



## **The International Cotton Market: Major Challenges<sup>1</sup>**

### **Overview of the World Cotton Industry**

Cotton is one of the most important and widely produced agricultural and industrial crops in the world. Cotton is grown in more than 80 countries on about 2% of the world's arable land, making it one of the most significant in terms of land use after food grains and soybeans. Cotton is also a heavily traded agricultural commodity, with over 100 countries involved in exports or imports of cotton.

More than 100 million family units are engaged directly in cotton production. When family labor, hired-on farm labor and workers in ancillary services such as transportation, ginning, baling and storage are considered, total involvement in the cotton sector reaches an estimated 300 million people. It also provides employment to additional millions in allied industries such as agricultural inputs, machinery and equipment, cottonseed crushing and textile manufacturing. Cotton cultivation contributes to food security and improved life expectancy in rural areas of developing countries in Africa, Asia and Latin America. Cotton played an important role in industrial development starting in the 17<sup>th</sup> century and continues to play an important role today as a major source of revenue. The value of world cotton production is estimated at more than \$30 billion.

Until the current economic recession, the world cotton industry had been experiencing robust demand growth and rising yields, making it one of the best-performing commodity industries in the world during the first part of this decade. The world cotton industry has experienced dramatic changes over the last six decades as production nearly quadrupled, rising from 7 million tons in 1950/51 to 27 million tons four years ago, before falling to 23 million in 2008/09. The average annual rate of growth in world production over the last six decades has been about 2.5% per year.

New technologies, more extensive use of existing technologies, and new areas dedicated to cotton are resulting in dramatic gains in production. Since the mid-1990s, the world yield has risen from less than 600 kilograms per hectare to nearly 800. Conventional cotton variety development, biotechnology, improved management of irrigation, targeted applications of pesticides, improved use of fertilizers, and improvements in crop management are leading to increased yields and lower production costs.

A survey by the Secretariat of costs of production using data from 2006/07, indicates that the average total cost of production, excluding the cost of land rent and the value of cottonseed sold after harvest, averaged about \$0.50 per pound, and if economic and fixed costs are also excluded, the resulting marginal cash costs of production averaged between \$0.40 and \$0.45 per pound. These data indicate that the average land owner, producing cotton at average cost and gaining average yields, assuming no changes in prices of competing crops, will tend to maintain or expand production when farm prices exceed 40 to 45 U.S. cents per pound of lint, translating into CIF prices reflected in the Cotlook A Index of between 50 cents and 60 cents per pound.

World demand for cotton has increased at an impressive pace since the 1950s, rising from 7 million tons in 1950 to 26 million tons in 2007, for an average annual rate of growth of more than 2%. The first half of this decade saw extraordinary rates of growth in cotton use. During the period from 1970/71 through 1998/99, world cotton use rose at an annual rate of 1.5%, but between 1998/99 and 2006/07, cotton use rose by 4.5% per year.

Most of the increase in world cotton consumption at the retail level during the 1980s and 1990s took place in industrial countries. However, since 2000, most of the increase in cotton end use is taking place in China, India and other developing countries. The share of developing countries in world mill consumption rose continuously from 61% in 1990/91 to more than 90% currently. Mill use in developed countries is headed lower.

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<sup>1</sup> Remarks prepared for delivery during The Multilateral Trading System: a US-Africa dialogue on cotton, Carnegie Endowment for International Peace, Washington, DC, 20 July 2009, organized by the IDEAS Centre, Geneva.

International cotton prices have declined in real terms over the last six decades because of advances in technology, and this process is continuing. During the 1970s, 1980s and 1990s, the average world price of cotton in nominal terms was 70 cents per pound, but the average international price during the current decade is expected to be between 50 and 60 cents per pound, in line with the marginal costs of production for average producers.

