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COTTON :
Review of the World Situation

International
Cotton
Advisory
Committee

Volume 69 - Number 2
November-December 2015

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ICAC

SUPPLY AND DISTRIBUTION OF COTTON

December 1, 2015

Seasons begin on August 1

	2010/11	2011/12	2012/13	2013/14 Est.	2014/15 Est.	2015/16 Proj.
	Million Metric Tons					
BEGINNING STOCKS						
WORLD TOTAL	**9.362**	**10.222**	**15.258**	**18.022**	**20.08**	**21.92**
CHINA	2.688	2.087	6.181	9.607	12.09	12.85
USA	0.642	0.566	0.729	0.903	0.65	0.98
PRODUCTION						
WORLD TOTAL	**25.453**	**27.844**	**26.702**	**26.268**	**26.18**	**23.11**
INDIA	5.865	6.239	6.205	6.770	6.51	6.27
CHINA	6.400	7.400	7.300	6.929	6.48	5.26
USA	3.942	3.391	3.770	2.811	3.55	2.90
PAKISTAN	1.948	2.311	2.002	2.076	2.31	1.90
BRAZIL	1.960	1.877	1.310	1.734	1.55	1.46
UZBEKISTAN	0.910	0.880	1.000	0.940	0.89	0.86
OTHERS	4.429	5.746	5.115	5.009	4.90	4.47
CONSUMPTION						
WORLD TOTAL	**24.611**	**22.782**	**23.559**	**23.884**	**24.24**	**24.37**
CHINA	9.580	8.635	8.290	7.517	7.52	7.33
INDIA	4.472	4.231	4.762	5.186	5.36	5.52
PAKISTAN	2.170	2.121	2.216	2.476	2.50	2.25
EAST ASIA	1.833	1.780	2.139	2.312	2.53	2.74
EUROPE & TURKEY	1.550	1.498	1.565	1.615	1.58	1.65
BRAZIL	0.958	0.897	0.910	0.862	0.80	0.80
USA	0.849	0.718	0.762	0.773	0.78	0.81
CIS	0.577	0.545	0.581	0.614	0.60	0.60
OTHERS	2.621	2.357	2.335	2.529	2.57	2.69
EXPORTS						
WORLD TOTAL	**7.690**	**9.828**	**9.986**	**8.993**	**7.71**	**7.35**
USA	3.130	2.526	2.836	2.293	2.45	2.23
INDIA	1.085	2.159	1.685	2.014	0.91	1.01
AUSTRALIA	0.545	1.010	1.305	1.037	0.52	0.47
BRAZIL	0.435	1.043	0.938	0.485	0.85	0.75
CFA ZONE	0.476	0.597	0.829	0.978	0.87	1.03
UZBEKISTAN	0.600	0.550	0.653	0.650	0.59	0.53
IMPORTS						
WORLD TOTAL	**7.749**	**9.784**	**9.606**	**8.670**	**7.60**	**7.35**
CHINA	2.609	5.342	4.426	3.075	1.80	1.21
EAST ASIA	1.826	1.997	2.355	2.355	2.63	2.79
EUROPE & TURKEY	0.973	0.725	0.833	1.082	1.01	1.01
BANGLADESH	0.843	0.680	0.631	0.967	0.96	1.04
PAKISTAN	0.314	0.190	0.411	0.247	0.20	0.25
TRADE IMBALANCE 1/	**0.058**	**-0.044**	**-0.380**	**-0.323**	**-0.11**	**0.00**
STOCKS ADJUSTMENT 2/	**-0.041**	**0.018**	**0.001**	**0.000**	**0.00**	**0.00**
ENDING STOCKS						
WORLD TOTAL	**10.222**	**15.258**	**18.022**	**20.083**	**21.92**	**20.65**
CHINA	2.087	6.181	9.607	12.088	12.85	11.98
USA	0.566	0.729	0.903	0.651	0.98	0.85
ENDING STOCKS/MILL USE (%)						
WORLD-LESS-CHINA 3/	**54**	**64**	**55**	**49**	**54**	**51**
CHINA 4/	**22**	**72**	**116**	**161**	**171**	**164**
COTLOOK A INDEX 5/	**164**	**100**	**88**	**91**	**71**	

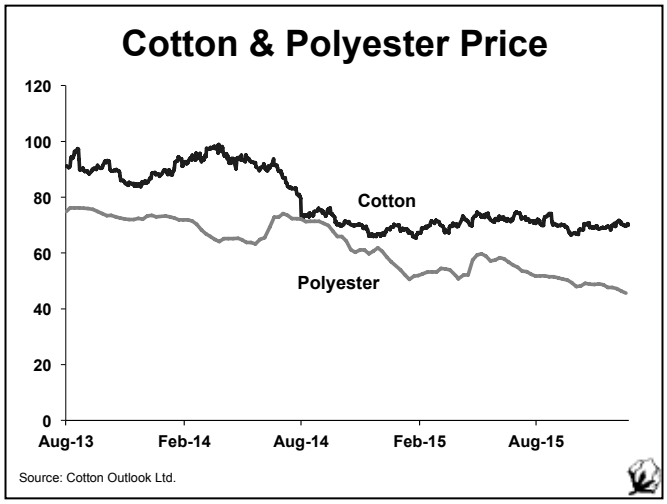
1/ The inclusion of linters and waste, changes in weight during transit, differences in reporting periods and measurement error account for differences between world imports and exports.

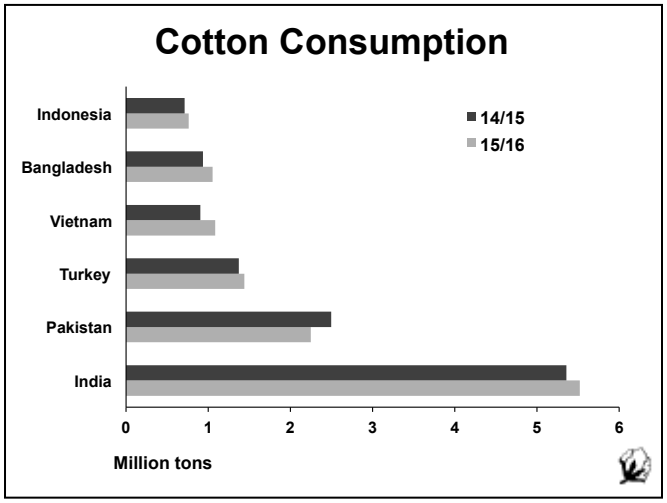
2/ Difference between calculated stocks and actual; amounts for forward seasons are anticipated.

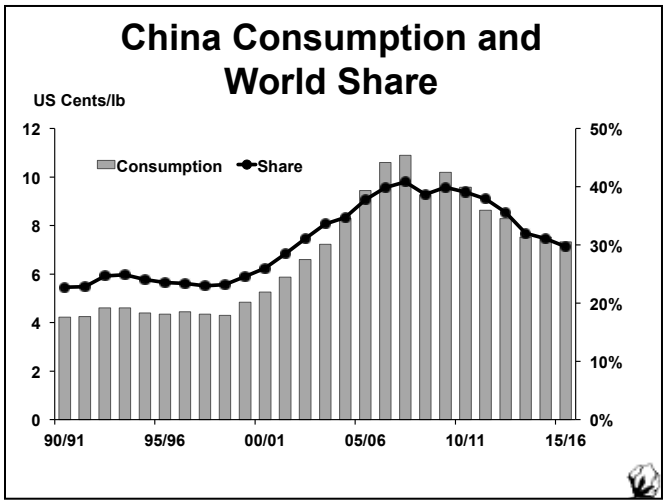
SUMMARY OF THE OUTLOOK FOR COTTON

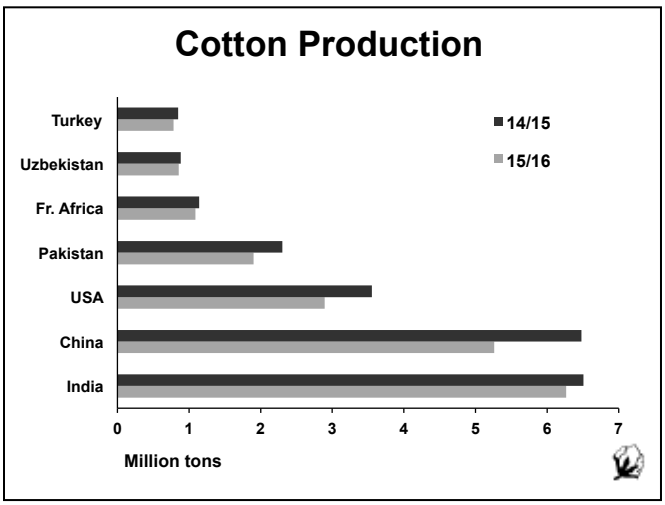
Growth in World Cotton Consumption Slows

World cotton consumption has been revised downward from initial projections to 24.4 million tons, up less than 1% from 2014/15. In its October 2015 report, the International Monetary Fund lowered its forecast for world economic growth in 2015 to 3.1%. The narrowing of the gap between polyester prices and cotton prices at the start of 2014/15 and falling domestic prices in China, was expected to stop the downward trend in mill use since 2010/11. Instead, cotton consumption in China remained unchanged from 2013/14 at 7.5 million tons. After the latest revision, mill use in China is now forecast at 7.3 million tons in 2015/16, down 3% from the previous season. As China's spinning sector continues to decline, mill use in Asia has grown. India, the world's second largest consumer of cotton lint may see mill use rise by 3% to reach 5.5 million tons in 2015/16. However, Pakistan, which had in previous years benefited from the growing demand for cotton yarn in China, is expected to see mill use decrease this season by 10% to 2.2 million tons. In addition to reduced demand from China, an ongoing energy crisis, high energy costs, and high taxes that greatly add to the cost of production have caused many mills to reduce operations, and in some cases to shut down entirely. Turkey's consumption is projected to increase by 5% to 1.4 million tons, due in part to expanding private consumption in the EU and political stability in Turkey after its most recent elections. Lower production costs and favorable government policies for the textile sectors in Bangladesh and Vietnam will encourage consumption growth in these countries. Consumption in Bangladesh is forecast to









