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**NEW DEVELOPMENTS IN FOREIGN COTTON PRODUCTION
AND CONSUMPTION**

Terry Townsend
Executive Director
International Cotton Advisory Committee



INTERNATIONAL COTTON ADVISORY COMMITTEE

1629 K Street NW, Suite 702, Washington, DC 20006 USA

Telephone (202) 463-6660 x16 • Fax (202) 463-6950 • email terry@icac.org

New Developments in Non-US Cotton Production and Consumption^{*}

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Overview

The world cotton industry is growing slowly, and consumption is estimated at more than 91 million bales this season and about 93 million bales in 2001/02. Production will be less than consumption this season and probably again in 2001/02. The major developments affecting consumption are slower growth in world population and income compared with previous decades, and stronger competition from chemical fibers. Over the next two seasons, the largest growth in mill use is expected in India, Pakistan, Turkey, Mexico, Brazil, and China (Mainland); reductions in mill use are expected in the EU and East Asia. The most important long-term development affecting world production is that yields in most countries are not rising.

Population and Income Growth Slowing

The average rate of growth of retail-level fiber consumption has declined over the last three decades, from 3.7% during the 1960s, to 3.1% during the 1970s, 2.5% during the 1980s and 2.4% in the 1990s. Lower rates of world fiber consumption are mainly associated with slower growth in world GDP (from 5.3% during the 1960s, to 3% during the 1990s) and slower world population growth (from 2.1% during the 1960s, to 1.7% during the 1990s). World fiber consumption is projected to grow at an annual average rate of just 1.9% this decade and reach 59 million tons (270 million bales) by 2010.

World cotton consumption increased by 4.6% to nearly 91 million bales in 1999/00, and cotton use is projected to increase by 0.5% this season and by an additional 2% to 93 million bales in 2001/02. However, the consumption of non-cotton fibers is rising faster than cotton, and as a result, cotton's share of the textile fiber market declined from 41.4% in 1998 to an estimated 40.7% in 2000. World cotton consumption is projected to increase at an average annual rate of 1% during this decade and reach 101 million bales in 2010. Non-cotton fiber consumption is projected to increase at a rate more than twice that of cotton, reaching 172 million bales in 2010. Consequently, cotton's share of world fiber mill use is estimated at 37% in 2010.

Chemical Fiber Prices Below Cotton

There are several reasons for the decline in cotton's share of world fiber mill use. Government policies in China (Mainland), India, Indonesia and elsewhere explicitly encourage increased use of chemical fibers. Chemical fibers are superior to cotton in certain uses, particularly industrial uses and floor coverings. Chemical fiber prices are generally lower than prices of cotton. A ratio of the Cotlook A Index to a weighted average of polyester, rayon and wool prices fell from 1.3 in the mid-1970s to 0.7 in the late 1980s, a period when cotton's share of world fiber mill use rose slightly to about 50%. However, the

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- Paper presented to the Beltwide Cotton Economics and Marketing Conference, January 12, 2001, Anaheim, CA.
 - The International Cotton Advisory Committee is an association of 43 governments of countries with an interest in cotton. The Secretariat of the Committee publishes information related to world cotton production, supply, demand and prices, and provides technical information on cotton production technology. Detailed statistics are found bimonthly in *COTTON: Review of the World Situation*, \$150 per year. A monthly outlook by fax is also available for \$250 per year or on the Internet for \$200 per year. Access to the latest estimates of world cotton supply and use by the Secretariat is also available on the Internet for \$1,500 per year.

cotton/non-cotton price ratio trended up in the 1990s and is estimated at 0.9 in 2001, and cotton's market share is declining.

Consumption Rising in Developed Countries

Most of the increase in world cotton consumption at the end-use level is occurring in industrial countries, while increases in cotton mill use are taking place in developing countries. As a consequence, net imports of cotton textiles by industrial countries are estimated to have increased from 25 million bale equivalents in 1998 to 27 million in 1999. In 1999, developing countries accounted for 76% of world cotton mill use and 43% of end-use cotton consumption. Industrial countries accounted for 20% of world cotton mill use and 50% of end-use cotton consumption.

The largest source of retail level demand for cotton in the world is the USA. Net domestic consumption (mill use of cotton plus the cotton textile and apparel trade balance) in calendar 2000 is estimated at 21 million bales, an increase of 3% over 1999 and double the level of retail sales in 1986. U.S. consumers account for 22% of world cotton consumption, and on a whole-trade pipeline basis, the U.S. is a net cotton importer of about three million bales.

Lower fiber prices and better world economic performance are fueling the current rise in world fiber consumption, including the rise in cotton use. Changes in fiber prices tend to affect end-use textile fiber consumption with a lag of one year, and average fiber prices declined by 30% during 1998 and 1999, helping to fuel the growth in cotton consumption of more than 4% in 1999/00. Average textile fiber prices rose by 9% in 2000, and growth in consumption is slowing this year.

