Weekly Publication of

Cotton Association of India

# COTTON STATISTICS & NEWS

Edited & Published by Amar Singh

2014 • No. 51 • 18th March, 2014 Published every Tuesday

Cotton Exchange Building, 2nd Floor, Cotton Green, Mumbai - 400 033
Phone: 30063400 Fax: 2370 0337 Email: cai@caionline.in
www.caionline.in

# Technical Analysis

## Price outlook for Gujarat-ICS-105, 29mm and ICE cotton futures

EXPERT's Column

Shri Gnanasekar Thiagarajan

*(The author is Director of Commtrendz Research and the views expressed in this column are his own and the author is not liable for any loss or damage, including without limitations, any profit or loss which may arise directly or indirectly from the use of above information.)*

We will look into the Gujarat-ICS-105, 29mm prices along with other benchmarks and try to forecast price moves going forward.

As mentioned in the previous update, fundamental analysis involves studying and analysing various reports, data and based on that arriving at some possible direction for prices in the coming months or quarters.

Some of the recent fundamental drivers for the domestic cotton prices are:

- Cotton prices are firm, as arrivals slowed as growers continue to hold stocks hoping for higher prices on better demand prospects in the coming months.

- Cotton demand from textile industry may increase in the coming months due to better sale prospects of clothing in the midst of the marriage season and as schools re-open by June.

- The Cotton Association of India revised output estimates to 37.7 million bales for 2013-14 higher than earlier estimates of 37.4 million bales and output for 2012-13 stood at 35.67 million bales.

- Also, quality cotton prices fell in the domestic markets after WASDE reports showed that consumption in China reduced by 500,000 bales to 35.5 million bales for the month of March as compared to the previous month.

Some of the fundamental drivers for international cotton prices are:

- Cotton futures ended higher on Friday to the highest level in about a year as demand for the U.S.-grown fibre continued to be robust. The USDA raised its estimate for U.S. exports of the fibre in a monthly supply-and-demand report on Monday and reduced expectations for ending stocks. The USDA cited strong export activity in recent weeks and revised its cotton-export forecast by 1.9% over its previous estimate to 10.7 million bales.

- Demand for U.S. cotton amid tight supplies - just 2.8 million bales, the lowest in four years, now forecast to be left over as supplies have been supporting the market recently, but a

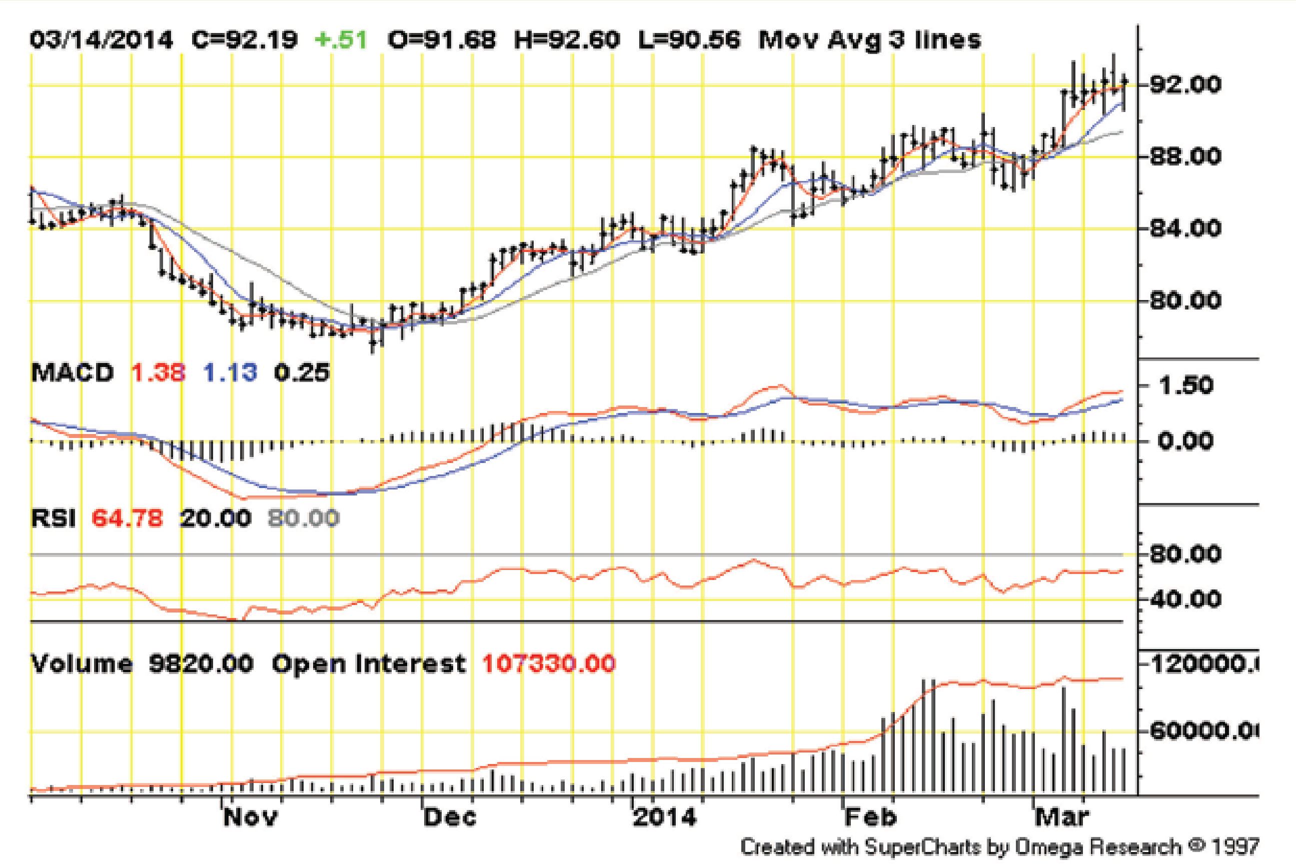

lack of demand at current prices is capping gains. The U.S., the world's biggest cotton exporter, is expected to have harvested its smallest crop in four years this season, according to the USDA.

