

April 2016

NEWS COVERAGE PERIOD FROM APRIL 25th TO MAY 1st 2016

TOP AFRICAN PRODUCER BANS GM COTTON

Business Recorder, April 25, 2016

Burkina Faso, Africa's top cotton producer and the sole West African nation to venture into biotech farming, is dropping genetically-modified (GM) cotton on quality grounds. The world's 10th largest cotton producer, with four of its 19 million people dependent on the "white gold", Burkina Faso earlier this month said it was giving up Monsanto's GM Bt cotton because it had proved uneconomical.

Burkina took up GM cotton in the 2000s in the hopes of bumping up returns on what was then its top export product, surpassed in 2009 by gold. But the country's association of cotton producers now say GM cotton, though producing higher yields, has caused a drop in crop quality.

"The cotton fibre we are producing today is short," Burkina Faso's new President Roch Marc Christian Kabore told AFP this month.

Fibre length is key in textiles with longer ones tending to produce stronger yarns because they allow fibres to twist around each other more times, also enabling higher spinning speeds.

But the shorter fibres now being produced from Burkina's GM cotton "means that in market terms it's an activity which is no longer very attractive for us," the president said.

The government, he added, has taken steps "to underpin the sector ... and help producers."

Those measures include tens of thousands of dollars worth of seed and fertiliser subsidies as well as price controls for producers to offset market falls.

Burkina's Inter-professional Cotton Association (AICB), grouping the country's main producers and the national cotton farmers' union, is now targeting "100 percent conventional" production, Wilfried Yameogo, director of Sofitex, Burkina Faso's main cotton company, said earlier this month.

"It's a battle won," added Christian Legay of the national council of organic food processors, an umbrella organisation of consumer groups and farm workers which wants a five-to-10 year moratorium on transgenic cotton in Burkina Faso.

But qualms over GM products and "frankenfoods" played no role in the about-face.

With Burkinabe cotton once prized for its purity and length of fibre, it was the fall in quality that weighed in favour of a return to conventional cotton. Producers say this resulted in the sector incurring losses between 2011 and 2016 of some 48.3 billion CFA francs (\$82.4 million). They insist these must come back to them in the form of compensation. In the 2000s, the emergence of GM had fuelled hopes of greater production and also reduced the need for fertiliser.

This was a key issue in a region prone to drought and where cotton pests had grown resistant to eradication by pesticides.

Insecticide-resistant caterpillars – the 'Helicoverpa armigera known as the cotton bollworm or Old World (African) bollworm – wreaked havoc on crops and producers' livelihoods in 1991, 1996 and 2000. GM crops were supposed to be a win-win solution – reducing the number of pesticide treatments as well as boosting yields by as much as 90 percent, boosting per hectare profits.

Celestin Dala, a producer in Nayala in the west of the country, said that “with GM cotton two treatments are required – six with conventional.” In 2003, Burkina authorised experimental planting by US seed giant Monsanto and Swiss multinational Syngenta. Then in 2007, Burkina launched large scale production of transgenic cotton.

Two years later, the authorities ordered farmers to seed up to 80 percent of their crop with the GM variant, leading to a reduction in labour time and facilitating the backbreaking work involved.

Researchers, political and community leaders were critical of the move to launch GM crops from the outset.

<http://www.brecorder.com/cotton-a-textiles/186:world/39940:top-african-producer-bans-gm-cotton/?date=2016-04-25>

NEWS COVERAGE PERIOD FROM APRIL 11th TO APRIL 17th 2016
ACREAGE FOR GENETICALLY MODIFIED CROPS DECLINED IN 2015
International New York Times, April 13, 2016

The world’s farmers have increased their use of genetically modified crops steadily and sharply since the technology became broadly commercialized in 1996. Not anymore.

In 2015, for the first time, the acreage used for the crops declined, according to a nonprofit that tracks the plantings of biotech seeds.

The organization said the main cause for the decline, which measured 1 percent from 2014 levels, was low commodity prices, which led farmers to plant less corn, soybeans and canola of all types, both genetically engineered and nonengineered.

But the figures for the last few years show that the existing market for the crops has nearly been saturated.

Only three countries — the United States, Brazil and Argentina — account for more than three-quarters of the total global acreage. And only four crops — corn, soybeans, cotton and canola — account for the majority of biotechnology use in agriculture. In many cases, more than 90 percent of those four crops grown in those three countries, and in other large growers like Canada, India and China, is already genetically modified, leaving little room for expansion.

Efforts to expand use of biotechnology to other crops and to other countries have been hindered by opposition from consumer and environmental groups, regulatory hurdles and in some cases scientific obstacles.

“Onerous regulation for transgenic biotech crops remains the principal constraint to adoption,” said the executive summary of the report by the nonprofit, known as the International Service for the Acquisition of Agri-Biotech Applications.

The organization states its mission as helping small farmers in developing countries take advantage of biotechnology, which it maintains can increase farmer income and reduce use of chemical pesticides. It receives financial support from various foundations, companies, trade groups and governments, including Monsanto and the United States government.

Still, the group’s yearly acreage tallies are widely cited, even sometimes by critics of biotechnology.

The policy conclusions reached by the group are another matter. Bill Freese, science policy analyst at the Center for Food Safety, which generally opposes genetically modified crops, said that the organization’s reports were “just total boosterism.”

The slowing of growth in agricultural biotechnology has contributed to consolidation within the industry, with DuPont and Dow merging and Syngenta being acquired by the China National Chemical Corporation. It is also a factor behind Monsanto’s efforts to diversify, including through an unsuccessful bid to buy Syngenta last year.

Over all, the acreage planted with biotech seeds in 2015 fell 1 percent globally to 444.0 million acres, from 448.5 million acres in 2014. The crops were grown in 28 countries and used by up to 18 million farmers, most of them small ones in developing countries, the report said. Critics say that despite the expansion over the last two decades, biotech crops still account for a small fraction of global farmland and are grown by a small percentage of the world's farmers.

The value of the seeds was \$15.3 billion in 2015, down from \$15.7 billion in 2014. That represents 34 percent of the global commercial seed market, the report said.

Most of the genetically modified crops contain genes from bacteria that make the crops resistant to certain insects or tolerant of Roundup or other herbicides. That tolerance of herbicides can allow farmers to spray those chemicals to kill weeds without harming the crop.

The crops were eagerly adopted from the moment they first became widely commercialized in 1996, particularly in the United States. Global acreage grew year over year, in many years by double digits, until a slowdown in the last two or three years.

The United States remained the largest grower of such crops in 2015, with 175.2 million acres planted, down 5.4 million acres from 2014. That decline was largely offset by an increase of nearly five million acres in Brazil, bringing its total to 109.2 million acres. Acreage in Argentina, the third-largest grower, increased to 1 percent, at about 60.5 million acres.

Plantings in India, whose only genetically engineered crop is cotton, were flat at about 28.7 million acres while cultivation in Canada fell by about 5 percent to 27.2 million acres because of lower overall cultivation of canola, the report said.

Val Giddings, a proponent of biotech crops, said the small yearly decline was a sign of a maturing market. "I'm completely unsurprised to see this slight evidence of cycles, which are normal in agriculture," said Dr. Giddings, senior fellow at the Information Technology and Innovation Foundation, an organization in Washington that advocates for policies that enable innovation.

Efforts to introduce different traits and different crops have been slow to take hold. In the United States, two notable new genetically engineered crops were approved since late 2014 — apples that do not turn brown when sliced and potatoes that produce less of a potential cancer-causing chemical when fried. But in response to activists, some food companies like McDonald's, Wendy's and Gerber have said they have no intention to use one or both of those products at present.

Development of those markets will be gradual, with only about 400 acres of the potatoes and 15 acres of the apples planted in 2015, according to the report.

With Vermont now set to require labeling of foods containing genetically modified crops, some big food companies like Campbell, General Mills and Mars have said they will start labeling all their foods nationwide. Del Monte Foods went even further, saying it would eliminate ingredients from genetically modified crops in many of its products.

In China and India, growers have widely adopted cotton engineered to be resistant to insects. But efforts to expand the use of biotechnology to food crops have faltered. China has devoted a lot of research into developing its own versions of genetically engineered corn and rice but has not approved them yet for commercial use.

In India, the government in 2010 imposed a moratorium on commercial cultivation of insect-resistant brinjal, a type of eggplant. Recently, the government has said it would reduce the fees that Monsanto and its local partner can charge cotton seed companies for their genes, prompting Monsanto to threaten to re-evaluate its business in that country.

Europe remains the center of opposition to the crops. Cultivation in the European Union fell 18 percent to only about 300,000 acres, almost all of that insect-resistant corn grown in Spain.

The report said the global acreage could expand if genetically modified corn were to be adopted in China and in other parts of Asia and Africa.

Vietnam began growing such corn commercially in 2015. The report also said there were 85 potential new products being field tested, including drought-resistant corn and pest-resistant cowpeas for Africa.

http://www.nytimes.com/2016/04/13/business/acreage-for-genetically-modified-crops-declined-in-2015.html?_r=0

NEWS COVERAGE PERIOD FROM APRIL 4th TO APRIL 10th 2016
CONTROVERSY OVER COMMERCIAL USE OF GM CORN SEEDS
Dawn, Business & Finance weekly, April 4th, 2016

Ashfak Bokhari

A HEATED controversy is raging over whether or not the government has given a go-ahead to some multinationals to make commercial sale of GM corn seeds at a time when the Seed (Amendment) Bill, which allows it, has yet to be passed by the Senate.

The companies claim to have received a formal permission and licences from the Ministry of Climate Change. But in response to a point of order raised by an opposition MNA in the National Assembly a fortnight ago, two federal ministers Khurram Dastgir and Sikandar Hayat Khan Bosan categorically denied that the government had given licence to any multinational company for commercial trial of GM (genetically modified) corn seeds. GM corn is stated to be a crop with serious side-effects because of cross-pollination that can contaminate other non-GM crops within a range of 200-500 metres.

The question that remains unanswered is which authorities have given permission to the seed companies. The National Bio-safety Centre, whose committee normally gives approval, is not functional these days and there is none to monitor the new technology and gather data.

However, the permission, if at all, has been given without conducting the required field trials of the GM seeds and this, the critics say, constitutes a clear violation of the national bio-safety laws and the international standard operating procedures. But Croplife, the industry's representative body, insists that the authorities concerned have already given the go-ahead.

Croplife also claims that the Technical Advisory Committee's sub-committee for field monitoring visited all trial sites in each growing season for collecting data and assessing compliance. The reports for each season and each year were submitted to the relevant departments and ministries.

Besides, it said, the sub-committee for GM corn commercialisation had thoroughly reviewed all the field trial reports to assess the risk and concluded that GM corn is as safe as non-GM corn.

Maybe, instead of field trials involving farmers, some observers say, small-scale tests in confined areas were conducted in certain government institutions and universities. No insect resistance management programme was considered and no proper Refugia was planned. Refugia means a 5-10pc area covered by a crop where non-GM seeds are cultivated to delay resistance.

Monsanto, a leading US seed multinational, claims that the government had recently allowed commercialisation of its GM corn in Pakistan after a long and rigorous process starting from 2009. Aamir Mirza, CEO, of Monsanto Pakistan says that "the government has accepted our two technologies namely Insect Protection and Herbicide Tolerant."