World GDP increased by 3.4% in 1999 and 4.7% in 2000, contributing substantially to the rapid rise in cotton use last season. The world economy is still growing at an above-average rate, and the current IMF estimate of world GDP growth this season is 4.2%, slower than last year but still above average, helping to boost cotton use.

Mill Use Linked to Production

Consumption in India is sensitive to changes in domestic cotton production. The national average yield in India reached 280 pounds per acre in 1989/90, rose by only 5% over the next seven years and is estimated lower at 250 pounds per acre this season, only a little higher than in the early 1990s. Production declines have been the most pronounced in North India because of disease and insect resistance to pesticides, and the yield failures are occurring despite efforts to improve the technology used by farmers. Because of the systemic nature of the problems affecting yields in India, a substantial rise in production to the level of consumption is not expected this decade, and India will likely be a net cotton importer in most years.

The estimate of 2000/01 Indian production, with harvesting in the South barely beginning, is less than 11 million bales, one million bales less than last season and nearly three million bales less than in 1996/97. The decline in production is resulting in increases in domestic prices of between 15% and 25% compared with last year. Imports rose to 1.8 million bales in 1999/00 and the estimate for this season is 1.4 million bales. These are the highest levels of imports for India since the 1950s. Indian cotton use reached 13.1 million bales in 1996/97, but as a consequence of lower production, consumption has not grown since and is estimated at 13.2 million bales this season. With higher domestic prices there will probably be an increase in area and production in India over the next two years, and consumption is estimated at 13.7 million bales by 2002/03.

Like India, cotton use in Pakistan was constrained by a decline in domestic production during the 1990s, and consumption last season of 7.3 million bales was no higher than in 1993/94. Disease and difficulties controlling insects depressed yields and production in Pakistan during the 1990s, but there has been progress developing new varieties tolerant of the leaf curl virus and production last season rose to 7.8 million bales, the highest since 1995/96. Cotton use is rising in Pakistan this season because of ample domestic supplies following the rise in production last season. Use in 2000/01 is estimated at a record of 7.5 million bales, an increase of 150,000 bales, and consumption is forecast to rise to 7.8 million bales over the next two seasons.

Cotton production in Turkey has been between 3.5 and 4.1 million bales the last six seasons as increased area in the irrigated Southeast region has offset declining production in other regions because of

competition with food crops. Production in 2001/02 is estimated in the middle of the range at 3.8 million bales. Exports to Russia compose a significant portion of demand for the Turkish textile industry. Mill use of cotton in Turkey reached 5.3 million bales in 1997/98, but dropped below five million bales in 1998/99 after the devaluation of the Russian rouble. Consumption is recovering to 5.3 million bales again this year, and the estimates for the next two seasons are 5.5 million and 5.6 million bales.

Textile Exports Fueling Expanded Mill Use

Cotton use in Mexico is now essentially an extension of the US cotton industry, and mill use this season is estimated at 2.5 million bales. Cotton area will expand in Mexico this year because of higher cotton prices, and with strong economic growth in North America, cotton use in Mexico is forecast at three million bales by 2002/03. Investment in textile capacity is continuing in Mexico as well as in Canada.

Cotton use in Brazil is estimated at a record of 4.2 million bales in 2000/01, demonstrating again the power of currency devaluation and sound macroeconomic management to spur export-led economic growth. Increased domestic cotton production is providing an expanded supply for the local industry. Between 1995/96 and 1999/00, cotton production in Mato Grosso climbed from 150,000 bales to 1.5 million, rising from a small portion of the Brazilian total to now account for more than half. Production in Mato Grosso alone is estimated at two million bales in 2000/01, and production in Brazil is estimated at 3.9 million bales. As farmers have gained experience with cotton in Mato Grosso, the state lint yield has more than doubled and was 1,400 pounds per acre in 1999/00, possibly the highest average yield in a rainfed area in the world. Over the next two seasons production in Brazil is forecast to rise to nearly five million bales and consumption will climb to an estimated 4.5 million bales, meaning that Brazil will once again be a significant exporter. Production is also recovering in Argentina and Paraguay because of higher market prices, and production in South America is estimated at 5.8 million bales in 2000/01, and six million next season.

Higher Prices Leading to Increased Area

Production in the Southern Hemisphere is estimated at 9.5 million bales this season and about the same next season. Production in Australia is estimated at 3.3 million bales this season and 3.5 million next season as area continues to expand with higher cotton prices. Production in Zimbabwe is rising to a record of nearly 600,000 bales this season with very high yields. Production could be closer to 500,000 bales next season, assuming average yields. Cotton use in East Asia and Australia is holding at the same aggregate level of the last five years of about nine million bales. Consumption in Japan is continuing downward, but there are increases in Thailand and Hong Kong.

