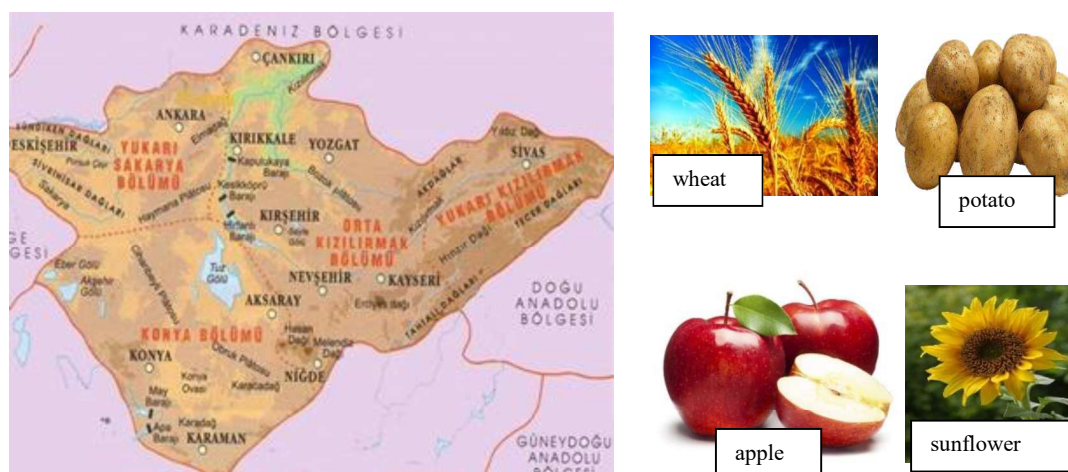


Figure 1.a) Shows the major cultivation areas of Middle Anatolia and Turkey **b)** Shows map of Middle Anatolia Region and its main cultivated crops. M.A.: Middle Anatolia

Besides canola, soybean, cotton seed, oil production from oilseed sunflower constitutes about 70% of total oil production in Turkey with fluctuating planting areas by year however (Caliskan, 2015) Turkey has about 530-690 thousand hectare for oilseed sunflower planting overall with 2.169 kg ha⁻¹ yield for 2014. Annual oilseed sunflower production in Turkey is about 900.000 tonnes and mostly Trakya region meets the demand for oilseed sunflower production (Anonymous, 2015).

Sunflower is the second crop after safflower in terms of oil production in Middle Anatolia region as shown in Table1. This region constitute almost 80% of safflower production along with arable area of Turkey. Oil production values from soybean, rapeseed and cotton seed are very low even not forming 0.1% of total production.

Table1. Production of major oil crops in Middle Anatolia region

	Soybean		Safflower		Rapeseed		Sunflower	
	M.A.	Turkey	M.A.	Turkey	M.A.	Turkey	M.A.	Turkey
Planting Area (da)	357	367.32	341.53	431.07	6.194	350.817	719.24	5.689.65
		3	9	1			5	0
		161.00					291.95	1.500.00
Production (t)	147	0	56.201	70.000	1.998	120.000	1	0
Yield (kg da ⁻¹)	412	440	156	164	218	344	386	264
M.A./Turkey	Area	0,10		79,23		1,77		12,64
	Productio							
M.A./Turkey	n	0,09		80,29		1,67		19,46
M.A./Turkey	Yield	-28		-8		-126		122

*M.A.= Middle Anatolia

SUNFLOWER PRODUCTION IN CENTRAL ANATOLIA

To increase arable areas for sunflower production in Turkey, attentions to other parts of Turkey have captured specifically Middle Anatolia region with provinces like Konya, Aksaray and Karaman however these regions are partly suitable for confectionary sunflower production (Anonymous, 2015). However, there are also government supported initiatives especially for Middle Anatolia to increase oilseed production to reverse decreasing planting areas, specifically when the climate and soil conditions of Middle Anatolia region are considered, it is thought that this area will be a great opportunity not only for oilseed sunflower production also for safflower and rapeseed (Anonymous, 2015).

By time, both the planting area and production percentages have increased from 2005 to 2015 with small fluctuations between the years as listed in Table 2. The production rates have decreased for two last years, 2014 and 2015 for oilseed while the rates for confection sunflower has increased from 2005 to 2015 gradually in Middle Anatolia. The fluctuation between land and production were consistent with each other for example, from 2012 to 2015, positive or negative change in arable area also reflected the change in production rates. Although, confectionary sunflower production still makes more than half of Turkey production as of 2015, both the production and arable area of sunflower production with respect to confectionary sunflower rates have increased dramatically 44% for area, 41% for production and 36% for area, 10% for production, respectively. The highest production amount for confectionary production recorded at 2015 with 53% while the highest record for oilseed sunflower production happened at 2013 with 19%.