### **Recent Trends in Global Cotton Supply and Use**

World cotton production declined in both 2007/08<sup>2</sup> (by 2%) and 2008/09 (by 10%) to 23.5 million tons, the smallest since 2003/04. These two consecutive declines were caused principally by reductions in cotton area stemming from increases in prices of grains and oilseeds relative to cotton and increases in cotton production costs. World cotton area decreased by 5% in 2007/08 and 7% in 2008/09, to 31 million hectares. The world yield climbed to a record of 797 kg/ha in 2007/08, but was estimated down 4% in 2008/09 due mainly to unfavorable weather.

In 2009/10, world cotton production is expected to remain stable between 23 and 24 million tons. Decreasing cotton returns, more attractive prices for competing crops, and expected difficulties in financing inputs are encouraging farmers to plant less cotton. World cotton area is forecast down by 2% to only 30 million hectares in 2009/10. The average yield is projected at about 780 kg/ha, slightly higher than in 2008/09, assuming more favorable weather.

In 2008/09, the decline in world production was driven by a fall of more than 1.4 million tons in the United States. Production was also lower in China, India, Uzbekistan, Brazil, and Turkey, but slightly larger in Pakistan. U.S. production has declined for three consecutive seasons and fell to 2.8 million tons in 2008/09, down by nearly half from its record in 2005/06. Production in Turkey has declined each season since 2004/05 and fell to 450,000 tons in 2008/09, or just half its level of 2004/05. In 2009/10, production is expected to decline in China and Turkey, but to increase in India and the United States.

World cotton mill use was estimated stable in 2007/08, at 26.3 million tons, but fell in 2008/09 for the first time in a decade, by an estimated 13% (the largest decline since World War Two) to 23 million tons. World cotton mill use is forecast slightly higher at 23.4 million tons in 2009/10. This projection is based on the possibility of a slight recovery in world economic growth in 2010. Cotton mill use is expected to partially recover in China, India and Pakistan, but to continue to decline in many smaller consuming countries that had already been experiencing long-term declines in mill use before the global economic crisis started.

World ending stocks are projected to reach about 13 million tons by the end of 2008/09, or 55% of 2008/09 world mill use. World stocks will remain high relative to demand in 2009/10.

World cotton trade was estimated at 8.3 million tons in 2007/08. However, as a result of the decline in demand from importing countries, world cotton trade is projected sharply down to a little more than 6 million tons in 2008/09; this would be the smallest volume traded since 2000/01. Many countries have seen their cotton stocks increase in 2008/09, which will provide significant supplies in 2009/10. World cotton imports are forecast marginally higher in 2009/10 at 6.5 million tons. Chinese imports are forecast unchanged at 1.5 million tons. Imports by Turkey and Pakistan are expected to increase. Exports by the United States are expected to continue to decline to 2.2 million tons (-23%), whereas exports by India are projected to triple to 1.2 million tons.

### **Three Crises Affecting the World Cotton Market**

Since 2007/08, the world cotton market has been affected by three successive events: a global commodity price crisis, which resulted in higher agricultural production costs and reduced world cotton area; a crisis in the cotton futures market, which hurt cotton trade mechanisms; and a global financial and economic crisis, which has had multiple effects on cotton mill use, trade and production.

- The Global Commodity Price Crisis

Prices of most commodities increased significantly between 2003 and the first half of 2008. This increase accelerated considerably in 2007. Crude oil prices increased from US\$29 per barrel in 2003 (annual average) to US\$133 per barrel in July 2008. The increase in energy prices triggered an escalation in fertilizer prices starting in mid-2007 and ending in the middle of 2008. The World Bank fertilizer price index increased by a

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<sup>2</sup> International cotton statistics are based on seasons beginning each August and ending the following July.

factor of ten between 2003 and July 2008, and the rise in energy and fertilizer prices generated an increase in agricultural production costs. In addition, the level of stocks relative to the use of major food crops had been declining for some time, making their prices more sensitive to shocks. Demand for some food crops was boosted by government biofuel subsidies and mandates. Weather-related crop failures, speculation and some government policy decisions contributed to higher food crop prices during 2007 and the first half of 2008, and prices of many food crops remain higher than long run averages yet.