He said that a monitoring sub-committee had visited fields for assessment of trials a number of times in each growing season and during this period, the company had followed a proper procedure for seeking approval from the National Biodiversity Committee and it went for seed imports and field trials only after the approval was received.

A former chief of Environment Protection Agency, Asif Shuja, says the decision had been taken in haste by the government with no proper procedure followed or risk assessment carried out. This could raise grave problems in future.

The country's laboratories, he says, are not in a position to handle the situation and its institutions are also not capable of monitoring and regulating the GM corn crop. There is need for a proper risk assessment of the new technology and to ascertain whether the manpower, institutions and system available at the moment could tackle the challenge.

Local seed industry officials are of the view that since the government has no option but to support the biotech industry because of political reasons, what is needed is a strong regulatory system to strengthen the biotech research and development activities.

According to the findings of the World Bank's International Agency for Research on Cancer made public in March 2015, glyphosate — a chemical in herbicides that are widely used on GM crops — is 'probably carcinogenic to humans'. Glyphosate is used in a US multinational's branded herbicide Roundup Ready, which can be sprayed on crops that have been genetically modified to tolerate glyphosate.

Many Pakistani NGOs and farmer organisations have been opposing the GM technology for its anti-farmer bias and health risks. Many of them have written to the Senate's chairman, asking him to reject the draft Seed Act 2014 and enact a new law in its place that protects the interests of small farmers who under the present bill could be fined and imprisoned for preserving, selling and exchanging seeds, a centuries-old tradition that has helped them produce grains in surplus.

<http://www.dawn.com/news/1249740>

RISING DEMAND FOR CANE STRAINS US SUGAR INDUSTRY

A push by some US food manufacturers to steer clear of genetically modified agricultural products has increased demand for cane sugar at the same time that cane refiners are having a difficult time securing supplies, potentially straining the country's controversial support program.

Cane refiners like Louis Dreyfus Commodities BV's Imperial Sugar Co and ASR Group – the maker of Domino Sugar – are scrambling to secure supplies to satisfy the growing appetite for cane sugar as an increasing number of food companies move away from ingredients derived from genetically modified organisms (GMOs).

Vermont's new requirements for food companies to label GMO ingredients have "turbo boosted" the trend toward cane, said one buyer. This is forcing the market to adjust to unusual tensions between cane refiners and other sugar buyers who are pressing the government to increase access to raw sugar at the same time that a bumper crop has boosted supply. It has also pressured prices of sugar from beets, almost all of which are GMO.

Average prices of refined cane sugar have been trading about 2 cents per lb above average prices for refined beet sugar, produced from genetically-engineered seeds. That is their biggest premium in two years, as raw prices soar to their highest levels since 2012 and squeeze profit margins.

Beet sugar's share of the US market is at a record low, according to data from the US Department of Agriculture (USDA) dating back to 1992, while cane sugar's share has risen to the highest in nearly two decades.

<http://www.brecorder.com/agriculture-a-allied/183/32485/>

May 2016

NEWS COVERAGE PERIOD FROM MAY 16TH TO MAY 22 ND 2016

I RUN A G.M.O. COMPANY — AND I SUPPORT G.M.O. LABELING

International New York Times, MAY 16, 2016

Jason Kelly

Boston — MY first exposure to biotechnology was from my father. He grew up with juvenile diabetes, and for most of his life had taken daily injections of insulin from pigs, even though it came with a risk of side effects. That changed in 1982 when Eli Lilly introduced Humulin. I remember the Humulin box with “human insulin (recombinant DNA origin)” proudly displayed on the label: Biological engineers had transferred human DNA-encoding insulin into bacteria, and that meant my dad could get the real thing and no longer had to make do with insulin from animals.

Twenty-six years later, I became a founder of a biotechnology company that makes products with genetically modified organisms for the food industry. Like 88 percent of my fellow scientists, I believe that genetically engineered foods are safe. But unlike many of my colleagues, I’m among the 89 percent of Americans who believe that bioengineered ingredients should be identified on food packaging.

To me, there’s no contradiction in these two beliefs. For years, scientists have celebrated the many benefits of genetic engineering, from increased crop yields to improved nutritional content. They have also been embracing transparency, in the form of open access to research findings and calls for increased public engagement.

It doesn’t make sense to advocate a better understanding of biotechnology in one breath and, in the other, tell consumers they don’t need to know when that technology is used to make their food.

Foods with bioengineered ingredients are safe, but shrouding them in secrecy breeds doubt and fear. Clear, informative labeling is a first step toward transparency that can build trust and educate consumers. But trust has to go both ways: Biotechnology companies and food producers must trust consumers to educate themselves and make informed decisions.

Some major food companies, most notably Campbell Soups, have recently announced that they will start putting G.M.O. labeling on their products. This is a good first step, but more companies need to follow. The same goes for a new labeling law in Vermont — which is likely to set a de facto national standard — that requires that foods containing bioengineered ingredients be labeled with the words “produced with genetic engineering.” This is not nearly enough information for consumers to make informed choices.

Which ingredients are made using genetic engineering? And more important, why? It’s not enough to simply know that something is engineered; is the technology enabling the use of particular herbicides, decreasing the need for sprayed pesticides or protecting the fruit from a virus? Consumers might feel differently about rice engineered to combat nutritional deficiencies as opposed to a non-browning apple, potato or mushroom that could, theoretically, reduce food waste.

The exemptions in the Vermont law also mean that the labels appearing this summer will leave a significant percentage of foods containing bioengineered ingredients unlabeled. Foods sold in restaurants — accounting for nearly a third of all American calories — will be exempt, as will alcoholic beverages.

The law also makes exceptions for bioengineered ingredients that are present at less than 0.9 percent of the final weight of the product. These may include processing aids like genetically engineered yeast or enzymes used in baking and brewing. These may not add much weight to a product, but they’re important details.

Exempting such products means that many cheeses — a major industry in Vermont — produced with bioengineered ingredients will not be labeled. But an estimated 90 percent of American cheese, for example, is made with cultured chymosin, a vegan rennet replacement made using genetically engineered *Aspergillus* fungi.

Also excluded are cultured ingredients — flavorings, vitamins and other food ingredients — that are produced and extracted from engineered microorganisms in fermentation tanks. Today, cultured riboflavin and other vitamins produced by engineered microorganisms make up the majority of B vitamins used to fortify foods (which is partly why foods often lose nutritional value when companies reformulate to go non-G.M.O.).

Critics of mandatory labeling have used these omissions and inconsistencies as arguments for maintaining the unlabeled status quo. However, inadequate labels are not a reason to not label; they are a reason to push for better labels.

Digital disclosure programs like SmartLabel, which would have been part of a national labeling proposal by Senator Pat Roberts of Kansas, would allow consumers to get information by scanning a code on a product package. Such programs are effective, however, only when they are mandatory, national and used in concert with printed labels.

As Congress debates nationwide labeling requirements, its members should remember that the American people need federal mandatory labeling guidelines for all bioengineered ingredients. Clear, consistent and truly informative labels will mean that consumers have not just the right to know about their food, but the ability to think about how it is made.

http://www.nytimes.com/2016/05/16/opinion/i-run-a-gmo-company-and-i-support-gmo-labeling.html?_r=0

NO EVIDENCE THAT GENETICALLY MODIFIED CROPS UNSAFE TO EAT

Business Recorder, May 18, 2016

A sweeping review Tuesday of decades of research on genetically modified crops found no evidence that they are unsafe to eat, but warned that evolving resistance could be a serious problem. The findings issued by the US National Academies of Science examined two decades of research on genetically engineered (GE) crops, as they are also known, and called for regulators to take a closer look at the final product of a new plant variety, rather than the process used to breed or engineer it.

“We dug deeply into the literature to take a fresh look at the data on GE and conventionally bred crops,” said committee chair Fred Gould, co-director of the Genetic Engineering and Society Center at North Carolina State University. Gould acknowledged that the wealth of data and opinions on the controversial matter “had created a confusing landscape” and that the new report aimed to offer an unbiased review of the evidence.

The committee looked at almost 900 research and other publications on genetically engineered characteristics in maize (corn), soyabean, and cotton – representing the vast majority of commercial crops to date.

“While recognizing the inherent difficulty of detecting subtle or long-term effects on health or the environment, the study committee found no substantiated evidence of a difference in risks to human health between current commercially available genetically engineered (GE) crops and conventionally bred crops, nor did it find conclusive cause-and-effect evidence of environmental problems from the GE crops,” said the report.

“New plant varieties that have intended or unintended novel characteristics that may present potential hazards should undergo safety testing – regardless of whether they were developed using genetic engineering or conventional breeding techniques.” The report found that “evolved resistance to current GE characteristics in crops is a major agricultural problem,” including both insect and weed resistance.

It cited “many locations” in which weeds have evolved resistance to glyphosate, the herbicide to which most biotech crops were engineered to be resistant. Biologists have used genetic engineering since the 1980s to produce fruit that can live longer on store shelves, have higher vitamin content and be more resilient against common diseases.

But the report pointed out that “the only genetically engineered characteristics that have been put into widespread commercial use are those that allow a crop to withstand the application of a herbicide or to be toxic to insect pests.” For this reason, the committee “avoided sweeping, generalised statements about the benefits and risks of GE crops,” said the report.

It found no association “between any disease or chronic conditions and the consumption of GE foods.” On the other hand, the report pointed to some evidence that insect-resistant biotech crops have boosted human health by cutting back on insecticide poisonings. Researchers found that crops that are insect-resistant or herbicide-resistant did not reduce the overall diversity of plant and insect life on farms.

Even some instances of genes transferring from an engineered crop to a wild relative species have not “demonstrated an adverse environmental effect,” said the report. “Overall, the committee found no conclusive evidence of cause-and-effect relationships between GE crops and environmental problems.”

<http://www.brecorder.com/agriculture-a-allied/183/46992/>

NEWS COVERAGE PERIOD FROM MAY 2nd TO MAY 8th 2016
US TRADERS REJECT GMO CROPS THAT LACK GLOBAL APPROVAL
Business Recorder, May 08, 2016

Across the US Farm Belt, top grain handlers have banned genetically modified crops that are not approved in all major overseas markets, shaking up a decades-old system that used the world’s biggest exporting country as a launchpad for new seeds from companies like Monsanto Co. Bold yellow signs from global trader Bunge Ltd are posted at US grain elevators barring 19 varieties of GMO corn and soybeans that lack approval in important markets.

CHS Inc, the country’s largest farm cooperative, wants companies to keep seeds with new biotech traits off the market until they have full approval from major foreign buyers, Gary Anderson, a senior vice president for CHS, told Reuters. “I think that would be the safest thing for the supply chain,” he said. CHS implemented a policy last year under which it will not sell seeds or buy grain that contains traits lacking approvals needed for export.

The US farm sector is trying to avoid a repeat of the turmoil that occurred in 2013 and 2014, when China turned away boatloads of US corn containing a Syngenta AG trait called Viptera that it had not approved. Viptera corn was engineered to control insects. Cargill Inc and Archer Daniels Midland Co each said the rejections cost them millions of dollars, and both companies have sued Syngenta for damages. ADM is refusing GMO crops that lack global approval. Cargill did not respond to requests for comment.

