



The development in this month on GM globally, has been very reassuring. While in India, Andhra Pradesh State Sericulture Research and Development Institute (APSSRDI) developed the world's first-ever genetically modified silkworm. Africa has been making steady progress in the adoption of biotech crops. With Nigeria becoming the first country in the world to approve biotech cowpea, it added a new biotech crop to the global biotech basket. The Kingdom of eSwatini (formerly Swaziland) joined South Africa and Sudan in planting biotech crops in Africa, with commercial planting of insect resistant Bt cotton. Additionally, Nigeria, Ethiopia, Kenya, and Malawi have been granted approvals for planting biotech cotton.

In UK, a YouGov survey of more than 2,000 people was carried out by Agricultural Biotechnology Council (ABC), the umbrella organisation for the agricultural biotechnology industry in the UK. Interestingly, 72% of the respondents said that they would support the use of new technologies and innovation – such as new plant breeding techniques to increase crop diversity and security. While 82% believed that there will be an increased emphasis on new technology and innovation in food production and farming in the future – for example, in gene editing, which can help make crops more nutritious, as well as pest and disease resistant. When asked if they would be supportive of British farmers being able to grow GM crops, 43% said yes. There was also strong agreement among those surveyed that farmers and scientists are the most trusted groups to help the UK to deal with food production challenges.

On the regulatory front, the book - *Regulation of Genome Editing in Plant Biotechnology* highlighted that comparison of each country's GM crops cultivation and consumption of their products indicated the distinctness of their individual approach towards biotechnology. This also extended to their differing legal frameworks for GM crops regulation such as in labelling and coexistence provisions. The status of genome-edited plants regulation in Argentina, Australia, Canada, the European Union, Japan, and the U.S. were also analyzed. It was found that the differences in the regulatory frameworks depended on the legal classification of genome-edited plants and their produce. Consequently, genome-edited organisms are treated differently in these countries.

In this newsletter, we have tried to capture more interesting news from around the world on the latest developments in the industry and the research that is carried out. We hope you find it a good read.



Shivendra Bajaj
Executive Director
Federation of Seed Industry of India-Alliance for Agri innovation

AgBiotech News

[Google-enabled app helping small farmers in India](#)

(The Economic Times)

Nearly 70 per cent of small farmers -- those cultivating fewer than three acres -- in India often find their crops damaged by unforeseen weather and pests. An even higher number, 74 per cent, lack access to farming-related information. To bridge this knowledge gap, Pune-based agritech startup has developed a multi-lingual mobile app on Google Cloud Platform that is helping boost crop yields and encourage sustainable practices for small farmers in the country. It uses Cloud-based analytics and is deploying machine learning (ML) models to provide timely advice in five languages -- from seed optimization, crop rotation and soil nutrition to pest control and commodity price forecasting to small farmers.

[WHO Gives Clean Chit To This Controversial Herbicide: What Does It Mean For HTBT Cotton Farmers In India?](#)

(Swarajya)

The use of glyphosate, a herbicide, was one of the major controversies over the planting of HTBT cotton in India as its opponents claimed it was injurious to health. With the WHO clearing the air on glyphosate's safety, the centre could come under more pressure to allow growing of Bt cotton varieties.

[Patents on plants: Is the sellout of genes a threat to farmers and global food security?](#)

(The Indian Express)

While patenting laws remain more restrictive in the Global South, an Oxfam Study shows that big global players appear to be finding loopholes. In India, for example, the law is not being applied properly, leaving farmers vulnerable. In India, although the patentability of isolated genes would be excluded if the law were strictly interpreted, patents on isolated genes have been granted. The danger for the farmers is that courts misinterpret badly or simply wrongly, or the laws are simply changed.

[Industry estimates not much rise in HTBt cotton plantation](#)

(The Indian Express)

Notwithstanding the ongoing agitation about legalising the unauthorised Herbicide Tolerant (HT) hybrid of genetically modified Bt cotton, seed industry insiders feel there has not been a quantum jump in area under the unauthorised variant. Ram Kaundinya, director general of the Federation of Seed Industry of India (FSII), pointed out that the industry estimates say that around 15 per cent of the present cotton crop across the country is under the HTBt cotton.