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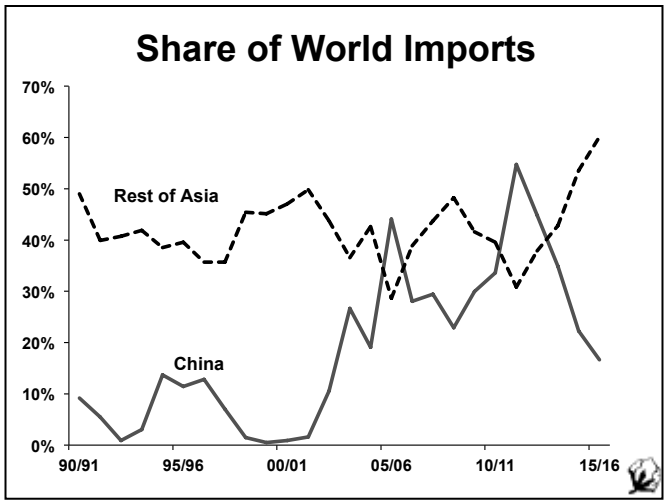
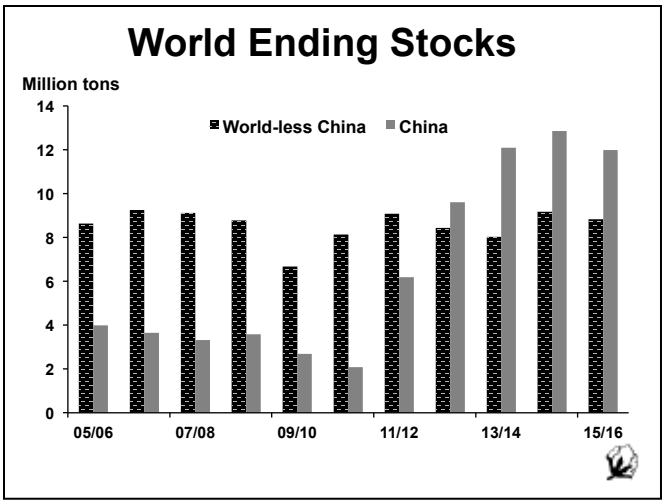




rise by 10% to just over 1 million tons while in Vietnam, up 20% to 1.1 million tons.

World cotton production is forecast to fall by 12% to 23.1 million tons, which is 1.3 million tons lower than projected demand in 2015/16. Decreases are expected in all five top producing countries. India's production may decrease by 4% to 6.3 million tons due to reduced plantings and pest problems. China is in its fourth consecutive season of declining production, and its volume in 2015/16 is projected down 19% to 5.3 million tons. Reduced plantings, coupled with lower yields in some areas due to unfavorable weather and shortages in irrigation water, contributed to the decline. In the United States, a 13% reduction in harvested area and lower yields, due in part to excessive rains in autumn, are expected to cause production to fall by 18% to 2.9 million tons. Production in Pakistan is forecast to reach around 1.9 million tons in 2015/16, making it the first season since 2010/11 with total production below 2 million tons. Lackluster domestic demand and delays in the soybean planting are likely to lead to a contraction in planted cotton area in Brazil. Production in Brazil is projected to decease by 6% to 1.5 million tons.

World cotton imports are forecast to decline by 3% to 7.4 million tons in 2015/16, which would constitute the fourth consecutive season in which import volume declined after peaking at 9.8 million tons in 2011/12. China's imports are expected to shrink by 33% to 1.2 million tons, as import quotas are limited in 2015 and will likely continue to be in 2016. Imports by Vietnam during the first two months of 2015/16 are up 63% from the same period last season and may reach 1.1 million tons by the end of the season. Imports by Bangladesh are projected up 8% to just over 1 million tons and by Indonesia, up 6% to 782,000 tons. Turkey's imports may reach 809,000 tons, up 1% from 2014/15. Despite declining mill use, Pakistan's imports may increase by 27% to 251,000 tons due to a significantly smaller domestic crop this season.

The reduced volume of production in the United States is likely to be accompanied by a slight increase in consumption, so exports from the United States are forecast to decrease by 9% to 2.2 million tons. India's exports are projected to increase by 10% to just over 1 million tons. Weak domestic demand has led more Brazilian farmers to seek the international market, but exports in 2015/16 are likely to decrease to 750,000 tons due to a smaller crop.

World ending stocks are expected to fall by 6% to 20.7 million tons, which represents about 85% of the volume needed for world mill use in 2015/16. Stocks in China are projected to be just under 12 million tons at the end of 2015/16, while stocks outside of China are forecast down by 4% to 8.7 million tons.

WHY COTTON HEDGERS NEED A GLOBAL CONTRACT

By Ben Jackson, President of ICE Futures U.S., Intercontinental Exchange, Inc.

Cotton has had a long-standing spot at the center of the global textiles industry, but the last decade has seen a pronounced shift in the commodity's production and exportation. In 2003 and 2004, the U.S. accounted for 19% of the world's cotton production and 41% of global cotton exports. Just ten years later, in 2013 and 2014, the U.S. accounted for 11% of world cotton production and 27% of the product's exports -- a 42% and 34% drop respectively.

For decades, the ICE Cotton No. 2 futures contract served as the primary hedging tool for the U.S. cotton industry. However, as regional policy changes, weather conditions and global competition continued to change the composition of the cotton market, it became clear that a global contract was needed to enhance the market's ability to price in response to the changing environment.

Adjusting to an Evolving Market

Knowing the market was transforming, in December 2013, the ICE Futures U.S. team stepped up conversations with the cotton trade about the creation of a new contract that would track the world cotton market. Our goal at ICE was to develop a contract that would meet the risk management needs of a global audience of cotton producers, merchants, spinners and mills.

In collaboration with the cotton trade, market participants and major industry groups such as American Cotton Shippers Association (ACSA) and International Cotton Association (ICA), we carefully reviewed the historical shifting patterns and initiated an in-depth analysis of the current global cotton market.

As a result of the research initiatives and discussions, we concluded that:

- A contract with multiple origin and delivery points was needed to enhance the market's ability to price for changes in the cotton market.
- The World Cotton contract would need to complement the highly liquid benchmark Cotton No. 2, which provides a regional hedging mechanism in the U.S.

Major Milestones in the Creation of a World Cotton Contract

At ICE, we have a history of working with customers and global regulators to overcome hurdles and adjust to evolving market changes – whether that means transitioning the European gasoil market to a new contract that reflects lower sulfur requirements or adding a world cotton contract to benchmark global cotton prices. In the case of world cotton, our group faced two major hurdles in creating the contract: The U.S. Cotton Futures Act and Malaysian Import Laws.

U.S. Cotton Futures Act

The U.S. Cotton Futures Act applies to any physically-delivered cotton futures contract listed on a U.S. exchange. Previous versions of the Act required that the USDA grade all cotton delivered on U.S. cotton futures contracts, with no other graders permitted, and that each bale delivered be classed.

The Solution: Since a 100% classing requirement would impose significant costs on would-be deliverers and other graders would be required for a world contract, we worked with U.S. legislators to pass a bill to modify the U.S. Cotton Futures Act to meet the needs of the changing marketplace and enable us to list the world cotton contract on ICE Futures U.S.

Malaysian Import Laws

In January of 2015, Malaysia implemented a new import regime. In light of the new import rules, we worked with market participants to confirm how the regime would apply to a world contract's origins and to assess the viability of Malaysia as a delivery point.

The Solution: As a result of our collaboration with customers and analysis of new Malaysian import laws, we were able to maintain delivery points in Malaysia and add to additional delivery locations at ports in Taiwan.

The Result: ICE World Cotton

The result of our collaborative efforts with the cotton trade, American Cotton Shippers Association (ACSA) and International Cotton Association (ICA) is the ICE World Cotton Contract, which launched on November 2, 2015 and will have its first delivery month in May 2016. Most key terms of the new World Cotton contract are identical to the terms of the No. 2 contract: price quote (US cents per pound), contract months (March, May, July, October and December), trading hours and settlement at expiration (physical delivery in exchange-licensed warehouses). The contract size of the new contract is slightly larger, at 55,000 pounds.

The key differences between the new World Cotton contract and the No. 2 are the par quality, deliverable origins and delivery locations.

Quality

The par quality for the new World Cotton contract is Color 31, Leaf 3, Staple 36, Strength 27 gpt and Mic 3.5 to 4.9. These color, leaf, staple and strength provisions are all higher than those of the No. 2 contract. Minimum deliverable staple for the World Cotton contract, which is at 35, is also higher.

Origins

The World Cotton contract will allow delivery of nine origins, which collectively represent 73% of world cotton exports: the U.S., Australia, Brazil, India, Benin, Burkina Faso, Cameroon, Ivory Coast and Mali. The U.S. is the par origin for the contract; delivery of each other origin will carry a premium or discount (which is subject to change on a fixed schedule each year).

Delivery Locations

The World Cotton contract will allow delivery in 12 locations in four countries: Memphis, Greenville, Dallas/Ft. Worth, Houston and Galveston in the U.S.; Brisbane, Melbourne and Sydney in Australia; Port Klang and Tanjung Pelepas in Malaysia; and Port Keelung and Port Kaoshiung in Taiwan. The four Malaysian and Taiwan locations are deliverable at par, and delivery in any of the U.S. and in any of the Australian delivery points will be subject to a U.S. or Australian discount (which is also subject to change on a fixed schedule each year).

Launching this new contract was a logical step in our history of providing solutions to cotton market participants, which dates back to the establishment of the New York Cotton Exchange in the late 1800s. Our ability to evolve with the changing needs of the cotton trade for over 100 years has helped us to remain the home for cotton markets and we will continue to listen to the needs of our customers so we can be here for the next 100.