Oilseed sunflower production for Middle Anatolia region was determined as 316.131 tonnes which made up 21.08% of total production in Turkey for 2015. Konya along with the biggest arable area, Aksaray, Eskisehir, Karaman and Ankara were top producers of oilseed production while Nigde with very few production even did not show any statistical information which was followed by Cankiri and Kayseri with comparably very low production value. However, the total sown area over total area in Turkey is too meager with 13.86 %, thus, it promises several advantages in terms of production values. Figure 2 shows oilseed production in Central Anatolia region as of 2015.

Table2. Shows the sunflower production Middle Anatolia region respect to Turkey

	Middle Anatolia		Middle Anatolia		Turkey		Turkey		M.A/Turkey	M.A/Turkey
	Oilseed sunflower		Confectionary sunflower		Oilseed sunflower		Confectionary sunflower		Confectionary	Oilseed sunflower
	Area (da)	Production (t)	Area (da)	Production (t)	Area (da)	Production (t)	Area (da)	Production (t)	Production (t)	Production (t)
2005	259.480	30.988	351.380	40.346	4.900.000	865.000	760.000	110.000	36,68	5,30
2006	266.270	40.809	359.044	41.117	5.100.000	1.010.000	754.000	108.000	38,07	5,22
2007	382.259	65.457	337.812	33.142	4.857.000	770.000	689.778	84.407	39,26	7,87
2008	370.746	66.281	327.022	32.645	5.100.000	900.387	700.000	91.613	35,63	7,27
2009	390.457	79.681	328.030	36.137	5.150.000	960.300	690.000	96.825	37,32	7,58
2010	422.656	83.473	508.532	68.515	5.514.000	1.170.000	900.000	150.000	45,68	7,67
2011	538.819	148.254	612.413	81.715	5.560.000	1.170.000	997.000	165.000	49,52	9,69
2012	865.443	282.713	609.655	79.317	5.046.160	1.200.000	1.000.000	170.000	46,66	17,15
2013	1.031.228	365.494	540.893	64.849	5.202.600	1.380.000	895.239	143.000	45,35	19,82
2014	932.526	353.908	622.900	67.677	5.524.651	1.480.000	1.049.925	157.900	42,86	16,88
2015	719.245	291.951	784.924	97.101	5.689.950	1.500.000	1.163.224	180.700	53,74	12,64

