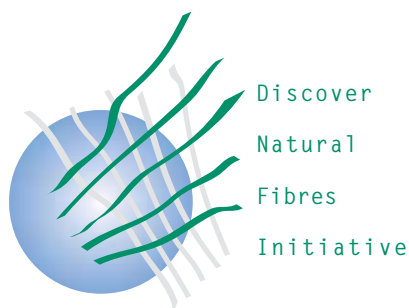




COTTON :

Review of the World Situation

International
Cotton
Advisory
Committee

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SUPPLY AND DISTRIBUTION OF COTTON

December 1, 2011

Seasons begin on August 1

	2007/08	2008/09	2009/10	2010/11 Est.	2011/12 Proj.	2012/13 Proj.
	Million Metric Tons					
BEGINNING STOCKS						
WORLD TOTAL	12.749	12.210	11.895	8.673	9.006	11.50
CHINA	3.653	3.321	3.585	2.780	2.165	3.02
USA	2.064	2.188	1.380	0.642	0.566	0.84
PRODUCTION*						
WORLD TOTAL	26.073	23.455	22.170	24.879	26.879	25.14
CHINA	8.071	8.025	6.925	6.400	7.194	6.33
INDIA	5.219	4.930	5.185	5.525	6.052	5.49
USA	4.182	2.790	2.654	3.942	3.425	3.64
BRAZIL	1.602	1.214	1.194	1.960	2.102	2.00
PAKISTAN	1.900	1.926	2.070	1.907	2.080	2.00
UZBEKISTAN	1.206	1.000	0.850	0.910	0.880	0.92
OTHERS	3.894	3.569	3.292	4.236	5.147	4.77
CONSUMPTION*						
WORLD TOTAL	26.532	23.685	25.247	24.496	24.387	25.02
CHINA	10.900	9.265	10.099	9.594	9.546	9.83
INDIA	4.053	3.872	4.300	4.483	4.483	4.75
PAKISTAN	2.649	2.519	2.393	2.200	2.222	2.29
EAST ASIA & AUSTRALIA	1.829	1.674	1.861	1.772	1.741	1.74
EUROPE & TURKEY	1.744	1.409	1.550	1.486	1.490	1.51
BRAZIL	0.993	1.000	1.024	0.990	0.960	0.98
USA	0.998	0.771	0.773	0.849	0.827	0.78
CIS	0.664	0.596	0.605	0.576	0.581	0.59
OTHERS	2.703	2.579	2.642	2.546	2.538	2.56
EXPORTS						
WORLD TOTAL	8.356	6.596	7.776	7.624	7.725	8.40
USA	2.968	2.887	2.621	3.130	2.325	2.76
INDIA	1.530	0.515	1.420	1.100	1.174	0.86
UZBEKISTAN	0.900	0.630	0.820	0.600	0.573	0.64
AUSTRALIA	0.265	0.261	0.460	0.545	0.889	1.10
CFA ZONE	0.603	0.469	0.561	0.477	0.548	0.56
BRAZIL	0.486	0.596	0.433	0.435	0.823	1.03
IMPORTS						
WORLD TOTAL	8.380	6.506	7.756	7.626	7.725	8.40
CHINA	2.511	1.523	2.374	2.609	3.211	3.57
EAST ASIA & AUSTRALIA	1.860	1.665	1.894	1.763	1.752	1.74
EUROPE & TURKEY	1.081	0.861	1.176	0.988	0.862	0.98
PAKISTAN	0.851	0.417	0.342	0.313	0.291	0.39
CIS	0.267	0.231	0.210	0.137	0.152	0.14
TRADE IMBALANCE 1/	0.025	-0.090	-0.021	0.001	0.000	0.00
STOCKS ADJUSTMENT 2/	-0.105	0.007	-0.125	-0.051	0.000	0.00
ENDING STOCKS						
WORLD TOTAL	12.210	11.895	8.673	9.006	11.497	11.62
CHINA	3.321	3.585	2.780	2.165	3.019	3.08
USA	2.188	1.380	0.642	0.566	0.841	0.95
ENDING STOCKS/MILL USE (%)						
WORLD-LESS-CHINA 3/	57	58	39	46	57	56
CHINA 4/	30	39	28	23	32	31
COTLOOK A INDEX 5/	72.90	61.20	77.54	164.26		

1/ The inclusion of linters and waste, changes in weight during transit, differences in reporting periods and measurement error account for differences between world imports and exports.

2/ Difference between calculated stocks and actual; amounts for forward seasons are anticipated.

3/ World-less-China's ending stocks divided by World-less-China's mill use, multiplied by 100.

4/ China's ending stocks divided by China's mill use, multiplied by 100.

5/ U.S. cents per pound.

* Turkey's production and consumption estimates are currently under review within the Secretariat.

SUMMARY OF THE OUTLOOK FOR COTTON

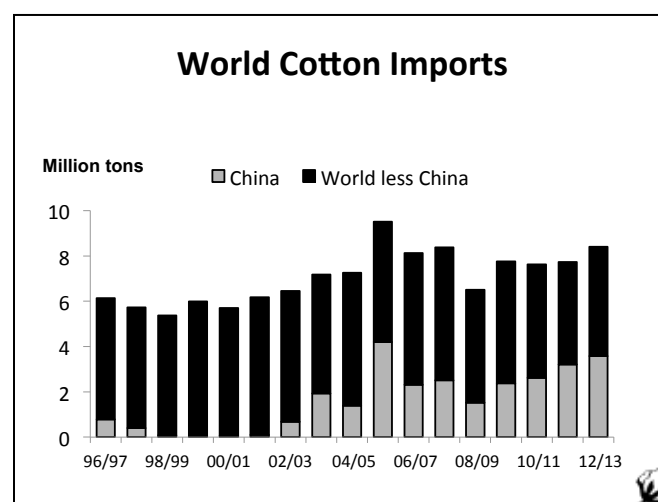
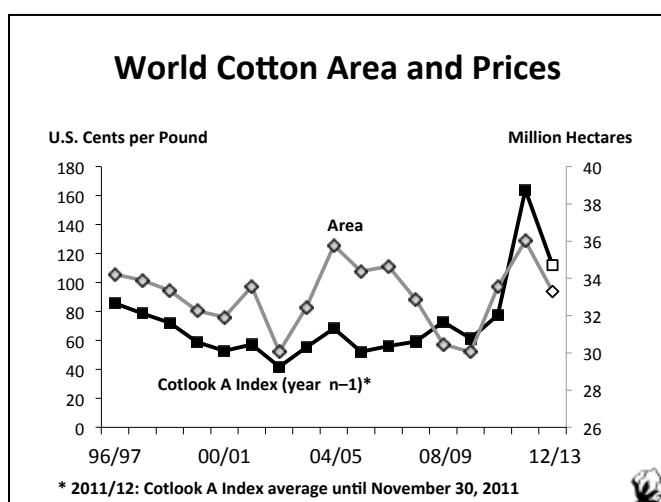
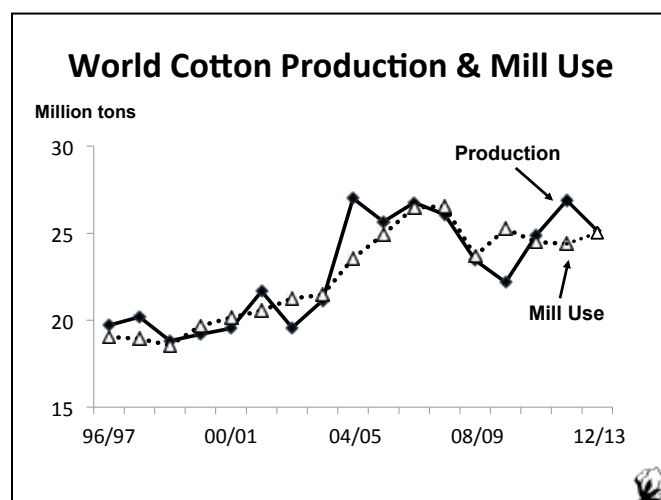
Global Cotton Production to Decline in 2012/13

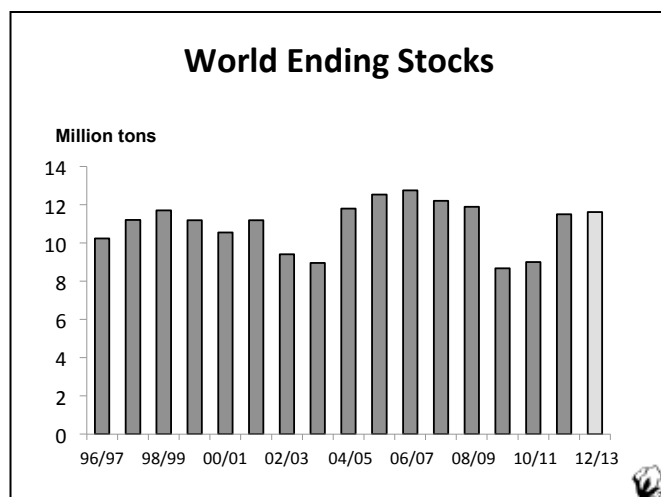
Cotton plantings for the 2012/13 season will start in a few months. After jumping to record highs in 2010/11, cotton prices dropped sharply in the current season, reducing farmers' incomes and decreasing for the first time in three years the attractiveness of this crop when compared to that of its main alternatives. In addition, agricultural production costs have increased since 2011/12 plantings. As a result, cotton area in many countries is expected to decline in 2012/13. The Secretariat projects global cotton area to contract by 8% to 33.3 million hectares and production to decrease by 6% to 25.1 million tons.

The anticipated reduction in global cotton area in 2012/13 is consistent with the magnitude of the decline in cotton prices experienced since last season. The Cotlook A Index dropped by a third, from an average of 164 cents/lb in 2010/11 to an average of 112 cents/lb in the first four months of 2011/12. Over the 29 seasons preceding 2010/11, there was a positive correlation between year-to-year variations in the Cotlook A Index and year-to-year variations in world cotton area: an increase of 10% in the Cotlook A Index was usually followed by an increase of 3% in world cotton area and vice-versa. Based on this historical relationship, world cotton area would be expected to fall by 9% in 2012/13. If cotton prices decline further over the next few months, this might translate into a larger decline in cotton area in 2012/13.

Cotton harvested area is expected to decline in 2012/13 in most large producing countries, including China, India, Pakistan, Brazil, and Turkey. Three exceptions are the United States, Uzbekistan, and Australia. U.S. planted area is projected down, but a drop from the record high abandonment rate in 2010/11 could translate into a similar harvested area. In Australia, irrigation water is expected to be in adequate supply, which could maintain cotton area stable. Planting intentions for 2012/13 will likely change over the next few months, depending on final farmers' returns from the 2011/12 crop and evolving commodity price relationships.

After two seasons at depressed levels, global cotton mill use is forecast to start growing again in 2012/13. This expectation is highly dependent on the assumption of a recovery in global economic growth that would stimulate purchases of textile products and consumption of raw fibers. The Secretariat





forecasts global cotton mill use to rise by 3% in 2012/13 to 25.0 million tons, driven by Asia.

Rising mill use and lower cotton prices could fuel a rebound in world cotton trade in 2012/13. Imports are expected to jump by 9% to 8.4 million tons. Chinese imports could continue to increase to 3.6 million tons, as the gap between production and consumption is projected larger in 2012/13. Exports of cotton from the United States could rebound to 2.8 million tons as a result of higher production, after a sharp drop this season.

As global production and consumption are expected to roughly balance in 2012/13, global cotton stocks are forecast to increase only slightly, to 11.6 million tons.



DEFAULTS SQUEEZE COTTON MERCHANTS' PROFITS IN 2010/11

By Andrei Guitchounts, ICAC

Record volatility in cotton prices during 2010/11 caused a surge in the number of contract defaults, disputes and arbitration cases. A record number of disputes related to contract performance, weight and quality erupted during 2011 in the entire cotton supply chain, from farmers to merchants and to textile mills. Cotton prices were rapidly rising during the first half of 2010/11. The Cotlook A Index rose from the mid 80 cents per pound at the start of August 2010 to a record of US\$2.44 per pound on March 8, 2011. This unprecedented increase in prices caused a large number of growers in the USA, India (associated with a government limit on exports), Greece, Tanzania and other countries to default on cotton contracts, to delay delivery, or to deliver smaller quantity and lower quality than had been agreed in their contracts with merchants.

Starting in mid-March 2011, cotton prices began declining, stabilizing to levels close to \$1 per pound by the start of 2011/12. During this period, defaults by mills holding high priced contracts picked up substantially. It is estimated that Bangladesh alone defaulted on 150,000 tons of cotton, causing losses to the trade estimated at \$150 million. A large number of defaults were also reported in Vietnam and Indonesia.

It is indicative that cotton associations are reporting an increased number of arbitration cases initiated during 2010/11. The International Cotton Association (ICA) reported that during January-November 2011, 224 arbitration cases were filed, compared with 80 cases filed during 2010 and an average annual volume of about 45 cases. The previous peak of 104 arbitration cases filed with the ICA was in 2006. For all of 2011 the number of arbitration cases could reach 250.

It is expected that the number of firms reported to have failed to fulfill arbitration awards will also grow and will appear on the CICC (Committee for International Co-operation between Cotton Associations) default list during 2012. The most recent CICC default list has 420 firms. During 2010, 13 firms were added to this list by all member associations compared with 25 firms added during January-October 2011. The most recent sharp increase in the CICC default list was recorded in 2009, when 71 firms were added. After a sharp price spike in March 2008, caused mostly by speculation, many cotton-trading companies were weakened financially and were not able to fulfill their contractual obligations, or went out of business. As a result, the number of contract defaults and arbitration award defaults rose sharply and were reflected on the CICC default list in 2009.