[First-ever genetically-modified silkworm awaits nod from GEAC](#)

(The Hindu)

World's first-ever genetically modified silkworm developed at Andhra Pradesh State Sericulture Research and Development Institute (APSSRDI) now awaits approval from Genetic Engineering Appraisal Committee at national level to go for the second phase trials of the baculovirus resistant transgenic silkworm with a view to overcoming the loss in silk cocoon production.

[Bharatiya Kisan Sangh opposes GM tech in oilseeds](#)

(The Hindu Business Line)

The Bharatiya Kisan Sangh (BKS), an affiliate of the Rashtriya Swayamsevak Sangh, has opposed the genetical modification (GM) technology in agriculture, especially in oilseeds. A delegation of BKS met Maharashtra Chief Minister Devendra Fadnavis on September 4. Its members have said that the use of GM technology in mustard is not required as it does not enhance production.

[Biotech crops continue to provide solutions to hunger, malnutrition, climate change](#)

(Business Mirror)

A total of 70 countries adopted biotech crops through cultivation and importation in 2018, the 23rd year of continuous biotech crop adoption, according to the “Global Status of Commercialized Biotech/GM Crops in 2018,” a report released by the International Service for the Acquisition of Agri-biotech Applications (ISAAA). Twenty-six countries—21 developing and five industrialized countries—planted 191.7 million hectares of biotech crops, which added 1.9 million hectares to the record of plantings in 2017. The continuous adoption of biotech crops by farmers worldwide indicate that biotech crops continue to help meet global challenges of hunger, malnutrition and climate change.

Ag Biotech News Around the World

Plant breeding innovations required to weather climate change, report says

(Alliance for Science)

A study published in Transgenic Research Journal highlighted that the world needs plant breeding innovations to effectively address challenges associated with climate change and a growing population. More resource-efficient farming systems are needed to feed the world as the population increases, and plant breeding innovations can make agricultural production more efficient. Improved plant varieties developed through new breeding techniques have better capacity to withstand pests and diseases, while using fewer resources, the report notes. They also offer stable yields in an unstable climate and can improve productivity through efficient use of water, land and nutrients.

Deployment of plant genes critical to safeguarding wheat

(Cornell)

Wheat breeders face a daunting task trying to defend against relentlessly evolving pathogens. In the battle, scientific ingenuity confronts biological innovation: Wheat varieties that contain single disease-resistance genes can be easily overrun by rapidly evolving spores. To safeguard food supplies and ensure durable disease resistance in wheat, scientists need to embrace a globally integrated strategy that deploys resistance genes in a coordinated way.

Majority support new crop techniques for food security

(Farmers Weekly)

The YouGov survey of more than 2,000 people was carried out in July for the Agricultural Biotechnology Council (ABC), the umbrella organisation for the agricultural biotechnology industry in the UK. Nearly three quarters (72%) said they would support the use of new technologies and innovation – such as new plant breeding techniques to increase crop diversity and security.

GM Crop Adoption Continues to Move Forward in Africa

(ISAAA)

Africa continues to make steady progress in the adoption of biotech crops with Nigeria becoming the first country in the world to approve biotech cowpea, thus, adding a new biotech crop to the global biotech basket. The Kingdom of eSwatini (formerly Swaziland) joined South Africa and Sudan in planting biotech crops in Africa, with commercial planting of insect resistant (IR) Bt cotton. Nigeria, Ethiopia, Kenya, and Malawi granted approvals for planting biotech cotton as proof that Africa is ready for biotech crop adoption.

BASF Launches Herbicide Tolerant Stacked Traits Soybeans

(ISAAA)

BASF has launched Credenz soybean with LibertyLink GT27, the first soybean seed technology with herbicide-tolerant stacked traits. It allows growers to apply both Liberty herbicide and glyphosate over the top of soybeans for post-emergence control of broadleaf and grass weeds. The Credenz LibertyLink GT27 system combines the maximum yield potential from the elite genetics of Credenz, with the most effective weed control solutions from LibertyLink, giving farmers greater flexibility in weed management.