Fertilizers account on average for around 20% of overall cotton production costs. Cotton is generally more expensive to produce than soybeans, maize and wheat. Cotton requires larger quantities of fertilizer than soybeans and wheat, and larger amounts of pesticides and fuel (if machine labor is used) than soybeans, maize and wheat. As a result, cotton production costs have been affected more than the costs of competing crops by the crude oil and fertilizer price increases.

Prices of cotton's main alternative crops (grains and oilseeds) have become more attractive than cotton prices over the last few years. This trend accelerated during 2007 and in the first half of 2008. As a result, in the countries where shifts in acreage among crops were possible, many farmers opted out of cotton production to turn towards production of alternative crops.

Higher cotton production costs and more attractive prices for alternative crops were the main factors explaining the decline in world cotton area in both 2007/08 and 2008/09.

- The Cotton Futures Market Crisis

Futures prices were extremely volatile during March 2008, mostly because of increased speculative activity at the Intercontinental Exchange (ICE) and volatility in prices of competing commodities. The Cotton #2 contract for May 2008 delivery fluctuated between 69 cents per pound and 90 cents per pound during March 2008. The Cotlook A Index, an indicator of world cotton prices, exhibited similar volatility, reaching a high of 90 cents per pound on March 3, 2008 and falling to a low of 74 cents per pound on March 20, 2008.

The short-lived spike in futures prices caused a liquidity crisis. As a result, some merchants hedging their positions at the exchange were faced with huge margin calls and were forced to liquidate their positions at a loss. Many merchants could not recover from these losses in the physical market. Some were driven into bankruptcy and others decided to go out of the cotton business.

Other consequences of the March 2008 events are a decrease in banks' trust in the cotton futures market and a tightening of credit for merchants' margin calls, reduced trust by cotton market participants in the mechanisms of the futures market, and difficulties for merchants to purchase in advance and at fixed prices large quantities of cotton (as was commonly done before the futures market crisis).

- The Global Financial and Economic Crisis

The world economy expanded robustly in 2007, for the fourth consecutive year, spurred by rapid economic growth in developing countries. However, August 2007 marked the beginning of a period of global economic deceleration and crisis in the functioning of the housing, financial and commodity markets. A gradual economic recovery is expected, but the global economic outlook for 2010 remains very uncertain.

While the two crises mentioned earlier primarily affected cotton production and trade, the global economic crisis is influencing mainly textile purchases by end-use consumers and therefore cotton consumption. In addition, tightening credit conditions for textile mills are slowing their purchases of raw materials, including cotton. In some countries (for example in Europe and in the United States), the global economic crisis is accelerating a decline in cotton mill use that started many years ago, due to other factors. In other countries such as China and India, the two largest industrial users of cotton, cotton mill use contracted in 2008/09 for the first time in many years. Finally, the tightening of credit conditions worldwide will also affect world cotton production in 2009/10, as it is making it more difficult for cotton producers to finance their inputs.

## **Major Challenges Facing the Cotton Industry**

The world cotton industry faces many challenges, including financial stress for producers with below-average yields, the need to encourage universal implementation of sustainable production systems, competition with polyester, and distortions to production and trade caused by government measures in cotton.

### **Financial Stress Among Resource-Poor Producers**

Despite dramatic gains in yields since the mid-1990s, average revenue per hectare in real terms is declining. During the three-year period ended in 1988, average revenue per hectare of cotton production in 2008 dollars was \$1,350; in the three-year period ended in 2008, average revenue per hectare was \$1,130, a decline of one-sixth in real purchasing power for cotton producers. For more efficient producers, costs of production also declined between the 1980s and this decade and some producers have expanded operations to maintain family income. However, declines in gross revenue place substantial stress on the cotton sector.