- Net export sales of U.S.-grown upland variety cotton totalled 27,100 bales in the week ending Feb. 20, down 62% from the previous week and 87% from the previous four-week average, the U.S. Department of Agriculture said Thursday. The sales included a cancellation from No. 1 cotton consumer China of 22,600 bales.

Both the domestic and international prices have come off from multi-month highs. Technical price patters suggest a possible decline in the near-term.

We will now dwell into the various tools in technical analysis and forecast a possible direction.

As mentioned in the previous update, price could move down to supports around 11,700/ qtl and fall below this could dash our bullish hopes and such a fall could push prices even lower to 11,350-400 /qtl levels. No change in view. As mentioned earlier, technical picture still looks friendly and the current fall looks like a downward correction within a strong upward




trend. Though we expect prices to find good support in the 11,400-700/qtl range and edge higher again, technical picture is not looking good from here on. Fall below 11,300/qtl could weaken the bullish picture and such a fall could drag prices even lower towards 10,800-11,000/qtl levels now.

As we have been maintaining for the last few months, chart indicates a further upside to 12,365 or even higher to 12,725 levels in the coming seasons. Prices are moving in line with our expectations, so far testing a high of 12,175/qtl. A further upside to 12,365 or even higher to 12,725 levels looks likely while supports in the 11,300-700/qtl levels hold. There are signs of technical weakness and it looks likely that prices could edge lower in the coming weeks. Prices now have to go below 11,300, for the picture to turn weaker. Indicators are displaying bearish signals, which make us believe we could see lower levels again.

We will also look at the ICE Cotton futures charts for a possible direction in international prices.

As explained in the previous update, further upside is there to eventually test 94c on the upside in the coming weeks. Prices are moving exactly in line with our expectations. We see prices correcting lower now towards 87-88c where minor support can be seen. Failure to hold support here could drag prices even lower to 83-84c in the coming weeks. As explained earlier, technical indicators are hinting at a possible bullish trend reversal. The averages in MACD have gone above the zero line indicating a bullish reversal. So, though the overall trend remains bullish, but possibility of a downward correction is likely in the coming sessions.

## CONCLUSION:

Both the domestic and international prices have corrected lower from recent highs, more so the domestic prices. Potential exists for prices to correct even lower in the coming weeks. But such a correction does not necessarily alter the uptrend significantly. Supports are seen both for ICE March cotton futures at 87-88 followed by 84-85c and for Gujarat-ICS-105 29mm at 11,350-500 levels. We expect prices to move lower in ICE futures, and then the bullish rally to continue again. The Guj-ICS-105 29mm could initially correct lower towards 11,350-500 /qtl levels or even lower to 11,000/qtl and then edge higher again towards 12,350-500 /qtl subsequently.

# COTAAP - Chopda Shows the Way

COTAAP Research Foundation and Cotton Association of India have been conducting some novel projects, at the Chopda unit.

## 1) Project – HDPS

The new technology of High Density Planting System (HDPS) has tremendous potential to increase the yield. Funding has been provided by the Cotton Association of India, Mahyco Seeds and also through farmers' contributions. 325 fields were selected and successfully adopted HDPS. The experience garnered this year will be beneficial to help extend this project to a larger number of farmers. The project is suitable for PPP format.

**Progress:** The successful launch of the new technology - High Density Planting System.

The plots of HDP are superior as compared with traditional spacing.

The use of Plant Growth Regulator was demonstrated for the first time and showed good results.

The actual cost to benefit ratio will be available after the last harvesting.

## 2) Project – FLD Production Technology

Field demonstrations are made to increase productivity with a simultaneous decrease in cost of cultivation Biological and herbal inputs are promoted.

**Progress:** Positive difference in growth is observed between FLD and Check plot. Farmers are made aware about the judicious use of chemical pesticides and fertilisers. Better options like bio-pesticides and bio-fertilisers are demonstrated under this project. FLD also helps to curtail cost of production. Tribal and backward class farmers have been given priority as beneficiaries. Difference in growth and yield by adoption of improved practices has been clearly observed.

## 3) Project – FLD Integrated Soil and Nutrition Management for Cotton

This is a novel project formulated according to the need of local soil for improvement and sustainable productivity. Funds have been provided by the Cotton Association of India and also through farmers' contributions. Reducing the cost of cultivation, increasing the yield and maintenance of soil properties are the main objectives of this project. Soil testing and recommendation of fertiliser doses was a specialty of this project.

**Progress:** This is a need based project, demonstrating integrated soil and nutrition management in cotton. The difference in yield from check plot and demo plot was seen first hand by the farmers themselves.

