ISSN : 0974 - 7532 Volume 7 Issue 12

Research & Reviews in

BioSciences

Regular Paper

RRBS, 7(12), 2013 [485-490]

Course of current status and development of cotton in Turkey

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ABSTRACT

In this study, the current situation in Turkey was examined and change values of cotton production, consumption, cultivation, yield, exports, imports over the years were determined. The time-series analysis was used to determine the direction of changes.

Additionally, in order to determine the current status of the cotton sector in Turkey the index values were calculated in terms of several criteria. For enhancing the competitiveness and the development of the sector, SWOT analysis (SWOT) Strengths-Weaknesses-Opportunities-Threats analysis is used to determine aspects of current and potential of the sector.

In the study, according to the projection following findings has been reached, in 2015 cotton production amount cannot afford the consumption amount, imports will increase and becoming dependent on foreign economy completely. According to these results, the new regulations shall be determined in supporting policies to increase cotton production.

KEYWORDS

Cotton;
Foreign trade;
SWOT;
Trend;
Turkey.

INTRODUCTION

Despite a long history going back until the year 330 BC, Cotton began to develop in 11th century by Seljuk Turks and the 14th century by Ottoman Turks in Turkey. After the proclamation of the Republic, great importance was given to the cotton cultivation[2].

In general cotton cultivation in Turkey is made at Aegean, Antalya, Çukurova and Southeastern Anatolia Region. Sowing areas of cotton began to increase rapidly in the Southeast Anatolian region because Southeastern Anatolia Project irrigation facilities entered into service in the 1990[12]. Approximately 55% of cotton fiber production is carried out at Southeastern Anatolia, 18% at Aegean region, 27% at Çukurova and 1% at Antalya regions[17] .

China, India, USA, Brazil, Pakistan, Uzbekistan, Australia and Turkey are 8 countries leading the production of cotton respectively. These countries were realized 89% of the cotton production in the world in 2010/11 season.

Cotton, includes both the fiber and oil plants among the industrial plants. It is used as raw material such as fiber in textile industry, as oil derived from its kernel at vegetable oil industry and as pulp in feed industry. In addition, the oil obtained from the core used in biodiesel production show its importance in terms of energy.

Cotton, takes an important place in the field of textile and confection employment. Factors that accelerate the increase in demand for textile and confection products, such as income growth, population growth, urbanization, demographic structure and the rate of

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change showed a rapid change in Turkey[13]. Extraordinary increases in factors of cost of production of textile, garment and apparel industries affect export performance in 2008. Thus, by dissolving the profitability of the industry, the production and export has been brought to a halt[3].

In this study, taking into account the importance of the cultivation of cotton, the trend analysis was performed by examining sowing, yield, production, consumption, import, export values of cotton in Turkey and objected to find out the status of the industry's future. In addition, the industry SWOT analysis (Strengths-Weaknesses-Opportunities-Threats analysis) was used to determine aspects of current and potential aspects of the sector.

MATERIAL AND METHOD

As the study material, web pages, reports of TURKSTAT and other statistical agencies, research and publications previously published on the subject, with books, magazines, statistics and reports of various institutions were used.

In order to determine the direction of changes occurring in cotton in Turkey the trend analysis was conducted during 1993-2010. Trend indicates a long period of economic events within the structural trend[10]. Cotton industry in Turkey, sowing, yield, production, consumption, import, export values, linear, exponential, logarithmic trend of the method were tried with trend analysis done. It was resulted that linear method was more suitable than other methods, and projections were performed. At the time of detection of trends, the formula which represents the best trend and has the highest determination coefficient (R 2) has been taken chosen carefully. Therefore, linear and exponential trend equation is used with the highest regression coefficients that the trend suits[11]. Proportional changes of values over time were defined and interpreted with a simple calculation of the index.

RESEARCH AND RESULTS

Current status of cotton sector in Turkey

Turkey, in 1993, the planting area of 568 thousand ha decreased from 481 thousand ha which is decreased by 13% in 2010/2011. Yield is increased 1060 kg / ha from 1700 kg / ha with is a rate of 28%[5].