The stress from lower prices is particularly acute for resource-poor producers and other producers for whom yields have not increased. Yields in Francophone Africa averaged 85% of the world average in the mid-1980s, 75% of the world average in the mid-1990s and just half of the world average during the last three seasons. Yields have fallen relative to the world average in other parts of Africa, Asia and Central Asia, meaning that the declines in revenue per hectare have been steeper in resource-poor countries than in other producing countries.

### **Sustainable Production Systems**

Sustainable production is the ability to produce cotton today without diminishing the ability of future generations to produce cotton. Over the past four decades, as the use of inorganic fertilizers and pesticides have been incorporated into production practices, farmers and researchers have tried to develop ecologically, socially and economically sound production systems for cotton and other crops. More insecticides are used per hectare of cotton than on many other row crops, and so interest in developing sustainable production systems has focused on cotton.

There are several examples of countries that have developed successful commercial cotton sectors with limited use of insecticides, including Syria where only 1% of cotton area is sprayed most seasons and Australia where Best Management Practices have been developed to improve the environmental impacts of cotton production, to mention two examples. Most cotton producing countries now have explicit sustainability programs underway.

### **Demand Enhancement**

Income and population growth are the major factors driving increases in textile consumption, but relative fiber prices, barriers to trade in textile and apparel products and consumer preferences have important impacts on growth in cotton use. The increase in the rate of growth in cotton demand during most of this decade coincided with a period in which cotton prices were below long-term averages and often below prices of competing fibers.

The integration of textile and apparel trade into WTO rules is supporting increased cotton use. On January 1 2005, all textile trade was integrated into WTO rules. Therefore, quotas agreed under the Multifiber Arrangement (MFA) no longer exist. Research suggests that textile quota elimination added more than one-half a million tons to annual cotton mill use.

Competition with chemical fiber is a continuing challenge for the cotton industry. Chemical fiber production technology results in lower costs of production of chemical fibers and an increased range of uses. World cotton consumption per capita has been almost constant since 1960, while total textile fiber consumption per capita more than doubled. Cotton's share of world textile fiber use fell from 79% in 1950 to below 40% this decade.

### **Distortions Caused by Government Measures**

There is broad recognition that distortions to production and trade caused by government measures in agriculture reduce income and lower wealth in the aggregate. There is also broad recognition that reductions in government measures result in temporary economic dislocations and changes in land use patterns that may not be desired. This is why negotiations are always difficult.

Government support for the cotton sector accounts for only 1% of subsidies paid to agriculture in OECD member countries, and yet cotton has attained prominence in the current round of trade negotiations because of the direct contribution of cotton to poverty alleviation.

Subsidies to the cotton industry, including direct support to production, border protection, crop insurance subsidies, minimum support price mechanisms and export subsidies are rising by more than twofold from \$2.7 billion in 2007/08 to an estimated \$5.9 billion in 2008/09. Government subsidies were provided by at

least ten countries in 2008/09, and the subsidies averaged 14 cents per pound, compared with 8 cents per pound in 2007/08. The share of world cotton production receiving direct government assistance, including direct payments and border protection, increased from an average of 55% between 1997/98 and 2007/08, to an estimated 84% in 2008/09.

Provisions of the U.S. 2007 farm bill in effect in 2008/09 remained similar to the 2002 farm bill. Total direct U.S. support to cotton production, including crop insurance, increased from \$888 million in 2007/08 to \$3.1 billion in 2008/09, or an equivalent of 50 cents per pound of production. In 2008/09, in order to support producers' prices, the Chinese government purchased 2.7 million tons of cotton. As a result, benefits received by producers are estimated at about US\$1.7 billion (+\$1.1 billion from 2007/08). The government of India increased the minimum support prices for seedcotton for the 2008/09 season by around 40% and purchased around 2.2 million tons of cotton lint, or a little over 40% of estimated 2008/09 production. The impact of government intervention increased cotton farm revenues in India by about US\$400 million. Government support to cotton production by Pakistan is not expected to exceed US\$8 million. Small changes in government support are projected for the European Union, Colombia, Turkey and Mexico. No PEPRO auctions have been held in Brazil this year.