2000/01 cotton use in the EU and Central Europe is estimated about the same as last season at 5.2 million bales and 900,000 bales, respectively. Production in Greece and Spain is estimated at 2.3 million bales this season and 2.2 million bales next season. A gradual decline in EU cotton area is expected over the next decade because of reductions in the income subsidy. EU cotton production rose from 450,000 bales in the early 1980s to a record of 2.5 million bales in 1999/00, but domestic use is still larger than production and net imports are about three million bales.

Currency Devaluation Aiding CIS Cotton Use

Consumption in the Commonwealth of Independent States is climbing to an estimated three million bales, including 1.5 million bales in Russia in 2000/01 because of higher government purchases of textile products and reduced competition from imports following the currency devaluation in 1999. The breakup of the USSR and the COMECON trading block resulted in a subtraction from world cotton consumption after 1991 of approximately nine million bales, a principle reason that world cotton use did not rise during the 1990s.

The rise in cotton use in the CIS is occurring without the benefit of rising production in Central Asia. Yields in Uzbekistan averaged 860 pounds per acre in the late 1980s and fell during the 1990s as input supplies were disrupted and incentives continued to weaken. The Uzbek yield this season is estimated at less than 600 pounds per acre, roughly on par with yields in the 1950s. Production in Uzbekistan is dropping to an estimated 4.3 million bales in 2000/01, probably the smallest harvest in Uzbekistan in about four decades. Normal weather will presumably lead to increased production next season, as the government will try to maintain cotton production near five million bales per year. Production in the CIS is

estimated at 6.3 million bales this season and seven million next season. Production in the USSR used to average 12 million bales.

Yields in Francophone Africa reached approximately 420 pounds per acre in 1990/91 but fell during the 1990s, and the regional yield this season is less than 300 pounds per acre. Poor weather and low prices, which discourage harvesting, are contributing to a steep drop in yields this season, but difficulty controlling insects and an expansion of area have also affected production. Production in Francophone Africa is estimated at 3.3 million bales this year, and even with no growth in area, production is projected to rise to four million bales next year with better yields. The availability of unused land, the provision of cotton inputs to greater numbers of farmers, and an expansion of planted area per farm family contributed to increases in area and production during the 1980s and 1990s. But an overvalued currency that reduces prices paid to farmers, disruptions to the cotton system because of privatization and agronomic problems associated with insect control are leading to long-term difficulties.

No Gain in World Yield

Despite surging production in Western Brazil and East Turkey, 2000/01 is the ninth consecutive year in which the world yield is lower than the record of 533 pounds set in 1991/92. The world yield this season is estimated at 520 pounds per acre. In contrast, from the end of World War II until the 1990s, the world cotton yield rose at an average rate of 2% per year and never went more than three years without reaching a new record.

The significance of the decline in the world yield is shown by the history of world cotton area since 1950/51. Since the 1940s, world cotton area has been in a range between 72 million and 89 million acres, with no obvious tendency either higher or lower. World area is estimated at 80 million acres this season, and a rise to 85 million acres is projected for 2001/02 with the rise in cotton prices this season. Cotton prices rose marginally faster than wheat, corn and soybean prices during 2000, and cotton prices are very attractive relative to rice prices. Increased area is expected in China (Mainland) and India in response to higher domestic prices. Rising international prices may encourage increased area in the Southern Hemisphere and Francophone Africa.

China (Mainland) Textile Exports Surging

Consumption of cotton in China (Mainland) is rising as a national policy of stock reduction remains in effect. Production of cotton yarn is estimated at 2.9 million tons for the five months of August through December 2000, compared with 2.5 million tons during the same months of last season, an increase of 14%. Even assuming that the proportion of chemical fiber in cotton yarn is rising from an estimated 36% last season to 38% this season, mill use of cotton in China (Mainland) could be climbing from 20 million bales to 21 million bales. Adding about two million bales for use in all the non-mill categories results in an estimate of 23 million bales for total use in China (Mainland) in 2000/01, up from an estimated 22 million bales during last season. The value of textile and apparel exports from China (Mainland) expanded by 23% in 2000. Assuming that the ratio of export value to quantity of fiber use held constant, all the gain in cotton use in China (Mainland) is accounted for by the expansion in exports and retail level domestic fiber use is actually falling.

2000/01 production in China (Mainland) is estimated at 20 million bales, leaving a deficit of three million bales and prompting a forecast that China (Mainland) will need to import substantial amounts of cotton by the end of this season. Even if production reaches 20 million bales again in 2001/02, the momentum behind the rise in consumption will likely carry China (Mainland) stocks lower again, perhaps forcing imports back to the range seen in the mid-1990s.

Conclusion

After more than a decade in which world cotton use did not rise, the world industry is growing again. With consumption rising in both the CIS and China (Mainland), and growth continuing elsewhere, world consumption is forecast at 93 million bales in 2001/02. However, the world yield is not climbing, and even though prices have risen since last season, they remain below the average of the last three decades. Consequently, world production is likely to remain below consumption next season, leading to a further tightening of world stocks.