More information can be found at: www.theice.com/worldcotton including additional detail on the origin and delivery location differentials.

Intercontinental Exchange operates the leading network of regulated exchanges and clearing houses. ICE's futures exchanges and clearing houses serve global commodity and financial markets, providing risk management and capital efficiency. theice.com

A RETURN OF EL NIÑO MAY AFFECT COTTON YIELDS

By Rebecca Pandolph, ICAC

Near the end of each calendar year ocean surface temperatures rise along the coasts of Ecuador and northern Peru. Local residents referred to this seasonal warming as "El Niño" (meaning "The Child" in Spanish) due to its appearance around the Christmas season. However, every two to seven years a much stronger warming appears, which is often accompanied by beneficial rainfall in the coastal regions of these two countries. Subsequently, the term "El Niño" evolved to be used in reference to these major warming events that often extended beyond the coastal areas of Ecuador and Peru to the international dateline. In addition to the unusual warming of sea surface temperatures, large-scale fluctuations in air pressure (termed the "Southern Oscillation") are tied to the warming, causing the normally easterly trade winds to become weaker or even reverse course. Since 1950, 21 El Niño events,[1] of varying intensity, have occurred. This is roughly once every three years, with the most intense event on record beginning in April 1997. This year, oceanic conditions

1) Based on the Oceanic Niño Index with events defined as 5 consecutive overlapping 3-month periods at or above the +.5^{0}C anomaly http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/ensoyears.shtml.

support the forecasts of a continued evolution toward El Niño reaching full strength this month.

El Niño is a disruption of the ocean-atmosphere system in the Tropical Pacific with important consequences for weather and climate around the globe, and which can impact agricultural crops. The event begins with large-scale warming of sea surfaces usually starting in the middle of the calendar year, which also result in air pressure fluctuations causing East-West movement of air masses between the Pacific and Indo-Australian areas. While the warm episode has its most pronounced effect on the tropical Pacific and nearby regions, its reach is worldwide, causing anomalous and sometimes destructive weather conditions. During El Niño episodes the normal patterns of tropical precipitation and atmospheric circulation become disrupted. On the eastern side of the Pacific Ocean, the hot ocean surface temperature causes the air to rise and subsequently cool. The cooling of the air often produces rain, particularly along the Gulf Coast of the United States, the west coast of tropical South America, southern Brazil and central Argentina. Storms also tend to be more vigorous in the Gulf of Mexico and along the southeast coast of the United States, resulting in wetter-than-normal conditions in that region. On the western side of the Pacific Ocean, the ocean surface tends to be cooler, resulting in less rising air and less rain. In countries on the western side of the Pacific, El Niño episodes are associated with warm and dry conditions with lower than average rainfall. This area includes Indonesia, Malaysia, Philippines and the eastern inland areas of Australia. Drier than normal conditions are also observed over southeastern Africa and northern Brazil during the northern winter season. During the northern summer season, Indian monsoon rainfall tends to be lower than normal, especially in northwest India. While these weather effects tend to accompany El Niño events, the actual conditions vary according to the strength and timing of the event. Other factors such as the Indian Ocean Dipole or North Atlantic Oscillation can also affect precipitation and temperature patterns.

Given their impact on temperature and rainfall patterns in different parts of the world, El Niño events are of significance to cotton production. Areas that tend to receive less rainfall than usual in the years during which an El Niño starts include most of India, Eastern Australia, Central America, the northeastern coast of South America and Southern Africa. In total, the areas generally affected by lower rainfall and higher temperatures during El Niño years account for approximately 6.1 million tons of cotton production in 2015/16, with India and Australia accounting for some 5.8 million tons. Areas that tend to receive more rainfall than normal during an El Niño year include Texas and California in the United States, Ecuador, Southern Brazil, Paraguay, Argentina, Tanzania and Uganda. 2015/16 production in the above-average rainfall regions is projected at around 3.1million tons.

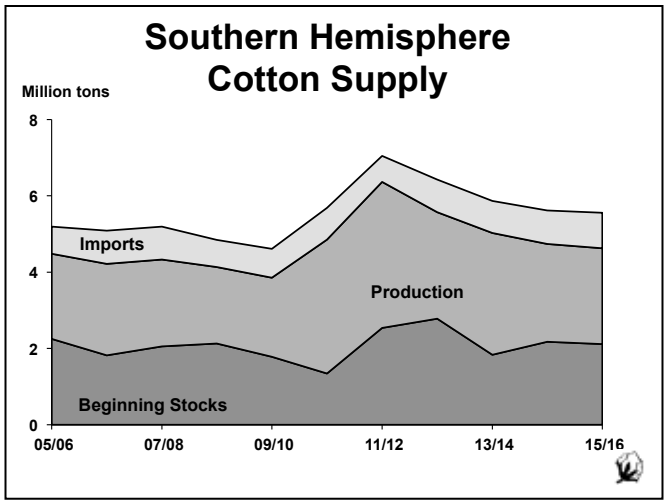
At this point, the strength and the potential effect of the forthcoming El Niño on cotton yields remain uncertain. Changes in yields result from the combination of water supply and temperature. Irrigated cotton areas are obviously less affected than rainfed areas by abnormal precipitations and yield can actually benefit from higher-than-normal temperatures. Excessive rainfall can be detrimental to the output and or to the quality of lint or cause losses in area if flooding occurs.

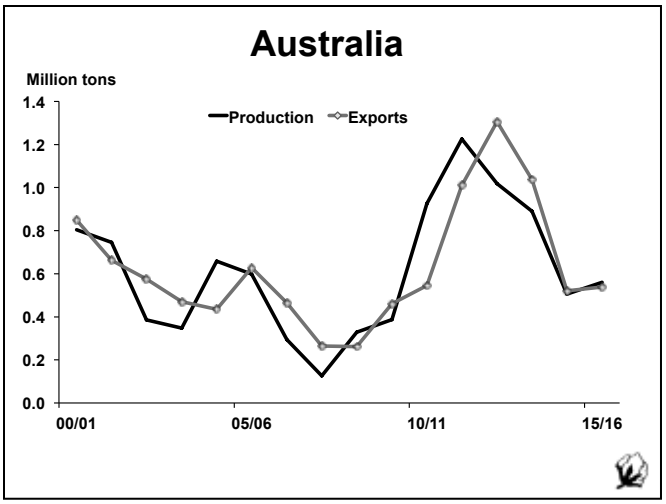
SOUTHERN HEMISPHERE COTTON PRODUCTION IN 2015/16

By Rebecca Pandolph, ICAC

Cotton plantings for the Southern Hemisphere in 2015/16 season started in September 2015 and will continue through the start of 2016. Production in the Southern Hemisphere usually accounts for 8 to 10% of total world production. Furthermore, the sowing season usually lags a few months behind the Northern Hemisphere so that markets have a much better sense of the size of the world cotton crop and the direction of international cotton prices during the current season by the time sowing starts in the Southern Hemisphere. This allows producers in this part of the world to adjust plantings to changes in the market. While area in the Northern Hemisphere is responsive to world cotton prices during the previous season, area in the Southern Hemisphere tends to be more responsive to prices at the end of the previous season, when the crop is marketed, and the start of the current season. International cotton prices as measured by the Cotlook A Index averaged 71 cts/lb during 2014/15. For the first four months of 2015/16, international prices have averaged 70 cts/lb, and are projected to remain at this level over the rest of the season. While these prices are in line with the long-term average price for cotton, rising production costs around the world make lower prices less viable for many growers. In the last ten years, the world average net cost to produce one kilogram of cotton lint has increased by 83% to US$1.5/kg (US$0.68/lb), which increase has been mainly caused by rising costs of inputs, labor for weeding and harvesting, and ginning.

While international prices can have a significant impact, government policies and the opportunity cost to grow competing crops also influence farmers' planting decisions. Despite low international prices, growers in the Southern Hemisphere are expected to increase planted area by 1% to





2.9 million hectares. Increases in Australia and some countries in Africa will offset losses in South America. After reaching a record yield of 963 kg/ha in 2013/14, yield may decline by 3% to 868 kg/ha, but will remain above the 10-year average of 830 kg/ha. This is due in large part to the declines in the average yield in Australia as well as some of the smaller producing countries in the Southern Hemisphere. Southern Hemisphere production in 2015/16 is projected down 2% to 2.5 million tons.

Production Trends for the Largest Producers

Australia

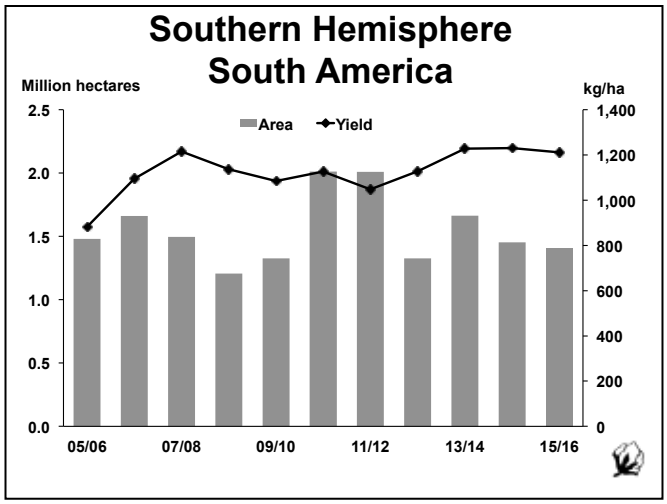
Cotton is planted on the eastern side of Australia, in the states of Queensland and New South Wales, and sowing generally starts in September and runs through November. Around 99% of Australia's production is exported, nearly all of which to Asia. Cotton area in New South Wales has expanded further south close to the border of the southeastern state of Victoria due to new cotton varieties, agronomic practices and favorable weather and market conditions. High average yields allow farmers in Australia to remain profitable even when prices fall, as has been the case this season. Instead, water availability tends to have a more significant impact on cotton area. Many growers in Australia rely on a mix of irrigation and rain to grow cotton. From late 2006 until 2011, Australia's cotton belt suffered from drought conditions, and area, impacted by both drought and low world prices in autumn 2007, reached a record low of 63,000 hectares in 2007/08. Drought conditions ended in 2012, and Australia achieved record average yield of 2,270kg/ha in 2012/13, producing just over one million tons despite a 26% reduction in area from the previous season. In 2013/14, the area under cotton was limited to irrigated land, due to dry weather and low soil moisture, and accordingly contracted by 11% to 392,000 hectares. However, rainfall later in the season boosted irrigation levels, and yields again reached 2,270kg/ha, resulting in 890,000 tons of production. Dry conditions during planting, reduced levels of water for irrigation, and low prices led to a 50% drop in cotton area to 197,000 hectares in 2014/15. However, yield improved 13% to a record 2,563 kg/ha due to the fact that nearly all cotton being planted was for higher-yielding irrigated cotton. With higher yields, the reduction in total cotton production was limited to 43%, resulting in a total volume of 505,000 tons in 2014/15.