Contract defaults cause substantial difficulties and uncertainties for trading companies obligated to deliver cotton to mills. Traders face losses if forced to replenish shortfalls at higher market prices.

The defaults also create problems for mills, which experience shortages of cotton, rising costs and increased uncertainty in their operations. Some mills resort to defaulting on high-priced cotton if they are not able to pass increased costs to buyers of cotton yarn. Therefore cotton merchants could find themselves in exposed positions on both sides of trades. Defaults on contracts increase counter-party-risks, thus limiting the availability and increasing the cost of trade finance. Confidence in the cotton trading system is undermined by defaults.

Many trading companies suffered substantial losses because

of contract defaults, which were widespread during 2010/11. Noble, one of the largest commodity traders, reported a net loss of \$17.5 million during the third quarter of 2011 compared with a net profit of \$157.2 million a year ago. This is the first loss by the firm in 14 years and it was caused by defaults on cotton contracts. The company's CEO, Ricardo Leiman resigned as a result. Other large multi-commodity trading firms like Louis Dreyfus, Glencore, Cargill, Olam and others could have incurred lower profits or higher opportunity costs due to cotton contract non-performance by suppliers, but could have offset this by performance in other commodities.

Losses suffered due to defaults could be in the billions of U.S. dollars. The value of world cotton production in 2010/11 is estimated at \$90 billion. Even if defaults were associated

with just 2.5% of world production, the value of the cotton quantities involved would be \$2.25 billion. There are some estimates indicating that up to 10% of world production is involved, valued at \$9 billion. Not all of this value translates into losses as hedges placed by merchants could limit losses. A large number of contracts were re-negotiated.

To deal with the issue of increasing defaults, a continuation of efforts to harmonize trading rules is important and helps to minimize risks and the cost of doing business. Publicizing information about defaults is instrumental in deterring defaults, while an efficient arbitration system is essential in dealing with defaults. Trading with defaulters undermines the efficacy of trading rules. Risk management, and especially price risk management, is essential.



UPDATE ON COTTON PRICE VOLATILITY¹

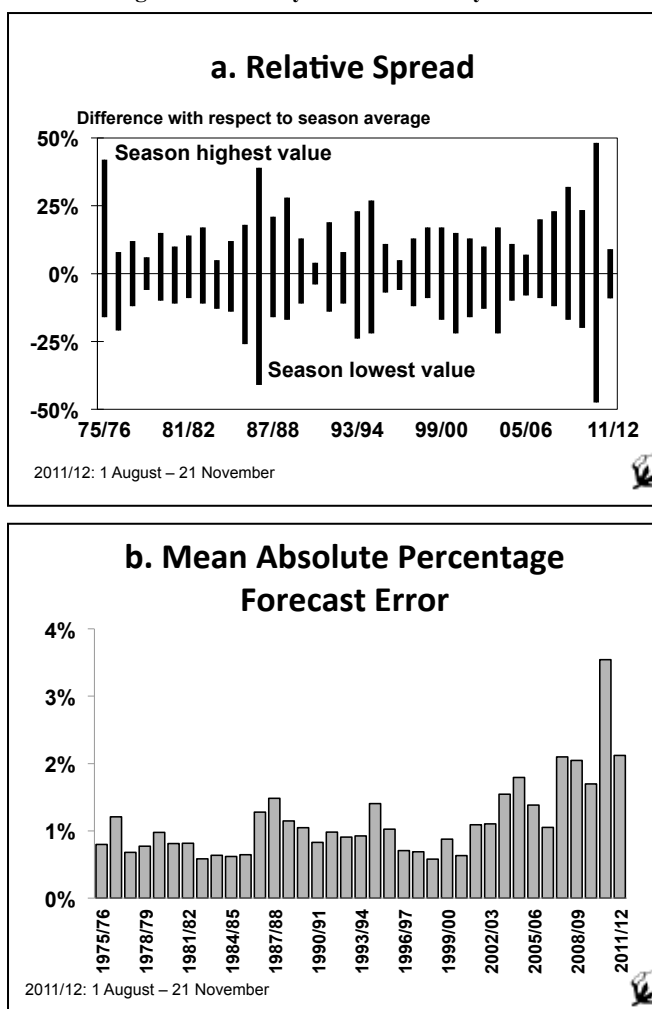
By Alejandro Plastina, ICAC

In 2010/11, cotton prices reached not only record levels but also record variability. On average, the Cotlook A Index increased by 1 cent daily between August 2, 2010 and March 8, 2011, and declined by 1.4 cents daily afterwards until June 9, 2011 – the last (nominal) quotation of the index for the 2010/11 season. Similarly, the price of the nearby cotton futures contract in the InterContinental Exchange climbed, on average, by 0.9 cents daily during the first seven months of the season, and declined by an average of \$1.2 daily in the remainder of the season.

Volatility, understood as the dispersion of prices with respect to some average, can be measured in different ways. This article uses two measures: the relative spread and the mean absolute percentage forecast error. The relative spread (RS) compares the range of prices to its mean, and it is calculated as the ratio of the difference between the maximum price and the minimum price to the average price observed during a season. The relative spread of the A Index amounted to 96% in the 2010/11, three times the average relative spread between 2000/01 and 2009/10, and the highest on record (Figure 1a).

The mean absolute percentage forecast error (MAPFE) measures volatility with respect to short-term trends in prices. The MAPFE is calculated as the average daily absolute difference between the observed and a projected value of the A Index divided by the observed value of the A Index. The projected value is the forecast of the A Index obtained using a simple regression with a constant and a linear trend over the previous 20 working days as explanatory variables. According to this measure of volatility, 2010/11 tops the list of most volatile seasons at 3.5%, followed by 2007/08 at 2.1%, and 2008/09 at 2.0% (Figure 1b).

Figure 1. Volatility of the A Index by Season



1) This article is a summary of Attachment II to the ICAC Standing Committee Meeting 514 (November 22, 2011), available at <http://icac.org/download/514at2.pdf>

The rise and fall of cotton prices in 2010/11 were driven by both fundamental supply and demand factors, as well as other factors. The fundamental factors can be summarized as strong demand and limited supply during the first eight months of the season followed by weak demand and increased supply over the last four months of the season. In addition, unforeseeable behavior from major cotton players such as limits on exports, actions of state-owned enterprises and defaults on contracts, exacerbated price volatility in 2010/11.²

An unintended consequence of the uncertainty created by the record volatility observed in cotton prices in 2010/11 is the weakening of the entire cotton value chain worldwide as spinners responded by reducing cotton use in favor of other fibers that rarely, if ever, have limits and distortive policies imposed on their trade. The market share of cotton in total textile fiber consumption declined from 35.5% in 2009 to 33.5% in 2010.

Cotton Price Volatility in 2011/12

Between August 1, 2011, and November 21, 2011, the A Index fluctuated between \$1.02 and \$1.23 per pound, averaging \$1.13 per pound (Figure 2). The relative spread during this period amounted to 18%, similar to the 19% average relative spread during the first four months of each season between 2000/01 and 2009/10 (Figure 3a).

The MAPFE of the A Index during the first four months of 2011/12 amounted to 2.1%, less than the 3.1% MAPFE during the first four months of 2010/11, but higher than the average 1.5% MAPFE during the first four months of each season between 2000/01 and 2009/10 (Figure 3b). Therefore, the volatility of the A Index with respect to short-term trends has declined from last season, but it still is comparable to that of 2004/05 (2.1%), 2005/06 (2.0%), and 2008/09 (2.0%).

Figure 2. Cotlook A Index in 2011/12

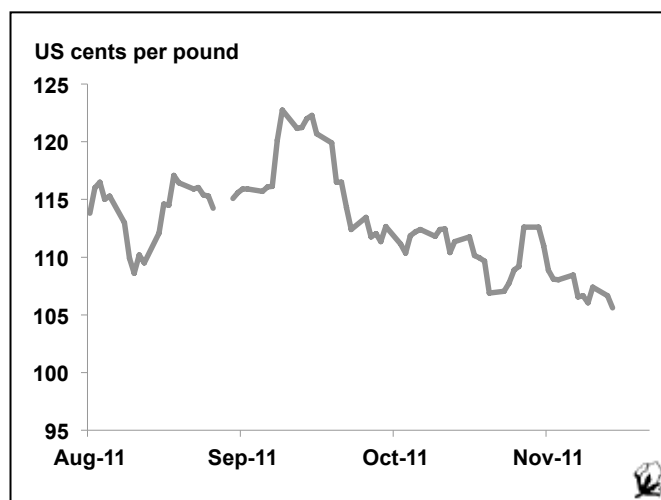
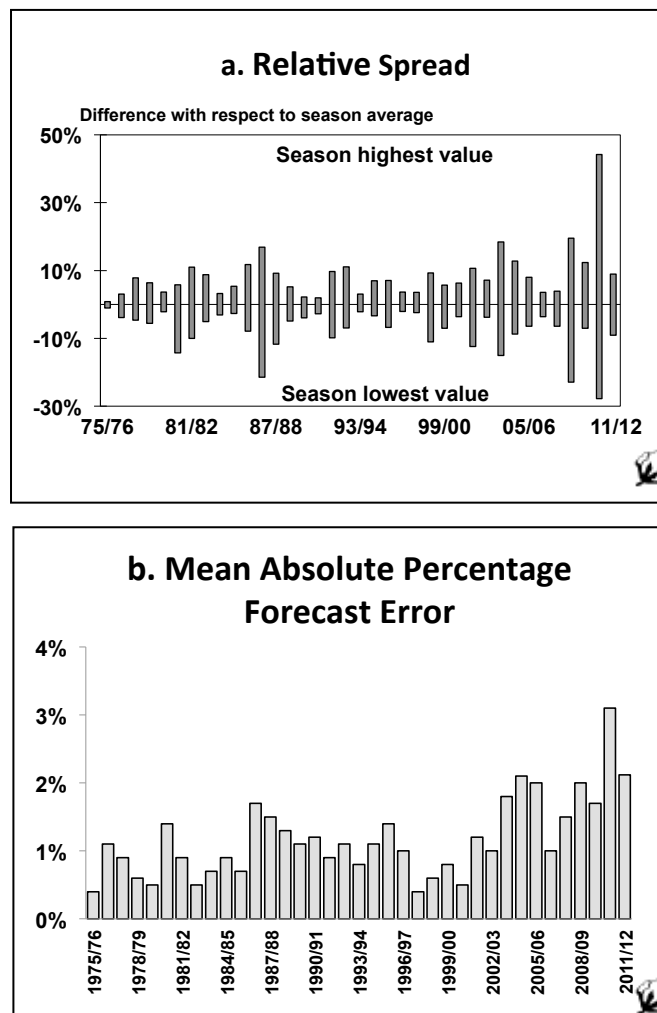


Figure 3. Volatility of the Cotlook A Index during the first four months of each season

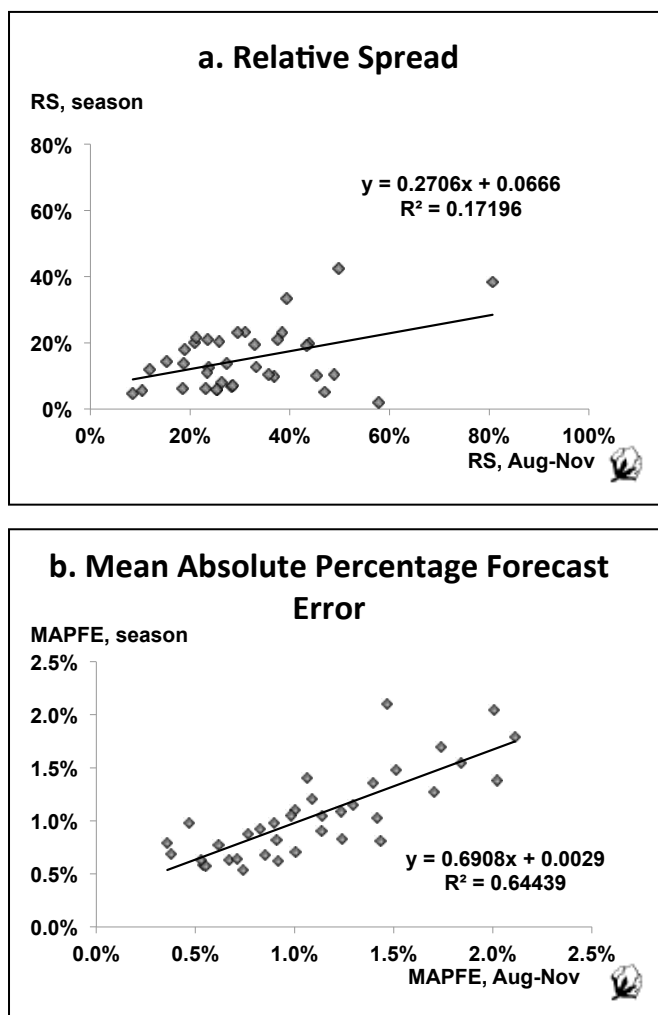


The RS during the first four months of the season is a poor predictor of the RS over the entire season, as indicated by a correlation coefficient of 0.41 (Figure 4a). However, the correlation coefficient between the MAPFE during the first four months of the season and the MAPFE for the entire season amounts to 0.80 (Figure 4b). Therefore, based on the observed MAPFE in 2011/12, volatility of the A Index can be expected to reach 1.8% for the entire season, slightly higher than the average MAPFE for 2000/01-2009/10, but lower than the MAPFE in 2010/11, 2004/05, 2005/06, and 2008/09. All volatility measures suggest that cotton prices seem to be stabilizing in the current season and returning to more “normal” patterns of variability around the mean value.