The United States is the biggest producer of GMO crops and has long been at the forefront of technology aiming to protect crops against insects or allow them to resist herbicides. That innovation is now seen as a risk to trade because it is hard to segregate crops containing unapproved traits from the billions of identical-looking bushels exported every year.

Soren Schroder, chief executive officer for Bunge, said the practice of launching GMO seeds without full approval is “very risky.” “It’s an uncomfortable position for the industry when there are traits out there that haven’t had major market approval,” he said in an interview.

The latest crop being banned is Monsanto’s Roundup Ready 2 Xtend soybean, whose seeds are genetically engineered to resist the herbicides glyphosate and dicamba. It is being sold for the first time in the United States and Canada this year despite lacking clearance from the European Union, an important export market for North American soybeans. Monsanto said it expects EU approval soon. It initially projected farmers would plant the seed on 3 million acres in the United States, roughly 4 percent of overall plantings, and 420,000 acres in Canada.

Plantings have already begun in North America, and Monsanto spokeswoman Trish Jordan said that each passing week without EU authorization lowers the forecast for acreage in Canada. The company is allowing growers to switch to another variety and has not yet shipped Xtend seeds to farmers who have ordered it in Canada. Monsanto has not publicly lowered its US forecast.

ADM, Bunge and CHS have said they will not accept Xtend soybeans until the trait is fully approved by major markets. Bunge also declined to accept Viptera corn before China cleared it in December 2014. The company's list of banned traits on its yellow posters contains products from Monsanto, Syngenta, Dow AgroSciences, Stine Seeds, DuPont Pioneer and Bayer, many of which are not commercially available to farmers yet. CHS has its own list of restricted traits that includes products from Monsanto, Syngenta and DuPont Pioneer.

Seed companies, including Syngenta and Dow, are addressing industry concerns by selling biotech products under programs that restrict where growers can deliver their harvests to keep crops out of unapproved markets. Farmers also produce crops containing biotech traits from Monsanto and DuPont Pioneer under contracts with end users that designate approved locations where they can be delivered.

However, such approaches are not fool-proof methods of protecting the supply chain, Anderson said. Stine Seed and Bayer said they have policies against selling seed traits that lack approvals in major export markets. Bayer this week seized on concerns about Monsanto's launch of Xtend soybeans to promote its own brand, LibertyLink. "Soybeans, once considered such a simple crop to grow and market, is becoming more complicated," Bayer said. It called the situation faced by growers "downright confusing."

<http://www.brecorder.com/agriculture-a-allied/184:world/44024:us-traders-reject-gmo-crops-that-lack-global-approval/?date=2016-05-08>

June 2016

NEWS COVERAGE PERIOD FROM JUNE 20TH TO JUNE 26TH 2016

'BUREAUCRATIC HURDLES HAMPERING BIOTECH GROWTH'

Dawn, June 21th, 2016

Faiza Ilyas

KARACHI: While developing countries are making fast progress in biotechnology to benefit their growing population and strengthen economy through food exports, Pakistan lags far behind in this field mainly due to bureaucratic hurdles that have effectively scuttled efforts of local experts, many of them have developed indigenous genetically-modified (GM) varieties and wait for government support for their commercialisation.

This was one of the key points highlighted at a press conference held on Monday at the launch of ISAAA (International Service for the Acquisition of Agri-Biotech Applications) 2015 report at Karachi University's Latif Ebrahim Jamal National Science Information Centre. The event was organised by the Pakistan Biotechnology Information Centre (PABIC).

"Though it's biotechnology that has sustained and met the country's local and export cotton needs since 2009, we couldn't take this technology to a higher level; introducing it in food crops and other industrial crops," said director of the International Centre for Chemical and Biological Sciences Prof Mohammad Iqbal Choudhary.

Progress in biotechnology in Pakistan, he said, was limited only to the level of research.

"A number of scientists have developed indigenous GM varieties but awaiting government support for their commercialisation," he said.

Elaborating on the hurdles hampering biotech growth in the country, he said that confusion and lack of clarity on responsibilities assigned under devolution halted the progress made in the field of biotechnology in previous years that included enactment of the Pakistan Bio-Safety Rules 2005 and establishment of the National Biosafety Centre.

“There was no set up in Islamabad to look into the requests for approval of biotech products for years primarily due to disagreement between the federal and the provincial governments.

“Now, a bio-safety committee does exist (at the federal level) but faces a huge back-log of pending cases,” he said.

Being an agrarian state and one of the most vulnerable countries to climate change, Pakistan, he said, faced multiple challenges and it was high time that the government paid attention to this field to meet the need of growing population.

Underlining the need for development of indigenous GM varieties and a proper regulatory framework for their approval, he said this was the only way to address concerns related to GM crops.

“It’s nothing less than a tragedy that despite being an agricultural country and having all required scientific skills, we import all hybrid seeds.

“Instead of inviting multinational companies, we need to have our own varieties that suit our ecosystems.”

Giving a presentation on the Date Palm Research Institute of Shah Abdul Latif University Khairpur, Prof Ghulam Sarwar Markhand, the director of the facility, said the centre had done a lot of work in micro-propagation.

“We have produced nine varieties, three of them are exotic. One of our biggest achievements is the successful application of inflorescence technique through which we have developed six varieties that are bearing fruit now,” he said.

Answering a question, he said that the government should choose the best performing universities and scientists, assigned them a task and provide them with required funding to progress in science.

In his brief speech, chief executive officer of the Cantonment Board Malir Sardar Atif Sultan said: “It’s unfortunate that while regional countries are expanding their biotech efforts, we are not even in a phase of welcoming this technology.”

According to the ISAAA report, 2015 marked the 20th year of successful commercialisation of biotech crops. An unprecedented cumulative hectareage of two billion hectares of biotech crops, equivalent to twice the total land mass of the US, were successfully cultivated globally in up to 28 countries annually, in 20 years, from 1996 to 2015; farmer benefits for 1996 to 2015 were conservatively estimated at over \$150bn.

Up to 18 million risk-averse farmers benefited annually, of whom, remarkably, 90pc were small, resource-poor farmers in developing countries.

“India became the No.1 cotton producer in the world to which Bt cotton (a GM crop) made a significant contribution — benefits for the period 2002 to 2014 are estimated at \$18 billion,” it says.

According to the report, for the 4th consecutive year, developing countries planted more biotech crops. In 2015, Latin American, Asian and African farmers collectively grew 97.1 million hectares compared with industrial countries at 82.6 million hectares. Of the 28 countries planting biotech crops in 2015, the majority, 20, were developing and eight industrial.

Latin America had the largest hectareage, led by Brazil, followed by Argentina. In Asia, Vietnam planted for the first time, and Bangladesh's political will advanced planting of Bt eggplant and identified Golden Rice, biotech potato and cotton as future biotech targets.

"Indonesia is close to approving a home-grown drought-tolerant sugarcane. China continues to benefit significantly from Bt cotton (\$18bn for 1997 to 2014).

"Africa progressed despite a devastating drought in South Africa resulting in a decrease in intended plantings of 700,000 hectares in 2015 — a massive 23pc decrease. This underscores yet again the life-threatening importance of drought in Africa, where fortunately, the WEMA biotech drought-tolerant maize is on track for release in 2017.

"In 2015, importantly, eight African countries field-tested, pro-poor, priority African crops, the penultimate step prior to approval," the report says.

<http://www.dawn.com/news/1266158>

July 2016

NEWS COVERAGE PERIOD FROM JULY 25TH TO JULY 31ST 2016

SOUTH KOREA REJECTS ARGENTINA FEED WHEAT AFTER GMO STRAIN FOUND

Business Recorder, 31 July 2016

SEOUL: South Korea rejected a shipment of Argentine feed wheat after finding unapproved strains of genetically modified organisms (GMO) in the cargo, the agriculture ministry said on Tuesday.

Seoul bans the entry of unapproved genetically modified organisms, defined as living modified organisms (LMO) under bio safety regulations.

In 2013, South Korean millers suspended imports of US wheat after the discovery of an unapproved strain of genetically modified wheat in the United States.

"After testing 72,450 tonnes of feed wheat cargoes imported from Argentina on July 12, an unapproved strain of LMO was detected and we asked to discard or send all back," the ministry said in a statement.

The Argentine feed wheat cargo was shipped by the bulk carrier ANTONIS to South Korea, said an official at the Korean Animal and Plant Quarantine Agency.

Thomson Reuters ship tracking data showed the vessel is heading to Australia's Gladstone port after discharging feed wheat products at South Korea's Pyeongtaek and Kunsan ports.

The ministry said it would continue with LMO tests of imported agricultural products to be thorough in ensuring safety.

In Buenos Aires, a grains export company executive said there is no GMO wheat cultivated in Argentina.

"So it must have been something left in the hold of the ship from a previous cargo," said the executive, who asked not to be identified.

South Korea is not banning imports of feed wheat from Argentina, only the shipment containing the unapproved strain, a ministry official, who declined to be identified, told Reuters.

Of the South Korean feed wheat buyers, Nonghyup Feed Inc said they are looking into the situation after the government's decision, while the Korea Feed Association could not be reached for comment.

Asia's fourth-largest economy mostly imports feed wheat from Australia, India, Ukraine and Canada. It imported 396,900 tonnes of Argentine feed wheat in June out of total imports of 910,946 tonnes, according to the statement.

Ample Argentine wheat supply and the low quality of the crop harvested in December-January as helped increase shipments of feed wheat to Asia. Argentine growers invested little in fertilizers during last year's planting season because of uncertainty about the country's grains export policies.

After free-market proponent Mauricio Macri came from behind to win Argentina's presidency last November, he opened the country's grains export market and ditched wheat export taxes. This prompted farmers to sell their stockpiles.

Lower quality wheat has translated to lower prices, making Argentine feed wheat more attractive to Asian buyers. "When you analyse the destinations that Argentine feed wheat is being shipped to, there has been a radical shift toward Asia," said Leandro Pierbattisti, chief analyst with Argentina's grains warehousing chamber.—Reuters

<http://epaper.brecorder.com/2016/07/31/15-page/781887-news.html>

USDA CONFIRMS UNAPPROVED GMO WHEAT FOUND IN WASHINGTON STATE

Business Recorder, 31 July 2016

NEW YORK: Genetically modified wheat developed by Monsanto Co, and never approved by federal regulators, has been found growing in a Washington state farm field, the US Department of Agriculture (USDA) said on Friday.

The discovery of 22 unapproved genetically modified (GMO) wheat plants has prompted an investigation by federal and state investigators – the third such discovery in three years.

A farmer found the GMO wheat in a field that has not been planted since 2015. The plants had been identified as being one of Monsanto's experimental varieties "a few weeks ago," a spokesman from the Washington State Department of Agriculture said.

The USDA is testing grain harvested from the farmer's other wheat fields as a precaution, the agency said. Officials also reached out to at least one trade group earlier this week, and alerted importers on Thursday.

The grain has not been traced in commercial supplies, USDA said in a statement.

There are currently no commercially approved genetically modified wheat varieties and incidences of rogue plants are rare. The first case was in 2013 in Oregon, which prompted buyers including South Korea and Japan to stop buying US wheat. More unapproved wheat was found in Montana in 2014.

The US Food and Drug Administration believes there is no threat to the food supply due to the small number of plants found and based on what is known about the GMO variety.

