

January 2017

MINISTER ACKNOWLEDGES POSITIVE ROLE OF TECHNOLOGY IN AGRICULTURE

Business Recorder, 15 January 2017

MULTAN: The Punjab Minister for Agriculture, Naeem Akhtar Khan Bhabha, visited the bio-tech corn field trial being undertaken by Monsanto Pakistan. During the visit, the Minister was provided with a detailed briefing and overview of the technology features, crop characteristics, trial and testing parameters and agronomic practices.

The briefing was followed by a tour of the crop field for practical demonstration. Speaking on the occasion, Bhabha acknowledged the positive role of technology and innovation in the field of agriculture and emphasized the importance of a vibrant seed industry for the development and growth of agriculture in the Country.

Monsanto Pakistan's latest bio-tech corn seed incorporates technology that provides protection against pest attack and enables over the top application of herbicides for significantly improved pest and weed control. This cutting-edge technology will reduce cost of agriculture inputs and labour, whilst protecting crop yield for the farmer.

From 1996 till 2016 over 2 billion hectares of biotech crops have been planted by 18 million farmers across 28 countries. During this period (1996-2014) biotechnology was responsible for additional production of 158.4 million tons of soybeans and 321.8 million tons of corn, contributing over \$150 billion in global farm incomes. The technology has also contributed production of an extra 24.7 million tons of cotton lint and 9.2 million tons of canola.

During the briefing, Aamir Mirza, Country Lead for Monsanto Pakistan, informed the Minister that Monsanto's new bio-tech corn received commercialization approval from the Federal Ministry of Climate Change in February 2016, following compliance with the bio-safety rules and regulation and rigorous field trials, first initiated in 2009.

He assured the Minister that Monsanto Pakistan is committed to providing the highest quality corn seed to the farmer and will continue to work closely with the farming community to ensure understanding of optimum agronomic practices, highlighting Monsanto's efforts towards building capacity of the farmers through "Farmer Field Day", "Learning Centre" and "Agriculture Academy" programs.

Muhammad Aasim also briefed the minister and audience about the pest attacks and diseases which badly hit the corn crop and remedial measures introduced by the company.

<http://epaper.brecorder.com/2017/01/15/5-page/839839-news.html>

March 2017

NEWS COVERAGE PERIOD FROM MARCH 6TH TO MARCH 12 TH 2017 ON BUYING TECHNOLOGY FROM MONSANTO

Dawn, Business & Finance weekly, March 6th, 2017

Ahsan Rana

FORCED by a decline of 2m bales in cotton production last year, the Punjab government is again negotiating with the multinational company Monsanto to purchase its genetically modified cotton seeds, hoping that these new seeds will improve cotton production in the province.

The company is ready to sell its GM technology for an adequate price. It is not clear, however, the technology will have to be coupled with institutional and governance changes in the seed provision system.

Globally, GM crops have been in large scale cultivation since 1996. In Pakistan, GM crops were first introduced in 2002, with the arrival of Bt cotton in Sindh, and now approximately 95pc of cotton in Pakistan is GM cotton. Bt cotton is insect resistant, i.e. it produces a protein that is toxic to certain categories of bollworms.

Bollworms have been a major problem for cotton farmers. As such, Bt cotton came as a relief for farmers, and was fast adopted by them.

Bt cotton in Pakistan contains Monsanto's genetic transformation event. It was available for free to Pakistani breeders and seed companies, as the company had not sought patent protection here for this particular transformation event.

It was expected to give a substantial boost to cotton production, but it failed to yield the expected results, due to low quality of seed containing toxins.

Seed production is mostly done in the informal sector — outside the regulatory purview — hence quality control has been problematic.

Seed provision continues to be chaotic. Scores of seed producers provide farmers with seeds of low germination, mixed varietal composition, and having a low level of expression of Bt toxin. Consequently, farmers end up receiving less than adequate return on their labour and investment.

Another problem is the development of resistance in bollworms against Bt toxins. Due to lack of precautionary measures and use of low-toxin expressing seeds, some bollworms have developed resistance to Bt cotton currently in use.

Farmers have to use conventional pesticides to control population of this resistant pest.

One solution to the resistance problems is to use Monsanto's second-generation GM cotton seeds (called Bollgard II or BG II for short), which produce two, instead of one, toxins to provide protection against bollworms.

Eventually, bollworms will develop resistance against this second-generation technology as well, but for the time being, they are effective. The available window of opportunity for BG-II effectiveness against bollworms is approximately 8-10 years.

BG-II also comes in combination with herbicide-tolerant GM trait, i.e. in addition to insect resistance, the seed is also tolerant to certain herbicides, thereby enabling application of these herbicides by

farmers without causing any damage to the crop. This herbicide tolerant cotton is called RoundUp Ready Flex (RRF).