However, given that beginning stocks remained tight in 2011/12 (accounting for only 25% of expected world supply, slightly lower than in the previous season) major changes in

2) For a thorough discussion of the causes of volatility in 2010/11 please see “Managing the Impacts of Volatile Cotton Prices,” in *Cotton: Review of the World Situation* 65(1): 7-11, September-October 2011.

Figure 4. Volatility over the entire season vs. volatility over August-November (1973/74-2009/10)



demand and production expectations can trigger substantial swings in cotton prices. A number of factors would promote a high-volatility scenario for cotton prices in 2011/12. First, the global economic outlook has deteriorated since the beginning of the season, and the International Monetary Fund adjusted its world GDP growth forecasts downward from 4.3% in 2011 and 4.5% in 2012 as of June 2011, to 4.0% in 2011 and 2012 as of September 2011. Concurrently, the ICAC Secretariat adjusted cotton consumption forecasts for 2011/12 from 25.0 million tons as of August 1 2011 to 24.4 million tons as of December 1, 2011. Uncertainty about global economic prospects could further harm cotton consumption. Second, despite a major drought in the United States, global cotton production is projected to rise by 8% to 26.9 million tons in 2011/12, the largest crop since 2004/05. Both demand and supply factors put downward pressure on cotton prices and likely increase the range of movement of cotton prices. Third, after a turbulent season marked by a high number of contract defaults within the cotton supply chain, more sluggish responses to positive price signals and faster responses to negative price signals at retail level can be expected throughout this weakened chain. Finally, a steady declining trend in cotton prices could trigger various kinds of government interventions. Such interventions could increase volatility in the cotton market. However, if the global economic situation stabilizes and cotton consumption prospects improve, then volatility in 2011/12 could be expected to return to more normal levels faster.



2012/13 COTTON PRODUCTION PROJECTIONS FOR THE LARGEST COUNTRIES AND REGIONS

By Armelle Gruère, ICAC.

Cotton plantings for the 2012/13 season will start in February 2012 in the northern hemisphere.³ After jumping to record highs in 2010/11, cotton prices dropped sharply in the current season, reducing farmers' incomes and diminishing for the first time in three years the attractiveness of the fiber crop when compared to that of its main alternatives. As a result, cotton area in many countries is expected to decline in 2012/13. The Secretariat projects global harvested cotton area to contract by 8% to 33.3 million hectares and production to decrease by 6% to 25.1 million tons.

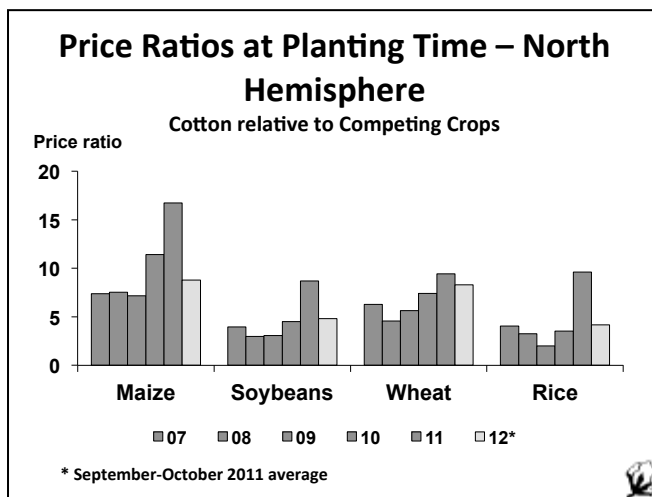
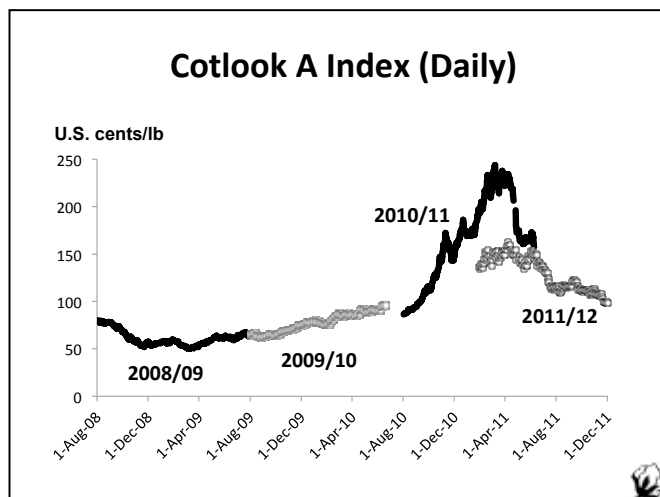
This article explains which factors are behind the expected decline in cotton plantings in 2012/13, and it gives detailed production projections for the largest countries and regions.

Factors Driving Cotton Plantings Down in 2012/13

Lower Farmers Returns in 2011/12

The world cotton yield is projected at 746 kg/ha in 2011/12, 1% higher from last season. However, cotton prices have

3) The northern hemisphere accounted for an estimated 86% of global production in 2010/11 and 2011/12.



declined significantly since April 2011. The average Cotlook A Index for the first four months of 2011/12 is 112 cents/lb, or a third lower than the 2010/11 season average. With the pressure of rebounding global cotton supplies at a time of slowing demand, the 2011/12 season average Cotlook A Index is expected to be under 110 cents/lb. In the northern hemisphere, producers are currently selling their new crop at lower prices than last year. As a consequence, farmers' returns in many countries are expected to decline in 2011/12⁴, which will affect their planting decisions in 2012/13.

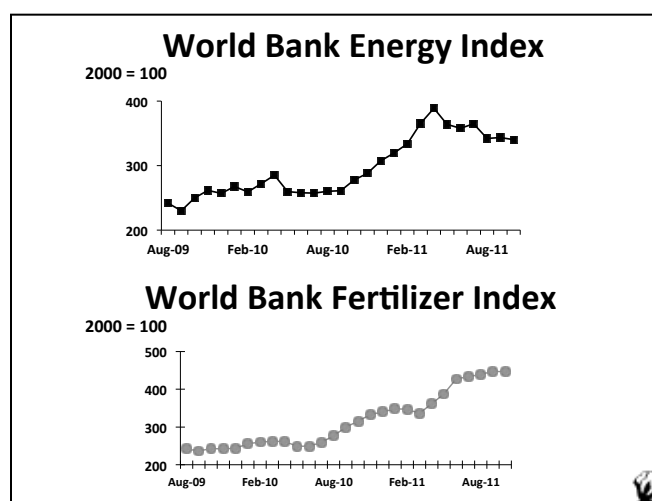
Decreasing Attractiveness of Cotton Relative to Competing Crops

After two years of increasing attractiveness relative to its competing crops, the steep decline in cotton prices over the last eight months has brought them back to levels that could persuade farmers to switch to other crops in 2012/13. In particular, the price ratios of cotton to maize, soybean and rice, calculated in September-October 2011, were significantly lower than in early 2011. If these price relationships hold for the next several months, then they will likely encourage a shift away from cotton to other crops in many countries of the northern hemisphere.

Rising Agricultural Production Costs

Cotton is generally more expensive to produce than soybeans, maize and wheat. It requires larger quantities of fertilizer per hectare than soybeans and wheat, and larger amounts of pesticides and fuel per hectare (if machinery is used) than soybeans, maize and wheat. On the other hand, rice and sugarcane tend to require larger quantities of inputs than cotton.

Since mid-2010, fertilizer prices have increased significantly: the World Bank Fertilizer Index⁵ almost doubled from 250 in June 2010 to 447 in September 2011. Energy prices also



increased significantly between August 2010 and April 2011, but have since declined. Nevertheless, the World Bank's Energy Index⁶ remained at 340 in October 2011, compared to an average of 324 during 2010/11. If prices of fertilizers and energy remain at similar levels over the next several months, they will add to the factors having a negative impact on cotton plantings in 2012/13.

Expectations in the Largest Producing Countries

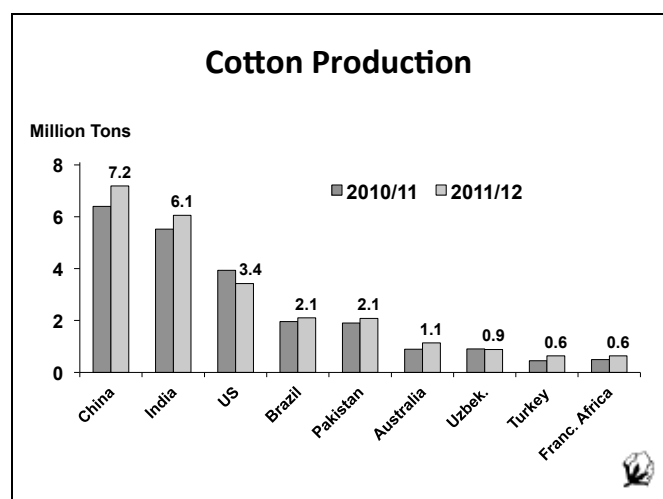
China

After declining for three consecutive seasons, cotton area in China increased by 6% to 5.5 million hectares in 2011/12. The yield improved thanks to favorable weather, and overall production is estimated up by 12% to 7.2 million tons. Seedcotton prices are down this season after a significant surge in 2010/11. Over the first four months of the season, the average CC Index was 19,500 yuan/ton, or 24% lower than the

4) Note that this may not be true for farmers who sold their cotton forward, at relatively high prices, such as in the United States, Australia and Brazil.

5) 2000 = 100.

6) 2000 = 100.



average of the previous season (25,509 yuan/ton). The decline in prices this season is lessened to some extent by significant purchases of domestic cotton for the national reserve, at a fixed price of 19,800 yuan/ton⁷. The government will adopt a similar policy next season, and the 2012/13 support procurement price will be announced before the end of March 2012. At this stage, the lower cotton prices received this season combined with rising production costs and increasing labor scarcity at harvest time in Xinjiang, will likely lead to a contraction in total cotton area in 2012/13. Cotton area in China is expected to decline by 12% to 4.9 million hectares in 2012/13 and production by 12% to 6.3 million tons. If the 2012/13 support procurement price for cotton to be announced in March 2012 is higher than the 2011/12 procurement price, then it could minimize the decline in cotton plantings.

India

Cotton area in India rose almost continuously over the last eight years, as farmers' returns benefited in the first half of this period from increasing yields and later from high domestic seedcotton prices. Between 2009/10 and 2011/12, cotton area grew at an annual average of 9%, reaching a new record every year. Cotton area was estimated at 12.2 million hectares in 2011/12, accounting for a third of the world total. The average cotton yield reached a peak of 554 kg/ha in 2007/08 but has since declined, possibly because of the expansion of cotton area into low-yielding zones. The average yield was estimated at 496 kg/ha in 2011/12.

Farmers' planting intentions for 2012/13 will not be known for several more months. However, the decline in seedcotton prices received by farmers in 2011/12, as well as lower yields experienced in some areas, could encourage them to reduce cotton plantings for the first time in six years. The Secretariat forecasts cotton area in India to decrease by 10% to 11.0

million hectares in 2012/13. Assuming a slight increase in the average yield, to 500 kg/ha, cotton production in India is forecast at 5.5 million tons, down by 9% from this season but still the second largest in history.

United States

After reaching historic peaks in the mid-2000s, U.S. cotton area and production declined, due mainly to rising prices for corn and soybeans. Cotton planted area fell 40% between 2006/07 and 2009/10, but has since recovered due to rising cotton prices. In addition to relative price levels, U.S. cotton area and production also respond to variable weather conditions, especially in the Texas-Oklahoma region, which accounts for about half of total U.S. area. Abandonment of planted area is high in adverse weather years, and reached a record one-third of total U.S. planted area in 2011/12, due to the effects of extreme drought.

For 2012/13, prospective cotton prices are lower both in absolute terms and in relation to corn and soybeans; thus, some planted area is likely to shift to other crops. Severe drought continues in the Texas-Oklahoma area, and a La Niña weather pattern is likely to constrain winter precipitation; thus, abandonment could well exceed the historical average, but is unlikely to repeat the 2011 record of 33%. With the offsetting effects of lower planted area and reduced abandonment, 2012 U.S. harvested area is likely to remain at about the 2011 level.

The Secretariat expects U.S. planted cotton area to contract by 15% to 5.1 million hectares in 2012/13. Assuming a national abandonment rate of 21%, U.S. harvested cotton area is forecast up by 2% to 4.0 million hectares. The average yield is expected to increase slightly from 2010/11. As a result, U.S. cotton production is projected to rise by 6% to 3.6 million tons in 2011/12.

Pakistan

Cotton area in Pakistan has fluctuated around 3 million hectares since the mid-1990s. Cotton area was estimated at 3.2 million hectares in 2011/12, up by 8% from the previous season, driven by a significant increase in local seedcotton prices during 2010/11. However, the crop in the province of Sindh was affected by flooding in August-September 2011, whereas most of Punjab was spared. National production is estimated up by 9% to 2.1 million tons in 2011/12. The losses caused by flooding in 2011/12 could drive cotton area down in Sindh province in 2012/13. In areas not affected by the flood, farmers are receiving lower seedcotton prices, while the cost of inputs has increased. However, alternatives to cotton remain limited, sugarcane being the main competitor. Overall, total cotton area in Pakistan could decline by 5% to 3.1 million hectares in 2012/13. Assuming a slight increase in the average yield, production is forecast down by 4% to 2.0 million tons.