South Korea, the fifth largest market for US wheat, said earlier on Friday that the country will step up quarantine measures for US milling and feed wheat shipments.

The discovery comes as the latest blow for the US wheat market as prices hover near multi-year lows amid record-large stocks and stiff competition in global markets from low cost suppliers.

Monsanto helped to develop a test for MON 71700, the strain found in Washington state, which would be available to US trading partners, the USDA said.

The variety was tested in limited field trials in the Pacific Northwest from 1998 to 2000, but was never commercialized, said Monsanto spokeswoman Christi Dixon.

The wheat found in Washington state is a slightly different strain than the one discovered in 2013, although both were developed to withstand applications of glyphosate, the key ingredient in Monsanto's popular Roundup herbicide.—
Reuters

<http://epaper.brecorder.com/2016/07/31/15-page/781889-news.html>

NEWS COVERAGE PERIOD FROM JULY 18TH TO JULY 24TH 2016

EU APPROVES MONSANTO, BAYER GENETICALLY MODIFIED SOYA BEANS

Business Recorder, July 24th 2016

CHICAGO: The European Commission on Friday approved imports of Monsanto's Roundup Ready 2 Xtend genetically modified soyabean variety, after months of delays that had derailed the US seed giant's product launch this spring.

The decision now clears the way for widespread planting next season and removes a hurdle for North American farmers and grain traders, who have to keep close track of unapproved biotech traits that can disrupt trade. Top importer China approved the soyabeans earlier this year.

US grain trader and processor Archer Daniels Midland Co told Reuters on Friday its elevators and processing plants will now accept the Xtend soyabean variety. Rivals Cargill Inc, Bunge Ltd and CHS Inc, which had also refused to accept the variety without EU import approval, could not be immediately reached for comment.

The EU is the second largest importer of soyabeans and its approval is not expected to have a major impact on merger talks by German suitor Bayer AG, whose sweetened \$64-billion buyout offer of Monsanto was rejected last week, as it had been widely anticipated, analysts said on Friday.

"It would have been a big deal if it hadn't been approved, but this was the expected outcome, although it took longer than anyone thought," said Bernstein analyst Jonas Oxgaard.

Still, the approval marks a key victory for Monsanto in the wake of months of regulatory delays over this launch, and swirling controversy over whether glyphosate, the chemical in its popular Roundup herbicide, is carcinogenic.

Monsanto expects Roundup Ready 2 Xtend soyabeans, designed to tolerate applications of glyphosate and dicamba weed killers, to be planted on 15 million acres next spring and 55 million acres by 2019. The company is still waiting the US Environmental Protection Agency to approve dicamba use on crops.

The European Commission also approved a Bayer CropScience soyabean variety. The EU executive branch took action after EU member states failed to reach an agreement on whether to licence them.

The approval will allow these GMO soyabeans to be used in food or animal feed, but not for planting within the EU.

"Any products produced from these GMOs will be subject to the EU's strict labelling and traceability rules," the European Commission said in a statement.

The EU imports tens of million tonnes of GMO crops and products every year for use in animal feed.

The authorisations, which cover Monsanto's soyabean MON 87708 x MON 89788 and soyabean MON 87705 x MON 89788 and soyabean FG 72 of Bayer's CropScience division, will be valid for 10 years.

Monsanto shares were little changed on Friday at \$106.07.—Reuters

<http://epaper.brecorder.com/2016/07/24/15-page/778956-news.html>

NEWS COVERAGE PERIOD FROM JULY 3RD TO JULY 10TH 2016

NOBEL WINNERS SLAM GREENPEACE ON GMO CROPS

Business Recorder, July 03, 2016

About a third of living Nobel laureates – 108 at last count – have signed an open letter Thursday which attacks Greenpeace for campaigning against genetically modified crops, especially one called Golden Rice. Addressed to the global environmental group, the United Nations and governments, the letter says Greenpeace has “misrepresented the risks, benefits and impacts” of genetically altered food plants.

“There has never been a single confirmed case of a negative health outcome for humans or animals from their consumption,” wrote the top scientists. The group included 41 Nobel medicine laureates among them James Watson, honoured in 1962 for co-discovering the basic structure of DNA.

The letter called on Greenpeace to “cease and desist” in its efforts to block GMO crops, and on governments to embrace “seeds improved through biotechnology.” “Opposition based on emotion and dogma contradicted by data must be stopped.” The Nobel winners singled out Golden Rice as a genetically modified crop with huge potential to improve health and save lives in the developing world. A patented strain developed in the 1990s, Golden Rice contains an artificially inserted gene which boosts the level of vitamin A-rich beta-carotene.

The World Health Organization estimates that a quarter of a billion people in developing nations suffer from vitamin A deficiency, causing up to two million preventable deaths per year and half-a-million cases of childhood blindness. Golden Rice's developers say a single serving provides about 60 percent of daily vitamin A requirements. It is currently distributed royalty-free to indigent farmers on a humanitarian basis.

Greenpeace however hit back at the Nobel laureates. “Accusations that anyone is blocking genetically engineered ‘Golden’ rice are false,” Wilhelmina Pelegrina of Greenpeace Southeast Asia wrote in a statement. Corporations are using the strain “to pave the way for global approval of other more profitable genetically engineered crops,” she said. Greenpeace's longstanding position is to oppose all patents on plants or animals, or their genes, and that “life is not an industrial commodity”.

Previously, the environmental NGO has said Golden Rice was “environmentally irresponsible, poses risks to human health, and could compromise food, nutrition and financial security.” The NGO also maintains that genetically modified organisms should be held back “since there is not an adequate scientific understanding of their impact on the environment and human health.”

<http://www.brecorder.com/agriculture-a-allied/184:world/62729:nobel-winners-slam-greenpeace-on-gmo-crops/?date=2016-07-03>

August 2016

NEWS COVERAGE PERIOD FROM AUGUST 29TH TO SEPTEMBER 4TH 2016

PRODUCTIVITY OF CASH CROPS: CM SNUBS OFFICIALS FOR SLACKNESS

Dawn, September 1st, 2016

Faisal Ali Ghumman

LAHORE: Showing frustration over 'poor' service delivery by the Punjab agriculture department and research institutions which led to the failure of cash crops like cotton, the provincial chief executive on Wednesday gave top officials three months to give better results or go home.

Chairing a workshop on 'Prospects of GM Cotton in Punjab: Opportunities and Challenges' at his 90-Shahr-e-Quaid-i-Azam office, Chief Minister Shahbaz Sharif criticized top officials of the agriculture department, heads of research institutes and agriculture universities for extensively attending training programmes abroad on government expense and delivering nothing to improve the productivity of cash crops.

The chief minister grilled the hierarchy of agriculture department, research institutions and universities in the presence of other top government officials, agriculture experts, farmers and media.

On the invitation of the chief minister, a couple of farmers and farm experts highlighted the problems the farmers are facing and their exploitation at the hands of government institutions.

The chief minister said after three months he would evaluate the performance of all officials and would replace, with the young blood, those who failed to deliver.

He asked the officials concerned to explain why the problem of cotton pest attack had not been resolved. Similarly, he was eager to know why the people involved in manufacturing and distribution of spurious pesticides were not put in jails. He said Pakistan was spending huge amount on cotton import from India and Egypt, adding 1,300 ginning factories, a large number of looms and export-oriented garments industry were at verge of closure because of cotton crop failure. He put a question to the research bodies why they could not introduce better-yielding varieties.

Citing an example of official lethargy, Shahbaz Sharif said the government of Indian Punjab had gifted him a modern combined harvester during his visit there a few years ago. He said he had asked the officials concerned to make arrangements to copy and market the machine for the benefit of local farmers. He said he was shocked to learn after a couple of years that there was no progress over the issue.

When a senior government official, while giving presentation on the cotton crisis, admitted that sucking pests had badly hit the crop last year, the chief minister intervened and asked him to explain the failure to use indigenous technology.

The official said against the growing use of Monsanto's seed technology in Pakistan, the scientists working in local research labs had developed better quality of genes resisting cotton pests.

Asked why that improved version of cotton seed was not used last year, the official said procedural issues had delayed its introduction.

Warning the irrigation officials, the chief minister said theft of canal water was equal to defaming the Punjab government and asked the officials to control the menace.

Provincial Agriculture Minister Dr Farrukh Javed admitted the cotton crop had suffered a huge loss in 2015 because of possible factors of climate change, seed failure and redundant gene in seed but claimed this year the crop was good.

"Being the minister I take responsibility of cotton failure to move forward with identification of mistakes" he said.

The minister said negotiations skills would be developed to negotiate pro-farmers deals with multinational seed companies. Javed said the main concern of the department was to provide latest technologies to small farmer having less than 12.5 acre holdings.

Winding up the debate which had three technical sessions, Secretary Agriculture Muhammad Mahmood gave five recommendations for betterment in cotton crop.

The recommendations were to introduce GM cotton technology, protect farmers' rights, provide enabling environment to the private sector, introduce legal and regulatory regime and transform cotton seed sector.

<http://www.dawn.com/news/1281294>

G.M.O. LABELING LAW COULD STIR A REVOLUTION

International New York Times, 2, September, 2016

Mark Bittman

Big food and its allies spent roughly \$100 million to counter the movement to force the labeling of foods produced with genetically modified organisms. And one could argue that they were successful: President Obama recently signed the weakest labeling law imaginable, and to most of the food movement, this felt like a loss.

But to be optimistic, perhaps rashly so, to me the law looks like a victory wrapped inside a defeat.

The new law mandates that the Department of Agriculture define what constitutes a genetically modified food ingredient and then requires food manufacturers to label products that contain them.

Disappointment among labeling proponents stems from the latitude the law gives food companies in how this labeling is done.

Producers may use a text label, a symbol, a toll-free number that consumers can call for more information, or a code that can be scanned with a smartphone to link to a website. The new law tells consumers, "You deserve to know what's in your food, so we're going to tell you," while sending a not-too-subtle message to food companies: "Feel free to make this information as difficult to find as you'd like."

At first glance, it seems like another tacit agreement between government and industry to rob consumers of our right to know what's in our food.

But what if this backfires? What if the food industry has inadvertently opened the door to a transparency revolution? Could the acknowledgment implicit in the new law, that we should know what goes into making our food, be the thin end of the wedge? Has the argument that food production processes are as important as ingredients begun to make sense to policy makers?

Biotechnology has allowed seed producers to modify or splice genes to grow crops with specific characteristics, like resistance to certain diseases, pests or weed killers. Up to 90 percent of the corn, soybeans and cotton now produced in the United States comes from genetically modified seeds.

These foods produced with G.M.O.s have not been found to be harmful to people who eat them. (This isn't to say they won't be; our system for declaring products safe leaves much to be desired.) In some instances, the technology has yielded great medical benefits and will certainly lead to more. In industrial agriculture, the technology has led to lower applications of insecticides. But it has also encouraged the growth of weeds that have become resistant to herbicides after years of exposure, often forcing growers to turn to more and different herbicides in a cycle of chemical warfare.

Another problem is that by simplifying the growing of almost unimaginably large tracts of crops, especially corn and soybeans, G.M.O.s have become an indispensable crutch for the fertilizer- and pesticide-dependent monoculture that is wrecking our land and water and generating the execrable excess of corn- and soy-based junk food that is sickening our population and decreasing our life spans.