### **The ICAC Cotton Price Forecast for 2009/10**

The season-average Cotlook A Index jumped by 23% to 73 cents per pound during 2007/08. Factors other than fundamental changes in cotton supply and use contributed to the significant increase in the level and volatility of cotton prices that season. Such factors perhaps included the weakening of the US dollar, soaring prices of commodity futures, and increased participation of institutions and individuals not involved in physical cotton trade in the cotton futures market.

The season-average Cotlook A Index for 2008/09 will be about 61 cents, down by 16% from last season. Based on expected changes in supply and use, the ICAC Secretariat forecasts a 2009/10 season-average Cotlook A Index of 56 cents per pound, with a 95% confidence interval ranging from 44 to 61 cents per pound.

### **Conditions in Place for Longer Term Growth**

Despite the current difficulties, cotton remains a viable commodity of wealth, employment and growth in the long run. With a rebound in world economic growth expected to begin in 2010 and improve in 2011, demand for cotton will strengthen again. Technology changes in cotton production are contributing to both higher yields and reduced environmental impacts, creating the conditions for long term growth in the cotton sector. Further, consumers the world over prefer natural, renewable and comfortable cotton in apparel and home furnishings. World consumption of cotton reached a record of more than 26 million tons in 2007, and a return to that level is likely after the economic recession has run its course and consumer purchases return to previous levels.

## World Cotton Market: Trends in Supply and Use

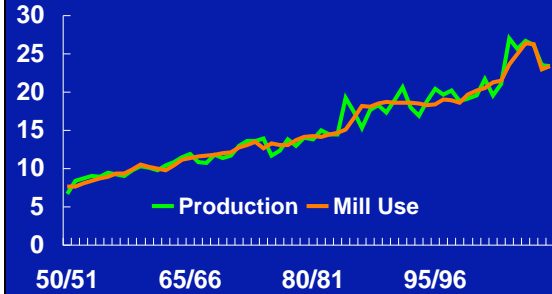
The Multilateral  
Trading System: a  
U.S.-Africa  
Dialogue on  
Cotton