7) Type 328 cotton, delivered to an appointed warehouse; includes value added tax; only "big-baled" cotton (227 kg) is eligible for procurement, comprising Grades 1 to 4, stapling 27mm or longer, and only ginners pressing such bales are entitled to sell cotton to the China National Cotton Reserve Corporation; quality differentials apply. On signing a contract, the ginner undertakes to procure seedcotton from the farmer at the reference price published by the Chinese Cotton Association (CCA), (source: Cotton Outlook). The purchase price of 19,800 yuan per ton was equivalent to around 140 U.S. cents per pound, as of

Uzbekistan

Cotton plantings in Uzbekistan have in the past been little affected by variations in international prices. Between 2000/01 and 2008/09, cotton area remained between 1.4 and 1.5 million hectares. However, the Uzbek government reduced the cotton planting target in 2009/10 to increase the production of food crops. Cotton area has since fluctuated around 1.3 million hectares. In 2012/13, it is projected at a similar level. The average cotton yield has remained below 700 kg/ha since 2009/10, owing to various factors such as availability of irrigation water and weather. Assuming adequate irrigation supply and weather, the average yield is expected to increase to 700 kg/ha in 2012/13. As a result, production in 2012/13 is projected at 921,000 tons, up by 5% from the current season.

Francophone Africa

After five consecutive seasons of decline and a year of stability, cotton production in the eleven producing countries of Francophone Africa⁸ rebounded in 2011/12 by 30% to 638,000 tons, driven by the increase in seedcotton prices announced to producers at planting time.⁹ Planting intentions for 2012/13 will not be known before the second quarter of 2012, when seedcotton purchasing prices for next season are published. These seedcotton purchasing prices will likely be down from 2011, due to expected lower international prices. This could lead farmers to reduce their cotton area in 2012. However, other factors will affect their planting decisions, including the higher revenues received in 2011/12, availability of input credit, timing of input delivery, and weather at planting time. There are few alternative cash crops in this region. At this stage, cotton plantings in Francophone Africa are expected to decrease by 9% to 1.7 million hectares in 2012/13. Assuming a small rise in the average yield, production is forecast down by 7% to around 600,000 tons.

Mali and Burkina Faso are the top cotton producers in Francophone Africa, accounting for half of 2011/12 production

in the region. Mali's cotton production rebounded by 65% to 171,000 tons in 2011/12, driven by several incentives such as a higher seedcotton price, on-time distribution of cotton inputs, fertilizer subsidies, the settlement of farmers' cooperatives' internal debts and changes in the way farmers repay their input credits. Part of Mali's cotton area is being privatized, and 2012/13 will be the first season under this new system.

Turkey¹⁰

After several years of decline due to a diversion of land to grains, cotton area in Turkey recovered strongly in the last two seasons, reaching 475,000 hectares in 2011/12. This rebound was driven by increased seedcotton prices, combined with government support and a decline in competing crop prices. Cotton production is estimated at 641,000 tons this season, up by 42% from 2010/11. However, the current decline in domestic cotton prices and an increase in production costs are likely to drive cotton plantings down in 2012/13. At this stage, it is expected that cotton area will decrease by 15% to 404,000 hectares in 2012/13. Production is forecast at 545,000 tons.

Rest of the Northern Hemisphere

In the rest of the northern hemisphere, which accounts for less than 10% of the regional cotton output, production is expected to decrease by 6% to 2.0 million tons in 2012/13.

Southern Hemisphere

Planting decisions in the southern hemisphere will be made during the second semester of 2012 and will respond to commodity prices and weather conditions prevailing at that time. At this stage, cotton area in the southern hemisphere is projected down by 9% to 3.8 million hectares in 2012/13. Based on recent average yields for each country, southern hemisphere production is projected to decrease by 6% to 3.6 million tons. The share of the southern hemisphere in world cotton production could remain at 14% in 2012/13, similar to that of 2011/12 but much higher than before 2010/11.



UPDATE ON THE U.S. FARM BILL

By Alejandro Plastina, ICAC

This report is based on a presentation by Mr. Robbie Minnich, Senior Government Relations Representative, National Cotton Council of America (NCC), to the 514th ICAC Standing Committee Meeting on November 22, 2011, and on a series of articles published on the website of the NCC¹¹.

A Joint Select Committee on Deficit Reduction ("Super Committee") was appointed on August 2, 2011 to issue recommendations by November 23, 2011 to reduce the U.S. government deficit by at least \$1.5 trillion over a ten-year period. House and Senate Agriculture Committee leaders submitted detailed policy recommendations to the "Super Committee", including:

8) Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Cote d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, Togo.

9) The non-weighted average of seedcotton purchase prices announced in the eight largest producing countries of Francophone Africa was 244 CFA francs in 2011/12, up from 197 the previous season and a five-year average of 177.

10) Turkey's cotton production and consumption statistics are currently being revised by the ICAC Secretariat.

11) www.cotton.org

- Upland cotton producers would have the option to purchase **revenue insurance** to cover losses exceeding 10% of target revenue with a maximum indemnity of 30% of target revenue based on 100% of planted acres (Shallow Loss Coverage). The revenue insurance would be based on county average revenues or yields. Indemnities under crop insurance programs would not be subject to the limits or means tests.
- **Marketing loans** would continue to be available. Marketing loan gains would continue to be unlimited. The adjusted gross income test for eligibility to marketing loans would be \$950,000.
- **GSM export credit guarantees**¹² would continue to be funded at current levels.

The Board of the NCC, composed of representatives of the seven segments of the U.S. cotton industry, endorsed the recommendations of the Agriculture Committee leaders. The NCC was willing to support crop revenue insurance on an area-wide basis in place of direct payments, counter cyclical payments and ACRE payments to growers, as well

as a change in policy to allow the marketing loan rate to float between 52 cents per pound and 47 cents per pound, based on a 2-year moving average of market prices. The NCC supported these changes in order to respond to budget pressures and the inevitability of lower spending, to reduce administrative costs of the cotton program, to help younger farmers who are particularly exposed to revenue variation resulting from factors beyond their control, and to build on existing crop insurance (ensuring no duplication while offering program simplification potential). In addition, these changes would address the constraints imposed by the WTO dispute resolution with Brazil.

The Super Committee failed to agree on a formula for budget reductions on November 23. The NCC expects that the process of formulating a new farm bill in 2012 will follow the “Regular Order,” which will include hearings, the development of bills in each house of Congress, a Conference Committee and final passage for signature by the President.

The ICAC Secretariat will continue to provide updates on the evolution of the next U.S. Farm Bill, as well as reports on developments in other countries.



ESTIMATING THE TOTAL NUMBER OF COTTON FARMS IN THE WORLD

By Armelle Gruère, ICAC

Knowing how many farms and farmers grow cotton in a given country can improve our understanding of its cotton sector. Countries with very small cotton farms usually have a cotton sector with a low degree of mechanization, as the size of the fields and the lack of financial resources make it difficult to use machines. Also, small-scale farmers have less ability than large ones to obtain credit from banks, and less bargaining power to purchase inputs at lower prices and to sell their cotton at higher prices. Countries with large cotton farms have a cotton sector with a high degree of mechanization. Farmers there are large enough to borrow money, buy inputs in bulk, and also negotiate better terms in the sale contract. Knowing how many farms and growers produce cotton in a given country can also help to assess the size and importance of the cotton sector in the country's economy and employment. Finally, knowing how many persons work on cotton fields around the world can help to evaluate the global importance of the cotton agricultural sector in terms of employment, as well as to make inter-country comparisons.

Measuring global cotton production is easier than estimating the number of farms and people behind it. Cotton area and

output are usually routinely assessed in producing countries, in order to evaluate the quantity of fiber available for local consumption and exports. However, the numbers of farms and people involved in producing cotton are not frequently assessed. There is a large variation amongst cotton producing countries: some survey and estimate the number of cotton farms and growers every year, some do so every few years, and many others do so infrequently. Most countries conduct agricultural censuses every few years, but farms and growers are rarely counted depending on their type of agricultural production. The issue is further complicated by the fact that cotton is grown as an annual crop, and farmers can easily switch in and out of it every year.

The Secretariat collected estimates of the number of cotton farms and growers for each producing country, from various sources. It then cleaned and adjusted the estimates to obtain a range for the number of cotton farms by country and for the world in 2010/11. This article describes the methodology adopted to gather, select, and adjust these estimates. Then it presents the results obtained and suggests ways to supplement this work.

¹²) This program provides export credit guarantees to help ensure the availability of credit to finance the exports of U.S. agricultural products to countries where financing might not be available.

Methodology

Information Collected

In a first stage, presented in this article, the Secretariat estimated the total **number of cotton farms** by country and in the world. In a second stage, which will be completed at a later date, the Secretariat will collect and compile information related to the number of persons working on cotton per farm in order to estimate **total cotton on-farm employment** by country and in the world.

For some countries, the number of cotton farms was found in publications or provided by the local cotton industry. However, for many countries only the number of cotton farmers (or growers) was available. In these cases, there was uncertainty as to whether the farmer/grower was the head of the farm or if he/she was an employee or a family member working on the farm. When no other information was available, the Secretariat assumed that the terms “farmer” or “grower” were equivalent to “head of farm” and that the number of cotton farmers or growers was close to the number of cotton farms. This may not always be true and the number of cotton farmers in a given country may be higher than the number of cotton farms. This implies that the number of cotton farms estimated by the Secretariat might be overestimated for some countries.

For several countries, the average cotton area by farm was available. This information was used to indirectly estimate the number of cotton farms. For some countries, the average cotton area was the only information available, while for others, this information was used to check the consistency of other estimates.

The Secretariat tried to collect at least two estimates (number of farms/households, farmers/growers, or cotton area by farm) for each producing country, in order to be able to verify their consistency. If two or more reasonable estimates were found for a particular country, then a range of the number of cotton farms for that country was calculated.

Sources of Information

The sources of information used by the Secretariat are mainly ICAC documents (Table 1): responses to ICAC’s survey about cotton production practices, country statements to the ICAC annual plenary meeting, direct reports from coordinating agencies, reports from the Expert Panel on Social, Environmental and Economic Performance of Cotton Production (SEEP), and direct communication with cotton sectors in non-member countries. In addition, the Secretariat consulted USDA attaché reports on specific countries, World Bank publications, and the 2000 FAO World Census of Agriculture.

Cleaning and Adjustment of Estimates

After checking the consistency of the data within a country and across countries, the data that seemed inaccurate were extracted from the dataset.

The Secretariat chose the most recent estimates available. However, for some countries the most recent estimates were already outdated. Almost all the selected estimates were reported for the seasons 2000/01 to 2010/11. However, one of the estimates selected for China dates from 1995/96. Cotton is grown as an annual crop, and cotton area and production can vary significantly from year to year, along with the number of farms producing cotton. Therefore, to compare the number of cotton farms across countries and calculate a world aggregate estimate, it was necessary to adjust these estimates to one particular season.

Based on selected estimates, the Secretariat calculated the 2010/11 equivalent number of cotton farms.¹³ For each country, the Secretariat first calculated the average cotton farm size implied by the selected estimate of the number of farms and ICAC’s estimate of cotton area for that particular season. Then, assuming that the average farm size did not vary significantly between that particular season and 2010/11, the Secretariat calculated the equivalent number of cotton farms in 2010/11.

Countries with No Estimate

For a number of minor producing countries (Afghanistan, Angola, Azerbaijan, Bolivia, Bulgaria, Central African Republic, Cuba, Guinea, Indonesia, Iraq, Nicaragua, Niger and Venezuela) and three medium to large producing countries (Syria, Tajikistan and Turkmenistan), the Secretariat could not find any source of information on the number of cotton farms or farmers, or the average cotton area by farm. In these cases, it was assumed that the average cotton farm area was similar to that of neighboring countries.

Case of China

China is the largest cotton producing country, accounting for a quarter of global production in 2010/11. However, very little information could be found regarding the number of cotton farms, farmers, or the average cotton farm area. The 1996 Agricultural Census in China reported a total of 25 million cotton farms in China: 10.8 million in the Yellow River region, 16.2 million in the Yangtze River region, and 1.1 million in the Northwest region.¹⁴ An article adapted from a study commissioned by the ICAC to the Ministry of Agriculture of China and published in the Review of March-April 2004 indicated that there were no available statistics on employment in the cotton sector, but that by using the ratio of cotton area to total crop area as a proxy for the ratio of cotton

13) 2010/11 is the most recent completed season.

14) Hsin-Hui Hsu and Fred Gale, Regional Shifts in China’s Cotton Production and Use, Cotton and Wool Situation and Outlook/CWS-2001, Economic Research Service/USDA, November 2001.

labor to total agricultural labor, it was estimated that about 24 million households were working in cotton production in 2000. The numbers of 140 million cotton farmers and 40 million households growing cotton were provided by the China Cotton Association in November 2011.¹⁵ The Secretariat, after calculating the equivalent estimates for 2010/11, and assuming that one household represented one farm, found that there were between 24 and 40 million cotton farms or farming households in China. The Secretariat chose to restrict this range to 24 to 30 million farms, based on the Agricultural Census estimate and the estimate calculated by the Ministry of Agriculture for ICAC in 2004, as well as the possibility that some farms may include more than one household.

Results

Number of Cotton Farms

The Secretariat found that there were between 36 and 44 million active cotton farms in the world in 2010/11 (Table 2). Between 12 and 13 million farms were located outside of China, while in China the range was 24 to 30 million farms. The Secretariat is relatively confident in the estimate of the number of cotton farms outside of China. However, the range of estimates for China is large because there is a scarcity of information.

After China, the countries with the largest numbers of cotton farms are India (6.3 to 6.5 million) and Pakistan (1.5 million). Then come Tanzania (400,000 to 500,000), Myanmar (480,000), Zambia (250,000 to 270,000), Zimbabwe (250,000), Cote d'Ivoire (222,000 to 243,000), Malawi (230,000), Ethiopia (208,000), Uzbekistan (208,000), Cameroon (206 000), Burkina Faso (180,000 to 300,000), Mozambique (170,000 to 233,000), Nigeria (125,000 to 172,000), Uganda (125,000 to 150,000) and Mali (107,000 to 134,000). Other countries have fewer than 100,000 cotton farms each.