## 4) Project – Facility Centre (Yantra Mitra)

Considering the scarcity of labourers and cutting the cost of tillage operations, farm mechanisations is necessary. To facilitate the availability of power tillers and improved implements (tractors / bullock drawn), a facility centre has been opened last year at Adgaon village. Implements are provided on nominal rent. Farmers have been utilising and experiencing the benefits of mechanisation.

**Progress:** Improved machines / implements are made available. Benefits of advanced implements are practically experienced by farmers in their own fields. The difference in result by using improved implements has been compared with traditional implements.

## 5) Project – COTAAP Online

To match with the advanced technologies in communication, COTAAP is running an advanced facility – COTAAP Online. Here, farmers are given free SMS service. Through this, they are informed about – weather forecast, disease/pest alert and recommendations, other cropping practices and information about COTAAP activities. Senior scientists – Dr. R.N. Sable (Rtd. Head, Dept. of Meteorology), Dr. H.N. Rawankar (Rtd. Scientist, PSKV, Akola), Dr. S.S. Patil (Cotton Breeder, Cotton Res. Centre, Jalgaon) and Dr. G.B. Kabre (Professor, Entomology, ASC. Dhule) provide valuable data for SMS. Farmers can also call these scientists through a conference system of COTAAP. Thus, COTAAP has intellectually reduced the gap between experts and farmers. A total of 2000 farmers have benefited through this project.

**Progress:** Regular SMS is being sent to 2000 farmers. Weather forecast, disease and pest alert with recommendations, market prices are given through SMS.

Farmers get direct advice from scientists by Audio Conference System. This project had been greatly appreciated by the farming community and a large number of farmers have benefited at multiple times.

## 6) Project – Soil Card

Soil testing and fertiliser dose management is the most essential component of crop cultivation. But farmers are ignorant about this. COTAAP has a permanent facility to collect soil samples and get them analyzed with 50% subsidy rate. Soil health certificate with technical guidance to solve problems, if any, is facilitated under this project.

**Progress:** To know problems as well as potentials of the soil, this project is very effective. Soil testing reports with advice by expert is made available by COTAAP.

Farmers are advised to use chemical fertilisers only as per requirement of soil. Use of bio-fertiliser sand soil amendments is recommended through this activity. Each year, about 1500 farmers benefit through this project.

## 7) Project - Model Farm

COTAAP has maintained a model farm at its office campus. Advanced practices are demonstrated here for the benefit of visiting farmers. Trials of different inputs are also conducted in this farm.

**Progress:** Dr. Brent variety with HDPS technology is adopted. The field is in good condition. Farmers visiting COTAAP office also visit the field for practical observations.

## 8) Project – Nursery

A nursery was established by COTAAP to raise seedlings which can be used for preparation of herbal pesticides. A total 25,000 seedlings were prepared. The Agriculture Department of Maharashtra State has provided funds for this project. COTAAP has facilitated it by making a shade net.

**Progress:** Under this project, seedlings of plants like Neem, Karanj, Papaya, Custard Apple, Castor, etc. were prepared. Farmers were advised on preparing herbal pesticides and about the benefits of cultivating these plants on their bunds, empty spaces and waste lands.

## 9) Project – Farmers' Rally

Each year, experts in cotton cultivation are called to guide the farmers. A particular topic is selected considering the crop condition and the problems observed at that time. So it becomes need based and an effective extension activity. Apart from the village meetings and field visits, large scale rallies are organised twice a year - once before sowing and one during the season.

**Progress:** Mega rally for coming year crop will be conducted by the end of April 2014.

# Global Status of Commercialized Biotech/GM Crops: 2013

**By Clive James, Founder and Emeritus Chair of ISAAA**

*Dedicated to the late Nobel Peace Laureate, Norman Borlaug, founding patron of ISAAA, on the centenary of his birth, 25 March 2014*

*Biotech Crop hectares continue to grow and exceed 175 million hectares in 2013, with both large and small developing countries, exerting more global leadership*

### Introduction

This Executive Summary focuses on the highlights of ISAAA Brief 46, details of which are presented and discussed in the full Brief, "Global Status of Commercialized Biotech/GM Crops: 2013".

### Biotech crops increase in 2013 in their 18th consecutive year of commercialization.

A record 175.2 million hectares of biotech crops were grown globally in 2013, at an annual growth rate of 3%, up 5 million from 170 million hectares in 2012. This year, 2013, was the 18th year of commercialization, 1996-2013, when growth continued after a remarkable 17 consecutive years of increases; notably 12 of the 17 years were double-digit growth rates.

### Biotech crops fastest adopted crop technology

The global hectarage of biotech crops have increased more than 100-fold from 1.7 million hectares in 1996 to over 175 million hectares in 2013 – this makes biotech crops the fastest adopted crop technology in recent history. This adoption rate speaks for itself in terms of its resilience and the benefits it delivers to farmers and consumers.

Millions of risk-averse farmers, both large and small, world-wide, have determined that the returns from planting biotech crops are high, hence repeat planting is virtually 100% which is the acid-test applied by farmers for judging the performance of any technology.