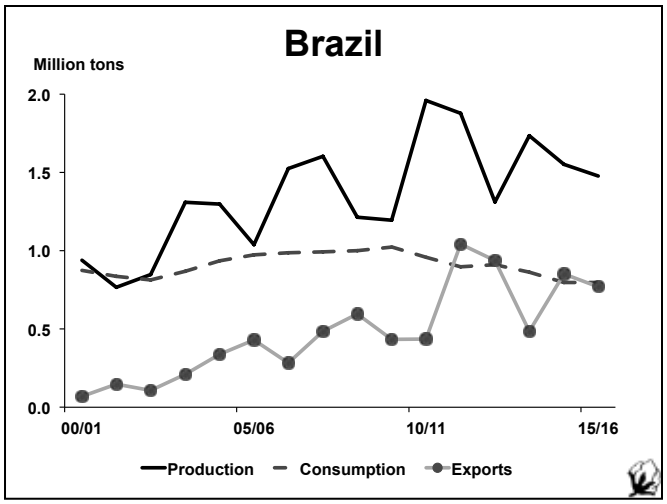
At the end of August 2015, irrigation water levels were at 37% of capacity, which is similar to the supply at the same time last year and just below the 10-year average of 40%. Record yields achieved in 2014/15, sufficient rainfall during the planting window, and expectation of better returns compared to competing crops like sorghum and soybeans encouraged farmers to plant cotton in 2015/16 with significant increases in dryland area compared to the previous three seasons. Total cotton area in 2015/16 is forecast up 52% to 300,000 hectares. Cotton area in New South Wales is estimated at 174,000 hectares with nearly 30% planted on dryland area. New South Wales' cotton area represents an increase of 40% from 2014/15 and accounts for 58% of total cotton area in Australia. Queensland's cotton area is estimated at 126,000 hectares, an increase of 72% from 2014/15 and 42% of total cotton area. Over 40% of cotton area in Queensland was planted in dryland areas. The average yield in Australia is forecast to decline by 27% to 1,867 due to the significant increase in dryland area, representing around 33% of total area this season. Total cotton production is projected to increase by 11% to 560,000 tons.

Nearly all of Australia's crop is exported, and around 96% of its production in 2015/16, 538,000 tons, is forecast to be exported. In 204/15, China was the main destination for Australia's crop, importing around 50% of the crop. Vietnam accounted for 12% of Australia's exports in 2014/15 while Indonesia accounted for 10%. Exports through October 2015 indicate that these three countries will continue to be the main destinations for Australian exports.

South America

Most production in South America occurs in the Southern Hemisphere, except for Venezuela and parts of Brazil and





Colombia. Production reached a record of 2.3 million tons on an area of over two million hectares in 2010/11, when many growers in South America with a later planting date than the Northern Hemisphere were able to plant more cotton in response to the spike in prices. Production fell to 2.1 million tons in the following season due to lower yields, while area remained stable given the high prices. Due to the relatively low prices at planting time in the Southern Hemisphere in 2012, area fell by 34% to 1.3 million hectares, before recovering by 25% in 2013/14 to 1.7 million hectares as prices rebounded. Low international cotton prices during planting in 2014/15 caused area in the region to contract by 13% to 1.5 million hectares, and production is forecast to rise by 12% to 1.8 million tons. Continued low prices of cotton and rising production costs are expected to cause cotton area in the region to decrease by 3% to 1.4 million hectares. Assuming a 2% decline in yield to 1,211 kg/ha, production is projected to fall by 5% to 1.7 million tons.

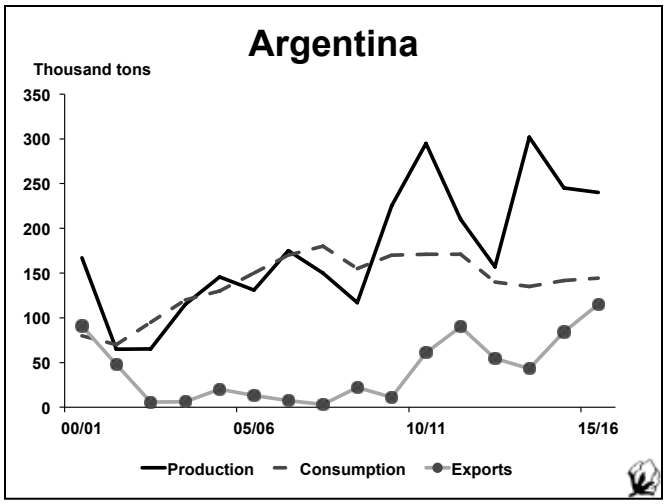
Brazil

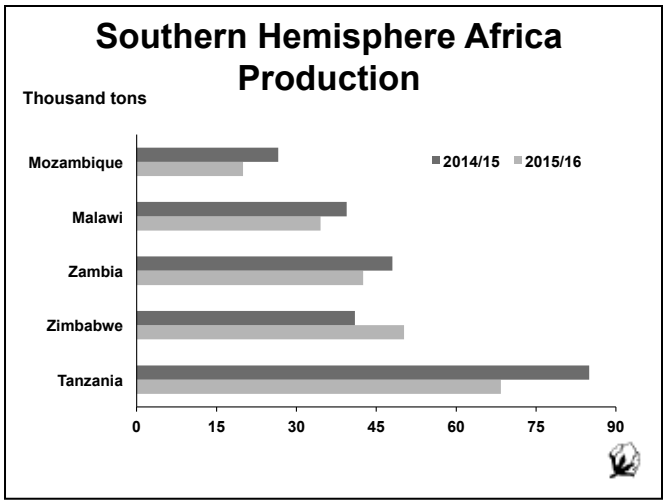
Brazil is split between the Northern and Southern Hemispheres, with around 96% of production occurring in the Southern Hemisphere in recent seasons. Area in Southern Hemisphere Brazil reached 950,000 hectares in 2014/15, and production reached around 1.5 million tons, down by 11% from the previous season. Brazil's cotton area in the Southern Hemisphere fell by 12% to 950,000 hectares in 2014/15, primarily due to the large drop in international cotton prices at the time of planting. The depreciation of the Brazilian real against the U.S. dollar has increased the cost of imported inputs and also financing. In addition to higher costs, continued low prices this season are expected to cause the cotton area in Southern Hemisphere Brazil to decrease by 4% to 908,000 hectares, accounting for 95% of total cotton area in Brazil. In Mato Grosso, cotton is expected to be sown on around 574,000 hectares, which represents 63% of expected total area sown in Southern Hemisphere Brazil. Cotton area in Bahia is forecast at 248,000 hectares, making it the second largest. The average yield for Southern Hemisphere Brazil is expected to remain stable at 1,555 kg/ha. As a result, total production is projected to decrease by 5% to just under 1.5 million tons. Production in Mato Gross is forecast at 905,000 tons, down by 2% from 2014/15, while production in Bahia is down by 13% down to 371,000 tons.

Except for a 1% increase in 2012/13, Brazil's spinning industry has declined in each season since 2010/11. In addition to high energy and labor costs, financing difficulties and the general downturn in the economy have also negatively impacted the spinning sector this season. However, the high cost of imported textiles may help offset some of the decline. In 2015/16, mill use in Brazil is forecast to decrease by 2% to 781,000 tons. In 2015/16, due to the smaller surplus, exports from Brazil are expected to decrease by 8% to 786,000 tons, accounting for 53% of the crop. Indonesia, China, Vietnam, and South Korea were the top four destinations for Brazilian cotton exports, accounting for 65% of exports in 2014/15. In 2015/16, exports through November 2015 show a similar pattern, though Vietnam's share of Brazil's exports has increased to 20%, up from 13% during the same period last season. On the other hand, China's share of Brazilian exports has fallen to 16% for the period August through November 2015, down from 25% for the same period in 2014.

Argentina

While consumption has grown in Argentina, its production volume is sufficient to make the country a net exporter of cotton in most years. However, this also makes the Argentinian crop more sensitive to international prices. The majority of cotton in Argentina is grown in the rainfed upland provinces, including Chaco and Formosa, and weather during planting has been largely favorable with adequate rain and warm temperatures. However, rising costs of production and improved prices for soybeans may discourage farmers from expanding cotton area. In 2015/16, cotton area in Argentina is expected to decrease by 2% to 447,000 hectares. Yields have improved in the last three seasons, averaging around 523 kg/ha as many farmers have switched to planting cotton with greater density with yield in 2015/16 expected to remain unchanged

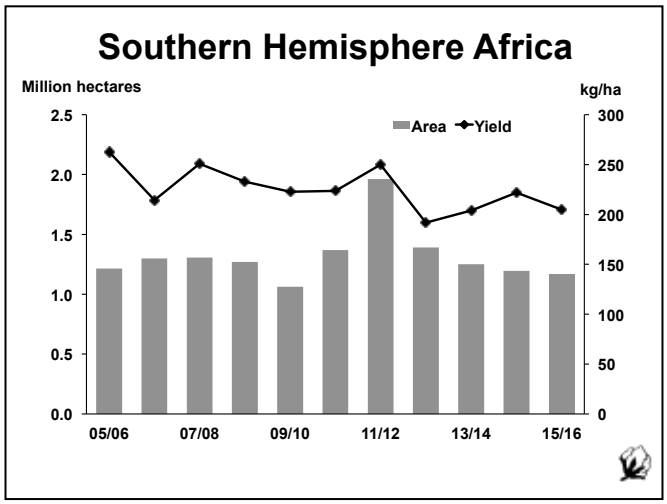




from last season at 537 kg/ha. Total production is projected down by 2% to 240,000 tons, while exports may increase by 37% to 115,000 tons due to expectations of a devaluation in the Argentinian currency making exports more competitive.