Average Size of Cotton Farm

The average cotton farm area in the world is 0.8 to 0.9 hectare. The average farm area in China is only 0.2 hectare while it is 2.1 to 2.3 hectares in the rest of the world.

There are large variations in terms of average cotton farm area across regions (Table 2). While the average cotton farm area

in Asia and Africa is one hectare or less (China drives this number down in Asia), the average cotton area is 110 hectares in North America and 437 hectares in Australia. Central Asia, Europe and the Middle East have small cotton farms (between 3 and 5 hectares). In South America, the average cotton farm area is 25 to 26 hectares, hiding the disparity between large cotton farms in Brazil (138 hectares) and smaller farms in other countries (from 1 to 23 hectares). All the regions except North America, Australia and South America, have an average cotton farm area of less than 5 hectares.

Asia is significantly overrepresented in the global number of farms, relative to its cotton area (table 3): Asia represents almost 90% of the total number of cotton farms in the world, whereas it accounts for 59% of global cotton area. Africa accounts for 10% of global cotton area and 10% of the global number of cotton farms. Other regions of the world, including North and South America, Australia, Central Asia, the Middle East and Europe are underrepresented in terms of the number of cotton farms relative to their cotton area.

Conclusion

The Secretariat will continue to collect estimates of the number of cotton farms and farmers, in order to improve these numbers. The second stage of this study will be to collect information on the average number of workers per farm or household, in order to calculate total on-farm cotton employment by country and for the world. This second stage will allow an assessment of the importance of on-farm cotton employment in the economy of each country, as well as a comparison between countries.

While this study focused on estimating the total number of cotton farms by country and for the world in one given season, 2010/11, it would be interesting to develop similar estimates at different points in time. Such information would allow better understanding of the evolution of the cotton sector in specific countries and in the world over time. Is there a trend towards the reduction or the increase in the total number of cotton farms and an increase or decrease in the average cotton farm area? The effort of collecting and compiling estimates of the number of cotton farms by country could be organized more regularly in order to answer this question.



15) Presentation by the China Cotton Association, November 1st, 2011, at the offices of Cotton Council International, in Washington, DC.

Table 1: Sources Selected for Number of Cotton Farms by Country

	Number of Farms or Households	Number of Farmers or Growers	Average Farm Cotton Area (Ha)	Year or Season	Source
NORTH AMERICA					
Mexico	12,000			2011	Communication from Mr. Medina Medina, President, Consejo Nacional de Productores de Algodón, November 2011
United States		24,805		2007/08	ICAC 2008 Cotton Production Practices (survey response)
United States	18,000			2008/09	Communication from Jim Johnson, USDA, May 21, 2009
SOUTH AMERICA					
Argentina		25,600		2010/11	ICAC 2011 Cotton Production Practices (survey response)
Argentina		19,000		2010	PM 2010 Country Statement
Brazil		10,134		2010/11	ICAC 2011 Cotton Production Practices (survey response)
Colombia		6,689		2010/11	ICAC 2011 Cotton Production Practices (survey response)
Paraguay		50,000		2007/08	ICAC 2008 Cotton Production Practices (survey response)
Peru		12,650		2007/08	ICAC 2008 Cotton Production Practices (survey response)
Peru		9,500	5	2010/11	Communication from Javier Cilloniz, President of the Peruvian Cotton Institute, October 2011
EUROPE					
Greece		79,700		2007	Ergon, 2008. Literature Review and Research Evaluation relating to Social Impacts of Global Cotton Production for SEEP (Source used: LMC Ltd for European Commission DG Agriculture, 2007)
Greece		85,000		2007/08	ICAC 2008 Cotton Production Practices (survey response)
Greece	79,700		4.5	2008	Eurocotton annual report, June 2009
Spain		6,717		2007/08	ICAC 2008 Cotton Production Practices (survey response)
Spain		7,000		2010	Report received by the ICAC Secretariat in October 2011. Author: Ms. Susana Humanes, Subdirección General de Cultivos Herbáceos e Industriales, Ministerio de Medio Ambiente y Medio Rural y Marino
Spain		6,717		2010/11	ICAC 2011 Cotton Production Practices (survey response)
NORTH AFRICA					
Egypt		100,000		2007/08	ICAC 2008 Cotton Production Practices (survey response)
Egypt		100,000		2010/11	ICAC 2011 Cotton Production Practices (survey response)
Sudan		150,000		2010/11	ICAC 2011 Cotton Production Practices (survey response)
WEST AFRICA					
Benin	325,000		0.8	2002	Gergely, Nicolas. 2009. The Cotton Sector of Benin. Africa Region Working Paper Series No. 125. Washington, D.C.: World Bank.
Benin	120,000		2.5	2009	Gergely, Nicolas. 2009. The Cotton Sector of Benin. Africa Region Working Paper Series No. 125. Washington, D.C.: World Bank.
Burkina Faso	350,000		2	2007	USDA GAIN Attache report, May 21, 2007
Burkina Faso		300,000	2	2008	Secretariat's trip report from Burkina Faso, January 2008
Burkina Faso		320,000		2009	PM 2009 Country Statement
Burkina Faso	300,000			2010	Survey of Cotton Labor Cost Components in Major Producing Countries, ICAC, October 24, 2011
Cameroon	206,000			2010/11	ICAC 2011 Cotton Production Practices (survey response)
Chad	250,000			2006/07	USDA GAIN Attache report, May 2007
Cote d'Ivoire		150,000	1.5	2007	PM 2010 Country Statement
Cote d'Ivoire		137,000		2007/08	ICAC 2008 Cotton Production Practices (survey response)
Ghana		62,000		2008	Communication from Mohammed Adam NASHIRU at the PM 2008 (President of the Farmers Association of Ghana and Secretary of the Cotton Growers Association)
Madagascar		13,190		2007/08	ICAC 2008 Cotton Production Practices (survey response)
Mali		84,000		2008/09	USDA GAIN Attache report 2010
Mali		101,000		2009/10	USDA GAIN Attache report 2010
Mali		134,000		2010/11	USDA GAIN Attache report 2010
Mali	120,000			2010	Secretariat's trip report from Mali, June 2010
Mali		106,968		2010/11	ICAC 2011 Cotton Production Practices (survey response)
Nigeria		250,000	4	2007	PM 2007 Country Statement
Nigeria			2	2007	USDA GAIN Attache report, September 2007 and November 2008
Senegal	20,528	33,606	1.34	2010/11	Communication from Bachir Diop, Director General, Sodefix, October 2011
Togo		105,554		2007/08	ICAC 2008 Cotton Production Practices (survey response)
Togo		65,576		2010/11	ICAC 2011 Cotton Production Practices (survey response)

Table 1: Sources Selected for Number of Cotton Farms by Country (continued)

EASTERN AND SOUTHERN AFRICA									
Burundi			21,000			2006			Communication from Leopold Manirakiza, Director General, Compagnie de Gerance du Coton, Burundi, September 2006
Ethiopia			240,000			2007/08			ICAC 2008 Cotton Production Practices (survey response)
Kenya			200,000			2007			PM 2007 Country Statement
Kenya			97,045			2010/11			ICAC 2011 Cotton Production Practices (survey response)
Malawi			130,000			2010/11			Communication from Mr. Synowden Mbalalana, National Smallholder Farmers' Association of Malawi (NASFAM), November 2011
Mozambique		233,000	233,000		0.74	2010/11			Communication from Norberto Mahalamba (director of Mozambique Institute for Cotton), January 2011
Mozambique			170,061			2010/11			ICAC 2011 Cotton Production Practices (survey response)
South Africa			854			2010/11			Communication from Koot Louw, CottonSA, November 2011
Tanzania			402,500			2010/11			ICAC 2011 Cotton Production Practices (survey response)
Tanzania		500,000			0.5 to 5 ha	2011			PM 2011 Country Statement
Uganda			250,000			2004/05			ICAC 2005 Cotton Production Practices (survey response)
Uganda			150,000			2010/11			ICAC 2011 Cotton Production Practices (survey response)
Zambia			250,000			2010/11			ICAC 2011 Cotton Production Practices (survey response)
Zambia			272,000			2011			PM 2011 Country Statement
Zimbabwe			250,000			2010/11			ICAC 2011 Cotton Production Practices (survey response)
MIDDLE EAST									
Iran			40,200			2007/08			ICAC 2008 Cotton Production Practices (survey response)
Iran			28,380			2010/11			ICAC 2011 Cotton Production Practices (survey response)
Israel		100				2010/11			ICAC 2011 Cotton Production Practices (survey response)
Turkey			300,000			2003			PM 2003 Country Statement
Turkey			300,000			2004			Ergon, 2008. Literature Review and Research Evaluation relating to Social Impacts of Global Cotton Production for SEEP (Source used: Aegean Textiles and Raw Materials Exporters' Association, 2004)
Turkey			200,000			2005			PM 2005. Intervention from Dr. Sebahattin Gazanfer, Adviser Sectoral Board, Textiles and Raw Materials Exporters' Association of Turkey, Istanbul, Aegean Textiles and Raw Materials Exporters' Association, Izmir
Turkey			125,000			2007			PM 2007. Intervention from Dr. Talat Senturk, Acting General Director of Agricultural Production and Development, Ministry of Agriculture, Turkey
AUSTRALIA									
Australia			1,350			2010/11			ICAC 2011 Cotton Production Practices (survey response)
ASIA									
Bangladesh			86,000			2010/11			ICAC 2011 Cotton Production Practices (survey response)
China	25,000,000					1996			Hsu, Hsin-Hui and Fred Gale, 2001. Regional Shifts in China's Cotton Production and Use. Cotton and Wool Situation and Outlook/CWS-2001. Economic Research Service/USDA
China	24,000,000		100,000,000			2000			ICAC, 2004. The Importance of Cotton for Employment in China (Mainland). Adapted from a study commissioned by the ICAC to the Ministry of Agriculture, China (Mainland). Review of March-April 2004.
China	40,000,000		90,000,000			2007/08			ICAC 2008 Cotton Production Practices (survey response)
China			140,000,000			2010/11			Presentation by the China Cotton Association, November 1, 2011, at the offices of Cotton Council International, in Washington, DC
India			5,500,000		<1 ha	2009			USDA GAIN Attache reports (May 2008 and April 2009)
India			5,800,000			2010			PM 2010 Country Statement
Myanmar			503,566			2007/08			ICAC 2008 Cotton Production Practices (survey response)
Pakistan			1,537,000			2010/11			ICAC 2011 Cotton Production Practices (survey response)
Pakistan	1,500,000					2011			PM 2010 and PM 2011 Country Statements
Philippines			3,764			2004/05			ICAC 2005 Cotton Production Practices (survey response)
Thailand			5,000			2010/11			ICAC 2011 Cotton Production Practices (survey response)
Vietnam			15,000			2010/11			ICAC 2011 Cotton Production Practices (survey response)
CENTRAL ASIA									
Kyrgyzstan			70,000			2010/11			ICAC 2011 Cotton Production Practices (survey response)
Kazakhstan	40,000					2007/08			Communication from Mr. Ibadulla Umbelbayev, General Director, The Kazakh Cotton Growing Scientific Research Institute, May 2007
Uzbekistan	218,000					2008			USDA GAIN Attache Report, November 2008

Notes: PMI stands for Plenary Meeting; SEEP stands for Expert Panel on Social, Environmental and Economic Performance of Cotton Production; USDA GAIN stands for United States Department of Agriculture, Global Agriculture Information Network.