Of course, there is much more we could know about our food than whether it was genetically engineered. Now that we're "allowed" to know about G.M.O.s, there are some other questions about the food we buy that we might like answered. For example: Where are the ingredients from? Were antibiotics routinely administered to animals? What pesticides and other chemicals were used, and do traces of these chemicals remain? Was animal welfare considered, and how? What farming practices were used? How much water was required?

Let's really get down to it. Were the workers who sweated to put food on my table paid at least minimum wage? Did they get health benefits? Overtime? Were they unionized? Protected from pesticide exposure?

And so on. All of this information could be made available. Some people care about this, others don't. But now that the new labeling law has opened the disclosure door a crack, why not open it wide and see what's inside?

For that matter, why not post video cameras at slaughterhouses and feedlots? The Farmers and Ranchers Alliance (an organization that can be fairly said to represent conventional-industrial farming) is eager to show you carefully selected videos of pig and dairy farms. Let's see what things look like in the more common production facilities.

Even though an estimated one-third of adults in the United States don't have a smartphone to get information on product bar codes, the potential for educating the public about the food they eat is almost unlimited.

Companies that are doing things well should (and will) seize the chance to put whatever they can on the package, and a bar code to provide even more data. Eventually, companies that don't disclose information could be assumed to have something to hide.

We're long overdue for a transparency revolution. The compromise on G.M.O. labeling was forced by Vermont's passage of its own, stricter labeling law (now rendered null by the federal law), which would have spread to other states. The next stage may be one or two states mandating the disclosure of more information about how our food is produced.

As eaters, this is in our interest. We should turn up the pressure.

http://www.nytimes.com/2016/09/02/opinion/gmo-labeling-law-could-stir-a-revolution.html?_r=0

INDIA SOON TO MAKE GM MUSTARD STANCE PUBLIC, DEVELOP MORE VARIETIES

Business Recorder, September 04, 2016

The Indian government will soon make public its stance on allowing the commercial cultivation of genetically modified (GM) mustard – what could be its first transgenic food crop – and “ideology” will not influence the decision, a minister said.

The mustard variety has been developed by a group of New Delhi scientists over the past decade, and Environment Minister Anil Madhav Dave said India would also come up with other GM food as its population increases and arable land shrinks. “You’ll get to know about our view on GM mustard very soon,” Dave, whose ministry decides on GM crops, told Reuters on Friday.

“Naturally if Indian scientists do some research for India, that is an advantage. India’s money is staying within India.” Allowing GM mustard is seen as critical to Prime Minister Narendra Modi’s goal of attaining self-sufficiency in edible oils. India spends around \$12 billion annually on vegetable oil imports. GM mustard – with yields up to 30 percent higher than normal varieties, also loosely called rapeseed – will give Modi a chance to slash this bill.

But the path to a commercial launch is not without hurdles. Public opposition to lab-altered food remains fierce, including from groups close to Modi’s ruling Bharatiya Janata Party (BJP) who object to reliance on technology developed mainly by Western countries. This could throw a spanner in the works for GM mustard, which recently got technical approval from a panel of government and independent experts after multiple reviews of crop trial data.

In 2010, India placed a moratorium on GM eggplant and that too after an expert panel had given its clearance, effectively bringing the regulatory system to a deadlock. But Modi, who was instrumental in making the western state of Gujarat India's leading user of GM cotton while chief minister there, cleared several field trials for GM crops soon after taking office in New Delhi in 2014.

"You must have different parameters for what you eat and what you only come in contact with, like cotton," Dave said. "(But) eventually it is the doctor who gives the medicine. Ideology has no connection with this." Dave, a river conservationist and amateur pilot, said the government's aim was to make regulation on GM crops foolproof and that people's views would be taken into consideration before finalising anything. The Modi government is at loggerheads with Monsanto over how much the world's biggest seed company can charge for the GM cotton seeds it supplies, after some farmer groups complained about high rates.

India has also proposed that Monsanto, which dominates India's GM cotton seed market, share its technology with local firms. Major international seed companies in India are now rallying together as a flurry of regulatory steps in recent months stands to hurt their business. Monsanto has said it is contemplating leaving India, its biggest market outside the Americas, and recently pulled an application to sell next-generation cotton seeds.

Dave brushed aside concerns that Monsanto's withdrawal of the cotton variety will hurt Indian farmers as existing seeds become vulnerable to pests. "Indian scientists are capable enough to meet the requirement of Indian farmers, in every crop," Dave said.

<http://www.brecorder.com/agriculture-a-allied/184:world/82526:india-soon-to-make-gm-mustard-stance-public-develop-more-varieties/?date=2016-09-04>

NEWS COVERAGE PERIOD FROM AUGUST 22ND TO AUGUST 28TH 2016

'BOLD' STEPS TO PROMOTE BIOTECHNOLOGY

Dawn, Business & Finance weekly, August 22nd, 2016

Ashfak Bokhari

FEDERAL Minister for National Food Security Sikandar Hayat Khan Bosan says his ministry has taken a number of 'bold steps' to facilitate the introduction of biotechnology in the country to meet certain challenges, including food security.

The government, according to him, 'endorses the positive use' of biotechnology for public welfare. While implementing the technology Pakistan would remain committed to the provisions of international agreements it is a signatory to, towards safer handling of genetically modified (GM) crops. The agreements are CBD and Cartagena Protocol on Biosafety.

A comprehensive series of dialogues among the stakeholders on related issues made it possible to develop and implement Biosafety Rules, 2005. These guidelines and rules also provide a mechanism to prevent adverse effects of GM technology on health and environment. However, there is an urgent need to set up a National Biosafety Laboratory in the country.

The minister made the statement at a workshop on biosafety technology held on August 11-12. It was organised in collaboration with the Pakistan Agriculture Research Council (PARC) and Pakistan Biotechnology Information Centre (PABIC). Mr Bosan, however, admitted that the implementation of Biosafety Rules 2005 in the country is not very effective due to a lack of awareness, not only among farmers and the public, but also among national research and academic institutes.

This is for the first time that planting crops under GM technology, which has so far been a controversial issue, is being strongly advocated and implementation measures being taken. Since the public and farmers' resistance to this technology remains unabated, a major challenge lies in convincing farmers to adopt the GM crop technology.

Convincing farmers may not be an easy task for under this paradigm they cannot reuse seeds of the previous crop and will have to buy new seeds each time.

The challenges the minister mentioned were not agriculture-specific as such. These included energy crisis, food security, and rapid urbanisation in the wake of increasing population and climate change. It is argued that biotechnology can enhance food production by 5-6pc per annum, thus, creating the possibility of achieving food security for the entire population. Steps taken by the food security ministry with respect to adoption of GM technology include establishing Biotechnology Centres across the country.

A noted biotechnologist, while speaking at the workshop, blamed the devolution of power to the provinces after passage of the 18th Amendment for 'badly affecting' the process of commercialisation of GM crops. It has resulted in a lack of official ownership of this important field. What is needed is a strong regulatory system to strengthen biotech research and development activities in the country.

The federal minister argued that 85pc cultivation of cotton in the country was now biotech driven. It showed that the public has accepted the need for Bt cotton. And, as a corollary, a number of other crops are in the pipeline. He said what mattered more was safer use of modern biotechnology for public good, one of the main agendas of the incumbent government. However, Bt cotton was not indigenous but was supplied by a seed multinational.

The experience of commercialisation shows that crop biotechnology has far-reaching economic, social and health consequences. Progress in genes' manipulations and their use into biotech crops, which include: insect resistance, protection from disease and drought soil salinity.

In fact, what is needed is the development of indigenous GM varieties and a proper regulatory framework for their approval. This was the only way to address public concerns. "Instead of inviting multinational companies, we need to have our own varieties that suit our ecosystems", say experts.

However, there could be adverse effects of GM crops on agriculture exports to European countries if these were cultivated without safety measures. Europeans are very sensitive on the GM issue and have, till now, resisted its introduction in their countries. Any hasty step in this regard could result in the loss of a large export market offering GSP Plus benefits.

The adoption of GM crops is not harmful per se, but the lack of expertise in dealing with this technology could produce harmful results. India became the top cotton producer in the world, to which Bt cotton made a significant contribution. Of the 28 countries planting biotech crops in 2015, the majority, 20, were developing and eight industrial.

<http://www.dawn.com/news/1279040>

MONSANTO PULLS NEW GM COTTON SEED FROM INDIA IN PROTEST

Dawn, August 26th, 2016

NEW DELHI: Monsanto Co has withdrawn an application seeking approval for its next generation of genetically modified cotton seeds in India, a major escalation in a long-running dispute between New Delhi and the world's biggest seed maker.

A letter sent by Monsanto's local partner in India, the conglomerate's biggest market outside the Americas, strongly objects to a government proposal that would force Monsanto to share its technology with local seed companies.

The company is also at loggerheads with India over how much it can charge for its genetically modified cotton seeds, costing it tens of millions of dollars in lost revenue every year.

The unprecedented decision to pull the application, which has not previously been reported, could set back Monsanto's efforts to introduce its new seed, called Bollgard II Roundup Ready Flex technology, for years and lead to further losses.

It will also ratchet up pressure on the Indian government, as it undermines Prime Minister Narendra Modi's efforts to make the country look more attractive to foreign investors.

It could also hurt Indian cotton farmers. The new seed variety helps fight against weeds that sap the cotton crop of vital nutrients and depress yields.

A Monsanto spokesman said the withdrawal of the application was "an outcome of the uncertainty in the business and regulatory environment", but that the move had "no impact on our current cotton portfolio being sold in India".

A spokesman for the environment ministry, which had the application before it, was not available for comment.

In a letter, dated July 5, Maharashtra Hybrid Seeds Co Ltd (Mahyco), Monsanto's technology partner in India, singled out a government proposal, mooted in May, that would require Monsanto to share its proprietary technology.

After protests by Monsanto and other global seed companies, the government temporarily withdrew the order and decided to seek feedback from stakeholders. It is now evaluating the feedback.

Mahyco said in the letter, a copy of which was seen by Reuters, that the proposal "alarmed us and raised serious concerns about the protection of intellectual property rights".

Mahyco also asked the regulator, Genetic Engineering Appraisal Committee (GEAC), to return data and other material submitted by it as part of the application.

The regulator has done that, a government official said.

India first allowed GM cotton cultivation in 2002 by approving Monsanto's single gene Bollgard I technology.

New Delhi approved the double gene Bollgard II in 2006, helping transform India into the world's top producer and second-largest exporter of the fibre as output jumped fourfold.

Bollgard II Roundup Ready Flex would have been the first technological breakthrough since the launch of Bollgard II, potentially pushing up crop yields at a time when some farmers have said the existing variety was losing its effectiveness.

Bollgard II, introduced in 2006, is slowly becoming vulnerable to bollworms, experts say, and, as any technology, has a limited shelf life.

Still, more than 41 million GM cotton seed packets were sold last year, earning royalties of 6.5 billion Indian rupees (\$97m) for Monsanto.

Mahyco applied to the GEAC for approval of the new GM seed some time in 2007. The application was in the final stages of a tedious and time-consuming process, which included years of field trials.

In its letter to the GEAC, Mahyco said it would seek to revive the application for Bollgard II Roundup Ready Flex "at a suitable time".