Monsanto has obtained patents in Pakistan on both BG-II and RRF. These rights extend until 2021 and 2023. Therefore, unlike the first-generation Bt seeds, Pakistani breeders and seed companies cannot use these second generation technologies without a licence from Monsanto until the expiry of their patents.

Two research institutes (CEMB in Lahore and NIBGE in Faisalabad) also claim to have developed second generation GM seeds for cotton. There is no reason to contest their claims. However, their products are untested and their commercial competitiveness is obscure.

Similar technological development in other developing countries gives little cause for optimism. Often such local technology development has been hardly anything more than poor copies of Monsanto's technology and remain unable to create any space for themselves in their domestic seed market.

Pakistan's experience with the first generation cotton has been similar. Both CEMB and NIBGE have claimed to have Bt cotton since 2007-08 but these products have remained limited to their laboratories. Not even a single acre of cotton is cultivated using CEMB/NIBGE technology. In other words, their technology has barely any acceptance by the farmers.

It is these BG-II and RRF technologies whose acquisition is currently under negotiation between the Punjab government and Monsanto. The company is reluctant to enter into the Pakistani market on its own, as it is afraid its technology will be copied by local seed companies without a licence, thereby causing financial loss to the company.

Hence, it wants the Punjab government to pay a technology fee, after which Monsanto will make its technology freely available to local seed companies for use in their seeds.

However, a crucial link is missing here: the quality of seed. As it so happened with the first generation GM seeds, new technology failed to live up to expectations simply because it was contained in low-quality seeds.

The same is likely to happen again, if the technology is purchased without making concomitant arrangements for better quality standards in cotton seed market.

As such, the government runs the risk of paying to Monsanto without reaping any benefit for its farmers. Reportedly, the company is demanding a very large sum. The government's apparent willingness to pay such a large sum — reflects lack of its understanding of the cotton production issues in the country and to negotiate commercial deals.

Monsanto's patents on the second-generation technologies expire in a few years. Even if the government purchases the technology today, the same will not be available in Pakistani seeds for another 2-3 years, which is the minimum time required for technology's introgression into local cotton seeds.

That will be quite close to the patent expiry period. The commercial logic of buying something, which will be available for free soon enough, is not self evident.

However, a significant contribution that Monsanto can make to the local cotton seed market is the uplifting of overall seed production standards.

If the government must ask Monsanto to specify yearly seed-sale targets directly or through its licencees, any payment to the company should be linked to meeting these targets. Otherwise, the Punjab government runs the risk of incurring huge financial liability without bringing any benefit to the farmers..

<https://www.dawn.com/news/1318668>

NEWS COVERAGE PERIOD FROM FEBRUARY 27TH TO MARCH 5TH 2017
PUNJAB CLOSE TO STRIKING DEAL WITH MONSANTO DESPITE RESERVATIONS
Dawn, March 5th, 2017

Faisal Ali Ghumman

LAHORE: The Punjab government is finalising deal with Monsanto — a leading producer of genetically modified (GM) seed — to acquire advanced cotton seed technology and technical expertise for five years.

The provincial government is moving ahead with its plans despite reservations by farmers, research institutes and seed companies which say the technology would have negative impacts.

The Punjab Agriculture Department (PAD), which has been consulting stakeholders after the Punjab chief minister approved the acquisition of GM technology from Monsanto in August, decided in Feb 2017 to strike a conditional deal with Monsanto. It would be ensured that R&D institutes and seed companies get a level playing field.

“We are negotiating with Monsanto to bring down the cost from \$70 million to \$50m,” Dr Ghazanfar Ali, additional secretary agriculture department, told Dawn on Saturday.

He said that comparison between the use of technology between the Centre for Excellence and Molecular Biology (CEMB), a local seed provider, and Monsanto suggested to go for the latter.

According to a report of the Ministry of Textile Industry published in the International Cotton Advisory Committee (ICAC) of the United States, Pakistan had adopted transgenic cotton (Bollgard II, or BG-II) over the area of about 86 per cent.

In a 2012 report, the Agriculture Biotechnology Research Institute (ABRI) confirmed that both the genes — BG-II and RoundUp Ready Flex (RRF) — were already present in GM cotton crops in Punjab and Sindh.

Documents of Monsanto and US Security and Exchange Commission (SEC) available with Dawn show that the patents for both GM cotton genes will expire in 2021.

“Even if Pakistan makes a deal with Monsanto to introgress BG-II and RRF genes, it will be available for commercialisation after 2021,” said an informed source in the PAD.

He said Monsanto would provide access to its pipeline cotton technologies like BG-III and others in separate model and financial terms, subject to successful roll-out and satisfactory execution of BG-II and RRF technologies.