Table 2: Estimated Number of Cotton Farms by Country in 2010/11

Country	Number of Cotton Farms		Harvested Cotton Area	Average Cotton Area by Farm	
	Lower Estimate	Upper Estimate	Ha	Lower Estimate	Upper Estimate
NORTH AMERICA	40.134	40.277	4.450.886	110,5	110,9
Cuba	2.023	2.023	4.047	2,0	2,0
Mexico	12.000	12.000	115.516	9,6	9,6
Nicaragua	809	809	1.619	2,0	2,0
United States	25.301	25.444	4.329.705	170,2	171,1
SOUTH AMERICA	81.130	83.456	2.092.165	25,1	25,8
Argentina	23.696	25.600	550.000	21,5	23,2
Bolivia	2.409	2.409	4.818	2,0	2,0
Brazil	10.134	10.134	1.400.300	138,2	138,2
Colombia	6.689	6.689	42.657	6,4	6,4
Paraguay	21.429	21.429	30.000	1,4	1,4
Peru	9.078	9.500	49.000	5,2	5,4
Venezuela	7.695	7.695	15.390	2,0	2,0
EUROPE	73.344	78.715	314.193	4,0	4,3
Bulgaria	210	210	630	3,0	3,0
Greece	66.417	70.833	250.000	3,5	3,8
Spain	6.717	7.671	63.563	8,3	9,5
NORTH AFRICA	213.866	250.000	198.826	0,8	0,9
Egypt	63.866	100.000	157.426	1,6	2,5
Sudan	150.000	150.000	41.400	0,3	0,3
WEST AFRICA	1.207.089	1.467.083	1.676.864	1,1	1,4
Benin	81.849	123.608	135.750	1,1	1,7
Burkina Faso	182.821	300.000	374.000	1,2	2,0
Cameroon	206.000	206.000	142.900	0,7	0,7
Centr. Afr. Rep.	27.301	27.301	27.301	1,0	1,0
Chad	133.841	133.841	131.700	1,0	1,0
Cote d'Ivoire	222.176	243.259	217.311	0,9	1,0
Ghana	17.017	17.017	6.000	0,4	0,4
Guinea	13.365	13.365	13.365	1,0	1,0
Mali	106.968	134.000	286.000	2,1	2,7
Niger	4.645	4.645	4.645	1,0	1,0
Nigeria	125.000	172.176	250.000	1,5	2,0
Senegal	20.528	20.528	27.582	1,3	1,3
Togo	65.576	71.342	60.310	0,8	0,9
EASTERN AND SOUTHERN AFRICA	1.653.730	1.864.694	1.460.162	0,8	0,9
Angola	2.632	2.632	2.632	1,0	1,0
Burundi	21.000	21.000	4.099	0,2	0,2
Ethiopia	208.163	208.163	85.000	0,4	0,4
Kenya	93.519	97.045	16.800	0,2	0,2
Malawi	130.000	130.000	60.000	0,5	0,5
Mozambique	170.061	233.000	128.000	0,5	0,8
South Africa	854	854	17.130	20,1	20,1
Tanzania	402.500	500.000	460.000	0,9	1,1
Uganda	125.000	150.000	80.000	0,5	0,6
Zambia	250.000	272.000	261.500	1,0	1,0
Zimbabwe	250.000	250.000	345.000	1,4	1,4
MIDDLE EAST	196.730	262.284	695.620	2,7	3,5
Afghanistan	16.600	16.600	49.800	3,0	3,0
Iran	28.380	30.820	92.000	3,0	3,2
Iraq	6.650	6.650	19.950	3,0	3,0
Israel	100	100	3.870	38,7	38,7
Syria	50.000	50.000	150.000	3,0	3,0
Turkey	95.000	158.114	380.000	2,4	4,0
AUSTRALIA	1.350	1.350	590.000	437,0	437,0
Australia	1.350	1.350	590.000	437,0	437,0
ASIA	31.969.559	39.056.040	19.774.513	0,5	0,6
Bangladesh	86.000	86.000	32.000	0,4	0,4
China	23.600.633	30.403.067	5.220.460	0,2	0,2
India	6.268.050	6.515.097	11.142.000	1,7	1,8
Indonesia	9.000	9.000	9.000	1,0	1,0
Myanmar	477.646	477.646	349.000	0,7	0,7
Pakistan	1.500.000	1.537.000	3.000.000	2,0	2,0
Philippines	8.230	8.230	10.760	1,3	1,3
Thailand	5.000	5.000	2.293	0,5	0,5
Vietnam	15.000	15.000	9.000	0,6	0,6
CENTRAL ASIA	453.631	453.631	2.226.269	4,9	4,9
Azerbaijan	6.400	6.400	32.000	5,0	5,0
Kyrgyzstan	70.000	70.000	20.000	0,3	0,3
Kazakhstan	26.840	26.840	134.200	5,0	5,0
Tajikistan	32.000	32.000	160.000	5,0	5,0
Turkmenistan	110.000	110.000	550.000	5,0	5,0
Uzbekistan	208.391	208.391	1.330.069	6,4	6,4
TOTAL	35.890.562	43.557.529	33.479.498	0,9	0,8
TOTAL WORLD LESS CHINA	12.289.929	13.154.462	28.259.038	2,3	2,1
TOTAL CHINA	23.600.633	30.403.067	5.220.460	0,2	0,2

Table 3: Estimated Number of Cotton Farms by Country in 2010/11, Share of the World Total

Country	Number of Cotton Farms		Number of Cotton Farms	Harvested Cotton Area
	Lower Estimate % of World Total	Upper Estimate % of World Total	Average % of World Total	% of World Total
NORTH AMERICA	0,1%	0,1%	0,1%	13,3%
Cuba	0,0%	0,0%	0,0%	0,0%
Mexico	0,0%	0,0%	0,0%	0,3%
Nicaragua	0,0%	0,0%	0,0%	0,0%
United States	0,1%	0,1%	0,1%	12,9%
SOUTH AMERICA	0,2%	0,2%	0,2%	6,2%
Argentina	0,1%	0,1%	0,1%	1,6%
Bolivia	0,0%	0,0%	0,0%	0,0%
Brazil	0,0%	0,0%	0,0%	4,2%
Colombia	0,0%	0,0%	0,0%	0,1%
Paraguay	0,1%	0,0%	0,1%	0,1%
Peru	0,0%	0,0%	0,0%	0,1%
Venezuela	0,0%	0,0%	0,0%	0,0%
EUROPE	0,2%	0,2%	0,2%	0,9%
Bulgaria	0,0%	0,0%	0,0%	0,0%
Greece	0,2%	0,2%	0,2%	0,7%
Spain	0,0%	0,0%	0,0%	0,2%
NORTH AFRICA	0,6%	0,6%	0,6%	0,6%
Egypt	0,2%	0,2%	0,2%	0,5%
Sudan	0,4%	0,3%	0,4%	0,1%
WEST AFRICA	3,4%	3,4%	3,4%	5,0%
Benin	0,2%	0,3%	0,3%	0,4%
Burkina Faso	0,5%	0,7%	0,6%	1,1%
Cameroon	0,6%	0,5%	0,5%	0,4%
Centr. Afr. Rep.	0,1%	0,1%	0,1%	0,1%
Chad	0,4%	0,3%	0,3%	0,4%
Cote d'Ivoire	0,6%	0,6%	0,6%	0,6%
Ghana	0,0%	0,0%	0,0%	0,0%
Guinea	0,0%	0,0%	0,0%	0,0%
Mali	0,3%	0,3%	0,3%	0,9%
Niger	0,0%	0,0%	0,0%	0,0%
Nigeria	0,3%	0,4%	0,4%	0,7%
Senegal	0,1%	0,0%	0,1%	0,1%
Togo	0,2%	0,2%	0,2%	0,2%
EASTERN AND SOUTHERN AFRICA	4,6%	4,3%	4,4%	4,4%
Angola	0,0%	0,0%	0,0%	0,0%
Burundi	0,1%	0,0%	0,1%	0,0%
Ethiopia	0,6%	0,5%	0,5%	0,3%
Kenya	0,3%	0,2%	0,2%	0,1%
Malawi	0,4%	0,3%	0,3%	0,2%
Mozambique	0,5%	0,5%	0,5%	0,4%
South Africa	0,0%	0,0%	0,0%	0,1%
Tanzania	1,1%	1,1%	1,1%	1,4%
Uganda	0,3%	0,3%	0,3%	0,2%
Zambia	0,7%	0,6%	0,7%	0,8%
Zimbabwe	0,7%	0,6%	0,6%	1,0%
MIDDLE EAST	0,5%	0,6%	0,6%	2,1%
Afghanistan	0,0%	0,0%	0,0%	0,1%
Iran	0,1%	0,1%	0,1%	0,3%
Iraq	0,0%	0,0%	0,0%	0,1%
Israel	0,0%	0,0%	0,0%	0,0%
Syria	0,1%	0,1%	0,1%	0,4%
Turkey	0,3%	0,4%	0,3%	1,1%
AUSTRALIA	0,0%	0,0%	0,0%	1,8%
Australia	0,0%	0,0%	0,0%	1,8%
ASIA	89,1%	89,7%	89,4%	59,1%
Bangladesh	0,2%	0,2%	0,2%	0,1%
China	65,8%	69,8%	67,8%	15,6%
India	17,5%	15,0%	16,2%	33,3%
Indonesia	0,0%	0,0%	0,0%	0,0%
Myanmar	1,3%	1,1%	1,2%	1,0%
Pakistan	4,2%	3,5%	3,9%	9,0%
Philippines	0,0%	0,0%	0,0%	0,0%
Thailand	0,0%	0,0%	0,0%	0,0%
Vietnam	0,0%	0,0%	0,0%	0,0%
CENTRAL ASIA	1,3%	1,0%	1,2%	6,6%
Azerbaijan	0,0%	0,0%	0,0%	0,1%
Kyrgyzstan	0,2%	0,2%	0,2%	0,1%
Kazakhstan	0,1%	0,1%	0,1%	0,4%
Tajikistan	0,1%	0,1%	0,1%	0,5%
Turkmenistan	0,3%	0,3%	0,3%	1,6%
Uzbekistan	0,6%	0,5%	0,5%	4,0%
TOTAL	100%	100%	100%	100%
TOTAL WORLD LESS CHINA	34%	30%	32%	84%
TOTAL CHINA	66%	70%	68%	16%



2010/11 SUPPLY AND USE OF COTTON BY COUNTRY

December 1, 2011

	AREA	YIELD	PROD	BEG STKS	IMPORTS	CONS	EXPORTS	END STKS	S/U *	S/MU **
	000 Ha	Kgs/Ha	000 Metric Tons						Ratio	Ratio
CANADA				0	2	3		0	0.11	0.11
CUBA	4	269	1	1	2	3		1	0.19	0.19
DOM. REP.					1	1			0.47	0.47
MEXICO	116	1,357	157	130	261	385	45	118	0.27	0.31
USA	4,330	910	3,942	642	2	849	3,130	566	0.14	0.67
N. America	4,454	921	4,101	773	269	1,242	3,175	686	0.16	0.55
EL SALVADOR				5	26	26		5	0.20	0.20
GUATEMALA				6	21	21		6	0.27	0.27
HONDURAS	0	316	0	1	5	5		1	0.14	0.14
C. America	2	510	1	12	52	53	0	12	0.22	0.22
ARGENTINA	550	536	295	162	7	150	61	253	1.20	1.69
BOLIVIA	5	525	3	2	9	9	3	2	0.21	0.26
BRAZIL	1,400	1,400	1,960	680	153	990	435	1,368	0.96	1.38
CHILE				2	10	10		2	0.21	0.21
COLOMBIA	43	820	35	22	60	92	0	25	0.27	0.27
ECUADOR	1	431	1	4	15	16		4	0.24	0.24
PARAGUAY	30	420	13	4		7	2	8	0.90	1.09
PERU	49	861	42	25	75	110	1	31	0.28	0.29
URUGUAY				0	0	0		0	0.26	0.26
VENEZUELA	15	361	6	6	15	19	2	6	0.30	0.33
S. America	2,093	1,124	2,353	908	345	1,403	504	1,700	0.89	1.21
ALGERIA				4	12	12		4	0.29	0.29
EGYPT	157	869	137	42	120	155	100	44	0.17	0.29
MOROCCO				9	34	34		9	0.26	0.26
SUDAN	41	386	16	9		2	13	10	0.64	4.81
TUNISIA				2	11	11		2	0.21	0.21
N. Africa	199	768	153	66	177	214	113	69	0.21	0.32
BENIN	136	442	60	24		4	64	16	0.23	3.89
BURKINA FASO	374	376	141	50		4	137	50	0.35	12.42
CAMEROON	143	430	68	19		2	68	17	0.24	9.00
CENT. AFR. REP.	27	203	6	1			5	2	0.32	
CHAD	132	167	22	19		1	27	14	0.50	27.49
COTE D'IVOIRE	217	273	59	20		0	55	24	0.44	97.39
GUINEA	13	262	4	1			4	1	0.40	
MADAGASCAR				3				3		
MALI	286	362	103	9		3	92	16	0.17	5.33
NIGER	5	439	2	0		1			0.12	0.25
SENEGAL	28	374	10	2		1	10	1	0.14	1.84
TOGO	60	330	20	1			18	3	0.17	
F. Africa	1,421	348	495	149		15	480	147	0.30	9.57
ANGOLA	3	296	1	0		1		0	0.16	0.19
ETHIOPIA	85	236	20	29	1	24	2	24	0.93	1.01
GHANA	6	333	2	1	1	1	2	1	0.42	1.05
KENYA	17	250	4	5	2	10		2	0.16	0.16
MALAWI	80	300	22	9		3	16	13	0.67	4.18
MOZAMBIQUE	128	203	26	10			19	17	0.89	
NIGERIA	250	180	45	26	12	20	47	16	0.24	0.83
SOUTH AFRICA	17	1,053	18	4	18	22	7	12	0.41	0.54
TANZANIA	460	170	78	64		29	40	73	1.06	2.53
UGANDA	80	335	27	8		1	27	6	0.23	5.56
CONGO, DR				2	8	8		2	0.27	0.27
ZAMBIA	262	191	50	25			38	38	1.00	
ZIMBABWE	345	305	105	78		10	100	74	0.67	7.36
S. Africa	1,754	230	403	266	61	150	299	281	0.63	1.87
KAZAKHSTAN	134	447	60	15	1	13	54	8	0.13	0.63
KYRGYZSTAN	20	750	15	4	3	2	17	3	0.15	1.46
TAJIKISTAN	160	562	90	37		7	94	26	0.26	3.86
TURKMENISTAN	550	691	380	104		115	170	199	0.70	1.73
UZBEKISTAN	1,330	684	910	263	1	273	600	302	0.35	1.11
C. Asia	2,194	663	1,455	424	5	410	935	538	0.40	1.31