But the government official said there were no guarantees it would be allowed to do so if it changed its mind in the future and would likely have to start afresh.

<http://www.dawn.com/news/1279979>

ARGENTINE SOY GROWERS FRET SEED ROYALTIES BILL OVER MONSANTO

Business Recorder, August 28, 2016

Argentine soy farmers fear they will get shortchanged under a proposal they say would favor US agricultural company Monsanto Co by forcing them to pay royalties on seeds grown on their own farms using the company's genetically modified technology. Farmers in Argentina's Pampas grains belt say they should have to pay only once, or maybe twice, for seeds containing Monsanto's Intacta RR2 PRO technology.

Monsanto says to plant seeds grown with that technology without paying royalties – something that the current law allows – amounts to copyright infringement. The government says it will introduce a bill to Congress next month requiring farmers to pay royalties for the first three seasons of planting beans grown from original GMO seeds.

<http://www.brecorder.com/agriculture-a-allied/183/80012/>

NEWS COVERAGE PERIOD FROM AUGUST 15TH TO AUGUST 21ST 2016

CHINA BACKS GMO SOYABEANS TO PUSH FOR HIGH-TECH AGRICULTURE

Business Recorder, August 14, 2016

China will push for the commercialisation of genetically modified soyabeans over the next five years as it seeks to raise the efficiency of its agriculture sector, potentially boosting output of the crop by the world's top soya importer and consumer. China, which has spent billions of dollars researching GMO crops, has already embraced the technology for cotton but has not yet permitted the cultivation of any biotech food crops amid fears from some consumers over perceived health risks.

In its latest five-year plan for science and technology to 2020, China for the first time outlined specific GMO crops to be developed, including soyabeans – used in food products such as tofu and soya sauce and for animal feed – and corn. The blueprint, published on the government's website on Monday, recommended “pushing forward the commercialisation of new pest-resistant cotton, pest-resistant corn and herbicide-resistant soyabeans”.

The use of the technology for corn was flagged in April when an agriculture official said that Beijing could greenlight GMO crops in the next five years. Corn is used mostly for animal feed and industrial products like starch and sweeteners and a move to biotech crops could be less contentious than with soyabeans.

Support for new soyabean varieties comes as China seeks to overhaul its crop structure. Farmers are being encouraged to switch from growing corn to soyabeans and to rotate between crops. But analysts say boosting soyabean production could be difficult without higher subsidies. China is expected to produce 12.5 million tonnes of soya in 2016/17 but will import a record 86 million tonnes, according to a forecast by US agriculture officials. China permits the import of GMO soyabeans for use in animal feed.

Herbicide-resistant soyabeans are already planted by most growers in the United States, the world's top soya producer. “You can't manually kill weeds on the large farms in the north-east,” said an executive at a seed company in China. “If you're going to rotate between soya and corn, herbicide-tolerant soyabeans are needed for mechanisation,” he added, referring to the need for crops to be able to tolerate repeated exposure to weed killers applied by tractors.

But cultivating GMO soyabeans is likely to face strong resistance from consumers and a local industry that sells GMO-free soyabeans at a premium to imported beans. “The major production areas for key commodity crops shouldn't be planted with GMOs,” said Liu Denggao, vice president of the Chinese Soyabean Industry Association. “Domestic soyabeans are extremely desired and trusted by consumers for food.”

Commercialisation of GMO soya is likely to take a backseat to GMO corn however, said Huang Dafang, professor at the Biotechnology Research Institute under the Chinese Academy of Agricultural Sciences. The government has previously said it will roll out biotech varieties of industrial crops such as corn before moving to food crops like soya.

<http://www.brecorder.com/agriculture-a-allied/184:world/74966:china-backs-gmo-soyabeans-to-push-for-high-tech-agriculture/?date=2016-08-14>

NEWS COVERAGE PERIOD FROM AUGUST 8TH TO AUGUST 14TH 2016

GENETICALLY MODIFIED: GM CROPS – BOON OR BANE?

The Express Tribune, August 12th, 2016.

Peer Muhammad

ISLAMABAD: Experts are currently debating whether introduction of genetically modified crops (GMCs) would help fulfil nutritional requirements and improve agricultural productivity – or carry with it unwarranted adverse consequences if GMCs are introduced without following standard safety measures.

The views were expressed during a brainstorming session on commercialisation of GMCs in Pakistan, organised by the Ministry of National Food Security and Research at the Pakistan Agriculture Research Centre (Parc).

Dr Muhammad Fahim, a biotechnology expert and professor of Peshawar, warned that among many health implications, there would be adverse effects of GMCs on agriculture exports to European countries if these are adopted without required capacity and safety measures.

“These countries are concerned in the matter and you may lose a good export market,” he maintained. He added that the adaptation of GMCs was not harmful per se, but the lack of expertise on Pakistan’s part to deal with GM technology was a cause for concern.

Meanwhile, former Parc chairman and pro-genetically modified organisms (GMOs) scientist Kauser Abdullah said that the GMO can increase the productivity of farmers and it could build tolerance to biotic stress. He added that GMOs will help reduce cost of production and increase productivity. He further said that it will also increase nutritional content in addition to increase the productivity of meat and milk.

The ministry of climate change has given the green light to two multinational companies – Monsanto and DuPont/Pioneer – for commercialisation of the GM corns, which triggered widespread criticism and concerns from the farmer community and experts.

<http://tribune.com.pk/story/1160532/genetically-modified-gm-crops-boon-bane/>

CHINA BACKS GMO SOYABEANS TO PUSH FOR HIGH-TECH AGRICULTURE

Business Recorder, August 14, 2016

China will push for the commercialisation of genetically modified soyabeans over the next five years as it seeks to raise the efficiency of its agriculture sector, potentially boosting output of the crop by the world’s top soya importer and consumer. China, which has spent billions of dollars researching GMO crops, has already embraced the technology for cotton but has not yet permitted the cultivation of any biotech food crops amid fears from some consumers over perceived health risks.

In its latest five-year plan for science and technology to 2020, China for the first time outlined specific GMO crops to be developed, including soyabeans – used in food products such as tofu and soya sauce and for animal feed – and corn. The blueprint, published on the government’s website on Monday, recommended “pushing forward the commercialisation of new pest-resistant cotton, pest-resistant corn and herbicide-resistant soyabeans”.

The use of the technology for corn was flagged in April when an agriculture official said that Beijing could greenlight GMO crops in the next five years. Corn is used mostly for animal feed and industrial products like starch and sweeteners and a move to biotech crops could be less contentious than with soyabeans.

Support for new soyabean varieties comes as China seeks to overhaul its crop structure. Farmers are being encouraged to switch from growing corn to soyabeans and to rotate between crops. But analysts say boosting soyabean production could be difficult without higher subsidies. China is expected to produce 12.5 million tonnes of soya in 2016/17 but will import a record 86 million tonnes, according to a forecast by US agriculture officials. China permits the import of GMO soyabeans for use in animal feed.

Herbicide-resistant soyabeans are already planted by most growers in the United States, the world's top soya producer. "You can't manually kill weeds on the large farms in the north-east," said an executive at a seed company in China. "If you're going to rotate between soya and corn, herbicide-tolerant soyabeans are needed for mechanisation," he added, referring to the need for crops to be able to tolerate repeated exposure to weed killers applied by tractors.

But cultivating GMO soyabeans is likely to face strong resistance from consumers and a local industry that sells GMO-free soyabeans at a premium to imported beans. "The major production areas for key commodity crops shouldn't be planted with GMOs," said Liu Denggao, vice president of the Chinese Soyabean Industry Association. "Domestic soyabeans are extremely desired and trusted by consumers for food."

Commercialisation of GMO soya is likely to take a backseat to GMO corn however, said Huang Dafang, professor at the Biotechnology Research Institute under the Chinese Academy of Agricultural Sciences. The government has previously said it will roll out biotech varieties of industrial crops such as corn before moving to food crops like soya.

<http://www.brecorder.com/agriculture-a-allied/184:world/74966:china-backs-gmo-soyabeans-to-push-for-high-tech-agriculture/?date=2016-08-14>

NEWS COVERAGE PERIOD FROM AUGUST 1ST TO AUGUST 7TH 2016

N.I.H. MAY FUND HUMAN-ANIMAL STEM CELL RESEARCH

International New York Times, 4 August 2016

Gina Kolata

The National Institutes of Health announced on Thursday that it was planning to lift its ban on funding some research that injects humanstem cells into animal embryos.

The N.I.H. announced its proposal in a blog post by Carrie Wolinetz, the associate director for science policy, and in the Federal Register.

The purpose is to try to grow human tissues or organs in animals to better understand human diseases and develop therapies to treat them.

Researchers have long been putting human cells into animals — like pieces of human tumors in mice to test drugs that might destroy the tumors — but stem cell research is fundamentally different. The stem cells are put into developing embryos where they can become any cells, like those in organs, blood and bone.

If the funding ban is lifted, it could help patients by, for example, encouraging research in which a pig grows a human kidney for a transplant.

But the very idea of a human-animal mix can be chilling, and will not meet with universal acceptance.

In particular, when human cells injected into an animal embryo develop in part of that animal's brain, difficult questions arise, said Paul Knoepfler, a stem cell researcher at the University of California, Davis.

“There’s no clear dividing line because we lack an understanding of at what point humanization of an animal brain could lead to more humanlike thought or consciousness,” he said.

The N.I.H.’s plan will most likely go into effect in the fall — perhaps with some modifications — after a 30-day comment period that is now open to the public and researchers.

The N.I.H., which would be a major source of federal funds for this type of work, imposed the moratorium in September to consider concerns about the research. The studies were just beginning, and the N.I.H. did not have any projects underway involving human-animal chimeras, a term derived from mythological creatures that were part goat, lion and snake. But Renate Myles, a spokeswoman, said, “We watch the state of the science and knew that this was where the science was heading.”

For scientists, the moratorium was “a little jarring,” said Dr. George Q. Daley, a Harvard professor and the director of the stem cell transplantation program at Boston Children’s Hospital. Two months later, the N.I.H. convened a workshop to hear from researchers and experts in animal welfare.

Two types of experiments that are being considered for funding would still have to undergo a review by an N.I.H. advisory committee. The first involves the addition of human stem cells to the embryos of animals before the embryos reach a stage when organs are starting to develop. Because nonhuman primates like monkeys and chimpanzees are so genetically close to people, researchers working with such primates would have to wait until an embryo was further developed before adding human stem cells, according to the proposal.

The second type of study introduces stem cells into embryos of animals other than rodents where the cells could get into and modify the animals’ brains. Of particular concern is creating chimeras with human cells in the brain.

The N.I.H. would continue its ban on funding any research that could result in an animal with human sperm or eggs that would then be bred.

All of the N.I.H.’s proposals, though, apply only to the work that is financed with taxpayer money. Research supported by private donors or companies would not be affected.

Dr. Daley described some of the work researchers had been doing in this area.

First, they wanted to know if they had isolated new types of stem cells — ones that could turn into any type of tissue or organ. Accomplishing that involves putting the new cells into an embryo and seeing if they turn into the placenta, as well as every cell type in the adult animal.