Figure 1 shows trend analysis of Turkey cotton planting area.

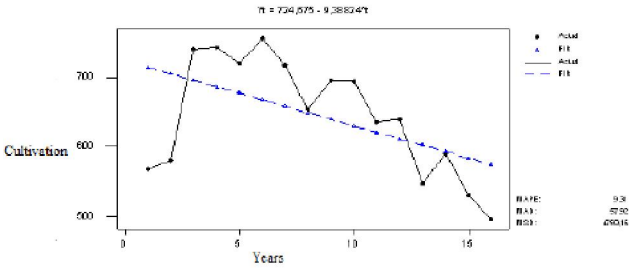

Figure 1 : Trend analysis of Turkey cotton planting area

At cotton planting trend analysis values were applied as, Yt = 724.675-9.38824 * t. the Slope of the trend of the equation of cotton planting area is negative. In 2015, 508 thousand ha of cotton planting area are estimated.

Figure 2 Trend analysis in the area of cotton yield in Turkey is given.

In Figure 2, cotton yield trend is applied to the analysis of values as following, Yt = 973.575 + 38.5941 * t. Slope of the trend of equation of cotton yield, is positive. In 2015 Cotton yield is estimated to be 1 861 ha.

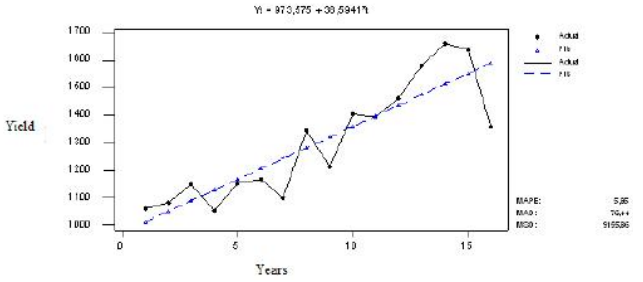

Figure 2 : Trend analysis in the area of cotton yield in Turkey

Turkey's place in world cotton production is given in TABLE 1.

As shown in TABLE 1, in 2010/11 world cotton production season, cotton production of 24.9 million has been made 33.3 million hectares, the average yield is 746 kg / ha. Among the world, with cotton production of 6.4 million tons China takes the first place with, India ranked second with 5.5 million tons, and U.S.A is third with the 3.9 million tones. In 2010/11 period, in Turkey approximately 450 thousand tons of cotton fiber was obtained among 817 thousand hectares of cotton cultivation. According to the world cotton cultivation in the field Turkey is at 8th place all over the world, 8th in terms of production quantity, 5th in terms of lint

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yield.

TABLE 1 : Turkey's place in world cotton production (2010/2011)

Ülkeler	Cultivation (000 ha)	Yield (kg/ha)	Production (000 ton)	Consumption (000 ton)	Import (000 ton)
India	11.142	496	5.525	4.483	87
USA	4.330	910	3.942	849	2
China	5.220	1.226	6.400	9.594	2.609
Pakistan	2.800	681	1.907	2.200	314
Uzbekistan	1.330	684	910	273	1
Brazil	1.400	1.400	1.960	990	153
Turkey	481	1.700	817	1.540	750
Greece	250	720	180	35	3
Australia	590	1.522	898	9	0
Syria	150	1.071	161	185	-
Indonasia	9	707	6	431	420
Mexico	116	1.357	157	390	261
World	33.337	746	24.872	24.459	7.600

Source: Anonymous, 2012a

Trend analysis of cotton production in Turkey is given Figure 3.

From Figure 3, at the trend analysis applied to cotton production values; Yt = 740.325 + 11.4103 * t, respectively. The slope of the trend cotton production equation is positive. The amount of cotton production is estimated to rise to 1 million tons in 2015.