Southern Hemisphere Africa

Aside from a few seasons in the mid-1990s when area fell below 1 million hectares, area in Southern Hemisphere Africa has ranged between one and two million hectares, averaging around 1.2 million hectares. Yields in the region have remained low, averaging 239 kg/ha over the last twenty years, as most of the region's farmers do not use irrigation and securing adequate quantities of quality inputs can be difficult. While significant variations may occur from season to season, overall production for Southern Hemisphere Africa has been relatively stable. Neither area nor yield has changed much, averaging around 300,000 tons per season. After reaching a record in 2011/12, area has contracted in each of the subsequent seasons and is expected to fall by 3% to 1.2 million hectares in 2015/16. Many growers may be less enthusiastic to plant cotton this season, particularly if they have the option to cultivate a more lucrative alternative crop.



After two seasons of improvement, the average yield for the reason is expected to decline by 4% to 197 kg/ha. As a result, production is forecast to fall by 7% to 220,000 tons. Many countries in this region have implemented contract farming systems, in which ginners and merchants supply inputs, such as seeds and fertilizers, to farmers as a loan. These loans are supposed to be repaid at the end of the season through sales of cottonseed to the ginner that supplied the inputs. However, the implementation varies by country, which can also affect the price paid to producers. Furthermore, lack of repayment has also made some ginners more reluctant to provide quality inputs or led them provide less than adequate quantities of the input. While these programs grant farmers greater access to inputs, the lack of adequate extension services means that the use of inputs does not necessarily follow best practices, so the impact on yields may be limited. Aside from Tanzania and South Africa, most of the producing countries in this region have little to no domestic consumption and instead, export the bulk of their crop. Given that production is smaller this season, exports for the region are likely to decrease by 7% to 183,000 tons.

Tanzania

While producer prices have increased in each season since 2012/13, expansion of the cotton area has been limited due to better prices for other cash crops and a limited supply of quality seed. A certified seed multiplication program has been established to help secure quality seed for future growing seasons. The planted area is projected to contract by 5% to 333,000 hectares. Below-average rainfall last season caused yield to decline by 4% to 186 kg/ha, but better weather this season may improve the average yield by 7% to 198 kg/ha. Production in 2015/16 is expected to remain stable at 66,000 tons. The depreciation of the Tanzanian shilling against the dollar over the last year has made exports more competitive and increased earnings. In 2015/16, exports are forecast to increase by 7% to 36,000 tons.

Zambia

Given that much of Zambia's production is exported, farmers respond to international market prices as well as prices for competing crops. Low international prices last season and this season have discouraged farmers from expanding plantings in 2015/16. However, the increase in the price of fertilizer has made competing crops less attractive and may offset some of the loss in area. The cotton area in Zambia is projected at 298,000 hectares, down 2% from 2014/15. Given that many farmers are likely to use little to no fertilizer and rains have been sparse thus far, yield is expected to suffer, declining by 10% to 143 kg/ha in 2015/16. As a result, production is forecast to decrease by 11% to 43,000 tons in 2015/16. In September 2015, with support from the Food and Agriculture Organization of the United Nations, Zambia held a national workshop to measure sustainability in cotton farming and to build consensus around the most relevant indicators, which stakeholders hope will help to improve yields in future crops. Around 2,000 tons, or about 4% of production, are consumed locally, leaving most of the crop available for export. Additionally, the depreciation of the Zambian kwacha will likely improve export earnings. In 2015/16, exports are projected up 1% to 40,000 tons. Cotton from Zambia tends to be exported to East Asia, India, and South Africa.

Zimbabwe

In Zimbabwe, nearly all cotton growers obtain inputs through contracts with ginners and merchants that belong to the Cotton Ginners Association. In 2014/15, there were nine registered ginneries from which farmers could obtain inputs and agricultural extension services. The input package provided to farmers is negotiated between the Cotton Ginners Association, farmer representatives, the Agricultural Marketing Authority and the Department of Agricultural Research and Extension Services. Despite the fact prices for competing crops are relatively more attractive than cotton this season, expectations that additional support for financing inputs will be available may lead to a 3% expansion in cotton area to 237,000 hectares. Better availability of inputs may see yields increase by 2% to 183 kg/ha, though still below the fiver-year average of 236 kg/ha. As a result, production is expected to grow by 6% to 43,000 tons. Numerous textile companies have closed down over the years and less than 10% of cotton produced is consumed locally, despite efforts by the government to revive its textile sector. In 2015/16, cotton mill use is expected to remain around 4,000 tons, leaving much of the crop available for export. After tobacco, cotton is the second largest agricultural export in terms of foreign currency earnings. In 2015/16, cotton exports are projected to decrease by 16% to 38,000 tons.

Malawi

Malawi extended contract farming to cotton for the first time last season and, despite low collection rates last year, will continue this season. Farmers that have entered contracts with ginners this season can expect to receive prices nearly double those last year from Cotton Ginners Africa Limited. As a result, cotton area in Malawi may expand by 3% to 150,000 hectares. This is still below the peak of 200,000 hectares in 2011/12, but much higher than the 15-year average of 89,000 hectares. Despite the increase in area, production may fall 12% to 35,000 tons as a result of a 15% reduction in the average yield to 230 kg/ha. Adverse weather from an El Niño event may offset the increased availability of inputs provided by ginneries under the contract scheme.

Mozambique

Cotton production in Mozambique reached a record of 61,000 tons in 2011/12, but has declined in each of the following seasons. In 2015/16, production is projected to fall by 25% to 20,000 tons. The energy sector (oil, natural gas, and coal) continues to attract some farmers out of the agricultural sector, including cotton, to work directly in these industries or on related infrastructure projects that may provide a more stable income than farming. In addition, the low prices observed last season discouraged farmers from planting cotton. As a result, area is projected to contract by 8% to 110,000 hectares. Given the significant impact pricing has on its cotton sector, Mozambique intends to implement a price setting and stabilization scheme as early as June 2016. Adverse weather and farming inefficiencies are likely to lower the national average yield by 18% to 181 kg/ha. No cotton is consumed locally, and the entire crop is instead exported. Exports in 2015/16, which include some of last season's crop, are forecast to decrease by 25% to 24,000 tons.

CORRELATION BETWEEN COTTON PRICES AND PRODUCTION OF COTTON IN PAKISTAN

By Dr Muhammad Ali Talpur[2], and Gul Hassan Sakhani[3]

Abstract

Cotton, the "White Gold", is an important cash crop of Pakistan and is the most important pillar of the economy. It contributes about 1.4% to GDP and 6.7% (Pakistan Economic Survey, 2015) to total value addition in agriculture. Cotton market prices always induced the grower to put more cotton area under seed cotton, resulting in production increases. Growers have been trying to capitalize on the cotton crop in order to achieve better yields. Sophisticated procedures, methods and pesticides were used which have resulted in higher costs of production. As the cost of production increased, the profit ratio of the cotton crop declined. Continuous decline in demand during the last three years has pushed cotton prices to the lowest profit margins for the grower. This paper aims to analyze the correlation between cotton prices and production of cotton in Pakistan. The general objective of the study is to determine how much price impacts the cotton grower's attitude to bring his cultivable area under cotton crop, ultimately resulting in increased production.

Key words: Domestic cotton prices, cotton area, cotton production, yield and inputs.

Research Methodology

The study mostly contains secondary data taken from books and journals. For analysis, different mathematical and statistical techniques have been utilized for valuable inferences.

Introduction

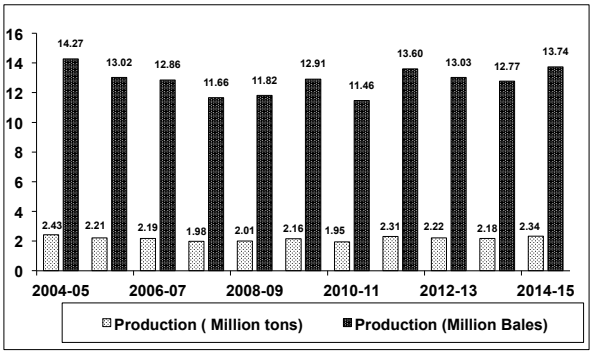
Cotton is an important crop for many developing countries. It is a most important pillar of Pakistan's economy. Cotton has been sown on an area of around 3 million hectares in the last few years and is grown by more than 1.6 million farmers. Punjab is the main cotton-producing region that accounts for 80% of total cotton area and 73% of total cotton production; Sindh represents about 20% of cotton area and about 26% of production. Pakistan is the 4th largest cotton producer, 3rd largest consumer of cotton lint and 2nd largest exporter (World Textile Demand, 2015), of cotton yarn in the world. Pakistan is advancing ahead in yield per hectare, especially in Sindh province. World yield indicates that Pakistan stands at 14th position in world. Cotton farming is the principle source of raw material for the textile industry, Pakistan's largest industry involving 40% of industrial labor. The cultivation of cotton also contributes to the production of edible oil, since cotton seed is an important source of oil. Cotton seed and its cakes are also used in feeding livestock.

