



**Seed Connect**

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According to the report by United Nations (UN) *Annual State of Food Security and Nutrition in the World*, the largest number of undernourished people estimated at 38.1 crore reside in Asia. Further, the impact of COVID has pushed these numbers to a higher mark. The UN estimates that three billion people cannot afford a healthy diet - and in sub-Saharan Africa and South Asia, this holds true for more than half of the population.

The UN Children's Fund (Unicef) recently noted that an additional 67 lakh children under the age of five could suffer from wasting resulting from socio-economic effect due to the pandemic. Among these young children, 80 per cent would be from sub-Saharan Africa and South Asia.

In a recent article 'Food security in the spotlight', Dr Samira Amellal, Director General/CEO, CropLife Africa Middle East and Dr Siang Hee Tan, Executive Director, CropLife Asia focused on the food security of two continents - Africa and Asia. They emphasised on the challenges of these two continents and gave a direction towards focusing on several dynamics to strengthen it. The article discusses that this year has been specially tough for the farmers. The gaps that were already in the agriculture system has been widened by the pandemic. Transportation, availability of agri inputs and labour and on top of that climate change and arrival of locusts caused havoc for the Indian farmers. Amidst these challenges, the Indian farmers have sown and produced food more than last year. Resulting, the sector was termed as the 'bright spot' for the Indian economy by the experts.

While all is well and good when we look at it from the point of view of the current pandemic, climate change is only going to make it worse in the coming years. An increased prevalence of droughts and floods, will impact farmers' ability to grow food - and in turn, their livelihood. Case in point is the recent flood in Andhra Pradesh. A McKinsey report released last month noted that Asia is particularly vulnerable and suggested the region could experience labour shortages resulting in economic losses of up to US\$4.7 trillion (INR 35 lakh crore) annually.

Posing further threats to the Asia food production are ongoing trade-restrictive developments. Particularly, the movement within the European Parliament promoting that

no other country's farmers should use pesticides that are restricted or banned in the European Union - and using this idea to object to trade-facilitating Maximum Residue Limits (MRLs) set by the UN's World Health Organization / Food and Agriculture Organization (WHO/FAO) Codex Alimentarius for pesticides not available in Europe. This step will effectively close the European market to millions of farmers, threaten their livelihood to drive food security.

Pesticides, along with quality seeds and fertilisers, are important agricultural inputs which the farmers depend on to grow a variety of crops. In addition to driving trade, the crops grown in the region provides the supply of affordable and nutritious food. To overcome these challenges, adopting new innovations and crop protection will help in increasing yield, improving resistance to pests, and enhancing nutrition, among others. Further, pesticides are very crucial for producing more food on less land. Without pesticides, an estimated 40 per cent of global rice and corn harvests could be lost every year while losses for fruits and vegetables could be as high as 50-90 per cent.

Only a collaborative effort among stakeholders across the food value chain can address hunger, malnutrition, undernutrition, wasting and several other challenges that is impacting the population at large.

We have covered the news around the recent developments in India around this law, additionally, several important developments on agriculture across India, globally and in the area of research have also been covered in this newsletter. We hope you find it a good read!



**Shivendra Bajaj**  
**Executive Director**  
**Federation of Seed Industry of India**

## **News from India**

### **[Rs1-lakh cr push for key sectors, including auto, pharma, agriculture](#)**

**(The Tribune)**

Keeping the benchmark interest rate unchanged, the Reserve Bank of India (RBI) on Friday announced several additional measures to revive the economy, including a Rs 1 lakh crore liquidity chest for banks for lending via bonds and commercial papers in specific sectors. The sectors that would “open their accounts first” are agriculture and allied activities, FMCG, two-wheelers, passenger vehicles and tractors; drugs and pharmaceuticals; and electricity generation, especially renewable.

### [Now processors will go to farmers to buy produce: Narendra Singh Tomar](#)

(The New Indian Express)

Earlier, agriculture used to be the main industry and that is why it had a huge contribution. But, now more sectors have opened up. These sectors have more turnover and have progressed. Certainly, they will contribute more to the growth. For growth of agriculture, we need to do more. Today, there is a gap between farm produce and processors. Farmers will not be able to get the right price if the gap and the hurdles remain. Easy investment should reach villages. We need to provide adequate infrastructure in villages and that is why we came up with Acts on open trade. Earlier, farmers had to reach mandis. Now, the trend will reverse...processors will come to them to buy their produce.