Punjab Agriculture Secretary Muhammad Mahmood said that a local research institute claimed that they have doubled *Bacillus thuringiensis* (Bt) and the glyphosate-resistance genes ready for commercialisation, whereas double Bt–vegetative insecticidal protein-3 (vip3)–glyphosate-resistance genes were in the pipeline and would be available in 2019.

A visit to research institutes revealed that the NIBGE had nothing to offer immediately whereas the technology available with the CEMB still needed to be improved and was far behind in commercialisation.

“Therefore, Punjab has only one window available, ie Monsanto, to get latest proven seed technology,” he said.

To safeguard interest of the industry, R&D institutes and farmers he floated a 6+1 formula (seed companies plus the Punjab Seed Corporation) to work with Monsanto to get better results.

Mr Mahmood added that the provincial government would provide all kind of resources to help research institutes and invited proposals for their capacity-building.

The additional secretary (planning) informed that a workshop titled “Prospects of GM Cotton in Punjab: Opportunities and Challenges” was held on Aug 31, 2016, in which three working groups were constituted. The first recommendation of a working group, duly approved by the Punjab chief minister, was introduction of GM cotton technology at the earliest.

Former director of the Central Cotton Research Institute (CCRI), Multan, Dr Zahoor Ahmad was of the view that BG-II technology has failed in Australia and India, so Pakistan should go for triple genes.

“We need to be cautious as the US government has a law under which Monsanto may be stopped to implement the agreement,” he added.

Dr Kausar Abdullah Malik said Monsanto’s first entry into the market would be in 2021, but Pakistan’s institutes can introduce triple genes cotton much earlier.

He advised to keeping all options open and developing a mechanism for public private partnership in the field.

He said that in the past new varieties could not be approved due to non-functioning of National Bio-safety Committee. “Now we should develop heat-tolerant and weather-resistant varieties with the local germ plasm and should provide \$10m to the local research institutes besides \$50-70m dollars to Monsanto for the purpose.”

Seed Association of Pakistan’s Moshin Raza said the provincial government should not spend a large amount of \$70m for acquiring this technology and instead support local institutes who could provide three-gene cotton in 2019 free of cost.

<https://www.dawn.com/news/1318464/punjab-close-to-striking-deal-with-monsanto-despite-reservations>

April 2017

NEWS COVERAGE PERIOD FROM APRIL 10TH TO APRIL 16TH 2017

CHINESE SEED FIRM, UAF SIGN MOU

Business Recorder, 13 April 2017

FAISALABAD: Wuhan Qingfa-Hesbeng Seed Co Ltd China and University of Agriculture Faisalabad (UAF) on Wednesday inked a memorandum of understanding to work together on seed varieties, breeding, screening and production technology.

The MoU was duly inked by UAF Vice Chancellor Dr Iqrar Ahmad Khan and the Chinese company General Manager Zhu Xiaobo at New Senate Hall UAF. The MoU was followed by a seminar on Seed certification for crop improvement arranged by UAF Seed Science and Technology.

It was agreed upon that the Chinese seed company will provide hybrids varieties and breeding material for screen test and local seed production. The Chinese company will also award scholarships to outstanding and needy students. It will provide internship opportunity for students to gain practical and infield knowledge.

The UAF will map out projects to introduce the advanced research with seed industry. The UAF will include the course material recommended by Chinese seed company in its curriculum and academic programme on seed science and technology.

Chairing the seminar Dr Iqrar Ahmad Khan said that lack of quality and certified seed coupled with inappropriate methods of sowing were a matter of concern for the country.

He also said, "We are unable to get benefit from quality seed because it (quality seed) was being sown with broadcasting method". He urged the farmers to apply drill sowing to enhance per acre production. He said that the University had introduced Seed sciences major in the degree programmes.

He said that Seed Centre was established to conduct the research and preserve the germplasm. He said that as you sow, so shall you reap. He said that agriculture sector faces the daunting challenges of climate change. He stressed upon the need to adopt innovative crop varieties complemented with quality seed to the farming community.

Pakistan Seed Promotion Alliance President Dr Shakeel Ahmad Khan called for providing the enabling environment for seed sector.

He said that seed act is the hallmark step to address the issue at the national level. There is a dire need to aware the masses about the act and its implementation. He said professionals trained in seed regulations, and handling issues would help the county overcome the problems in the seed sector. He said that UAF sciences programs must be replicated in the other universities.

Minnesota Crop Improvement Association President Dr Fawad Shah said that there is need to ensure the quality seed for the farming community as it will help in food security. He said that per acre

productivity in the country was very low for which modern seeding and quality seed would pave the way for the development.

Zhu Xiaobo said that the collaboration will help address the agricultural issues. She said Wuhan Qingfa-Hesbeng Seed Co Ltd is a leading seed company in China which is integrating with breeding production and domestic and international marketing of field crops and vegetables seed methods.