In the 18 year period 1996 to 2013, millions of farmers in ~30 countries worldwide, adopted biotech crops at unprecedented rates. The most compelling and credible testimony to biotech crops is that during the 18 year period 1996 to 2013, millions of farmers in ~30 countries worldwide, elected to make more than 100 million independent decisions to plant and replant an accumulated hectarage of more than 1.6 billion hectares. This is an area equivalent to >150% the size of the total land mass of the US or China which is an enormous area. There is one principal and overwhelming reason that underpins the trust and confidence of risk-averse farmers in biotechnology – biotech crops deliver substantial, and sustainable, socio-economic and environmental benefits. The comprehensive EU 2011 study conducted in Europe, confirmed that biotech crops are safe.

### 27 countries grow biotech crops in 2013

Of the 27 countries which planted biotech crops in 2013 (Table 1 and Figure 1), 19 were developing and 8 were industrial countries. Each of the top 10 countries, of which 8 were developing grew more than 1 million hectares providing a broad-based worldwide foundation for continued and diversified growth in the future. More than half the world's population, 60% or ~4 billion people, live in the 27 countries planting biotech crops.

Bangladesh approved a biotech crop for planting for the first time, whilst the situation in Egypt put planting on-hold pending review.

Bangladesh approved a biotech crop (Bt eggplant) for planting for the first time in 2013, whilst the situation in Egypt put planting on-hold, pending a Government review. The approval by Bangladesh is important in that it serves as an exemplary model for other small poor countries. Also, very importantly, Bangladesh has broken the impasse experienced in trying to gain approval to commercialize Bt eggplant in both India and the Philippines. It is noteworthy that two other developing countries, Panama and Indonesia, also approved cultivation of biotech crops in 2013 for commercialization in 2014 (these hectarages are not included in the data base for this Brief).

### 18 million farmers benefit from biotech crops – 90% were small resource-poor farmers.

In 2013, a record 18 million farmers, compared with 17.3 million in 2012, grew biotech crops – remarkably, over 90%, or >16.5 million, were risk-averse small, poor farmers in developing countries. In China, 7.5 million small farmers benefited from biotech cotton and in India there were 7.3 million beneficiary farmers. The latest economic data available for the period 1996 to 2012 indicates that farmers in China gained US$15.3 billion and in India US$14.6 billion. In addition to economic gains, farmers benefited enormously from at least a 50%

reduction in the number of insecticide applications, thereby reducing farmer exposure to insecticides, and importantly contributed to a more sustainable environment and better quality of life.

### For the second consecutive year developing countries planted more biotech crops than industrial countries in 2013.

Latin American, Asian and African farmers collectively grew 94 million hectares or 54% of the global 175 million biotech hectares (versus 52% in 2012) compared with industrial countries at 81 million hectares or 46% (versus 48% in 2012), thereby almost doubling the hectare gap from ~7 to ~14 million hectares between 2012 to 2013, respectively. This trend is expected to continue. This is contrary to the prediction of critics who, prior to the commercialization of the technology in 1996, prematurely declared that biotech crops were only for industrial countries and would never be accepted and adopted by developing countries, particularly small poor farmers.

Table 1. Global Area of Biotech Crops in 2013: by Country (Million Hectares)**

| Rank | Country | Area (million Hectares) | Biotech Crops |
|---|---|---|---|
| 1 | USA* | 70.1 | Maize, soybean, cotton, canola, sugar beet, alfalfa, papaya, squash |
| 2 | Brazil* | 40.3 | Soybean, maize, cotton |
| 3 | Argentina* | 24.4 | Soybean, maize, cotton |
| 4 | India* | 11.0 | Cotton |
| 5 | Canada* | 10.8 | Canola, maize, soybean, sugar beet |
| 6 | China* | 4.2 | Cotton, papaya, poplar, tomato, sweet pepper |
| 7 | Paraguay* | 3.6 | Soybean, maize, cotton |
| 8 | South Africa* | 2.9 | Maize, soybean, cotton |
| 9 | Pakistan* | 2.8 | Cotton |
| 10 | Uruguay* | 1.5 | Soybean, maize |
| 11 | Bolivia* | 1.0 | Soybean |
| 12 | Philippines* | 0.8 | Maize |
| 13 | Australia* | 0.6 | Cotton, canola |
| 14 | Burkina Faso* | 0.5 | Cotton |
| 15 | Myanmar* | 0.3 | Cotton |
| 16 | Spain* | 0.1 | Maize |
| 17 | Mexico* | 0.1 | Cotton, soybean |
| 18 | Colombia* | 0.1 | Cotton, maize |
| 19 | Sudan* | 0.1 | Cotton |
| 20 | Chile | <0.1 | Maize, soybean, canola |
| 21 | Honduras | <0.1 | Maize |
| 22 | Portugal | <0.1 | Maize |
| 23 | Cuba | <0.1 | Maize |
| 24 | Czech Republic | <0.1 | Maize |
| 25 | Costa Rica | <0.1 | Cotton, soybean |
| 26 | Romania | <0.1 | Maize |
| 27 | Slovakia | <0.1 | Maize |
| | **Total** | **175.2** | |

** 19 biotech mega-countries growing 50,000 hectares, or more, of biotech crops*

*** Rounded off to the nearest hundred thousand*

*Source: Clive James, 2013*

During the period 1996-2012 cumulative economic benefits in industrial countries were at US$59 billion compared to US$57.9 billion generated by developing countries. Moreover in 2012, developing countries had a lower share, 45.9% equivalent to US$8.6 billion of the total US$18.7 billion gain, with industrial countries at US$10.1 billion (Brookes and Barfoot, 2014, Forthcoming).