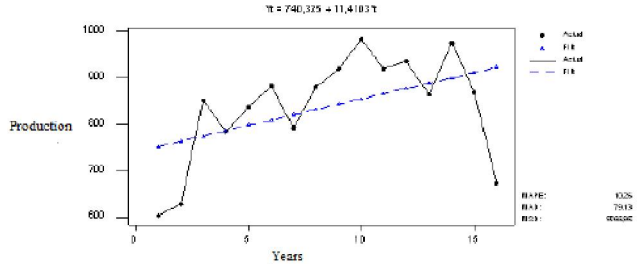

Figure 3 : Trend analysis of cotton production in Turkey

Trend analysis of cotton consumption in Turkey is given in Figure 4.

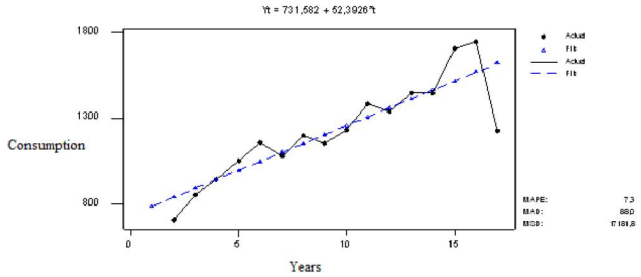

Figure 4 : Trend analysis of cotton consumption in Turkey

Values Yt = 731.582 + 52.3926 * t respectively are applied to cotton consumption trend analysis. The amount of cotton consumption is estimated to increase to 1.94 million tons in 2015. The slope of the trend is positive.

Trend analysis of cotton imports in Turkey is given in Figure 5.

From Figure 5, linear method is used in the trend analysis of cotton imports. The values are applied as Yt = 50.4 + 47.4456 * t respectively in trend analysis of cotton imports. The slope of the trend equation is positive.

According to the projection, the amounts of cotton imports are estimated to increase to 1.14 million tons in 2015.

Koç[14] expressed in his study that if the premium payments are not paid to cotton producers Turkey's dependence on imports of cotton will increase.

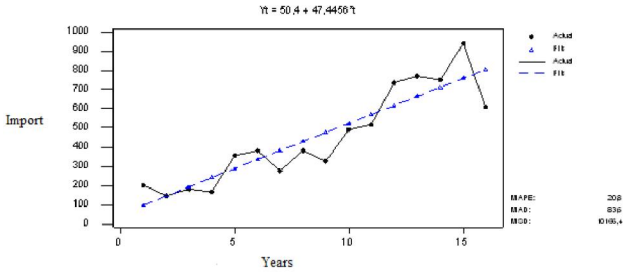

Figure 5 : Trend analysis of cotton imports in Turkey

Trend Analysis of Cotton Export in Turkey is given in Figure 6.

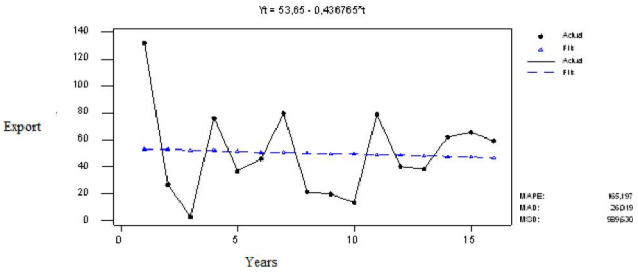

Figure 6 : Trend analysis of Turkey exports of cotton

From Figure 6, Turkey cotton export values applied to the analysis of trends were calculated as Yt = 53.65-0.436765 * t. The slope of the trend of the equation is. According negative to the projection, the amount of export of cotton is estimated to be 44 thousand tons in 2015.

Since 1991, a traditional exporter of cotton, Turkey has been an importer of cotton as a result of increase at internal and external demand at textile and

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garment products[13].

As a result of successful investments especially at spinning, weaving and garment industry, Turkey began to take place among the world firsts with the share of world production and foreign trade in recent years.