<http://epaper.brecorder.com/2017/04/13/13-page/866688-news.html>

May 2017

NEWS COVERAGE PERIOD FROM MAY 1ST TO MAY 7TH 2017

GLOBAL GMO CROP AREA UP 3PC IN 2016 AFTER PRIOR-YEAR DIP

Business Recorder, May 7, 2017

NEW YORK: Plantings of genetically modified (GMO) crops rebounded in 2016 from a decline the prior year, led by increased sowings in Brazil and the United States, according to an annual report released on Wednesday.

Biotech crops were planted on a record 185.1 million hectares (457.4 million acres) last year, up 3 percent from the 179.7 hectares (444.0 million acres) planted a year earlier, said the International Service for the Acquisition of Agri-Biotech Applications (ISAAA), the group that released the data.

The biotech crops, including corn, soybeans and cotton, are genetically modified to resist pests or disease, tolerate drought or withstand sprayings of weed killers like glyphosate, the active ingredient in Monsanto Co's Roundup herbicide.

Other GMO crops include apples that resist browning and potatoes that bruise less.

Proponents of biotech crops say the technology lowers the cost of food and helps farmers more safely manage pests and diseases.

But there has been increasing pressure from some consumers and environmental groups who argue that GMO crops increase pesticide use and pose threats to the environment and human health.

GMO seedings expanded 3 percent in the United States, the largest producer of biotech crops, and 11 percent in Brazil, the No. 2 market, ISAAA said.

The two countries represented 66 percent of total GMO crop seedings globally.

Plantings declined by 3 percent in Argentina, largely due to reduced soybean seedings as farmers shifted land to corn and sunflower cultivation, the group said.

Low cotton prices and high stocks triggered a 24 percent drop in biotech seedings in China, where some biotech corn and soybean varieties are approved for import but not for cultivation.—Reuters

<http://epaper.brecorder.com/2017/05/07/15-page/873269-news.html>

June 2017

October 2017

NEWS COVERAGE PERIOD FROM OCTOBER 1ST TO OCTOBER 8 Th 2017

INDIAN STATE TO INSPECT CULTIVATION OF UNAPPROVED MONSANTO GM COTTON

Dawn, October 7th, 2017

NEW DELHI: A top Indian cotton-producing state has ordered an inspection of fields planted with an unapproved variety of genetically modified seeds developed by Monsanto, which is fighting to retain its market in the world's biggest grower of the fibre.

Farmers in Andhra Pradesh have planted 15 per cent of the cotton area in the state with Bollgard II Roundup Ready Flex (RRF), prompting the local government on Friday to form a panel of officials to "inspect the fields of farmers growing RRF".

The order, issued by senior Andhra Pradesh official B Rajasekhar, did not say how the farmers accessed the unapproved variety of genetically modified (GM) cotton. Calls to his office went unanswered.

"It's a matter of grave concern that some seed companies, while suppressing their real intent of profiteering, are attempting to illegally incorporate unauthorised and unapproved herbicide-tolerant technologies into their seeds," a Monsanto spokesman said.

"Commercial release of GM technologies in India without the requisite regulatory approvals may not only pose tremendous risks for the country's farmers, it may also be in violation of applicable laws of the land." The spokesman did not identify the local companies.

Bollgard II RRF is a proprietary technology owned by Monsanto, the world's biggest seed maker, which last year withdrew its application seeking approval from the regulator, Genetic Engineering Appraisal Committee (GEAC), for this variety.

The withdrawal was seen as a major escalation in a long-running dispute between the Indian government and Monsanto, which is also locked in a bitter battle with Andhra Pradesh-based Nuziveedu Seeds Ltd.

Monsanto applied for GEAC approval of Bollgard II RRF, known for its herbicide-tolerant properties, in 2007. When the US company withdrew the application last year, it was in the final stages of a lengthy process that included years of field trials.

The illegal sale of the seeds violates India's environmental protection rules, said C D Mayee, president of the South Asia Biotech Centre, a not-for-profit scientific society.

Mayee, a former government scientist, estimated that 3.5 million packets of such seeds were sold this season.

"Over the years, we have kept the regulators and key stakeholders apprised of the illegal usage of unapproved technology," the Monsanto spokesman said.

“Even as late as August 2017, we have sought their intervention on the gross misuse of patented and regulated technologies which may pose numerous other challenges to India's cotton ecosystem.”

A spokesman for the federal environment ministry was not immediately available for comment.

New Delhi approved the first GM cotton seed trait in 2003 and an upgraded variety in 2006, helping transform India into the world's top producer and second-largest exporter of the fibre.

<https://www.dawn.com/news/1362189Proudly>