2010/11 SUPPLY & USE OF COTTON BY COUNTRY (cont'd) December 1, 2011

	AREA	YIELD	PROD	BEG STKS	IMPORTS	CONS	EXPORTS	END STKS	S/U *	S/MU **
	000 Ha	Kgs/Ha			000 Metric Tons				Ratio	Ratio
AUSTRIA				0	4	4		0	0.09	0.09
AZERBAIJAN	32	406	13	4		10	5	3	0.17	0.25
BELARUS				4	11	11		4	0.34	0.34
BELGIUM				1	15	7	7	2	0.11	0.22
BULGARIA	1	321	0	4	12	11	1	4	0.31	0.34
CZECH REP.				4	10	8	3	3	0.26	0.36
DENMARK										
ESTONIA										
FINLAND										
FRANCE				2	18	14	4	2	0.13	0.17
GERMANY				6	53	40	10	9	0.18	0.23
GREECE	250	720	180	24	3	35	155	17	0.09	0.49
HUNGARY				0	2	2		0	0.11	0.11
IRELAND				0	0	0		0	0.17	0.17
ITALY				10	60	52	5	13	0.23	0.25
LATVIA				0	0	0		0	0.32	0.32
LITHUANIA				0	0	0		0	0.56	0.56
MOLDOVA				1	2	2		1	0.34	0.34
NETHERLANDS				1	3		3	1	0.38	
NORWAY										
POLAND				0	7	7		0	0.03	0.03
PORTUGAL				6	29	30		5	0.18	0.18
ROMANIA				1	2	2		1	0.27	0.27
RUSSIA	1	514	1	44	111	135		20	0.15	0.15
SLOVAK REP.										
SPAIN	64	676	43	4	5	10	34	8	0.19	0.85
SWEDEN				0	0	0		0	0.23	0.23
SWITZERLAND				0	4	4	1	0	0.10	0.11
UKRAINE				2	8	8		2	0.20	0.20
UNITED KINGDOM				0	0	0		0	0.22	0.22
FORMER YUGOSLAVIA				2	8	8		2	0.25	0.25
Europe	348	682	237	122	370	403	228	99	0.11	0.25
Including EU-27	314	710	223	66	225	224	223	67	0.15	0.30
CHINA	5,220	1,226	6,400	2,780	2,609	9,594	30	2,165	0.22	0.23
TAIWAN				55	175	187		43	0.23	0.23
HONG KONG				20	49	13	43	12	0.22	0.96
Sub total	5,220	1,226	6,400	2,856	2,833	9,794	73	2,221	0.23	0.23
AUSTRALIA	590	1,522	898	115	0	9	545	459	0.83	52.04
INDONESIA	9	707	6	87	420	431	4	78	0.18	0.18
JAPAN				18	82	81		19	0.23	0.23
KOREA, D.R.				1	5	5		1	0.24	0.24
KOREA, REP.				43	230	230		43	0.19	0.19
MALAYSIA				15	51	53	0	13	0.24	0.25
PHILIPPINES	0	560	0	2	14	15		2	0.17	0.17
SINGAPORE				1	3		3	1	0.24	
THAILAND	2	511	1	80	383	387	0	77	0.20	0.20
VIETNAM	9	459	4	73	350	355		72	0.20	0.20
E. Asia	630	1,456	917	437	1,539	1,572	553	768	0.36	0.49
AFGHANISTAN	50	410	20	29		4	25	20	0.70	4.87
BANGLADESH	32	437	14	161	736	762		149	0.20	0.20
INDIA	11,142	496	5,525	1,492	87	4,483	1,100	1,521	0.27	0.34
MYANMAR	349	579	202	81		183	8	93	0.49	0.51
PAKISTAN	3,000	636	1,907	409	313	2,200	115	314	0.14	0.14
SRI LANKA				0	2	2		0	0.22	0.22
S. Asia	14,576	526	7,671	2,174	1,139	7,637	1,248	2,099	0.24	0.27
IRAN	92	674	62	35	66	135		28	0.21	0.21
IRAQ	20	356	7	1	5	13		1	0.09	0.09
ISRAEL	4	1,860	7	2			7	1	0.18	
SYRIA	150	1,071	161	81		185	2	54	0.29	0.29
TURKEY***	380	1,184	450	363	750	1,250	7	296	0.24	0.24
Sub total	685	1,025	702	488	836	1,610	17	388	0.25	0.24
WORLD TOTAL	33,557	741	24,879	8,673	7,626	24,496	7,624	9,006	0.37	0.37

*/ Ending stocks divided by consumption plus exports.

Subtotals and total include countries not shown.

**/ Ending stocks divided by consumption.

***/ Turkey's production and consumption estimates are currently under review within the Secretariat.



2011/12 SUPPLY AND USE OF COTTON BY COUNTRY

December 1, 2011

	AREA	YIELD	PROD	BEG STKS	IMPORTS	CONS	EXPORTS	END STKS	S/U *	S/MU **
	000 Ha	Kgs/Ha	000 Metric Tons						Ratio	Ratio
CANADA				0	2	2		0	0.11	0.11
CUBA	4	269	1	1	2	3		1	0.19	0.19
DOM. REP.					1	1			0.47	0.47
MEXICO	197	1,278	252	118	152	377	27	118	0.29	0.31
USA	3,928	872	3,425	566	2	827	2,325	841	0.27	1.02
N. America	4,134	890	3,679	686	160	1,212	2,352	960	0.27	0.79
EL SALVADOR				5	26	26		5	0.20	0.20
GUATEMALA				6	21	21		6	0.27	0.27
HONDURAS	0	316	0	1	5	5		1	0.14	0.14
C. America	2	510	1	12	52	53	0	12	0.22	0.22
ARGENTINA	500	500	250	253	7	158	71	282	1.24	1.79
BOLIVIA	5	531	3	2	9	9	3	2	0.21	0.26
BRAZIL	1,480	1,420	2,102	1,368	10	960	823	1,697	0.95	1.77
CHILE				2	10	10		2	0.21	0.21
COLOMBIA	45	825	37	25	59	96	0	25	0.26	0.26
ECUADOR	1	435	1	4	15	16		4	0.24	0.24
PARAGUAY	80	350	28	8		7	16	13	0.57	1.86
PERU	51	869	45	31	64	108	1	31	0.29	0.29
URUGUAY				0	0	0		0	0.26	0.26
VENEZUELA	15	365	6	6	15	19	2	6	0.30	0.33
S. America	2,178	1,134	2,470	1,700	190	1,382	915	2,063	0.90	1.49
ALGERIA				4	12	12		4	0.29	0.29
EGYPT	221	821	181	44	60	155	78	52	0.22	0.34
MOROCCO				9	34	34		9	0.26	0.26
SUDAN	83	400	33	10		2	24	16	0.61	7.70
TUNISIA				2	13	13		3	0.21	0.21
N. Africa	303	706	214	69	120	216	102	84	0.26	0.39
BENIN	205	400	82	16		4	64	29	0.43	7.34
BURKINA FASO	426	354	151	50		4	138	58	0.41	14.56
CAMEROON	150	470	70	17		2	57	28	0.48	14.93
CENT. AFR. REP.	29	205	6	2			5	2	0.46	
CHAD	170	167	28	14		1	22	20	0.87	39.14
COTE D'IVOIRE	257	350	90	24		2	83	29	0.34	14.51
GUINEA	14	276	4	1			4	2	0.42	
MADAGASCAR				3				3		
MALI	498	343	171	16		3	140	44	0.31	14.76
NIGER	5	444	2	0		1			0.11	0.25
SENEGAL	28	420	11	1		1	10	2	0.16	2.18
TOGO	87	300	26	3			26	3	0.10	
F. Africa	1,869	343	642	147		17	551	221	0.39	12.87
ANGOLA	3	299	1	0		1		0	0.22	0.27
ETHIOPIA	89	239	21	24	1	23	2	22	0.87	0.96
GHANA	20	360	7	1	1	1	6	3	0.42	2.17
KENYA	29	262	7	2	1	9		1	0.16	0.16
MALAWI	120	303	36	13		3	23	23	0.87	7.59
MOZAMBIQUE	136	200	27	17			24	20	0.82	
NIGERIA	350	180	63	16	1	20	32	29	0.56	1.46
SOUTH AFRICA	21	1,000	21	12	7	20	7	12	0.42	0.57
TANZANIA	460	171	79	73		29	65	58	0.62	2.01
UGANDA	100	330	33	6		1	22	16	0.71	14.25
CONGO, DR				2	8	8		2	0.27	0.27
ZAMBIA	320	180	58	38			52	43	0.83	
ZIMBABWE	345	290	100	74		7	95	71	0.70	10.20
S. Africa	2,014	227	458	281	38	144	329	304	0.64	2.12
KAZAKHSTAN	140	500	70	8	1	15	52	13	0.19	0.87
KYRGYZSTAN	20	754	15	3	3	2	16	3	0.16	1.46
TAJIKISTAN	201	530	107	26		7	100	26	0.24	3.86
TURKMENISTAN	550	573	315	199		127	167	221	0.75	1.75
UZBEKISTAN	1,316	669	880	302	1	275	573	334	0.39	1.21
C. Asia	2,227	623	1,387	538	5	425	907	597	0.45	1.40


2011/12 SUPPLY & USE OF COTTON BY COUNTRY (cont'd) December 1, 2011

	AREA	YIELD	PROD	BEG STKS	IMPORTS	CONS	EXPORTS	END STKS	S/U *	S/MU **
	000 Ha	Kgs/Ha			000 Metric Tons				Ratio	Ratio
AUSTRIA				0	4	4		0	0,10	0,10
AZERBAIJAN	50	300	15	3		10	4	4	0,26	0,36
BELARUS				4	11	11		4	0,34	0,34
BELGIUM				2	14	7	7	2	0,11	0,23
BULGARIA	1	321	0	4	11	10	1	4	0,34	0,38
CZECH REP.				3	11	8	3	3	0,26	0,37
DENMARK										
ESTONIA										
FINLAND										
FRANCE				2	14	11	4	2	0,11	0,15
GERMANY				9	43	35	8	9	0,21	0,26
GREECE	300	933	280	17	3	27	221	52	0,21	1,92
HUNGARY				0	2	2		0	0,11	0,11
IRELAND				0	0	0		0	0,19	0,19
ITALY				13	54	50	4	13	0,23	0,25
LATVIA				0	0	0		0	0,32	0,32
LITHUANIA				0	0	0		0	0,56	0,56
MOLDOVA				1	2	2		1	0,34	0,34
NETHERLANDS				1	3		3	1	0,38	
NORWAY										
POLAND				0	6	6		0	0,03	0,03
PORTUGAL				5	29	29		5	0,19	0,19
ROMANIA				1	2	2		1	0,28	0,28
RUSSIA	1	516	1	20	126	124		23	0,19	0,19
SLOVAK REP.										
SPAIN	67	845	57	8	5	10	52	8	0,14	0,85
SWEDEN				0	0	0		0	0,24	0,24
SWITZERLAND				0	4	3	1	0	0,11	0,12
UKRAINE				2	8	8		2	0,21	0,21
UNITED KINGDOM				0	0	0		0	0,22	0,22
FORMER YUGOSLAVIA				2	8	8		2	0,25	0,25
Europe	419	841	353	99	362	370	308	136	0,11	0,37
Including EU-27	368	916	337	67	203	203	303	101	0,20	0,50
CHINA	5.534	1.300	7.194	2.165	3.211	9.546	5	3.019	0,32	0,32
TAIWAN				43	178	178		43	0,24	0,24
HONG KONG				12	50	12	39	12	0,23	0,99
Sub total	5.534	1.300	7.194	2.221	3.438	9.735	44	3.074	0,31	0,32
AUSTRALIA	600	1.907	1.144	459	0	8	889	706	0,79	84,22
INDONESIA	9	711	6	78	424	431	4	74	0,17	0,17
JAPAN				19	71	73		17	0,23	0,23
KOREA, D.R.				1	5	5		1	0,24	0,24
KOREA, REP.				43	225	225		43	0,19	0,19
MALAYSIA				13	53	53	0	13	0,24	0,25
PHILIPPINES	0	563	0	2	14	15		2	0,17	0,17
SINGAPORE				1	3		3	1	0,24	
THAILAND	2	513	1	77	378	379		77	0,20	0,20
VIETNAM	10	461	5	72	350	355		72	0,20	0,20
E. Asia	641	1.816	1.164	768	1.525	1.551	897	1.009	0,41	0,65
AFGHANISTAN	50	410	20	20		4	21	16	0,64	3,82
BANGLADESH	36	400	14	149	733	747		149	0,20	0,20
INDIA	12.191	496	6.052	1.521	85	4.483	1.174	2.001	0,35	0,45
MYANMAR	349	581	203	93		192		104	0,54	0,54
PAKISTAN	3.242	642	2.080	314	291	2.222	90	373	0,16	0,17
SRI LANKA				0	2	2		0	0,22	0,22
S. Asia	15.871	527	8.372	2.099	1.111	7.652	1.284	2.645	0,30	0,35
IRAN	115	681	78	28	57	135		28	0,21	0,21
IRAQ	20	358	7	1	5	13		1	0,09	0,09
ISRAEL	9	1.637	14	1			14	1	0,09	
SYRIA	180	1.100	198	54		185	13	54	0,27	0,29
TURKEY***	475	1.350	641	296	647	1.275	7	303	0,24	0,24
Sub total	837	1.139	954	388	724	1.635	35	396	0,24	0,24
WORLD TOTAL	36.010	746	26.879	9.006	7.725	24.387	7.725	11.497	0,47	0,47

*/ Ending stocks divided by consumption plus exports.

Subtotals and total include countries not shown.

**/ Ending stocks divided by consumption.

***/ Turkey's production and consumption estimates are currently under review within the Secretariat.

APPAREL FIBER CONSUMPTION: A POPULATION STORY?

By Alejandro Plastina, ICAC

Introduction

An array of structural changes occurred over the last two decades in the world textile sector, including the relocation of textile industries to Asia, a significant increase in world cotton yields and mushrooming initiatives to promote the use of more environmentally friendly technologies throughout the textile value chain (including recycling) and to enhance the standards of living of producers of natural fibers. A number of specialized agencies report, in their areas of specialization, changes in textile fibers production, mill use, trade patterns, and installed textile capacity. But very few agencies produce estimates of end-use textile fibers consumption, i.e. consumption of textile fibers at retail level. The most comprehensive of those reports is the World Apparel Fiber Consumption Survey, published jointly by the Trade and Markets Division of the Economic and Social Development Department of the Food and Agriculture Organization of the United Nations (FAO) and the International Cotton Advisory Committee (ICAC).

