A Study of the Cotton Sector of Turkey: Implications for US Cotton Exports

Srini Konduru
Fumiko Yamazaki
Mechel Paggi*

*Assistant Professor, Department of Agricultural Business, Senior Research Economist, Director, Center for Agricultural Business, California State University, Fresno

Special Thanks to Dr. Jeanne Reeves for her participation and the support of Cotton Inc. &

Fehmi Gulyasar
Technical Manager SET Co.
Turkey overtakes China as No. 1 buyer of U.S. cotton

By Chris Prentice

NEW YORK Fri Dec 27, 2013 6:30pm EST

Dec 27 (Reuters) - Turkey has overtaken China as the biggest buyer of U.S. cotton, U.S. data showed on Friday, as Chinese buyers have boosted their purchases of lower-taxed yarn and cut back on buying raw cotton.

Turkey's consumption is expected to hit a 7-year high of 6.2 million bales this season while regional supplies fall, boosting its appetite for fiber from the United States, Greece and Australia, according to traders.

The Turkish buying spree in part reflects a need to reach further afield for fiber as local supplies tighten on falling output, traders said. Turkey and Uzbekistan are expected to grow 600,000 fewer bales this year due to lower plantings.

Traders and market sources said the increased demand for cotton is also due to a resurgence in the Turkish textile industry, which is selling more textiles and apparel to Europe even as demand remains sluggish due to the slow economic recovery.
Introduction Quick Statistics

- Cotton production in Turkey is small – 330K ha and 2.3 million bales (2013) est. (down 20% from 2012)
- Cotton consumption is 6.2 million bales in 2013 (est.)
- Textile industry is about 8 percent of Turkish GNP, 17 percent of exports ($24b); 10% of industrial employment
- Turkey imported 3.3 million bales in 2012 (more than half from the US 1.95 mil bales =/-) est. 2.3 million for 2013.
Generalized Cotton Regions in Turkey

- Aegean/Izmir
- Antalya Cukurova
- Southeast Anatolia (GAP)
The most popular varieties in the Aegean region are “Carmen” and “White Gold”; in Cukurova “Delta Pine-SG 125” and “BA 119”; and in the Southeast “Stone Mill ST 468” and “Diyarbakir Gold”.

Aegean cotton is considered the best quality and is preferred by textile producers. Aegean cotton is longer staple (1 5/32”) than cotton from Cukurova (1 3/32”) or the GAP (1 1/8) region.

Turkey has an estimated 500 gins, all privately owned. The majority of the gins in the Aegean region are roller gins, more suitable for longer staple cotton, while about half of the gins in Cukurova and the Southeast are roller gins and half are saw gins.

The ginning rate averages about 41 percent in the Aegean region, about 39 percent in GAP and 38 percent in Cukurova. Ginners generally purchase seed cotton directly from growers.

Avg. farm size 9.5 hectares (study farm size > 50 hectares); 75% mechanized harvesting; 25% hand harvested
What Caused the Shift in Production by Region?
What Does The Future Hold for Increased Production and Imports?

Turkey's Cotton Area by Region

Area (1000 ha)

Year


Southeastern Anatolia

Cukurova
Southeast
Izmir
Antalya

USDA/FAS/PECAD
Note: Unofficial estimates

What Caused the Shift in Production by Region?
What Does The Future Hold for Increased Production and Imports?
Turkish Cotton Area by Region*

* Turkish Govt. Statistics; USDA est.
Introduction

- Investment in irrigation and infrastructure in SE Anatolian (GAP) region of about $25b in last three decades
- Accession of Turkey into EU in future
- Competition from Corn and Soybeans
- Examine the effects of Common Agricultural Policy (CAP) of EU on Turkish cotton farm profitability
The GAP Region

The region of Southeastern Anatolia extending over wide plains in the basins of the lower Euphrates and the Tigris covers the administrative provinces of Adiyaman, Batman, Diyarbakir, Gaziantep, Kilis, Mardin, Siirt, Sanliurfa and Sirnak. The region is bordered by Syria to the south and Iraq to the southeast. The surface area of the region is 75,358 square kilometres constituting 9.7% of the total surface area of the country. Turkey has 8.5 million hectares of irrigable land and about 20% of this land is in Southeastern Anatolia.