July 20, 2009



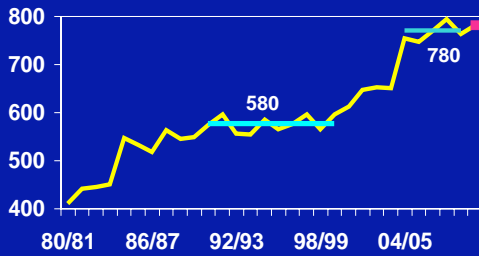
## World Cotton

Million tons



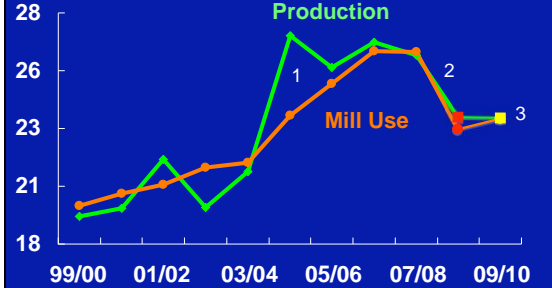
## WORLD COTTON YIELDS

Kilograms per Hectare



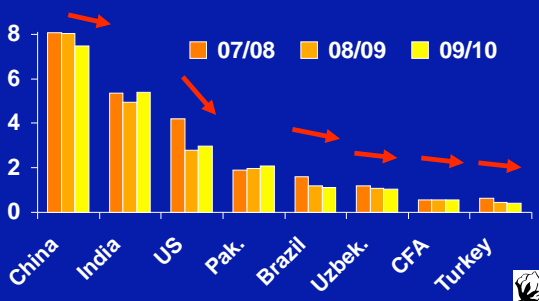
## World Cotton

Million tons



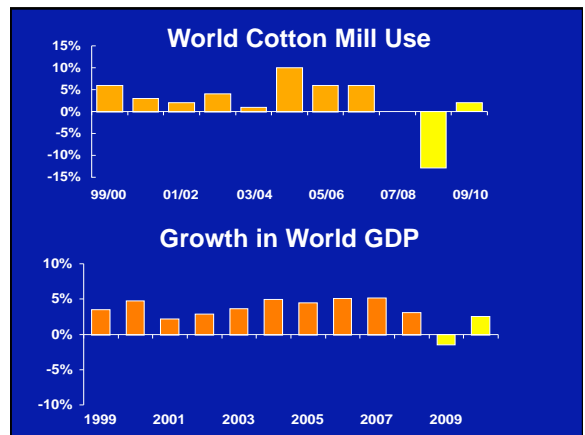
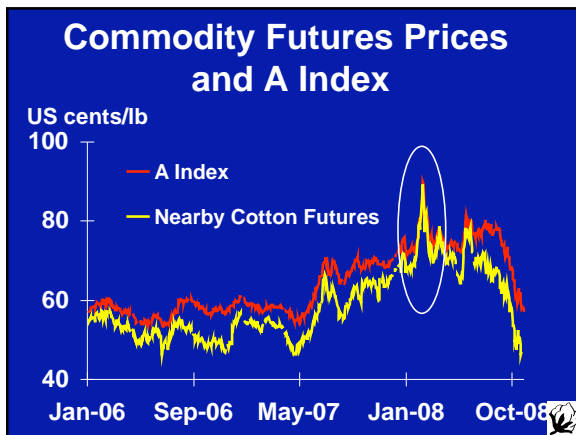
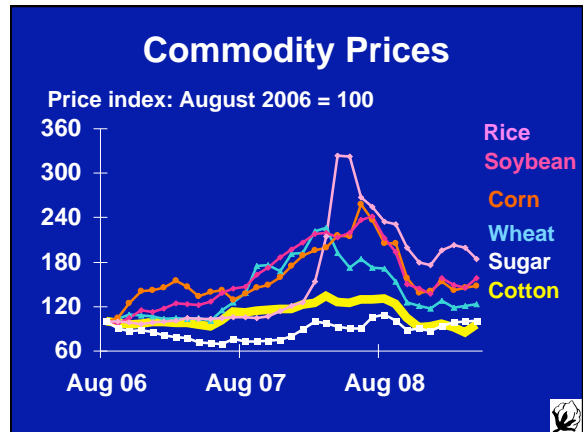
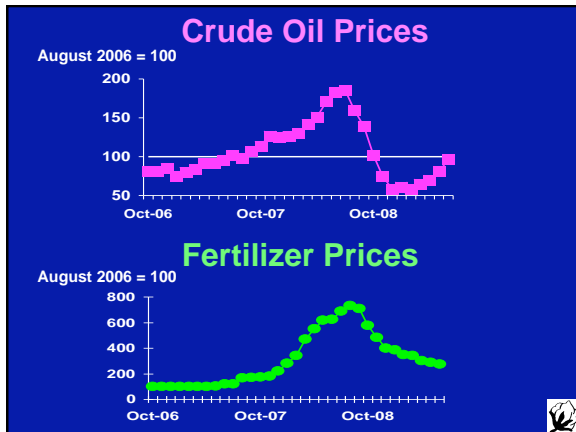
## Production