### [How Technology Can Benefit Agriculture And Farmers In India](#)

(Analytics Insight)

The change in Indian agriculture began with the Green Revolution, which was trailed by accomplishments of large achievements: Blue revolution, white revolution, yellow and Bio-Technology revolutions. In India, agriculture is the core sector for food security, nutritional security, and sustainable development & for poverty alleviation. It contributes approx. 18 % of GDP and practically 40% of total rural NDP (Net Domestic Product). Around 64% of the total labor force is occupied with horticulture or agribusiness-based businesses. After independence, there has been noteworthy development in Indian agriculture with the grain production ascending to 273.83 million tons this year. All things considered, there are enormous challenges to be analyzed to enhance the agricultural growth in India.

### [Vietnam Appeals To India To Open Its Market For Dragon Fruit Among Other Agricultural Products](#)

(Business World)

According to the General Department of Vietnam Customs, dragon fruit accounts for about a third of Vietnamese fruit and vegetable exports. Revenue from dragon fruit exports is nearly four times higher than longan and mango. Vietnamese Ambassador to India Pham Sanh Chau has urged the Indian government to create favourable conditions, remove tariff and non-tariff barriers, and simplify administrative procedures in order to facilitate the two countries' access to each other's markets.

### [Supreme Court seeks govt's response on 3 PILs challenging farm laws](#)

(The Times of India)

The Supreme Court sought the Centre's response to three PILs challenging the validity of recent farm laws and describing them as prejudicial to the interest of 10 crore people engaged in agriculture. The common theme of the PIL was that the new farm laws would jeopardise the interests of farmers and those engaged in the agriculture sector by exposing them to market forces, this making them prone to exploitation.

### [Smog returns to Indian capital as agriculture fires start](#)

(ABC News)

The Indian capital's air quality levels plunged to "very poor" on Friday and a smoggy haze settled over the city, days after the state government initiated stricter measures to fight chronic air pollution. The Air Quality Index in New Delhi rose past 270, according to SAFAR, India's main environment monitoring agency, after agricultural fires in neighboring states sent smoke billowing across the city. The World Health Organization deems anything above 25 as unsafe.

### [India has undertaken trinity of reforms in education, labour and agriculture: PM Narendra Modi](#)

(Mint)

India has undertaken a 'trinity of reforms' in the field of education, labour and agriculture, Prime Minister Narendra Modi said, urging Canadian investors to invest in these sectors. The government has not only offered a stimulus package for the poor and the small businesses massively hit by the pandemic, but also undertook structural reforms, ensuring productivity and prosperity and thereby making the best use of this opportunity.

### [Agriculture exports rise 43.4% in April-September: Government](#)

(The Times of India)

Export of agri commodities rose by 43.4 per cent to Rs 53, 626.6 crore in the first half of the current fiscal notwithstanding the ongoing Covid-19 crisis. Farm exports stood at Rs 37, 397.3 crore during the April-September period of 2019-20 fiscal. In September 2020, agri exports rose by 81.7 per cent to Rs 9,296 crore from Rs 5,114 crore in September 2019.

### [Farm Laws were long-waiting reforms, MSP to continue: Nirmala Sitharaman](#)

(Hindustan Times)

Amid protests over the recently enacted farm Laws in different parts of the country, Union Finance Minister Nirmala Sitharaman termed them as long-waiting reforms in the agriculture sector. While interacting with farmer leaders and agricultural experts in Chennai on farmer issues and recently enacted agriculture Laws, Sitharaman said that the Minimum Support Price (MSP) for crops will be continued.

### [US senators seek removal of high tariff on import of pecans from India](#)

(Outlook India)

A bipartisan group of five influential senators has urged the Trump administration to seek removal of high tariffs on import of pecans by India, asserting that it is impacting a large number of American farmers. The growing middle class in India has demonstrated its desire for consumer-oriented agricultural products, like tree nuts, and the Indian market represents one of the most dynamic and fastest growing in the world, the senators wrote in a letter to US Trade Representative Robert Lighthizer. "Unfortunately, the current high tariff (36 per cent) that India charges on pecan imports makes it difficult for American producers to compete in this important market," said the letter that was written by Senators Kelly Loeffle, David Perdue, Doug Jones, John Boozman and Tom Cotton. "In contrast, we understand that the current Indian tariffs on US pistachios and almonds is much lower (10 per cent), which highlights how disproportionately high the pecan tariff is," said the latter dated October 23.