In other experiments, they wanted to look at human stem cells that developed into very specific tissues. For example, one team of researchers found that if they put rat stem cells into the embryo of a mouse that was missing genes needed to make a pancreas, they ended up with a mouse that had a rat pancreas.

Now, Dr. Daley said, the hope is to do the same sort of experiments with pigs missing genes for organs like a kidney or a liver and see if human stem cells can be used to grow human organs in the animals for transplants.

“It’s science fiction today, but there has been enough progress in rat to mouse and even in pigs that it is at least theoretically possible,” Dr. Daley said.

Another team studied the use of human stem cells in mice embryos in the hope of eventually understanding human psychiatric disorders.

Dr. Wolinetz of the N.I.H. said during a teleconference that she expected “some on-the-job learning” about what would happen with chimeras that had human cells in their brains.

“There is a lot we don’t understand about the brain,” she said, “which is one reason the possibility of these animal models is really exciting.”

The work is disturbing to many. But does the unease reflect the novelty of the ideas, like concerns that surfaced with the advent of heart transplants, which were first met with revulsion and then embraced by the public? Or is this work of a different ilk?

Jeffrey P. Kahn, the director of the Johns Hopkins Berman Institute of Bioethics, points to two looming ethical issues.

One is to decide if there is a fundamental difference between adding DNA from one species into another — the technology used to produce genetically modified foods — and putting human cells into an animal. Many people can accept genetically modified organisms, but would a human-animal chimera eventually become acceptable? After all, Dr. Kahn said, in both cases, you could say “it’s just DNA.”

Where to draw the human boundary is another issue. If it is O.K. to put human cells into an animal, why does it seem clearly wrong to put animal cells into a human? As more and more human cells are added to an animal, at what point is the result different from adding more and more animal cells to a human embryo?

“What are we doing when we are mixing the traits of two species?” Dr. Kahn asked. “What makes us human? Is it having 51 percent human cells?”

Those questions, he added, “are part of what make people react to this issue.”

<http://www.nytimes.com/2016/08/05/health/stem-cell-research-ban.html>

JAPAN, SOUTH KOREA BLOCK CERTAIN US WHEAT VARIETIES OVER GMO CONCERNS

Business Recorder, August 07, 2016

Japan and South Korea have both taken steps to block certain imports of US wheat after unapproved genetically-modified (GMO) plants from Monsanto Co seeds were found growing in Washington state, a spokeswoman for the US Department of Agriculture (USDA) said on Monday. Japan’s Ministry of Agriculture, Fisheries and Forestry said it will suspend purchases of all Western White wheat from the United States for food use, and all purchases of Western White wheat from the US West Coast, but not from the Gulf, for feed use until it can start testing incoming shipments, according to the USDA.

Japan has also suspended distribution of all previously purchased US wheat until testing is established. It is the first time Japan has blocked US wheat imports since mid-2013, when a different strain of GMO wheat – also developed by Monsanto, but never commercially released – was found on a farm in Oregon. South Korea has suspended clearance of US wheat for food use, the USDA said. South Korea, the fifth-largest market for US wheat, had already said it would step up quarantine measures for US milling and feed wheat shipments.

After the discovery of the US GMO wheat, the Korea Flour Mills Industrial Association, South Korea’s flour milling industry group, said they are awaiting the test results from the South Korean food ministry. “It seems South Korea may not rush to look for alternative sources of US White wheat, as it has enough wheat stocks,” said a Seoul-based grain trader who asked not to be identified.

In 2013, some Asian countries along with Japan halted US western white wheat imports for months. In 2014, another group of biotech wheat plants – also developed by Monsanto – were discovered near a Montana State University crop research facility. Since then, Japan and other wheat importers regularly test shipments of US wheat for biotech traits.

Japan expects to lift its new restriction once it has a system in place to test grain for the new GMO trait seen in the Washington state wheat plants, the USDA said. “We knew they (Japan and South Korea) were going to be cautious about this until they had the test in hand,” said Steve Mercer, spokesman for trade group US Wheat Associates.

The USDA expects the latest suspensions to end quickly because testing supplies, which include wheat samples sent by Monsanto, should arrive in Japan and South Korea in the next few days, the USDA spokeswoman said. US federal and state agriculture officials have confirmed an inquiry is under way to figure out how the 22 unapproved GMO wheat plants came to be growing in an unplanted Washington state farm field.

<http://www.brecorder.com/agriculture-a-allied/184:world/72773:japan-south-korea-block-certain-us-wheat-varieties-over-gmo-concerns/?date=2016-08-07>

September 2016

October 2016

NEWS COVERAGE PERIOD FROM OCTOBER 17TH TO OCTOBER 23RD 2016

BAYER CHIEF PROMISES NO MONSANTO GM CROPS IN EUROPE

Business Recorder, October 23, 2016

chemicals firm Bayer said on Monday it would not introduce genetically modified crops in Europe after its gigantic takeover of US seed and pesticide producer Monsanto. “We aren’t taking over Monsanto to establish GM plants in Europe,” chief executive Werner Baumann told the Sueddeutsche Zeitung newspaper. “Some people think it might be easier for us than for Monsanto, given the reputation we enjoy,” Baumann said, “but that’s not our plan”.

“If politics and society in Europe don’t want genetically modified seeds, then we accept that, even if we disagree on the substance,” he went on. Aspirin-maker Bayer’s planned 58.8-billion-euro (\$65.7 billion) takeover of the US firm is the biggest ever by a German company. But it is also one of the most controversial, thanks to Monsanto’s GM seeds designed for use alongside its pesticide glyphosate – which has itself made headlines this year over cancer fears.

Environmental groups, green politicians and some farmers vowed to block the “marriage made in hell” between the two companies after the deal was inked in September. Baumann pointed to the Americas, where “when this was all new 20 years ago and we had no experience, there were justifiable reasons to be sceptical.

<http://www.brecorder.com/agriculture-a-allied/183/95973/>

November 2016

NEWS COVERAGE PERIOD FROM OCTOBER 31ST TO NOVEMBER 6TH 2016

DOUBTS ABOUT THE PROMISED BOUNTY OF GENETICALLY MODIFIED CROPS

Danny Hakim

International NewYork Times, 31st Oct. , 2016

LONDON — The controversy over genetically modified crops has long focused on largely unsubstantiated fears that they are unsafe to eat.

But an extensive examination by The New York Times indicates that the debate has missed a more basic problem — genetic modification in the United States and Canada has not accelerated increases in crop yields or led to an overall reduction in the use of chemical pesticides.

The promise of genetic modification was twofold: By making crops immune to the effects of weedkillers and inherently resistant to many pests, they would grow so robustly that they would become indispensable to feeding the world's growing population, while also requiring fewer applications of sprayed pesticides.

Twenty years ago, Europe largely rejected genetic modification at the same time the United States and Canada were embracing it. Comparing results on the two continents, using independent data as well as academic and industry research, shows how the technology has fallen short of the promise.

An analysis by The Times using United Nations data showed that the United States and Canada have gained no discernible advantage in yields — food per acre — when measured against Western Europe, a region with comparably modernized agricultural producers like France and Germany. Also, a recent National Academy of Sciences report found that “there was little evidence” that the introduction of genetically modified crops in the United States had led to yield gains beyond those seen in conventional crops.

At the same time, herbicide use has increased in the United States, even as major crops like corn, soybeans and cotton have been converted to modified varieties. And the United States has fallen behind Europe's biggest producer, France, in reducing the overall use of pesticides, which includes both herbicides and insecticides.

One measure, contained in data from the United States Geological Survey, shows the stark difference in the use of pesticides. Since genetically modified crops were introduced in the United States two decades ago for crops like corn, cotton and soybeans, the use of toxins that kill insects and fungi has fallen by a third, but the spraying of herbicides, which are used in much higher volumes, has risen by 21 percent.

By contrast, in France, use of insecticides and fungicides has fallen by a far greater percentage — 65 percent — and herbicide use has decreased as well, by 36 percent.

Profound differences over genetic engineering have split Americans and Europeans for decades. Although American protesters as far back as 1987 pulled up prototype potato plants, European anger at the idea of fooling with nature has been far more sustained. In the last few years, the March Against Monsanto has drawn thousands of protesters in cities like Paris and Basel, Switzerland, and opposition to G.M. foods is a foundation of the Green political movement. Still, Europeans eat those foods when they buy imports from the United States and elsewhere.

In Rowland, N.C., a worker loads G.M. corn seed into a planting machine on Bo Stone's farm. Mr. Stone values genetic modifications to reduce his insecticide use. Credit Jeremy M. Lange for The New York Times

Fears about the harmful effects of eating G.M. foods have proved to be largely without scientific basis. The potential harm from pesticides, however, has drawn researchers' attention. Pesticides are toxic by design — weaponized versions, like sarin, were developed in Nazi Germany — and have been linked to developmental delays and cancer.

“These chemicals are largely unknown,” said David Bellinger, a professor at the Harvard University School of Public Health, whose research has attributed the loss of nearly 17 million I.Q. points among American children 5 years old and under to one class of insecticides. “We do natural experiments on a population,” he said, referring to exposure to chemicals in agriculture, “and wait until it shows up as bad.”

The industry is winning on both ends — because the same companies make and sell both the genetically modified plants and the poisons. Driven by these sales, the combined market capitalizations of Monsanto, the largest seed company, and Syngenta, the Swiss pesticide giant, have grown more than sixfold in the last decade and a half. The two companies are separately involved in merger agreements that would lift their new combined values to more than \$100 billion each.

When presented with the findings, Robert T. Fraley, the chief technology officer at Monsanto, said The Times had cherry-picked its data to reflect poorly on the industry. “Every farmer is a smart businessperson, and a farmer is not going to pay for a technology if they don’t think it provides a major benefit,” he said. “Biotech tools have clearly driven yield increases enormously.”

Regarding the use of herbicides, in a statement, Monsanto said, “While overall herbicide use may be increasing in some areas where farmers are following best practices to manage emerging weed issues, farmers in other areas with different circumstances may have decreased or maintained their herbicide usage.”

Genetically modified crops can sometimes be effective. Monsanto and others often cite the work of Martin Qaim, a researcher at Georg-August-University of Göttingen, Germany, including a meta-analysis of studies that he helped write finding significant yield gains from genetically modified crops. But in an interview and emails, Dr. Qaim said he saw significant effects mostly from insect-resistant varieties in the developing world, particularly in India.

“Currently available G.M. crops would not lead to major yield gains in Europe,” he said. And regarding herbicide-resistant crops in general: “I don’t consider this to be the miracle type of technology that we couldn’t live without.”

First came the Flavr Savr tomato in 1994, which was supposed to stay fresh longer. The next year it was a small number of bug-resistant russet potatoes. And by 1996, major genetically modified crops were being planted in the United States.

Monsanto, the most prominent champion of these new genetic traits, pitched them as a way to curb the use of its pesticides. “We’re certainly not encouraging farmers to use more chemicals,” a company executive told The Los Angeles Times in 1994. The next year, in a news release, the company said that its new gene for seeds, named Roundup Ready, “can reduce overall herbicide use.”

Originally, the two main types of genetically modified crops were either resistant to herbicides, allowing crops to be sprayed with weedkillers, or resistant to some insects.