Declaration to Establish African Coalition on Genome Editing Communication Adopted

(ISAAA)

Bioscience stakeholders across the world have resolved to establish an African Coalition for Communicating about Genome Editing, at the Africa Biennial Biosciences Communication Symposium

(ABBC2019). By endorsing a declaration to improving bioscience communication in Africa, the delegates vowed to foster open and transparent dialogue with all stakeholders, including those with divergent views on genome editing. The declaration captures far-reaching resolutions that include a call to encourage public participation in research direction and policy formulation on genome editing. Awareness creation among policy and decision makers on the technology was also prioritized.

[Chinese medicine herbs could defeat devastating cotton virus, study suggests](#)

(Line Today)

Chinese scientists have found chemicals in medicinal herbs that could tame a destructive plant virus threatening the cotton industry in its western Xinjiang region. Some small-molecule chemicals in herbs commonly used in Chinese medicine can effectively suppress cotton leaf curl Multan virus, according to ongoing research led by Professor Ye Jian at the Institute of Microbiology in Beijing. By targeting WRKY20, a gene in the virus' DNA, the chemicals could disrupt the viral infection and transmission, Ye's team found.

[We need intensive agriculture to combat climate change and feed 10 billion people](#)

(Genetic Literacy Project)

In December 2018, the World Resources Institute (WRI) released a comprehensive study embracing agricultural intensification as the only way to simultaneously close what it calls the food gap, the land use gap, and the greenhouse gas emissions gap. Raising agricultural productivity through technological innovation, substantially faster than the historic rate of recent decades, will be necessary, even if human societies are able to achieve historically unprecedented reductions in food demand and waste. The authors even call explicitly for increased funding for gene editing research to increase crop productivity — biotechnology, in other words.

[Kansas State releases three new wheat varieties](#)

(Ag Daily)

Kansas State University recently released three new wheat varieties, which are available to Certified seed growers and will be available to farmers in fall 2020. The new releases include two hard red winter wheat varieties — KS Western Star and KS Dallas — and one hard white wheat, KS Silverado. Wheat breeding programs like the one at K-State, producers have ever-improving options of wheat varieties to plant. Whether it's improved resistance or increased yields, wheat breeders are creating varieties that meet producers' changing needs.

[Cover crops: Covering your assets during drought](#)

(Ag Daily)

In times of drought, cover crop biomass is the protective barrier between soil and Mother Nature. Research has found greater amounts of biomass at termination make the cover crop significantly more effective at weed suppression, blocking sunlight from reaching the soil to keep weeds from germinating. During times of drought, cover crop locks moisture into place by regulating soil temperature and protecting the surface area from evaporation, while increased soil organic matter improves water holding capacity.

New Research

[Scientists Complete High-resolution 3D Genome Map of Rice](#)

(ISAAA)

Scientists from Huazhong Agricultural University in central China's Hubei Province have completed a high-resolution three-dimensional genome map of rice. The team aimed to investigate the genome architecture and its effects on rice growth through the map. The study will help reveal the genome architecture of rice and promote research on the genetic improvement of rice and other crops.

[Classification of Genome-edited Plants Define How They Are Regulated](#)

(ISAAA)

Comparison of each country's GM crops cultivation and consumption of their products indicates the distinctness of their individual approach towards biotechnology. This also extends to their differing legal frameworks for GM crops regulation such as in labeling and coexistence provisions. The status of genome-edited plants regulation in Argentina, Australia, Canada, the European Union, Japan, and the U.S. was analysed. It was found that the differences in the regulatory frameworks depend on the legal classification of genome-edited plants and their produce.

[Rain-resistant Wheat Developed Using Genome Editing](#)

(The Asahi Shimbun)

Researchers have developed a rain-resistant wheat variety using the CRISPR-Cas9 system. This breakthrough could lead to the development of better-quality flour. Researchers from the National Agriculture and Food Research Organization (NARO) and Okayama University said that genome editing helped them develop the new wheat variety in just about a year. Such development used to take about 10 years using conventional breeding techniques.