### [Bogus beneficiaries bleed PM Kisan Scheme, lakhs of fake claims may have cost Rs 2,400 crore to Centre](#)

(India Today)

Bogus beneficiaries are bleeding the Pradhan Mantri Kisan Samman Nidhi scheme under which the Centre provides Rs 6,000 direct cash benefit to farmers over one year. The Ministry of Agriculture has admitted that the first verification exercise since its launch in December 2018 has shown that out of a sample of nearly 12 lakh beneficiaries, 4% have been found to be ineligible, invalid or simply bogus. The ministry has stated that in some cases the authentication process proved that beneficiaries who had not even applied for the scheme were added to it.

### [IIT Guwahati Develops Low-Cost Technology to Make Psychoactive Drugs from Agriculture Resources](#)

(GPlus)

Researchers of the Indian Institute of Technology, Guwahati (IITG) have developed a low-cost technology to produce psychoactive drugs and anti-aging compounds from agricultural resources. It was developed by Professor Mihir Kumar Purkait, Head of Centre for the Environment, and Professor of Department of Chemical Engineering along with his M Tech student V L Dhadge. The membrane technology produces psychoactive drugs and anti-aging compounds from wide range of agricultural resources like camellia sinensis, citrus fruits, and peels especially orange peels, berries, ginkgo biloba, parsley, pulses, tea, sea buckthorn, and onions.

### [Kerala becomes the first state to fix a floor price for vegetables](#)

(Business Insider)

Kerala had become the first state in the country to fix the floor price for vegetables. The floor price will be 20 per cent above the production cost of the vegetable. Even if the market price goes below the floor price, the produce will be procured at the floor price from the farmers.

### [A secure weave for cotton](#)

(The Hindu Business Line)

To tackle the challenges and tap the opportunities, multiple technologies need to be adopted

For centuries, cotton — the white gold — has been a critical cash crop for our country. Given the nature of utilisation, cotton may be called an industrial crop. Its importance has increased in the last 15 years with massive expansion in planted area and output. India is currently No. 1 in area planted (13 million hectares) and production (36-37 million bales), and No. 3 in export of cotton (behind the US and Brazil). Despite recent gains, there's tremendous scope for further increases in productivity levels. At roughly three bales, or 500 kg, a hectare, our yields are below the global average of over 750 kg/ha and just a third of those in major producers like China and Brazil.

### [Central farm bills give states opportunity to liberate farmer from archaic systems](#)

(The Indian Express)

The Centre has finally decided to bite the bullet by instituting major reforms in the labour and agriculture sectors. The reforms were announced piggybacking on the COVID-19 relief package. Parliament has passed three bills on agriculture reform. This has evoked protests, largely in Punjab and Haryana. Unfortunately, politics in India has been played in the name of the farmer. Parties across the political spectrum have, at some point of time or other, advocated the reversal of the archaic mandi system. However, some parties continue to decry the steps taken. Taking recourse to Article 254 of the Constitution, the Punjab government has passed its own bills to nullify some provisions of the central acts. Similar action by the Chhattisgarh and Rajasthan governments seems to be on the anvil. Let us analyse the legal implications of this action and how it might impact farmers in these states.

### [GOV-TECHTHON 2020: Incubating new ideas for a better India](#)

(The Financial Express)

For Gov-TechThon 2020, NIC has shortlisted five key problem scenarios in collaboration with the ministries, AI based crop recommendations - This aims to help farmers get their crop rotation planning right and improve yields and profitability. Blockchain based seed certification - This aims to ensure quality check throughout the supply chain of seed distribution via track and trace and audit capabilities so that farmers are provided with the best quality seeds for improved yields.

### [Rythu Bharosa Kendras to procure produce directly from farmers now](#)

(The New Indian Express)

In tune with Chief Minister YS Jagan Mohan Reddy's vision, the Rythu Bharosa Kendras (RBKS) are all set to emerge as the one-stop solution for the farmers, be it purchasing seeds and pesticides or selling their produce. The State government issued orders designating RBKs as procurement centres for all the agricultural commodities, including horticulture crops, to ensure remunerative prices to the farmers. The AP Civil Supplies Corporation, Markfed, Oilfed and Cotton Corporation of India (CCI) will coordinate with the agriculture department to ensure that the procurement is taken up to benefit farmers.

### [Supreme Court rejects plea to enforce new farm laws](#)

(The Hindu)

The Supreme Court dismissed a plea to enforce the controversial new agriculture laws. The plea wanted a ban on protests and processions against the laws. It sought the framing of rules and guidelines to bar agitations in this regard. It even asked for a blanket bar on the dissemination of "propaganda" on social media against the parliamentary legislation. The petitioner said the laws were enacted to serve the farmers' needs through an agrarian crisis. "You cannot ask for a general direction to implement the Act... You have to bring forth specific cases," Chief Justice of India Sharad A. Bobde, heading a three-judge Bench, addressed lawyers representing petitioner, Hindu Dharma Parishad.