Literature Review

Pakistan is the ancient home of cultivated cotton. The oldest of all cotton relics, excavated at Moen-jo-Daro in Sindh, bears testimony to the proficiency of the Indus civilization in the use of cotton as far back as 3,000 B.C. Historically cotton has been cultivated in the region for thousands of years. However, since independence of Pakistan in 1947, cotton had occupied an area of 1.236 million hectares. The sowing trend of cotton was been extended until the peak of 2.03 million hectares in 1974-75 (Cotton Handbook of Pakistan, PCCC). The planted area showed a tendency to increase over a long time, except in some years partly due to economic and natural factors. This phenomenal growth touched the peak level of 3.190 million hectares in 2010-11 (Cotistics, 2014). In subsequent years production has fallen due to a decline in planted area and in yield. Cotton also faces competition from other crops, especially sugarcane and maize. Rice also takes over some area from cotton when its price is high. Low cotton yields and low cotton prices compel growers to move to alternate crops. Output from an area depends upon the productivity of the land, cultural practices, dosage of inputs, use of pesticides, even while the weather continues to play a dominant role.

Cotton area witnessed a declining tendency till 2008/09, when it reached 2.82 million hectares from 3.19 million hectares in 2004/05. Growers switched to other competing crops because of higher input costs of cotton. Seed cotton prices in 2004/05 averaged Rs 868/40 kg or Rs 2,348 per 40 kgs of lint (46.15 cts/lb), increasing in the following five years by more than

Figure 1: Cotton Production Details During Last 10 Years



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3) Senior Scientific officer, Pakistan Central Cotton Committee, Ministry of Textile Industry, Multan, Pakistan

Table 1: Area, Production and Yield During Last 10 Years

Year	Area	Production		Yield
	(million hectares)	(million tons)	(million bales)	kg/hectare
2004/05	3.19	2.43	14.265	760
2005/06	3.1	2.21	13.019	714
2006/07	3.08	2.19	12.856	711
2007/08	3.05	1.98	11.655	649
2008/09	2.82	2.01	11.819	712
2009/10	3.08	2.16	12.914	713
2010/11	3.9	1.95	11.46	724
2011/12	2.94	2.31	13.595	815
2012/13	2.88	2.22	13.031	770
2013/14	2.81	2.18	12.769	774
2014/15	2.89	2.34	13.74	808

127% at Rs. 1,978/40 kg of seed cotton or Rs 5,300 per 40 kgs of lint (71.35 cts/lb) in 2009/10 (COTISTICS, 2011). The rise in prices impacted the health of growers, who switched over again to cotton, increasing the planted area to 3.10 and 3.19 million hectares in 2009/10 and 2010/11 respectively. Cotton production also increased to 2.16 million tons (12.913 million bales) in 2009/10.

Cotton production touched its lowest level at 1.948 million tons or 11.459 million bales in 2010/11 (Cotton Review, December/2011). Due to low production and increasing demand by the domestic industry, the prices of seed cotton remained at highest level ever recorded in the cotton history and averaged around Rs. 4,000/40 kg (127.72 cts/lb) in 2010/11. During that season, the growers earned a great amount of money, which is calculated at Rs. 87,834/acre. The price of seed cotton in the next year, i.e. 2011/12, declined by about 40% to Rs. 2400/40 kg (78.19 cts/lb). Total cost earned per acre was calculated at Rs. 59,598/acre, whereas the cost of production in the same year was recorded at Rs. 39,539/acre. The net profit earned by grower was around Rs. 20,000/acre. However, the average yield was recorded at 724 kg and 815 kg per hectare in 2010/11 and 2011/12 respectively (Cotton Review, November/2012). The higher prices of seed cotton in 2010/11 encouraged growers to bring more area under cotton cultivation and planted area increased to 3.190 million hectares. Whenever the farmers have received high prices they have used more inputs, resulting in high yields as in 2011/12 when yield was recorded at 815 kg/hectare. Due to increase of 13% in cost of production in following year, the planted area declined to 2.88 million hectares and the yield fell to 770 kg/hectare in 2012/13.

The factor of increased production costs affected production, which slumped to 13.031 million bales, as against 13.595 million bales in 2011/12. A nominal increase of around 11% in seed cotton prices during 2011/12 to 2013/14 against the increase of 12% in cost of production compelled growers again to switch over to sugarcane and maize.

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Table 2: Cost of Major Operations

S.NO	Major operation	2011/12	2012/13	2013/14	2014/15
		…….. Rs: per acre ……			
1	Land operations	3,576	4,199	4,595	4,992
2	Seed & sowing operations	2,779	2,936	3,028	3,603
3	Irrigation	3,102	3,531	3,716	4,088
4	Interculture	2,724	2,989	3,145	3,532
5	Plant protection	2,688	2,689	2,990	3,489
6	Fertilizer Incl.FYM	5,723	8,345	8,003	7,965
7	Land rent	11,667	11,667	12,334	15,000
8	Picking charges	3,778	4,250	4,722	5,839
9	Others	3,502	3,928	4,186	5,056
10	Gross cost	39,539	44,534	46,719	53,564
11	Cost of Production at Farm level	…… Rs: per 40 kg…….			
11.1	Including land rent	2,051	2,312	2,463	2,705
11.2	Excl: Land rent	1,433	1,693	1,773	1,932
12	Marketing expenses	35	35	35	40
13	Cost of Production at market/ginner	……..Rs: Per 40 kg…….			
13.1	IncludinglLand rent	2,086	2,347	2,598	2,745
13.2	Excl: land rent	1,468	1,728	1,808	1,972

Table 3: Area and production of cotton compared with competing crops in last ten years

Years	Cotton		Sugarcane		Maize	
	Area ('000 ha)	Production ('000 bales)	Area ('000 ha)	Production ('000 bales)	Area ('000 ha)	Production ('000 bales)
2004/05	3,193	14,265	966	47,244	982	2,797
2005/06	3,103	13,019	907	44,666	1,042	3,110
2006/07	3,075	12,856	1,029	54,742	1,017	3,088
2007/08	3,054	11,655	1,241	63,920	1,052	3,605
2008/09	2,820	11,819	1,029	50,045	1,052	3,593
2009/10	3,080	12,914	943	49,373	935	3,262
2010/11	3,190	11,560	988	55,309	974	3,707
2011/12	2,940	13,594	1,058	58,396	1,087	4,338
2012/13	2,878	13,030	1,129	63,750	1,060	4,220
2013/14	2,810	12,760	1,173	66.46	1,117	4,527
2014/15*	2,890	14,000*	-	-	-	-

*Provisional

Sources: i) PCCC's Cotistics
ii) National Food Security Resources
iii) Pakistan Bureau of Statistics

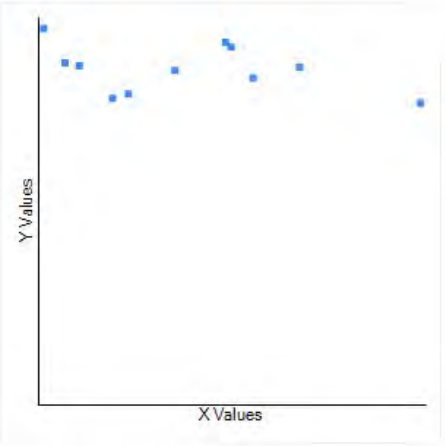
Table 4: Market prices of seed cotton, average price of yield per acre and cost of production

Year	Average yield	Average market price of seed cotton	Total price of average yield	Total average cost of production		Net profit
	kgs/ha	Rs. per 40 kgs	Rs. per acre	Rs. per 40 kgs	Rs. per acre	Rs. per acre
2010-11	724	3,997	87,834	-	-	-
2011-12	815	2,408	59,598	2,086	39,539	20,059
2012-13	770	2,632	61,590	2,347	44,534	17,056
2013-14	774	2,970	69,720	2,598	46,719	23,001
2014-15	808	2,990	73,329	2,745	53,564	19,765

Sources: i) provisional Agri Department
ii) Market reports
iii) API's cotton Policy Analysis

Analysis

X Values	Y Values
868	2.43
1049	2.21
1170	2.19
1450	1.98
1584	2.01
1978	2.16
4053	1.95
2451	2.31
2637	2.11
3029	2.18
2405	2.34



$X - M_x$	$Y - M_y$	$(X - M_x)^2$	$(Y - M_y)^2$	$(X - M_x)(Y - M_y)$
-1193.273	0.260	1423899.802	0.068	-310.251
-1012.273	0.040	1024696.074	0.002	-40.491
-891.273	0.020	794367.074	0.000	-17.825
-611.273	-0.190	373654.347	0.036	116.142
-477.273	-0.160	227789.256	0.026	76.364
-83.273	-0.010	6934.347	0.000	0.833
1991.727	-0.220	3966977.529	0.048	-438.180
389.727	0.140	151887.347	0.020	54.562
575.727	-0.060	331461.893	0.004	-34.544
967.727	0.010	936496.074	0.000	9.677
343.727	0.170	118148.438	0.029	58.434
Mx: 2061.273	My: 2.170	Sum: 9356312.182	Sum: 0.232	Sum: -525.280

Result Details & Calculation

X Values
Σ = 22674
Mean = 2061.273
$\Sigma(X - M_x)^2 = SS_x = 9356312.182$

Y Values
Σ = 23.87
Mean = 2.17
$\Sigma(Y - M_y)^2 = SS_y = 0.232$

X and Y Combined
N = 11
$\Sigma(X - M_x)(Y - M_y) = -525.28$

R Calculation
$r = \Sigma((X - M_y)(Y - M_x)) / \sqrt{((SS_x)(SS_y))}$

$r = -525.28 / \sqrt{((9356312.182)(0.232))} = -0.3565$

Meta Numerics (cross-check)
r = -0.3565

Key

X: X Values
Y: Y Values
M_x: Mean of X Values
M_y: Mean of Y Values
$X - M_x$ & $Y - M_y$: Deviation scores
$(X - M_x)^2$ & $(Y - M_y)^2$: Deviation Squared
$(X - M_x)(Y - M_y)$: Product of Deviation Scores

The value of R is -0.3565. Although technically a negative correlation, the relationship between your variables is only weak (*nb.* the nearer the value is to zero, the weaker the relationship).