Figures from the United States Department of Agriculture show herbicide use skyrocketing in soybeans, a leading G.M. crop, growing by two and a half times in the last two decades, at a time when planted acreage of the crop grew by less than a third. Use in corn was trending downward even before the introduction of G.M. crops, but then nearly doubled from 2002 to 2010, before leveling off. Weed resistance problems in such crops have pushed overall usage up.

To some, this outcome was predictable. The whole point of engineering bug-resistant plants “was to reduce insecticide use, and it did,” said Joseph Kovach, a retired Ohio State University researcher who studied the environmental risks of pesticides. But the goal of herbicide-resistant seeds was to “sell more product,” he said — more herbicide.

Farmers with crops overcome by weeds, or a particular pest or disease, can understandably be G.M. evangelists. “It’s silly bordering on ridiculous to turn our backs on a technology that has so much to offer,” said Duane Grant, the chairman of the Amalgamated Sugar Company, a cooperative of more than 750 sugar beet farmers in the Northwest.

He says crops resistant to Roundup, Monsanto’s most popular weedkiller, saved his cooperative.

But weeds are becoming resistant to Roundup around the world — creating an opening for the industry to sell more seeds and more pesticides. The latest seeds have been engineered for resistance to two weedkillers, with resistance to as many as five planned. That will also make it easier for farmers battling resistant weeds to spray a widening array of poisons sold by the same companies.

Growing resistance to Roundup is also reviving old, and contentious, chemicals. One is 2,4-D, an ingredient in Agent Orange, the infamous Vietnam War defoliant. Its potential risks have long divided scientists and have alarmed advocacy groups.

Another is dicamba. In Louisiana, Monsanto is spending nearly \$1 billion to begin production of the chemical there. And even though Monsanto's version is not yet approved for use, the company is already selling seeds that are resistant to it — leading to reports that some farmers are damaging neighbors' crops by illegally spraying older versions of the toxin.

Bo Stone, a sixth-generation farmer, in Rowland, N.C. The seeds on Mr. Stone's farm brim with genetically modified traits. Credit Jeremy M. Lange for The New York Times

Two farmers, 4,000 miles apart, recently showed a visitor their corn seeds. The farmers, Bo Stone and Arnaud Rousseau, are sixth-generation tillers of the land. Both use seeds made by DuPont, the giant chemical company that is merging with Dow Chemical.

To the naked eye, the seeds looked identical. Inside, the differences are profound.

In Rowland, N.C., near the South Carolina border, Mr. Stone's seeds brim with genetically modified traits. They contain Roundup Ready, a Monsanto-made trait resistant to Roundup, as well as a gene made by Bayer that makes crops impervious to a second herbicide. A trait called Herculex I was developed by Dow and Pioneer, now part of DuPont, and attacks the guts of insect larvae. So does YieldGard, made by Monsanto.

Another big difference: the price tag. Mr. Rousseau's seeds cost about \$85 for a 50,000-seed bag. Mr. Stone spends roughly \$153 for the same amount of biotech seeds.

For farmers, doing without genetically modified crops is not a simple choice. Genetic traits are not sold à la carte.

Mr. Stone, 45, has a master's degree in agriculture and listens to Prime Country radio in his Ford pickup. He has a test field where he tries out new seeds, looking for characteristics that he particularly values — like plants that stand well, without support.

"I'm choosing on yield capabilities and plant characteristics more than I am on G.M.O. traits" like bug and poison resistance, he said, underscoring a crucial point: Yield is still driven by breeding plants to bring out desirable traits, as it has been for thousands of years.

That said, Mr. Stone values genetic modifications to reduce his insecticide use (though he would welcome help with stink bugs, a troublesome pest for many farmers). And Roundup resistance in pigweed has emerged as a problem.

"No G.M. trait for us is a silver bullet," he said.

By contrast, at Mr. Rousseau's farm in Trocy-en-Multien, a village outside Paris, his corn has none of this engineering because the European Union bans most crops like these.

"The door is closed," says Mr. Rousseau, 42, who is vice president of one of France's many agricultural unions. His 840-acre farm was a site of World War I carnage in the Battle of the Marne.

As with Mr. Stone, Mr. Rousseau's yields have been increasing, though they go up and down depending on the year. Farm technology has also been transformative. "My grandfather had horses and cattle for cropping," Mr. Rousseau said. "I've got tractors with motors."

He wants access to the same technologies as his competitors across the Atlantic, and thinks G.M. crops could save time and money.

“Seen from Europe, when you speak with American farmers or Canadian farmers, we’ve got the feeling that it’s easier,” Mr. Rousseau said. “Maybe it’s not right. I don’t know, but it’s our feeling.”

With the world’s population expected to reach nearly 10 billion by 2050, Monsanto has long held out its products as a way “to help meet the food demands of these added billions,” as it said in a 1995 statement. That remains an industry mantra.

“It’s absolutely key that we keep innovating,” said Kurt Boudonck, who manages Bayer’s sprawling North Carolina greenhouses. “With the current production practices, we are not going to be able to feed that amount of people.”

But a broad yield advantage has not emerged. The Times looked at regional data from the United Nations Food and Agriculture Organization, comparing main genetically modified crops in the United States and Canada with varieties grown in Western Europe, a grouping used by the agency that comprises seven nations, including the two largest agricultural producers, France and Germany.

For rapeseed, a variant of which is used to produce canola oil, The Times compared Western Europe with Canada, the largest producer, over three decades, including a period well before the introduction of genetically modified crops.

Despite rejecting genetically modified crops, Western Europe maintained a lead over Canada in yields. While that is partly because different varieties are grown in the two regions, the trend lines in the relative yields have not shifted in Canada’s favor since the introduction of G.M. crops, the data shows.

For corn, The Times compared the United States with Western Europe. Over three decades, the trend lines between the two barely deviate. And sugar beets, a major source of sugar, have shown stronger yield growth recently in Western Europe than the United States, despite the dominance of genetically modified varieties over the last decade.

Jack Heinemann, a professor at the University of Canterbury in New Zealand, did a pioneering 2013 study comparing trans-Atlantic yield trends, using United Nations data. Western Europe, he said, “hasn’t been penalized in any way for not making genetic engineering one of its biotechnology choices.”

Biotech executives suggested making narrower comparisons. Dr. Fraley of Monsanto highlighted data comparing yield growth in Nebraska and France, while an official at Bayer suggested Ohio and France. These comparisons can be favorable to the industry, while comparing other individual American states can be unfavorable.

Michael Owen, a weed scientist at Iowa State University, said that while the industry had long said G.M.O.s would “save the world,” they still “haven’t found the mythical yield gene.”

Battered by falling crop prices and consumer resistance that has made it hard to win over new markets, the agrochemical industry has been swept by buyouts. Bayer recently announced And the state-owned China National Chemical Corporation has received American regulatory approval to acquire Syngenta, though Syngenta later warned the takeover could be delayed by scrutiny from European authorities.

A research assistant at a Bayer center in North Carolina, where experiments are carried out to find new toxins to eradicate pests like stinkbugs, a problem at farms like Mr. Stone’s in Rowland.CreditJeremy M. Lange for The New York Times

The deals are aimed at creating giants even more adept at selling both seeds and chemicals. Already, a new generation of seeds is coming to market or in development. And they have grand titles. There is the Bayer Balance GT Soybean Performance System. Monsanto’s Genuity SmartStax RIB Complete corn. Dow’s PhytoGen with Enlist and WideStrike 3 Insect Protection.

In industry jargon, they are “stacked” with many different genetically modified traits. And there are more to come. Monsanto has said that the corn seed of 2025 will have 14 traits and allow farmers to spray five different kinds of herbicide.

Newer genetically modified crops claim to do many things, such as protecting against crop diseases and making food more nutritious. Some may be effective, some not. To the industry, shifting crucial crops like corn, soybeans, cotton and rapeseed almost entirely to genetically modified varieties in many parts of the world fulfills a genuine need. To critics, it is a marketing opportunity.

“G.M.O. acceptance is exceptionally low in Europe,” said Liam Condon, the head of Bayer’s crop science division, in an interview the day the Monsanto deal was announced. He added: “But there are many geographies around the world where the need is much higher and where G.M.O. is accepted. We will go where the market and the customers demand our technology.”

http://www.nytimes.com/2016/10/30/business/gmo-promise-falls-short.html?_r=0

December 2016

NEWS COVERAGE PERIOD FROM DECEMBER 12 TH TO DECEMBER 18TH 2016

PUNJAB PLANS TO BUY MORE GM COTTON SEED VARIETIES

Dawn, December 15th, 2016

Faisal Ali Ghumman

LAHORE: Despite perceived failure of genetically modified (GM) cotton seed experience in Pakistan and official reports confirming the presence of advanced varieties of bacillus thuringiensis (Bt) cotton seed in use, the Punjab government is reportedly planning to acquire two more advanced varieties from a multinational GM technology provider.

The agriculture department held a meeting this week to discuss an update on the negotiations with the GM technology provider and muster support of stakeholders in favour of imported varieties of Bt gene. The meeting — attended by officials, researchers, academia, growers, textile producers and seed companies — was a follow-up of a previous meeting held last month to discuss acquisition of advance gene technologies and related issues.

Sources said the agriculture department was planning to buy Bollgard II and Roundup Ready Flex (RRF) genes from Monsanto under the Kissan Package 2016-17, apparently for better seed quality resisting pests and weed controls amid serious reservations by agriculture scientists and cotton growers.

They said both genes were already in use in cotton seed as they were tested positive in the government laboratory reports conducted by the Agriculture Biotechnology Research Institute (ABRI), Faisalabad, in 2012.

The ABRI confirmed the presence of both traits when some seed companies and government research institutes sent their Bt cotton seed samples for the National Coordinated Varietal Trials (NCVT) nationwide, sources said quoting a report.

According to a government report issued in March 2014 and published in the International Cotton Advisory Committee (ICAC) of the United States, Pakistan has adopted transgenic cotton (Bollgard II) over the area of about 86pc.

As per minutes of the first meeting available with Dawn, Punjab Agricultural Research Board (PARB) CEO Noorul Islam gave an overview of the negotiations agreement with Monsanto to harness its cotton GM technology (bollworm and weed control) and efforts of the Punjab government to transform local seed industry into a vibrant one.

It was decided an agreement with Monsanto would be made to get the required cotton gene technology on a long-term basis and acquire bollguard II–RRF gene technology, advance gene technology such as bollguard III and IV and lygus control gene technology for sucking pests. The agreement, if signed, will also include long-term partnership to transform local seed industry with reform project to strengthening six private seed companies and the Punjab Seed Corporation.

The chair was of the view that Monsanto’s double gene and weed control technology has been extensively tested for biosafety in other parts of the world. Therefore, it should be given exempt status by the Ministry of Climate Change. Monsanto should share the biosafety data used in other countries for biosafety clearance and file the case with the ministry.

“We must provide advance lines which have good combination of heat, cotton leaf curl virus (CLCV) and drought tolerance along with good fibre traits,” the minutes quoted the scientists as having agreed.

Punjab Agriculture Department’s Director General Research Dr Abid Mehmood, who was one of the participants of the meeting, said nothing is final to get latest gene technology as stakeholders of the meeting only deliberated upon whether imported GM technology should be welcomed or indigenous varieties should be introduced for improving cotton production.

<http://www.dawn.com/news/1302383/punjab-plans-to-buy-more-gm-cotton-seed-varieties>