Million tons

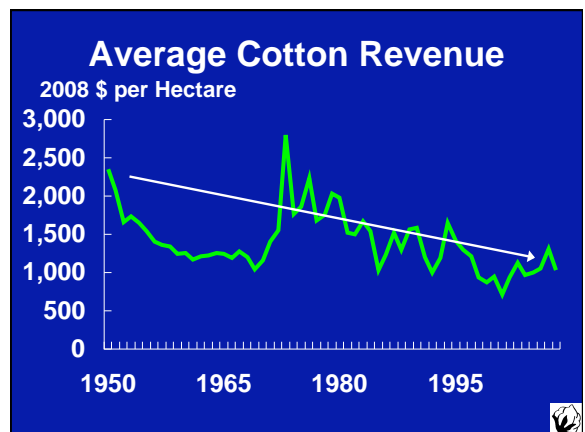


## Three Crises Affecting the World Cotton Market

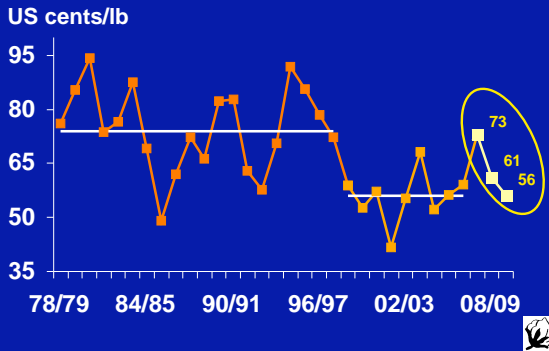
1. Global Commodity Price Crisis
3. Cotton Futures Market Crisis
5. Global Financial and Economic Crisis



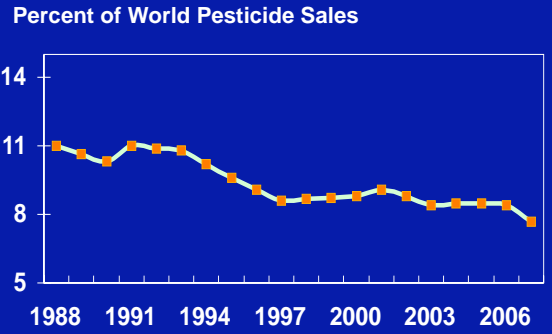
- ### Major Challenges
1. Financial Stress
  3. Sustainability
  5. Demand Enhancement
  6. Distortions



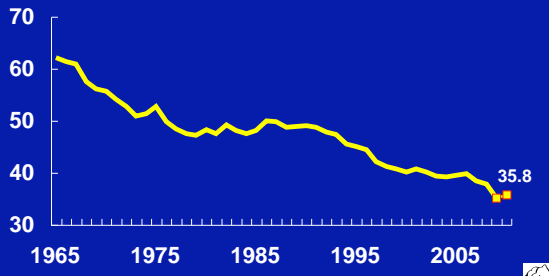
### Season-Average Cotlook A Index



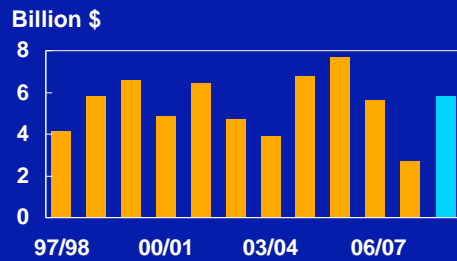
### PESTICIDE USE ON COTTON



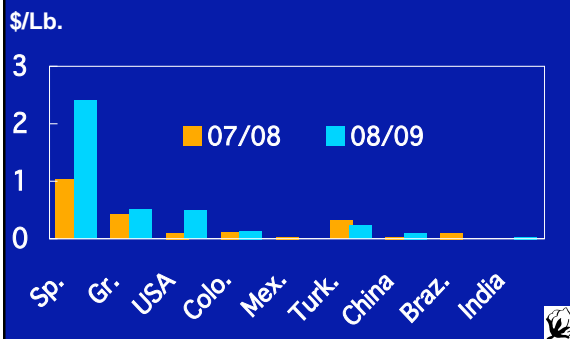
### Cotton's Share of World Textile Fiber Use



### DIRECT ASSISTANCE TO PRODUCTION: WORLD



### DIRECT GOVERNMENT ASSISTANCE TO COTTON



### DIRECT GOVERNMENT ASSISTANCE TO COTTON