The Southeastern Anatolia Project, or Guneydogu Anadolu Projesi (GAP) in Turkish, is one of the largest river basin development projects in the world and the largest single development project carried out by Turkey. It includes 13 irrigation and hydropower schemes, involving the construction of 22 dams and 19 hydroelectric power plants on both the Tigris and the Euphrates. Upon completion it is expected to provide up to 25 percent of the country’s electricity.

Coined as "Fertile Crescent" or "Upper Mesopotamia", the region is also commonly referred to as "cradle of civilizations." Throughout history, the region served as a bridge connecting Anatolia with Mesopotamia.

However, it is also a hotbed of controversy. Turkey’s Kurdish population, which represent 90 percent of the population living in the area affected by the GAP, claims that promised economic and social gains have yet to bear fruit and the GAP is simply another effort by Ankara to subvert their ethnic identity. Meanwhile Syria and Iraq argue they haven’t been consulted on the project, as experts warn that downstream food security and water supplies will be negatively affected by new dams and reservoirs.
The initial idea and decision to utilize the waters of the Euphrates and Tigris rivers came from Atatürk, the founder of the Republic. In the 1920s and 1930s, the need for electrical energy was a priority issue. The GAP as it is structured today, was planned in the 1970s consisting of projects for irrigation and hydraulic energy production on the Euphrates and Tigris, but transformed into a multi-sector social and economic development program for the region in the early 80s. The development program encompassed such sectors as irrigation, hydraulic, energy, agriculture, rural and urban infrastructure, forestry, education and health.
Investments in GAP region

• Resulted in GAP region becoming top cotton producing region in Turkey
• In some areas of the GAP region, despite dissatisfaction with the returns of cotton, farmers are forced to plant cotton due to hot summers that adversely affect corn.
• Infrastructure for irrigation and other support from Turkish government (electricity projects, technical and financial assistance, etc.) provide advantages not provided to other regions. Reported related to rural development and/or stability goals.
Introduction

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• Accession of Turkey into EU in future

• Competition from Corn and Soybeans

• Examine the effects of Common Agricultural Policy (CAP) of EU on Turkish cotton farm profitability
Methodology

• Estimation of costs of production by Rapid Rural Appraisal in south and eastern Turkey
• Difference in Yields and Production Practices
• 6 Focus Group Discussions (5-7 farmers) during summer 2013
• Meetings with representatives of local government, agricultural officials and researchers at seed companies.
Methodology

Areas Visited: Villages around Adana and Izmir
Meetings with Farmers & Seed Companies
Meetings Farmers, Input Suppliers and Govt. Officials
## Average Cost of Cultivation and Gross Profit of Seed Cotton in Turkey ($ per Acre)
Izmir and Adana Area (2013)

<table>
<thead>
<tr>
<th>Cost of Cultivation</th>
<th>$/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Rent</td>
<td>498</td>
</tr>
<tr>
<td>Land Preparation</td>
<td>120</td>
</tr>
<tr>
<td>Cost of Seed</td>
<td>50</td>
</tr>
<tr>
<td>Planting</td>
<td>20</td>
</tr>
<tr>
<td>Hoeing</td>
<td>70</td>
</tr>
<tr>
<td>Fertilizer and its application</td>
<td>179</td>
</tr>
<tr>
<td>Misc</td>
<td>8</td>
</tr>
<tr>
<td>Irrigation and labor expenses</td>
<td>68</td>
</tr>
<tr>
<td>Pesticides (Insecticides, herbicides, fungicides, etc)</td>
<td>129</td>
</tr>
<tr>
<td>Harvesting</td>
<td>159</td>
</tr>
<tr>
<td>Transportation</td>
<td>20</td>
</tr>
<tr>
<td><strong>TOTAL EXPENSES</strong></td>
<td>1321</td>
</tr>
<tr>
<td>Misc EXP. (Ms Tp 3%)</td>
<td>40</td>
</tr>
<tr>
<td>INTEREST Expenses (9%)</td>
<td>119</td>
</tr>
<tr>
<td><strong>TOTAL GENERAL EXPENSES</strong></td>
<td>1479</td>
</tr>
<tr>
<td>YIELD PER acre (KG/Ac)</td>
<td>2000</td>
</tr>
<tr>
<td>Market price (per kg of cotton)</td>
<td>0.62</td>
</tr>
<tr>
<td>Support from Government(per Kg)</td>
<td>0.24</td>
</tr>
<tr>
<td>Total Price per Kg</td>
<td>0.86</td>
</tr>
<tr>
<td><strong>Revenue</strong></td>
<td>1725</td>
</tr>
<tr>
<td><strong>GROSS PROFIT</strong></td>
<td>246</td>
</tr>
</tbody>
</table>
Stochastic Simulation Models