### [How this 15-year-old developed an agri sprayer to stop supari farmers from turning blue](#)

(India Today)

Neha Bhatt, one of the 15 students who won the CSIR Innovation Award for Students this year, comes from a family of agriculturists. And the way she has learned to think of and solve the agriculture-related problems in her region shows how India can progress as an agricultural nation by boosting critical thinking and innovation in her youth. The story of how she solved a major crisis being faced by betelnut or supari farmers in her region is inspiring to say the least.

### [Why are onion prices skyrocketing?](#)

(The Times of India)

The price of indispensable kitchen staple onion is bringing tears to the eyes in the Indian households. Onion prices ranging from Rs 20 per kilogram a few weeks back to somewhere hovering above 80 in India's key cities/markets and Rs 100 in many areas of Delhi and Mumbai are making the consumers reel.

### [Use of technology can make farmers prosperous: Maha CM](#)

(Outlook India)

Farmers can prosper if modern technology is used in agriculture, Maharashtra Chief Minister Uddhav Thackeray said. Speaking at the online inauguration of a meeting of agriculture universities in the state, he also advised farmers to focus on growing crops which have a market. "The farmer is our 'annadata' (someone who provides food). If technology is used in agriculture, farmers will become prosperous," Thackeray said. "Farmers should now grow crops that sell," he added. Punjabrao Deshmukh Agriculture University, Akola and Maharashtra Council of Agricultural Education and Research have organized the 48th Joint Agriculture Research and Development Committee (Agrisco) Meeting.

### [Feeding the world byte by byte](#)

(Landscape News)

Despite the utopian promise of "human fuel" meal replacement powders, every human still needs real food, grown on real farms. The importance of agriculture should guarantee its place at the forefront of technological innovation, yet digitalization is taking its time to reach fields and farms. "Somehow there is a missing link in getting data sets to make sense to the policymaking processes," said Sara Mbago-Bhunu, director of the East and Southern Africa Division at the International Fund for Agricultural Development. "There is a very deep analytical gap."

## News from Around the World

### [Food security in the spotlight](#)

(Business Times)

In a year when the World Food Programme has been rightfully recognised in receiving the Nobel Peace Prize, the state of global food security is in the spotlight this World Food Day more than ever. For Africa and Asia in particular, the critical needs and challenges driving this renewed awareness are sadly only growing. As if 2020 hadn't delivered enough heartbreak and grief, a barrel-full more made its way to Africa and Asia in July - and marked a troubling "tipping point" for the two continents' collective efforts to deliver a safe, affordable and nutritious supply of food to those who need it most.

### [Trump's Trade Wars Have Made Bad Agriculture Policies Worse](#)

(Foreign Policy)

Recent years have been tumultuous for American farmers and ranchers. Thanks to advanced technologies and generous subsidies, their products have become so abundant that the United States usually ends up exporting about 20 percent of its agricultural output abroad. To keep growing, U.S. farmers and ranchers need better access to markets abroad. But U.S. agriculture and trade policies run counter to the more liberalized and open markets that would benefit U.S. farmers. These obstacles didn't originate with President Donald Trump. He's raised them higher, to be sure, but only within a system that was already deeply flawed.

### [Commentary: Choose science over fiction](#)

(Capital Press)

The scientific base of the United States Departments of Agriculture (USDA), Interior (DOI), and Energy (DOE), Environmental Protection Agency (EPA), National Aeronautics and Space Administration (NASA), and National Oceanic and Atmospheric Administration (NOAA) — particularly efforts related to food and agriculture, the environment, natural resources, climate change, water, alternative energy — has been decimated in the recent past.

### [USDA seeks technologies to take farming into the future](#)

**(Federal News Network)**

If you went to the average contemporary farm, you'd be hard pressed to find a hoe or a rake. But you would find information systems, GPS, and artificial intelligence driving operations. As part of its Agriculture Innovation Agenda, the Agriculture Department is looking for technologies and practices that can help U.S. farm productivity increase by 40%. The request for information is open for another two weeks. USDA's Under Secretary for Farm Production and Conservation Bill Northey had an update on Federal Drive with Tom Temin.