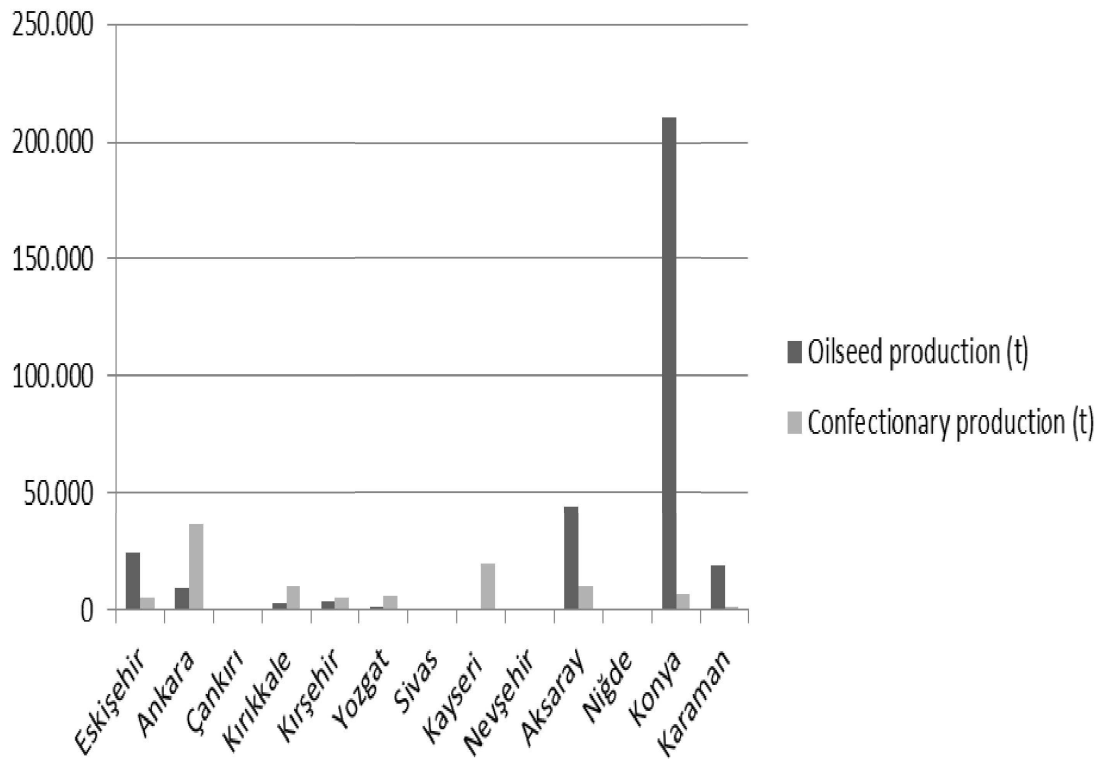


Figure 2. Shows the oilseed and confectionary sunflower production in provinces of Central Anatolia in 2015

Although it is actually, following an increasing trend in sunflower production in Central Anatolia region, not all provinces contribute equally to this percent, because Konya, Aksaray, Eskisehir, Ankara, and Karaman are the most important producers of sunflower production. Konya showed a great increase in sunflower production which makes 68.4% of overall Central Anatolia region and 26.03% of Turkey as of 2014. This makes Konya fourth largest sunflower producer after Tekirdag, Edirne, and Kırklareli. However, there were also notable increase in Aksaray, Karaman, Eskisehir, Ankara and Kirsehir sunflower production through the years. The other cities still need some actions to manage the sunflower production even there are some bare problems having confronted like few irrigation, wide row spacing and not regular appliement of intensive cultivation (Kolsarici et al. 2005).

Despite of relatively important contribution of Middle Anatolia region for oilseed production, this region can produce more than half of confectionary sunflower of Turkey for 2015 as shown in Table 3.

Ankara, Kırıkkale, Kayseri, Kirsehir and Yozgat are having the largest confectionary sunflower production areas in Central Anatolia region, but yield values are not well correlated for sown areas and production like Kırıkkale, which has second largest area, only produced 9.800 tonnes in 130.475 decares when compared with Kayseri with 19.828 tonnes in 97.850 decares. Central Anatolia made up 69.72% and 56.79% of sown areas and confectionary sunflower production of Turkey, respectively. Cankiri and Nevsehir were the least confectionary sunflower producers while Niğde showed no visible production as also happened for oilseed production.

Table3. Shows confectionary sunflower production in Middle Anatolia region

Provinces	Sown areas (decares)	Production (tonnes)	Yield (kg/da ⁻¹)
Aksaray	47.175	10.288	218
Ankara	344.915	36.295	105
Çankırı	3.230	406	126
Eskişehir	22.886	5.114	223
Karaman	13.714	1.484	108
Kayseri	97.850	19.828	203
Kırıkkale	130.475	9.800	75
Kırşehir	59.929	4.973	83
Konya	26.060	7.327	281
Nevşehir	1.672	204	122
Niğde	-	-	-
Sivas	3.400	514	151
Yozgat	59.734	6.388	107
Total	811.040	102.621	150
Turkey total production	1.163.224	180.700	155
Total/Turkey total production (%)	69,72	56,79	-5

COMMON PROBLEMS AND THEIR POSSIBLE SOLUTIONS FOR SUNFLOWER PRODUCTION IN CENTRAL ANATOLIA REGION

Unlike Trakya and Marmara region especially named after great sunflower production in Turkey, it needs some new areas to eliminate production fluctuation throughout the years and specifically Konya and Eskişehir, Ankara, Aksaray and Karaman are promising cities to create new arable areas. It was actually known that Central Anatolia region was really good source of confectionary sunflower production however when it is concerned that Konya ranks fourth in oilseed production, Middle Anatolia region promises a lot for sunflower production for future.

Although the conditions and production for sunflower gets better each year in Central Anatolia, this area is thought to have more potential, thus, some precautions should be taken to improve production in this region:

Problems

- First, it is needed to be clearly understood that the sunflower production is made in dry areas and if irrigation is possible, other crops, like potato, sugar beet and bean, are preferred for that lands,
- Farmers are not well informed both for sunflower, government support, and marketing.
- Yield rates for sunflower production are too low in Middle Anatolia

Solutions

Solutions to these problems begins with;

- teaching farmers the value of sunflower by bringing the awareness.

- mechanization supply should be done properly for each farmer.
- Farmers should be encouraged to plant sunflower to fallow and dry areas.
- The studies in this area should be supported.
- The competency in price rates should be balanced to promote the sunflower cultivation (Caliskan, 2013).

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