The FAO/ICAC survey reports estimates of cotton, wool, flax, cellulosic¹⁶ and synthetic¹⁷ fibers available for home use by country for 112 countries, as well as regional and world aggregates. The estimate of the amount of each textile fiber available for end-use consumption is obtained by adding domestic mill consumption to net imports of yarn, fabric, clothing and other manufactures expressed in raw textile fiber equivalents. The 2011 FAO/ICAC survey is the third joint edition since the annual survey published by FAO was discontinued in 1995, and it covers the years 1992, 1996, and 2000 through 2008. The current FAO/ICAC survey covers 96% of world end-use consumption of textile fibers and 98% of world mill consumption of textile fibers, based on estimates by the ICAC in World Textile Demand. Due to difficulties in obtaining national trade statistics, Africa and the region of the former USSR are only partially covered by this survey.

This article uses data from the FAO/ICAC survey to illustrate major trends in world textile fiber consumption, and to estimate the relative importance of population trends and changes in per capita consumption on changes in total textile fiber consumption. A short methodological section is followed by the results of the analysis, and a final remarks section.

Methodology

By definition, total textile fiber consumption (Fiber) can be expressed as the product of average consumption per capita (Fiber/Capita) and population (Pop):

$$(1) \text{ Fiber} = \text{Fiber/Capita} * \text{Pop}$$

The percentage change in fiber consumption between two points in time ($\% \Delta[\text{Fiber}]$) can be decomposed as the percentage change in fiber consumption per capita ($\% \Delta[\text{Fiber/Capita}]$) and the percentage change in population ($\% \Delta[\text{Pop}]$):

$$(2) \% \Delta[\text{Fiber}] = \Delta[\text{Fiber}]/\text{Fiber} * 100 \approx \% \Delta[\text{Fiber/Capita}] + \% \Delta[\text{Pop}]$$

The relative impact of population growth on textile fiber consumption growth, or relative population effect (RPE), is measured as the share of the percentage change in fiber consumption accounted for by the percentage change in population:

$$(3) \text{ RPE} = \% \Delta[\text{Pop}] / \% \Delta[\text{Fiber}] * 100$$

RPE is defined for all values of $\% \Delta[\text{Fiber}]$ but zero. RPE can take values from negative infinity to positive infinity. The ranges of RPE of interest for this study are:

- For values of $\% \Delta[\text{Fiber}] > 0$:
 - $0 \leq \text{RPE} \leq 100$: the increase in population explains a portion of the increase in fiber consumption, while another portion is explained by the increase in per capita fiber consumption, reported in percentage points with the legend “ $\uparrow P$; $\uparrow F/C$ ”;
 - $\text{RPE} > 100$: the increase in population outweighs the decline in per capita fiber consumption, resulting in an increase in total fiber consumption, reported as “ $\uparrow \uparrow P$; $\downarrow F/C$ ”;
 - $\text{RPE} < 0$: fiber consumption increases because the increase in per capita consumption outweighs the decline in population, reported as “ $\downarrow P$; $\uparrow \uparrow F/C$ ”;
- For values of $\% \Delta[\text{Fiber}] < 0$:
 - $0 \leq \text{RPE} \leq 100$: the decline in population explains a portion of the decline in fiber consumption, while another portion is explained by the decline in per capita fiber consumption, reported in percentage points with the legend “ $\downarrow P$; $\downarrow F/C$ ”;
 - $\text{RPE} > 100$: the decline in population outweighs the increase in per capita fiber consumption, resulting in a decline in total fiber consumption, reported as “ $\downarrow \downarrow P$; $\uparrow F/C$ ”;
 - $\text{RPE} < 0$: fiber consumption declines because the decline in per capita consumption outweighs the increase in population, reported as “ $\uparrow P$; $\downarrow \downarrow F/C$ ”;

16) Rayon, viscose, Lyocel are examples of cellulosic apparel Fibers.

17) Polyester staple is the main synthetic apparel fiber.

Two conventions are adopted: when $RPE > 100$ all the change in apparel fiber consumption is attributed to population; and when $RPE < 0$ all the change in apparel fiber consumption is attributed to changes in consumption per capita.

For simplicity of exposition, and in order to compare its magnitude across fibers, the population effect is also reported in terms of thousand tons of apparel fibers (PET):

$$(4) PET = RPE * \Delta[\text{Fiber}].$$

World Apparel Fiber Consumption

Total world apparel fiber consumption increased by 29.0 million tons between 1992 and 2007, driven by a 21.6 million tons increase in synthetic fiber consumption and a 6.4 million tons increase in cotton consumption (table 1). The global economic stagnation that led to a major economic recession in 2009 resulted in a 3.6 million tons decline in apparel fiber consumption worldwide between 2007 and 2008, driven by a 1.7 million tons decline in cotton consumption and a 1.3 million tons decline in synthetic fibers consumption. The market share of synthetic fibers in world apparel fiber consumption increased by 15.6 percentage points between 1992 and 2008 (from 40.3% to 55.9%), at the expense of the market share of cotton (-11.7%), wool (-2.1%), and cellulosic fibers (-1.8%). The market share of flax remained stable at 1.1% over the period.

Per capita consumption of textile fibers increased by 3.4 kilograms between 1992 and 2007 (from 7.78 kilograms to 11.14 kilograms), and declined by 0.7 kilograms in 2008 (table 1). Per capita consumption of synthetic fibers increased by 3.0 kilograms between 1992 and 2007, and declined by

0.3 kilograms in 2008. In contrast, per capita consumption of cotton increased by only 0.4 kilograms between 1992 and 2007, but also declined by 0.3 kilograms in 2008. Per capita consumption of flax and cellulosic fibers remained stable between 1992 and 2008 at about 0.1 kilograms and 0.5 kilograms, respectively. Wool consumption per capita declined by 0.1 kilograms between 1992 and 2000, remained stable at around 0.3 kilograms between 2000 and 2007, before declining again slightly in 2008.

Population growth for the 112 countries included in the survey decelerated from an annual average of 1.5% between 1992 and 2000, to an annual average of 1.2% between 2000 and 2008 (table 1). The annual average population growth rate over the entire period amounted to 1.3%, and it explains 39% of the increase in total world textile fiber consumption (table 2). However, the relative population effect (RPE) accounts for 94% of the increase in end-use cotton fiber consumption worldwide. That is in stark contrast with the 25% RPE in synthetic fibers. The counterpart to population effects are changes in per capita consumption of each fiber: 75% of the increase in synthetic fiber consumption between 1992 and 2008 was due to increases in per capita consumption, while only 6% of the increase in cotton consumption was due to increases in per capita consumption over the same period. The RPE for wool, flax, and cellulosic fibers over the period 1992-2008 amounted, respectively, to 0%, 41%, and 100%.

The RPE was the main driver of cotton and cellulosic fibers consumption between 1992 and 2000; and it prevented wool and flax consumption to decline even further over the same period. The RPE for the aggregate of all apparel fibers was dominated by the per capita consumption effect over the period

Table 1. World apparel fiber consumption and population in selected years

	Fiber Consumption (thousand tons)				Growth Rate (percentage) ^a		
	1992	2000	2007	2008	1992-2000	2000-2007	2000-2008
Cotton	18,601	19,671	25,006	23,314	0.7	3.5	2.1
Wool	1,753	1,587	1,744	1,542	-1.2	1.4	-0.4
Flax	420	404	672	698	-0.5	7.6	7.1
Cellulosic Fibers	2,349	2,655	3,148	2,741	1.5	2.5	0.4
Synthetic Fibers	15,583	23,042	37,185	35,855	5.0	7.1	5.7
Total	38,706	47,359	67,756	64,151	2.6	5.2	3.9

	Consumption per Capita (kilograms per capita)				Growth Rate (percentage) ^a		
	1992	2000	2007	2008	1992-2000	2000-2007	2000-2008
Cotton	3.74	3.52	4.11	3.79	-0.8	2.2	0.9
Wool	0.35	0.28	0.29	0.25	-2.7	0.1	-1.5
Flax	0.08	0.07	0.11	0.11	-1.9	6.3	5.8
Cellulosic Fibers	0.47	0.47	0.52	0.45	0.1	1.2	-0.8
Synthetic Fibers	3.13	4.12	6.11	5.83	3.5	5.8	4.4
Total	7.78	8.47	11.14	10.43	1.1	4.0	2.6

	Million People				Growth Rate (percentage) ^a		
	1992	2000	2007	2008	1992-2000	2000-2007	2000-2008
Population	4,973	5,590	6,083	6,151	1.5	1.2	1.2

^a Annual average compound growth rate.

1992-2000 (41% vs. 59%). The argument is even stronger for the period 2000-2008, when the RPE only amounted to 29%.

Between 2000 and 2007, the increase in consumption of textile fibers per capita dominated the population effect for all fibers but wool. The drastic decline in consumption per capita of all fibers but flax in 2008 changed the trend for cotton, wool and cellulosic fibers over the previous sub-period. The RPE for cotton and cellulosic fibers over the longer sub-period 2000-2008 dominated the per capita consumption effect, emulating the dominance of RPE over the sub-period 1992-2000.

Notes: P is population change; F/C is change in fiber consumption per capita; ↑ (↓) indicates increase (decline); ↑↑ (↓↓) indicates the increase (decline) in the adjacent variable dominates the decline (increase) in the other variable.

In order to be able to make direct comparisons of the effects of population across fibers and sub-periods, population effects are translated into additional tons of fibers consumed due to population growth in table 3. Total fiber consumption increased by 25.4 million tons between 1992 and 2008, of which 10.0 million can be attributed to population growth. Most of the additional volume of apparel fiber consumption due to population growth was directed towards synthetic fibers (5.1 million tons), followed by cotton (4.4 million tons), cellulosic fibers (0.4 million tons), and flax (0.1 million tons). Between 1992 and 2000, the increase in synthetic fiber consumption due to population growth doubled that of cotton (2.2 million tons vs. 1.1 million tons). However, the ratio was reduced significantly (to 1.3) between 2000 and 2008, when

population growth accounted for 2.7 million tons of additional consumption of synthetic fibers and 2.0 million tons of additional consumption of cotton.

Final Remarks

The increase in world apparel fiber consumption between 1992 and 2008 is not a population story: population growth only accounts for 39% of the increase in world apparel fiber consumption. Neither is population growth the driving force behind changes in consumption of synthetic fibers, wool, or flax. However, cotton and cellulosic fibers *are* population stories: most of the increases in end-use consumption of those fibers between 1992 and 2008 can be attributed to population growth. Similar conclusions apply for 1992-2008 and 2000-2008.

Despite the fact that synthetic fibers consumption is not a population story while cotton is, the volume of additional synthetic fibers consumed due to population growth is greater than the corresponding volume of cotton. This stems from the fact that the size of the demand for synthetic fibers has exceeded the size of the demand for cotton since 1997.

This report sheds light on the effect of population trends on textile fiber consumption, but it fails to provide arguments to understand the drivers of per capita consumption of textile fibers. That is the goal of a series of analyses undertaken jointly by the FAO and the ICAC, which will serve as the basis for *The World Cotton Market: Projections to 2025*, to be published in 2012.



Table 2. Relative population effect (RPE) by fiber for selected periods, in percentage

	1992-2000	2000-2007	2000-2008	1992-2007	1992-2008
Cotton	100% ↑↑P; ↓F/C	35% ↑P; ↑F/C	56% ↑P; ↑F/C	68% ↑P; ↑F/C	94% ↑P; ↑F/C
Wool	0% ↑P; ↓↓F/C	90% ↑P; ↑F/C	0% ↑P; ↓↓F/C	0% ↑P; ↓↓F/C	0% ↑P; ↓↓F/C
Flax	0% ↑P; ↓↓F/C	16% ↑P; ↑F/C	17% ↑P; ↑F/C	42% ↑P; ↑F/C	41% ↑P; ↑F/C
Cellulosic Fibers	95% ↑P; ↑F/C	49% ↑P; ↑F/C	100% ↑↑P; ↓F/C	69% ↑P; ↑F/C	100% ↑↑P; ↓F/C
Synthetic Fibers	29% ↑P; ↑F/C	17% ↑P; ↑F/C	21% ↑P; ↑F/C	23% ↑P; ↑F/C	25% ↑P; ↑F/C
Total	41% ↑↑P; ↑F/C	23% ↑P; ↑F/C	29% ↑P; ↑F/C	34% ↑P; ↑F/C	39% ↑P; ↑F/C

Notes: P is population change; F/C is change in fiber consumption per capita; ↑ (↓) indicates increase (decline); ↑↑ (↓↓) indicates the increase (decline) in the adjacent variable dominates the decline (increase) in the other variable.

Table 3. Change in end-use consumption of fibers and population effect (PET), in thousand tons

	Change in End-Use Consumption					Population Effect				
	1992-2000	2000-2007	2000-2008	1992-2007	1992-2008	1992-2000	2000-2007	2000-2008	1992-2007	1992-2008
Cotton	1,070	5,335	3,643	6,405	4,713	1,070	1,867	2,040	4,355	4,430
Wool	-166	157	-45	-9	-211	0	141	0	0	0
Flax	-16	268	295	252	279	0	43	50	106	114
Cellulosic Fibers	306	494	87	800	392	290	242	87	552	392
Synthetic Fibers	7,460	14,143	12,812	21,603	20,272	2,163	2,404	2,691	4,969	5,068
Total	8,653	20,397	16,792	29,050	25,445	3,524	4,698	4,867	9,982	10,004