2014/15 SUPPLY AND USE OF COTTON BY COUNTRY December 1, 2015

	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	1	1		0	0.14	0.14
CUBA	4	272	1	1	2	3		1	0.19	0.19
DOM. REP.					1	1		0	0.47	0.47
MEXICO	181	1,668	302	138	211	405	36	209	0.47	0.52
USA	3,783	939	3,553	651	3	778	2,449	980	0.30	1.26
N. America	**3,972**	**971**	**3,857**	**791**	**217**	**1,189**	**2,485**	**1,190**	**0.32**	**1.00**
EL SALVADOR				8	29	27		10	0.35	0.35
GUATEMALA				7	20	21		6	0.29	0.29
HONDURAS	0	319	0	0				0		
C. America	**2**	**514**	**1**	**16**	**49**	**49**	**0**	**16**	**0.33**	**0.33**
ARGENTINA	456	537	245	285	2	142	84	306	1.36	2.16
BOLIVIA	5	537	3	1	1	3		1	0.28	0.28
BRAZIL	994	1,561	1,551	1,239	5	797	851	1,147	0.70	1.44
CHILE				0	0	0		0	0.15	0.15
COLOMBIA	32	836	27	30	20	52	2	23	0.42	0.44
ECUADOR	1	440	1	2	12	13		1	0.10	0.10
PARAGUAY	12	567	7	9	1	8	3	6	0.53	0.70
PERU	36	792	29	17	54	82	1	15	0.18	0.19
URUGUAY				0	0	0		0	0.59	0.59
VENEZUELA	15	395	6	1	7	11		4	0.34	0.34
S. America	**1,551**	**1,204**	**1,867**	**1,583**	**103**	**1,109**	**942**	**1,503**	**0.73**	**1.36**
ALGERIA				1	6	5		2	0.31	0.31
EGYPT	158	714	113	63	68	133	55	56	0.30	0.42
MOROCCO				4	37	36		5	0.14	0.14
SUDAN	50	415	21	9		19	5	6	0.27	0.34
TUNISIA				3	13	13		3	0.21	0.21
N. Africa	**208**	**642**	**134**	**80**	**124**	**206**	**60**	**72**	**0.27**	**0.35**
BENIN	379	443	168	15		4	112	67	0.57	16.66
BURKINA FASO	644	469	302	60		4	201	156	0.76	39.09
CAMEROON	227	535	121	39		2	89	69	0.76	36.34
CENT. AFR. REP.	36	230	8	3			8	3	0.40	
CHAD	256	225	58	12		1	47	23	0.48	45.00
COTE D'IVOIRE	415	466	193	35		2	188	39	0.20	18.95
GUINEA	12	272	3	1			4	1	0.36	
MADAGASCAR				3				3		
MALI	570	408	233	69		3	175	124	0.70	41.36
NIGER	5	448	2	0		1	1	0	0.11	0.25
SENEGAL	31	375	12	4		1	11	4	0.34	5.16
TOGO	122	394	48	7			42	13	0.32	
F. Africa	**2,696**	**426**	**1,148**	**249**		**17**	**877**	**503**	**0.56**	**29.27**
ANGOLA	3	302	1	0		1	0	0	0.25	0.41
ETHIOPIA	129	314	40	3	15	45	1	12	0.26	0.27
GHANA	16	366	6	2	1	1	6	2	0.25	1.31
KENYA	38	184	7	1	0	7		2	0.24	0.24
MALAWI	146	271	39	26		3	39	24	0.56	7.90
MOZAMBIQUE	120	222	27	20			31	16	0.52	
NIGERIA	298	205	61	26	1	19	43	26	0.42	1.35
SOUTH AFRICA	15	1,141	18	8	17	22	9	12	0.39	0.54
TANZANIA	350	243	85	105		34	37	120	1.71	3.57
UGANDA	61	431	26	20		2	29	15	0.50	6.44
CONGO, DR				2	8	8		2	0.27	0.27
ZAMBIA	305	174	53	57		2	39	68	1.65	
ZIMBABWE	180	228	41	34		4	47	24	0.47	6.36
S. Africa	**1,684**	**243**	**409**	**311**	**63**	**172**	**283**	**328**	**0.72**	**1.90**
KAZAKHSTAN	129	679	55	45	0	11	44	45	0.82	4.00
KYRGYZSTAN	23	822	19	4	3	1	21	4	0.18	4.24
TAJIKISTAN	175	539	94	33		9	87	30	0.31	3.18
TURKMENISTAN	545	478	330	164		149	307	39	0.09	0.26
UZBEKISTAN	1,298	682	885	305	1	345	594	253	0.27	0.73
C. Asia	**2,170**	**637**	**1,383**	**551**	**4**	**515**	**1,052**	**371**	**1.67**	**0.72**

2014/15 SUPPLY & USE OF COTTON BY COUNTRY (cont'd) December 1, 2015

	AREA	YIELD	PROD	BEG STKS	IMPORTS	CONS	EXPORTS	END STKS	S/U *	S/MU **
	000 Ha	Kgs/Ha	000 Metric Tons						Ratio	Ratio
AUSTRIA				1	4	4	0	0	0.03	0.03
AZERBAIJAN	28	538	15	14		17	0	12	0.70	0.70
BELARUS				4	11	11		4	0.34	0.34
BELGIUM				2	13	8	5	2	0.14	0.23
BULGARIA	0	324	0	1	5	5	0	1	0.11	0.12
CZECH REP.				0	3	3	0	0	0.13	0.13
DENMARK					0	0				
ESTONIA										
FINLAND										
FRANCE				3	17	13	3	3	0.20	0.24
GERMANY				16	48	48	6	11	0.20	0.22
GREECE	275	997	274	49	3	19	254	53	0.20	2.81
HUNGARY				0	1	1		0	0.57	0.57
IRELAND				0	0	0		0	0.06	0.06
ITALY				6	53	48	2	8	0.16	0.16
LATVIA				0	0	0	0	0	0.52	1.00
LITHUANIA				0				0		
MOLDOVA				1	2	2		1	0.34	0.34
NETHERLANDS				0	5	5		0	0.10	
NORWAY										
POLAND				0	8	7		2	0.25	0.25
PORTUGAL				8	34	33		10	0.29	0.29
ROMANIA				0	1	1		0	0.05	0.05
RUSSIA	1	521	1	17	55	54	1	18	0.32	0.32
SLOVAK REP.										
SPAIN	80	918	73	19	3	5	70	20	0.27	3.70
SWEDEN				0				0		
SWITZERLAND				0	3	3	0	0	0.11	0.12
UKRAINE				0	2	2		0	0.19	0.19
UNITED KINGDOM				0	0	0		0	0.21	0.21
FORMER YUGOSLAVIA				1	6	6		1	0.23	0.23
Europe	**386**	**943**	**364**	**144**	**281**	**299**	**341**	**148**		**0.49**
Including EU-28	**355**	**979**	**348**	**106**	**200**	**202**	**341**	**111**	**0.20**	**0.55**
CHINA	4,310	1,503	6,480	12,088	1,804	7,517	4	12,850	1.71	1.71
TAIWAN				42	184	183		43	0.23	0.23
HONG KONG				35	1		3	33	12.65	
Sub total	**4,310**	**1,503**	**6,480**	**12,164**	**1,989**	**7,700**	**7**	**12,926**	**1.68**	**1.68**
AUSTRALIA	202	2,228	450	244	0	7	521	166	0.31	23.13
INDONESIA	9	603	5	86	735	711	2	114	0.16	0.16
JAPAN				16	66	65		17	0.26	0.26
KOREA, D.R.				1	5	5		1	0.24	0.24
KOREA, REP.				72	288	290	2	68	0.24	0.24
MALAYSIA				33	73	16	37	54	1.02	3.41
PHILIPPINES	0	569	0	2	18	16		4	0.26	0.26
SINGAPORE				0	0		0	0	0.20	
THAILAND	2	518	1	53	320	330		45	0.14	0.14
VIETNAM	12	465	6	83	941	903		127	0.14	0.14
E. Asia	**244**	**1,920**	**470**	**594**	**2,446**	**2,350**	**562**	**598**	**0.21**	**0.25**
AFGHANISTAN	45	414	19	16		4	16	14	0.66	3.15
BANGLADESH	40	675	27	194	964	937		248	0.26	0.26
INDIA	12,250	531	6,507	1,623	267	5,359	914	2,124	0.34	0.40
MYANMAR	299	650	195	99	11	201		104	0.52	0.52
PAKISTAN	2,840	812	2,305	864	198	2,497	102	768	0.30	0.31
SRI LANKA				0	2	2		0	0.11	0.11
S. Asia	**15,477**	**585**	**9,054**	**2,797**	**1,442**	**9,002**	**1,032**	**3,259**	**0.32**	**0.36**
IRAN	91	720	66	33	69	131		36	0.28	0.28
IRAQ	19	362	7	1	6	13		1	0.09	0.09
ISRAEL	8	1,742	14	1			14	1	0.10	
SYRIA	72	981	70	182		95	3	155	1.59	1.63
TURKEY	468	1,809	847	581	800	1,372	51	804	0.57	0.59
Sub total	**697**	**1,462**	**1,019**	**805**	**886**	**1,636**	**68**	**1,005**	**1.58**	**0.61**
WORLD TOTAL	**33,379**	**784**	**26,177**	**20,083**	**7,603**	**24,238**	**7,709**	**21,916**	**0.90**	**0.90**

*/ Ending stocks divided by consumption plus exports.

**/ Ending stocks divided by consumption.

Subtotals and total include countries not shown.