[New Cloning System Allows Development of Transgene-free Edited Crops](#)

(Frontiers)

Researchers from Polytechnic University of Valencia, Spain and Durham University in the UK developed a tried and tested cloning system for genome editing with a monitoring module that lights up when a transgene is detected. This new technique provides an option for researchers to have an efficient elimination of editing system after genome editing, minimizing the chance of off-target mutations, and also allows development of edited plants free of foreign DNA.

[Future proofing cereals for climate change drought conditions](#)

(Heriot Watt University)

Scientists at Heriot-Watt University led by Dr. Peter Morris have identified the gene responsible for drought resistance in barley. The research team showed that the gene HvMYB1 controls stress tolerance in cereals such as barley. This is the first time that HvMYB1 gene was associated with drought resistance.

[Unlocking a mystery of seed development promises fatter, oilier oilseeds](#)

(PNAS)

A research team from John Innes Center led by geneticist Charlotte Miller has identified a gene controlling both the oil content and the size of canola (*Brassica napus*) seeds. The findings of the study could improve selective breeding to help farmers produce more oil.

[Getting to the root of how plants tolerate too much iron](#)

(Salk)

Iron is essential for plant growth, but soils can become toxic with too much or excess iron. In the last two decades, plant scientists have attempted to uncover the genes responsible for iron tolerance. However, they remained elusive until recently when scientists from the Salk Institute for Biological Studies found a gene called GSNOR, a major genetic regulator of iron tolerance.

Upcoming Events

September 2019

International Sugar Cane Congress

Date: August 31- September 8, 2019

Venue: Cevil Redondo, Argentina

International Conference on Agriculture, Biological and Environmental Sciences (PABE)

Date: September 5-7, 2019

Venue: Paris, France

International EUCARPIA Meeting on Genetics and Breeding of Capsicum and Eggplant (CapsEgg)

Date: September 11-13, 2019

Venue: Avignon, France

CRISPR AgBio Congress

Date: September 25-26, 2019

Venue: London, UK

International Conference on Agro BigData and Decision Support Systems in Agriculture (BigDSSAgro)

Date: September 25-27, 2019

Venue: Viña del Mar, Chile

Nextgen Genomics, Biology, Bioinformatics and Technologies Conference (NGBT Conference)

Date: September 30 – October 2, 2019

Venue: Mumbai, India

October 2019

International Conference on Research of Agricultural and Food Technologies

Date: October 03 – October 05, 2019

Venue: Sheraton Grand Adana, Adana, Turkey

Global Summit on Plant Science

Date: October 07 – October 08, 2019

Venue: Hotel Silken Puerta Madrid, Madrid, Spain

Agriculture, Forest and Aquaculture Sciences Congress

Date: October 13 – October 14, 2019

Venue: Mirel Hotel, Ereğli, Turkey

International Conference on Agricultural Engineering for Sustainable Agriculture Production

Date: October 14 – October 15, 2019

Venue: IPB International Convention Center, Bogor, Indonesia

International Symposium on Agricultural Engineering

Date: October 31 – November 02, 2019

Venue: University of Belgrade, Belgrade, Serbia

November 2019

Sustainable Agriculture Conference

Date: November 01 – November 03, 2019

Venue: Durham, USA

International Conference on Sustainable Agriculture Technologies

Date: November 01 – November 03, 2019

Venue: Kaohsiung, Taiwan

Plant Genomics & Gene Editing Congress

Date: November 04 – November 05, 2019

Venue: The StateView Hotel, Autograph Collection, Raleigh, USA

International Society for Biological and Environmental Repositories Regional Meeting

Date: November 04 – November 05, 2019

Venue: Renaissance Minneapolis Hotel, The Depot, Minneapolis, USA

International Conference on Molecular Biology and Genetic Engineering

Date: November 07 – November 08, 2019

Venue: Melbourne, Australia

International Conference Agricultural Engineering

Date: November 08 – November 09, 2019

Venue: Deutsche Messe AG, Hanover, Germany

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