Turkey and the world cotton prices

In the study of Anderson and Valenzuela[1], considering 2001, given according to calculations made by GTAP (Global Trade Analysis Forecasting (Project) Model), as a result of the removal of cotton production and export subsidies and tariff barriers on products; an annual increase of 283 million U.S. dollars in global economic prosperity and an average increase of 12.9% has been estimated to at cotton prices at international markets

World cotton prices are given in TABLE 2.

In 2010/2011 period, cotton price was meeting %20 of production cost amount.

TABLE 2 : World cotton prices

	Turkey ($/ton)	USA ($/ton)	World ($/ton)
2002/03	1.318	1.202	1.229
2003/04	1.618	1.569	1.526
2004/05	1.352	1.219	1.181
2005/06	1.381	1.225	1.258
2006/07	1.413	1.293	1.332
2007/08	1.728	1.639	1.635
2008/09	1.385	1.365	1.342
2009/10	1.880	1.803	1.735
2010/11	3.537	3.650	3.601

Source: Anonymous, 2012b

COTTON SUPPORTS IN TURKEY

In 2005, diesel fuel (4.5 TL / da) support and chemical fertilizer (3 TL / da) support are given to cotton-producing farmers[16] . In 2011, 6 TL/da of chemical fertilizer support payments were made. In 2011, 6TL / da diesel-support payments were made for 1 da.

"Watershed-Based Production and Support Model" will be applied in agriculture after 2010. In this model Turkey is divided into 30 basin by taking into account climate, topography and soil data[15]. Agricultural production will take place according to this basin model. The product-based supports up to now will be given on the basis of the basin. Products which are supported for each basin individually indicated in the model[20]. Cotton, one of the most problematic products of Turkey, will be supported in 13 basins.

Quantities of cotton support in Turkey are given in TABLE 3.

In U.S. direct assistance to cotton producers for the period 2001/02 was 2.3 billion $, total direct aid for Greece and Spain was 0.8 billion$ and a total of $ 150 million directly to producers of cotton producers in the total aid provided in Turkey, Brazil, Mexico and Egypt, furthermore India provided a of support of 0.5 billion $ during the same period to cotton producers[9].

Cotton producers in developed countries like the EU and the United States are supported with high-cost supports in appropriate circumstances by providing to serve cotton to the world market. While U.S. provide support to the cotton producer about 235 TL/da, Turkey provided support of 162.4 TL/da in 2008 including premiums and directly supports[4].

According to the ICAC calculations, eventhough the U.S. cotton subsidies are removed alone, world prices would increase even in periods 2000/01 and

TABLE 3 : Quantities of cotton support in Turkey

Years	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Diesel (TL/da)	-		1.95	4.5	-	5.4	5.4	5.5	5.5	6
Fertilizer (TL/da)	-		-	3	-	3	3	5.5	5.5	6
DGD (TL/da)	10	14	16	16	10	10	7	-	-	-
Premium (without certificate TL/da)	30.77	32.04	71.25	108	126	129	124	143.85	156.8	156.8
Premium (with certificate TL/da)	33.847	35.244	85.5	128	152	156	147	172.62	188.16	188.16
Total Support for Certificated production (TL/da)	43.847	49.244	103.45	151.5	162	174.4	162.4	183.62	199.16	200.16
Total Support for Certificated production (TL/Kg)	0.121	0.138	0.276	0.379	0.373	0.391	0.355	0.447	0.445	0.447
Total Support Un-certificated production (TL/da)	40.77	46.04	89.2	131.5	136	147.4	139.4	154.85	167.8	168.8
Total Support Un-certificated production (TL/Kg)	0.113	0.129	0.238	0.328	0.313	0.33	0.304	0.377	0.375	0.377

Source: Anonymous, 2011 b.