• Generate a large random sample of outcomes
• Forecast of the dependent variable (KOVs) is a function of the probability distributions of the explanatory variables as well as their mean value
• Simulated distribution of the dependent variables captures the variability or risk associated with forecasting the dependent variable
• Examples of KOVs: net income, cash flow position, financial ratios
Turkish Agricultural Policy and Common Agricultural Policy (CAP)

• Turkish cotton farmers reported GOT support $0.24 per kg of seed cotton (includes cotton premium, diesel and fertilizer payments); GOT may increase

• Presently, cotton farmers in Greece (EU) are paid approximately $320/acre ($0.16/kg) as crop specific payment.
Competition from other crops

- Low returns on cotton and high production costs persuaded farmers, particularly in the Cukurova and Aegean regions, to plant alternative crops such as corn, soybean and vegetables
- Growing livestock industry
- Profitability of corn in the same range as that of cotton in the last three years
Other Problems

Pests, including budworm and bollworm, are a problem for cotton producers, particularly in the Aegean and Cukurova regions. Therefore, the government ban on aerial pesticide spraying in May 2006 harmed producers in the region.

According to growers, there is no other cost-effective way to control infestations in traditional varieties. Turkey does not permit planting of Bt insect-protected cotton.

(USDA; GAIN)
Scenarios analyzed in this study

- **Baseline**: Present level of payments received by Turkish farmers
- **Scenario I**: Turkey accedes to EU and Turkish farmers receive only EU payments
- **Scenario II**: Turkey accedes to EU and Turkish farmers receive EU payments along with Turkish govt. payments (country specific envelope)
- **Scenario III**: Turkish farmers receive no payments
Results:

<table>
<thead>
<tr>
<th>Simulated Average of 2014 and 2015 ($ Per Acre)</th>
<th>Baseline</th>
<th>EU payments</th>
<th>EU + Turkey payments</th>
<th>No Payments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>1140</td>
<td>975</td>
<td>1472</td>
<td>646</td>
</tr>
<tr>
<td>Production Cost</td>
<td>946</td>
<td>946</td>
<td>946</td>
<td>946</td>
</tr>
<tr>
<td>Gross profit</td>
<td>194</td>
<td>29</td>
<td>526</td>
<td>-300</td>
</tr>
</tbody>
</table>

* Corn returns reported at $257 with government support of about 1/3 that of cotton on a per kg basis.
Simulated Probability Distributions

Probabilities that the 2014-2015 Net Present Value of Net Income after Taxes per acre will be Less Than $2,000 and Greater Than $2,500 without Joining EU

Turkey Base line

0.22

0.28

0.51

Probabilities that the 2014-2015 Net Present Value of Net Income after Taxes per acre will be Less Than $2,000 and Greater Than $2,500 with Joining EU

Turkey Scenario 1

0.10

0.21

0.58

Probabilities that the 2014-2015 Net Present Value of Net Income after Taxes per acre will be Less Than $2,000 and Greater Than $2,500 with Joining EU and have both Turkey and EU Supports

Turkey Scenario 2

0.56

0.34

0.94

Probabilities that the 2014-2015 Net Present Value of Net Income after Taxes per acre will be Less Than $2,000 and Greater Than $2,500 without Any Supports

Turkey Scenario 3

0.10

0.94

0.05

Baseline (Turkey Payments)

Only EU Payments

EU + Turkey Payments

No Payments
Conclusions

• Continued Support Payments are likely necessary to maintain Cotton production in Turkey
• Shift in cropping patterns due to competition primarily from corn in the south and eastern areas
• Fast growing textile industry needs raw material, and will continue its dependence on imports
• The Market for US cotton will continue to be important; future depends on Turkish production trends and competition from other exporters
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