### Stacked traits occupied 27% of the global 175 million hectares.

Stacked traits continued to be an important and growing feature of biotech crops. 13 countries planted biotech crops with two or more traits in 2013, of which 10 were developing countries. About 47 million hectares equivalent to 27% of the 175 million hectares were stacked in 2013, up from 43.7 million hectares or 26% of the 170 million hectares in 2012; this steady and growing trend of more stacked traits is expected to continue.

The 5 lead biotech developing countries on the three continents of the South: Brazil and Argentina in Latin America, India and China in Asia, and South Africa on the continent of Africa, grew 47% of global biotech crops and have ~41% of world population.

The five lead developing countries in biotech crops in the three continents of the South are China and India in Asia, Brazil and Argentina in Latin America, and South Africa on the continent of Africa. They collectively grew 82.7 million hectares (47% of global) and together represent ~41% of the global population of 7 billion, which could reach 10.1 billion by the turn of the century in 2100. Remarkably, population in sub Saharan African alone could escalate from ~1 billion today (~15% of global) to a possible high of 3.6 billion (~35% of global) by the end of this century in 2100. Global food security, exacerbated by high and unaffordable food prices, is a formidable challenge to which biotech crops can contribute but are not a panacea.

## Brazil, continues to be the engine of biotech crop growth globally.

Brazil ranks second only to the USA in biotech crop hectarage in the world with 40.3 million hectares (up from 36.6 million in 2012) and is emerging as a strong global leader in biotech crops. For the fifth consecutive year, Brazil was the engine of growth globally in 2013, increasing its hectarage of biotech crops more than any other country in the world – a record 3.7 million hectare increase, equivalent to an impressive year-over-year increase of 10%. Brazil grew 23% (up from 21% in 2012) of the global hectarage of 175 million hectares and is consolidating its position by consistently closing the gap with the US. A fast-track approval system in Brazil facilitates fast adoption. In 2013, in an important event, Brazil commercially planted its first stacked soybean with insect resistance and herbicide tolerance on 2.2 million hectares. Notably, EMBRAPA, Brazil's agricultural R&D organization, with an annual budget of US$1 billion, has gained approval to commercialize its home-grown biotech virus resistant bean, planned for 2015.

## USA maintains leadership role.

The US continued to be the lead producer of biotech crops globally with 70.1 million hectares (40% of global), with an average adoption rate of ~90% across its principal biotech crops. Canada grew 10.8 million hectares of biotech crops in 2013, down from 11.6 million hectares in 2012, as farmers planted ~800,000 hectares less canola and accommodated more wheat in the rotation, which is a sound practice. Biotech canola in Canada still enjoyed a high adoption rate of 96% in 2013. Australia also posted a decrease due to shortage of water, of approximately 100,000 hectares but adoption remained at a high of 99%.

## India and China grow more Bt cotton.

India cultivated a record 11.0 million hectares of Bt cotton with an adoption rate of 95%, whilst 7.5 million small resource poor farmers in China grew 4.2 million hectares of Bt cotton with an adoption rate of 90%, cultivating on average, ~0.5 hectare per farm.

## Progress in Africa

Africa continued to make progress with Burkina Faso and Sudan increasing their Bt cotton hectarage substantially, and South Africa with its biotech hectarage at marginally less but practically the same level as 2012 (2.85 million hectares rounded off to 2.9). Burkina Faso increased its Bt cotton hectares by over 50% from 313,781 hectares to 474,229. Sudan, in its second year of commercialization tripled its Bt cotton from 20,000 hectares in 2012 to 62,000 in 2013. Encouragingly an additional seven African countries (listed alphabetically they are Cameroon, Egypt, Ghana, Kenya, Malawi, Nigeria and Uganda) have conducted field trials on a broad range (cotton and maize to bananas and cowpeas) of "new" biotech crops, including several orphan crops such as sweet potato. The WEMA project is expected to deliver its first biotech drought tolerant maize in Africa as early as 2017.

Five EU countries planted a record 148,013 hectares of biotech Bt maize, up 15% from 2012. Spain was by far the largest adopter planting 94% of the total Bt maize hectarage in the EU.

Five EU countries, same number as last year, planted a record 148,013 hectares of Bt maize, up 18,942 hectares or 15% from 2012. Spain led the EU with a record 136,962 hectares of Bt maize, up 18%. Portugal was lower by approximately 1,000 hectares due to a seed shortage, and Romania was the same as 2012. The other countries, Czechia and Slovakia, planted lower and small hectarages attributed to onerous and over-demanding EU reporting procedures for farmers.

## Biotech crops contribution to Food Security, Sustainability and Climate Change

From 1996 to 2012, biotech crops contributed to Food Security, Sustainability and Climate Change by: increasing crop production valued at US$116.9 billion; providing a better environment, by saving 497 million kg a.i. of pesticides; in 2012 alone reducing $CO_2$ emissions by 26.7 billion kg, equivalent to taking 11.8 million cars off the road for one year; conserving biodiversity in the period 1996-2012 by saving 123 million hectares of land; and helped alleviate poverty by helping >16.5 million small farmers, and their families totaling >65 million people, who are some of the poorest people in the world. Biotech crops can contribute to a "sustainable intensification" strategy favored by many science academies worldwide, which allows productivity/production to be increased only on the current 1.5 billion hectares of global crop land, thereby saving forests and biodiversity. Biotech crops are essential but are not a panacea and adherence to good farming practices, such as rotations and resistance management, are a must for biotech crops as they are for conventional crops.