TABLE 4 : SWOT analysis in Turkey cotton sector

Strong Points The increase in efficiency as a result of the use of certified seed -Increased knowledge of breeding -Increased input use (fertilizers, pharmaceuticals, etc.). - Development of irrigation infrastructure - Increasing mechanization of cotton cultivation and the resulting decrease in labor costs	**Weak Points** - Absence of external protection measures (quota, the customs duty), - Removal of agricultural financial resources of Union/cooperatives provided the by the state, - Lack of cotton supports - High-cost, alternative products getting more revenue-generating, falling cotton plantations due to reasons such as separation of housing land - Inadequate training and publishing activities about cotton cultivation - producer prices under inflation and rate of increase of input prices -common unregister cotton marketing
Opportunity -Increase on irrigated area, especially irrigated land in the GAP region is still increasing, cultivation area is increasing -Due to the expansion of irrigated area in the GAP region-growing area of cotton production as a result of the completion of the project or just as the GAP region have grown more cotton field - the presence of textile and apparel industry -Organic cotton production, labor costs are more advantageous in Turkey than those in developed countries, a growing demand of organic cotton in the world. - Markets stabilize commodity futures exchange on the chart, including the delivery process to continue efforts to ensure the establishment of a licensed warehouse	**Threats** -Increasing input and labor costs - the spread of ecological pollution due to false agriculture and irrigation techniques application -Climate change Cotton production in general decreased with the pressure of the high-subsidy countries in world prices and world prices showing a downward pressure on domestic prices

2001/02 with a rate of 10% increase[19].

As of 2002/03 period, it was seen that 63% of the world cotton subsidies were given to their own producers in the U.S; during the same period, despite cotton production in Greece and Spain referred only 2.5% the global cotton production, EU took the 18.5% of world cotton subsidies[18].

Turkey Cotton Sector SWOT Analysis are given in TABLE 4.

RESULT

Cotton acreage between 2004/2010 in Turkey, while cotton production between 2010/2011 decreased due to contraction in the area of cultivation. Because cotton prices are low, labor and input costs is getting higher, cotton planting areas and consequently cotton production has been decreasing in recent years. Cotton subsidies should be given by the Provincial Directorate of Agriculture Oil Seeds Agricultural Sales Cooperative Union for the high quality, inexpensive, faster, non-labor costs production and the benefits of the use of machine should be explained to the producers. In addition, projects should be made about cotton machine and producers should be informed about usage. The ratio of cotton production meeting the demand of consumption is low Turkey. To increase cotton yield by increasing the use of certified seed must be provided. To do this, support for the use of certified seed should be increased and should be given in advance to producers. According to trend analysis of cotton planting area, planting area of cotton in 2015 is estimated about 508 thousand ha. Cotton yield is estimated to be 1 861 ha. The amount of cotton production is expected to increase 1 million tons and the amount of cotton consumption is expected to rise to1.94 million tons.

The biggest problem in terms of quality and cotton use is the problem of foreign matter in cotton. This issue of moving the current stage of solving the problem of cotton collection, storage requires the awareness of all producers up to the stage of ginning. Another problem to be solved about using the raw cotton, even though the legislation came into force in Turkey, is due to a single bale implementation system. A strict control of single bale implementation system and promote the implementation of activity needs to be conducted across the country for Industrial use of the products produced for the elimination of the need and to consider and to be differentiated from the standard varieties of cotton.

Turkish textile and apparel products in recent years

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have accelerated in parallel with the increase in demand. Therefore, breeding studies of cotton seed varieties should be initiated the textile industry in need of a solid structure and fine, long fiber characteristics. Cotton is the most important raw material for textile. To protect the position of Turkey and to remain competitiveness with the world's textile trade in the textile industry, quantity and quality of cotton needs to be brought at the best level.

International obligations in terms of foreign trade in cotton in Turkey are shaped within the framework of the World Trade Organization Agriculture Agreement and the EU Customs Union. Within this framework, Turkey can not perform the quota on imports and tariffs, other protection measure; including the EU countries and other countries, large amounts of low price cotton than the domestic cotton price enters the country thus prices are getting under pressure. Even if the level is not sufficient to meet the cost of production of cotton in domestic support in Turkey, cotton cultivation is at the point of withdrawal because the price of cotton is getting under pressure at the domestic market. To achieve this, imports of cotton should be controlled or domestic support should be increased.

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