2015/16 SUPPLY & USE OF COTTON BY COUNTRY (cont'd) December 1, 2015

	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	5	4	0	0	0.10	0.11
AZERBAIJAN	28	538	15	12		17		10	0.58	0.58
BELARUS				4	11	11		4	0.34	0.34
BELGIUM				2	13	8	5	2	0.14	0.23
BULGARIA	0	324	0	1	5	5	0	1	0.11	0.12
CZECH REP.				0	4	3	0	1	0.54	0.54
DENMARK					0	0				
ESTONIA										
FINLAND										
FRANCE				3	16	13	3	3	0.16	0.19
GERMANY				11	53	48	5	11	0.20	0.22
GREECE	248	914	226	53	3	19	210	53	0.23	2.82
HUNGARY				0	0	0		0	0.38	0.38
IRELAND				0	0	0		0	0.06	0.06
ITALY				8	50	48	4	6	0.11	0.12
LATVIA				0	0	0	0	0	0.52	1.00
LITHUANIA				0				0		
MOLDOVA				1	2	2		1	0.34	0.34
NETHERLANDS				0	4	4		0	0.10	
NORWAY										
POLAND				2	7	7		2	0.26	0.26
PORTUGAL				10	29	32		6	0.20	0.20
ROMANIA				0	1	1		0	0.06	0.06
RUSSIA	1	521	1	18	52	52	1	17	0.32	0.33
SLOVAK REP.										
SPAIN	76	775	59	20	3	5	57	20	0.32	3.77
SWEDEN				0				0		
SWITZERLAND				0	3	3	0	0	0.12	0.12
UKRAINE				0	2	2		0	0.20	0.20
UNITED KINGDOM				0	0	0		0	0.20	0.20
FORMER YUGOSLAVIA				1	6	6		1	0.23	0.23
Europe	**354**	**850**	**301**	**148**	**273**	**296**	**286**	**140**		**0.47**
Including EU-28	**324**	**881**	**285**	**111**	**195**	**200**	**286**	**106**	**0.22**	**0.53**
CHINA	3,534	1,489	5,262	12,850	1,205	7,329	4	11,984	1.63	1.64
TAIWAN				43	168	174		36	0.21	0.21
HONG KONG				33	1		3	32	12.03	
Sub total	**3,534**	**1,489**	**5,262**	**12,926**	**1,374**	**7,503**	**7**	**12,052**	**1.60**	**1.61**
AUSTRALIA	214	2,196	470	166	0	7	467	162	0.34	22.97
INDONESIA	8	603	5	114	782	760		140	0.18	0.18
JAPAN				17	64	65		16	0.24	0.24
KOREA, D.R.				1	5	5		1	0.24	0.24
KOREA, REP.				68	285	290		64	0.22	0.22
MALAYSIA				54	73	16	58	54	0.73	3.41
PHILIPPINES	0	569	0	4	16	16		4	0.26	0.26
SINGAPORE				0	0		0	0	2.17	
THAILAND	2	518	1	45	312	313		45	0.14	0.14
VIETNAM	9	465	4	127	1,080	1,083		128	0.12	0.12
E. Asia	**253**	**1,930**	**488**	**598**	**2,618**	**2,564**	**525**	**615**	**0.20**	**0.24**
AFGHANISTAN	45	414	19	14		4	14	14	0.74	3.15
BANGLADESH	40	675	27	248	1,042	1,054		263	0.25	0.25
INDIA	11,638	538	6,265	2,124	267	5,520	1,006	2,129	0.33	0.39
MYANMAR	239	653	156	104	51	207		104	0.50	0.50
PAKISTAN	2,670	712	1,900	768	251	2,247	107	565	0.24	0.25
SRI LANKA				0	2	2		1	0.36	0.36
S. Asia	**14,634**	**572**	**8,369**	**3,259**	**1,613**	**9,037**	**1,127**	**3,077**	**0.30**	**0.34**
IRAN	91	720	66	36	66	131		36	0.28	0.28
IRAQ	19	362	7	1	7	13		2	0.18	0.18
ISRAEL	10	1,732	18	1			17	2	0.11	
SYRIA	44	883	39	155		86	5	103	1.13	1.20
TURKEY	431	1,818	783	804	809	1,441	53	902	0.60	0.63
Sub total	**634**	**1,463**	**927**	**1,005**	**893**	**1,695**	**77**	**1,053**	**1.45**	0.62
WORLD TOTAL	**30,814**	**750**	**23,106**	**21,916**	**7,351**	**24,375**	**7,351**	**20,647**	**0.85**	**0.85**

*/ Ending stocks divided by consumption plus exports.

**/ Ending stocks divided by consumption

Subtotals and total include countries not shown.

2015/16 SUPPLY AND USE OF COTTON BY COUNTRY December 1, 2015

	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	0	1		0	0.13	0.13
CUBA	4	272	1	1	2	3		1	0.19	0.19
DOM. REP.					1	1		0	0.47	0.47
MEXICO	130	1,449	188	209	238	413	37	185	0.41	0.45
USA	3,298	878	2,896	980	2	806	2,225	847	0.28	1.05
N. America	**3,437**	**898**	**3,086**	**1,190**	**244**	**1,225**	**2,262**	**1,033**	**0.30**	**0.84**
EL SALVADOR				10	27	27		10	0.35	0.35
GUATEMALA				6	21	21		6	0.27	0.27
HONDURAS	0	319	0	0				0		
C. America	**2**	**514**	**1**	**16**	**48**	**49**	**0**	**16**	**0.32**	**0.32**
ARGENTINA	447	537	240	306	2	144	154	250	0.84	1.73
BOLIVIA	5	537	3	1	1	3	1	1	0.23	0.28
BRAZIL	954	1,528	1,458	1,147	5	797	750	1,063	0.69	1.33
CHILE				0	0	0		0	0.15	0.15
COLOMBIA	29	849	25	23	23	55	1	15	0.26	0.26
ECUADOR	1	440	1	1	13	13		1	0.10	0.10
PARAGUAY	12	567	7	6	0	7	2	5	0.56	0.70
PERU	32	792	26	15	58	82	1	15	0.18	0.19
URUGUAY				0	0	0		0	0.59	0.59
VENEZUELA	15	414	6	4	4	11		3	0.26	0.26
S. America	**1,496**	**1,180**	**1,765**	**1,503**	**106**	**1,113**	**909**	**1,353**	**0.67**	**1.22**
ALGERIA				2	5	5		2	0.31	0.31
EGYPT	106	766	81	56	57	126	35	32	0.20	0.25
MOROCCO				5	36	36		5	0.14	0.14
SUDAN	120	415	50	6		19	23	14	0.34	0.75
TUNISIA				3	13	13		3	0.21	0.21
N. Africa	**226**	**579**	**131**	**72**	**111**	**200**	**58**	**56**	**0.22**	**0.28**
BENIN	330	397	131	67		4	128	65	0.50	16.37
BURKINA FASO	631	469	296	156		4	288	161	0.55	40.14
CAMEROON	222	513	114	69		2	113	69	0.60	36.05
CENT. AFR. REP.	35	230	8	3			8	3	0.40	
CHAD	320	227	73	23		1	66	29	0.43	57.08
COTE D'IVOIRE	401	464	186	39		2	148	74	0.50	36.33
GUINEA	12	273	3	1			3	1	0.41	
MADAGASCAR				3				3		
MALI	573	440	252	124		3	231	142	0.61	47.49
NIGER	5	448	2	0		1	1	0	0.11	0.25
SENEGAL	32	390	13	4		1	10	5	0.48	6.91
TOGO	110	369	41	13			39	15	0.40	
F. Africa	**2,671**	**419**	**1,119**	**503**		**17**	**1,035**	**569**	**0.54**	**33.10**
ANGOLA	3	302	1	0		1	0	0	0.35	0.48
ETHIOPIA	129	314	41	12	22	46	1	28	0.61	0.62
GHANA	16	366	6	2	1	1	6	2	0.25	1.31
KENYA	21	184	4	2	2	7	0	1	0.16	0.16
MALAWI	124	271	34	24		3	34	20	0.53	6.61
MOZAMBIQUE	120	222	27	16			27	16	0.60	
NIGERIA	253	205	52	26	1	19	37	22	0.39	1.14
SOUTH AFRICA	15	1,141	17	12	10	23	6	10	0.35	0.45
TANZANIA	315	217	68	120		34	54	100	1.14	2.93
UGANDA	61	431	26	15		2	24	16	0.59	6.48
CONGO, DR				2	8	8		2	0.27	0.27
ZAMBIA	298	146	44	68		2	44	66	1.47	
ZIMBABWE	181	228	41	24		4	41	21	0.46	5.51
S. Africa	**1,559**	**233**	**363**	**328**	**66**	**173**	**274**	**310**	**0.69**	**1.79**
KAZAKHSTAN	103	441	45	45	0	11	48	32	0.53	2.77
KYRGYZSTAN	23	822	19	4	4	1	20	5	0.24	5.39
TAJIKISTAN	154	533	82	30		9	75	27	0.32	2.88
TURKMENISTAN	534	515	300	39		152	120	66	0.24	0.44
UZBEKISTAN	1,220	701	855	253	1	338	526	245	0.28	0.73
C. Asia	**2,034**	**640**	**1,302**	**371**	**5**	**512**	**789**	**375**	**1.62**	**0.73**

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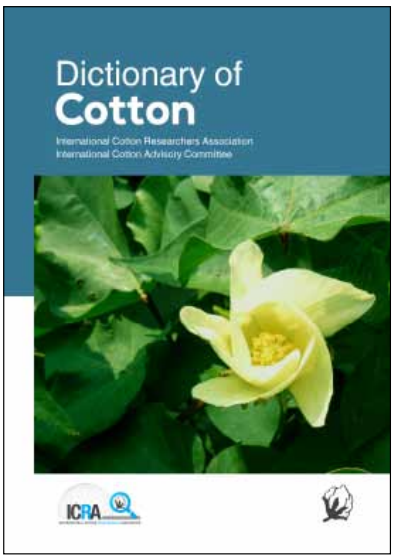

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