## Contribution of biotech crops to Sustainability

Biotech crops are contributing to sustainability in the following five ways:

**• Contributing to food, feed and fiber security and self sufficiency, including more affordable food, by increasing productivity and economic benefits sustainably at the farmer level**

Economic gains at the farm level of ~US$116.9 billion were generated globally by biotech crops during the seventeen year period 1996 to 2012, of which 58% were due to reduced production costs (less ploughing, fewer pesticide sprays and less labor) and 42% due to substantial yield gains of 377 million tons. The corresponding figure for 2012 alone was 83% of the total US$18.7 billion gain due to increased yield (equivalent to 47 million tons), and 17% due to lower cost of production (Brookes and Barfoot, 2014, Forthcoming).

**• Conserving biodiversity, biotech crops are a land saving technology**

Biotech crops are a land-saving technology, capable of higher productivity on the current 1.5 billion hectares of arable land, and thereby can help preclude deforestation and protect biodiversity in forests and in other in-situ biodiversity sanctuaries – a sustainable intensification strategy. Approximately 13 million hectares of biodiversity – rich tropical forests, are lost in developing countries annually. If the 377 million tons of additional food, feed and fiber produced by biotech crops during the period 1996 to 2012 had not been produced by biotech crops, an additional 123 million hectares (Brookes and Barfoot, 2014, Forthcoming) of conventional crops would have been required to produce the same tonnage. Some of the additional 123 million hectares would probably have required fragile marginal lands, not suitable for crop production, to be ploughed, and for tropical forest, rich in biodiversity, to be felled to make way for slash and burn agriculture in developing countries, thereby destroying biodiversity.

**• Contributing to the alleviation of poverty and hunger**

To-date, biotech cotton in developing countries such as China, India, Pakistan, Myanmar, Bolivia, Burkina Faso and South Africa have already made a significant contribution to the income of >16.5 million small resource-poor farmers in 2013. This can be enhanced in the remaining 2 years of the second decade of commercialization, 2014 to 2015 principally with biotech cotton and maize.

**• Reducing agriculture's environmental footprint**

Conventional agriculture has impacted significantly on the environment, and biotechnology can be used to reduce the environmental footprint of agriculture. Progress to-date includes: a significant reduction in pesticides; saving on fossil fuels; decreasing $CO_2$ emissions through no/less ploughing; and conserving soil and moisture by optimizing the practice of no till through application of herbicide tolerance. The accumulative reduction in pesticides for the period 1996 to 2012 was estimated at 497 million kilograms (kgs) of active ingredient (a.i.), a saving of 8.7% in pesticides, which is equivalent to an 18.5% reduction in the associated environmental impact of pesticide use on these crops, as measured by the Environmental Impact Quotient (EIQ). EIQ is a composite measure based on the various factors contributing to the net environmental impact of an individual active ingredient. The corresponding data for 2012 alone was a reduction of 36 million kgs a.i. (equivalent to a saving of 8% in pesticides) and a reduction of 23.6% in EIQ (Brookes and Barfoot, 2014, Forthcoming).

Increasing efficiency of water usage will have a major impact on conservation and availability of water globally. Seventy percent of fresh water is currently used by agriculture globally, and this is obviously not sustainable in the future as the population increases by almost 30% to over 9 billion by 2050. The first biotech maize hybrids with a degree of drought tolerance were commercialized in 2013 in the USA, and the first tropical biotech drought tolerant maize is expected by ~2017 in sub-Saharan Africa. Drought tolerance is expected to have a major impact on more sustainable cropping systems worldwide, particularly in developing countries, where drought will likely be more prevalent and severe than industrial countries.

**• Helping mitigate climate change and reducing greenhouse gases**

The important and urgent concerns about the environment have implications for biotech crops, which contribute to a reduction of greenhouse gases and help mitigate climate change in two principal ways. First, permanent savings in carbon dioxide ($CO_2$) emissions through reduced use of fossil-based fuels, associated with fewer insecticide and herbicide sprays. In 2012, this was an estimated saving of 2.1 billion kg of $CO_2$, equivalent to reducing the number of cars on the roads by 0.94 million. Secondly, additional savings from conservation tillage (need for less or no ploughing facilitated by herbicide tolerant biotech crops) for biotech food, feed and fiber crops, led to an additional soil carbon sequestration equivalent in 2012 to 24.61 billion kg of $CO_2$, or removing 10.9 million cars off the road for one year. Thus in 2012, the combined permanent and additional savings through sequestration was equivalent to a saving of 26.7 billion kg of $CO_2$ or removing 11.8 million cars from the road (Brookes and Barfoot, 2014, Forthcoming).

Droughts, floods, and temperature changes are predicted to become more prevalent and more severe as we face the new challenges associated with climate change, and hence, there will be a need for faster crop improvement programs to develop varieties and hybrids that are well adapted to more rapid changes in climatic conditions. Several biotech crop tools and techniques, including tissue culture, diagnostics, genomics, molecular marker-assisted selection (MAS) zinc fingers, and biotech crops can be used collectively for 'speeding the breeding' and help mitigate the effects of climate change. Biotech crops are already contributing to reducing $CO_2$ emissions by precluding the need for ploughing a significant portion of cropped land, conserving soil, particularly moisture, and reducing pesticide spraying as well as sequestering $CO_2$.

In summary, collectively the above five thrusts have already demonstrated the capacity of biotech crops to contribute to sustainability in a significant manner and for mitigating the formidable challenges associated with climate change and global warming, and the potential for the future is enormous. Biotech crops can increase productivity and income significantly, and hence, can serve as an engine of rural economic growth that can contribute to the alleviation of poverty for the world's small and resource-poor farmers.

## Nitrogen Use Efficiency

A chapter in the full Brief provides an initial global overview of nitrogen (N) fertilizer use and efficiency. About 100 million tons of N fertilizer is used on crops at an annual cost of US$50 billion. Up to half of the N applied is not taken up by the crops and causes pollution, particularly in waterways. Conventional and biotech approaches are being explored for increasing N use efficiency. Some indications that in the midterm (5 to 10 years) new technology could save up to half of N currently applied to crops with no yield penalty.

## Regulation of biotech crops and labeling

The lack of appropriate, science-based and cost/time-effective regulatory systems continues to be the major constraint to adoption. Responsible, rigorous but not onerous, regulation is needed, particularly for small and poor developing countries, who are "locked out"completely because of the high cost of developing and gaining approval of a biotech crop. It is noteworthy, that on 6 November 2012, in California, USA, voters defeated Proposition 37, the proposed state petition on "Mandatory Labeling of Genetically Engineered Food Initiative" – the final result was No 53.7% and Yes 46.3%. A similar poll in Washington State in November 2013 had a similar outcome except that the result had wider margins in favor of no labelling -- 55% No and 45% Yes.

## Status of approved events for biotech crops

As of 30 November 2013, a total of 36 countries (35 + EU-27) have granted regulatory approvals for biotech crops for food and/or feed use and for environmental release or planting since 1994. In these 36 countries, a total of 2,833 regulatory approvals involving 27 GM crops and 336 GM events have been issued by competent authorities, of which 1,321 are for food use (direct use or processing), 918 for feed use (direct use or processing) and 599 for environmental release or planting. Japan has the most number of events approved (198), followed by the U.S.A. (165 not including stacked events), Canada (146), Mexico (131), South Korea (103), Australia (93), New Zealand (83), European Union (71 including approvals that have expired or under renewal process), Philippines (68), Taiwan (65), Colombia (59), China (55) and South Africa (52). Maize has the most number of approved events (130 events in 27 countries), followed by cotton (49 events in 22 countries), potato (31 events in 10 countries), canola (30 events in 12 countries) and soybean (27 events in 26 countries). The event that has received the most number of approvals is the herbicide tolerant soybean event GTS-40-3-2 (51 approvals in 24 countries + EU-27), followed by the insect resistant maize event MON810 (49 approvals in 23 countries + EU-27) and herbicide tolerant maize event NK603 (49 approvals in 22 countries + EU-27), insect resistant maize event Bt11 (45 approvals in 21 countries + EU-27), insect resistant maize event TC1507 (45 approvals in 20 countries + EU-27), herbicide tolerant maize event GA21 (41 approvals in 19 countries + EU-27), herbicide tolerant soybean event A2704-12 (37 approvals in 19 countries + EU-27), insect resistant maize event MON89034 (36 approvals in 19 countries + EU-27), insect resistant cotton event MON531 (36 approvals in 17 countries + EU-27), herbicide tolerant and insect resistant maize event MON88017 (35 approvals in 19 countries + EU-27), and insect resistant cotton event MON1445 (34 approvals in 15 countries + EU-27).

*Continued in the next issue*

*Source: International Service for the Acquisition of Agri-Biotech Applications (ISAAA )*

# COTTON STATISTICS & NEWS

## ADVERTISEMENT RATES

effective from April 2014

### RATES PER INSERTION

| | For CAI Members | For Non-Members |
|---|---|---|
| Full Page | Rs. 10,000 | Rs. 11,000 |
| Half Page | Rs. 6,000 | Rs. 6,500 |

### RATES FOR FOREIGN ADVERTISERS

| | |
|---|---|
| Full Page | US $ 200 |
| Half Page | US $ 125 |

**Special Offer**

**For Members**
Pay for eight insertions, get twelve (Full Page Rs.80,000/- and Half Page Rs. 48,000/- for twelve insertions)
Or
Pay for three insertions, get four (Full Page Rs. 30,000/- and Half Page Rs.18,000/- for four insertions)

**For Non-Members**
Pay for eight insertions, get twelve (Full Page Rs.88,000/- and Half Page Rs.52,000/- for twelve insertions)
Or
Pay for three insertions, get four (Full Page Rs. 33,000/- and Half Page Rs.19,500/- for four insertions)

**Mechanical Data:**

**Full page print area:** 172x250 mm (Non Bleed Ad)
210x297 mm (+ Bleed)

**Half page print area :** 172x125 mm (Non Bleed Ad)
148x210 mm (+ Bleed)

**To advertise, please contact:**

**Shri Divyesh Thanawala,** Assistant Manager
Cotton Association of India,
Cotton Exchange Building, 2nd Floor,
Cotton Green (East), Mumbai – 400 033
Telephone No.: 3006 3404 Fax No.: 2370 0337
Email: publications@caionline.in

## UPCOUNTRY SPOT RATES

(Rs./Qtl)

| Standard Descriptions with Basic Grade & Staple in Millimetres based on Upper Half Mean Length [ By law 66 (A) (a) (4) ] | | | | | | | Spot Rate (Upcountry) 2013-14 Crop MARCH 2014 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sr. No. | Growth | Grade Standard | Grade | Staple | Micronaire | Strength /GPT | 10th | 11th | 12th | 13th | 14th | 15th |
| 1 | P/H/R | ICS-101 | Fine | Below 22mm | 5.0-7.0 | 15 | 10826 (38500) | 10826 (38500) | 10826 (38500) | 10686 (38000) | 10686 (38000) | 10686 (38000) |
| 2 | P/H/R | ICS-201 | Fine | Below 22mm | 5.0-7.0 | 15 | 10967 (39000) | 10967 (39000) | 10967 (39000) | 10826 (38500) | 10826 (38500) | 10826 (38500) |
| 3 | GUJ | ICS-102 | Fine | 22mm | 4.0-6.0 | 20 | 7789 (27700) | 7789 (27700) | 7761 (27600) | 7761 (27600) | 7817 (27800) | 7817 (27800) |
| 4 | KAR | ICS-103 | Fine | 23mm | 4.0-5.5 | 21 | 9111 (32400) | 9111 (32400) | 9083 (32300) | 9083 (32300) | 9139 (32500) | 9139 (32500) |
| 5 | M/M | ICS-104 | Fine | 24mm | 4.0-5.0 | 23 | 10320 (36700) | 10320 (36700) | 10292 (36600) | 10292 (36600) | 10348 (36800) | 10348 (36800) |
| 6 | P/H/R | ICS-202 | Fine | 26mm | 3.5-4.9 | 26 | 11838 (42100) | 11810 (42000) | 11754 (41800) | 11782 (41900) | 11782 (41900) | 11782 (41900) |
| 7 | M/M/A | ICS-105 | Fine | 26mm | 3.0-3.4 | 25 | 10770 (38300) | 10770 (38300) | 10742 (38200) | 10742 (38200) | 10714 (38100) | 10686 (38000) |
| 8 | M/M/A | ICS-105 | Fine | 26mm | 3.5-4.9 | 25 | 10967 (39000) | 10967 (39000) | 10939 (38900) | 10939 (38900) | 10911 (38800) | 10882 (38700) |
| 9 | P/H/R | ICS-105 | Fine | 27mm | 3.5.4.9 | 26 | 11867 (42200) | 11838 (42100) | 11782 (41900) | 11810 (42000) | 11810 (42000) | 11810 (42000) |
| 10 | M/M/A | ICS-105 | Fine | 27mm | 3.0-3.4 | 26 | 11192 (39800) | 11192 (39800) | 11164 (39700) | 11164 (39700) | 11164 (39700) | 11135 (39600) |
| 11 | M/M/A | ICS-105 | Fine | 27mm | 3.5-4.9 | 26 | 11276 (40100) | 11276 (40100) | 11248 (40000) | 11248 (40000) | 11248 (40000) | 11220 (39900) |
| 12 | P/H/R | ICS-105 | Fine | 28mm | 3.5-4.9 | 27 | 12148 (43200) | 12120 (43100) | 12063 (42900) | 12092 (43000) | 12092 (43000) | 12092 (43000) |
| 13 | M/M/A | ICS-105 | Fine | 28mm | 3.5-4.9 | 27 | 11473 (40800) | 11473 (40800) | 11445 (40700) | 11445 (40700) | 11445 (40700) | 11417 (40600) |
| 14 | GUJ | ICS-105 | Fine | 28mm | 3.5-4.9 | 27 | 11670 (41500) | 11642 (41400) | 11642 (41400) | 11642 (41400) | 11642 (41400) | 11614 (41300) |
| 15 | M/M/A/K | ICS-105 | Fine | 29mm | 3.5-4.9 | 28 | 11642 (41400) | 11642 (41400) | 11614 (41300) | 11614 (41300) | 11614 (41300) | 11585 (41200) |
| 16 | GUJ | ICS-105 | Fine | 29mm | 3.5-4.9 | 28 | 11810 (42000) | 11782 (41900) | 11782 (41900) | 11782 (41900) | 11782 (41900) | 11754 (41800) |
| 17 | M/M/A/K | ICS-105 | Fine | 30mm | 3.5-4.9 | 29 | 11698 (41600) | 11698 (41600) | 11670 (41500) | 11670 (41500) | 11670 (41500) | 11642 (41400) |
| 18 | M/M/A/K/T/O | ICS-105 | Fine | 31mm | 3.5-4.9 | 30 | 11867 (42200) | 11867 (42200) | 11838 (42100) | 11838 (42100) | 11838 (42100) | 11810 (42000) |
| 19 | K/A/T/O | ICS-106 | Fine | 32mm | 3.5-4.9 | 31 | 12063 (42900) | 12063 (42900) | 12063 (42900) | 12063 (42900) | 12063 (42900) | 12063 (42900) |
| 20 | M(P)/K/T | ICS-107 | Fine | 34mm | 3.0-3.8 | 3 | 17434 (62000) | 17434 (62000) | 17434 (62000) | 17434 (62000) | 17294 (61500) | 17294 (61500) |

*(Note: Figures in bracket indicate prices in Rs./Candy)*