### [Best farming practices for soil health vary by region](#)

**(Future Farming)**

Research published in *Agricultural & Environmental Letters*, notes that information regarding soil health is often too generalised. "Soil health is difficult to define, measure and track over time, although methods are improving," says Grace Miner, a postdoctoral scientist at Colorado State University and member of the American Society of Agronomy, Crop Science Society of America and Soil Science Society of America. "Linking changes in soil health to farm management is complex." Not all outcomes are equal amongst farms. While one practice may benefit one, it may bring challenges to another depending on location. In the United States for example, these challenges stem from the United States having diverse geography.

### [USA DEA Being Sued For Alleged Legal Hemp Crop Destruction](#)

**(Hemp Gazette)**

The USA's Drug Enforcement Administration and others are being sued over what was claimed to be unlawful destruction of a hemp crop in California. Agro Dynamics LLC says that in August 2019 it acquired the necessary authorisation for the legal cultivation of hemp on their premises in San Diego County. The company then planted approximately 3,000 hemp plants that it states tested at below the legal threshold of .3% THC. "Specifically, a Victory Analysis laboratory test for this hemp cultivation showed results of less than 0.01 THC which is clearly within legal limits."

### [Crop disease management in focus at Cummins and Clare](#)

**(Mirage News)**

South Australian grain growers and agronomists are being offered an opportunity to access cutting edge cereal and canola disease management advice and support through two regional workshops in November. The workshops at Cummins on Eyre Peninsula and Clare in the Mid North will also provide the latest insights on managing fungicide resistance. Supported by the Grains Research and Development Corporation (GRDC), the two-day workshops on November 23-24 (Cummins) and November 25-26 (Clare) are being presented by the Australian Fungicide Resistance Extension Network (AFREN). Workshop facilitator John Cameron, of Independent Consultants Australia Network (ICAN), says the workshops will focus on issues of regional importance and offer tailored advice for growers and agronomists.

### [Queensland growers look for fresh ideas to combat labor shortage](#)

**(FreshPlaza)**

A North Queensland vegetable grower still regrets having to make the decision to plough the last of her 2020 crop back into the ground. However, Lorelle McShane said she was left with no choice after staff left her Burdekin farm to return to city jobs. "It would have been about \$150,000 that we left in the paddock," she said. "We had about 5,000 trays to go out of that and the current market price was \$30. Unless there is a secure abundance of people in Australia to start next year, I don't think we'll be growing." Among the areas worst hit will be towns along the east coast of Queensland, the Riverina, the Tasmanian and Victorian fruit growing regions, and the Northern Territory overall. Mrs McShane

had nothing good to say about the existing Federal Government schemes to encourage urban Australians and working holidaymakers (WHM) to relocate to a harvest region, being convinced the scheme would not work.

### [EU marketing contributes to 'high-quality standards' for EU agri-food products](#)

(Agri Land)

EU marketing standards for agri-food products have been “effective in establishing a standardised and satisfactory quality while also being useful for stakeholders” according to the key findings of a report by the European Commission. The report, ‘Evaluation of marketing standards’, aimed to determine if EU marketing standards currently in place are fulfilling their objectives and if they are “useful and sufficient for stakeholders”, such as: producers; processors; traders; retailers; consumers; and member states’ administrations.

### [Leaving no one behind: A Regional Outlook on Gender and Agrifood Systems Africa](#)

(ReliefWeb)

Agrifood systems cannot be transformed unless there is gender equality. That was the simple message underlying the launch today of a new report by the Food and Agriculture Organization of the United Nations (FAO) and the African Union that puts the spotlight on women's role in agrifood systems. The report, Leaving no one behind: A Regional Outlook on Gender and Agrifood Systems, was launched by FAO Director-General QU Dongyu and African Union Commissioner for Rural Economy and Agriculture Josefa Sacko at the 31st Session of the FAO Regional Conference for Africa.

### [New Generation of Desert Locusts Breeding in Horn of Africa](#)

(Bloomberg)

Desert locusts are breeding afresh in Ethiopia and Somalia and new swarms will form by mid-December and are likely to move southwards toward Kenya. “Although countries are better prepared compared to a year ago, survey and control operations need to continue to detect and reduce as many infestations as possible,” the Food and Agriculture Organization said in a statement on its website. The United Nations agency is leading the fight against the worst outbreak of the pests in 70 years. At the height of the infestation in March, 39 of Kenya’s 47 counties reported invasions of the insects that also swamped Ethiopia, Somalia, Uganda and Yemen.

### ["I can see hydroponics becoming bigger, from commercial use to homes"](#)

(HortiDaily)

A University of British Columbia student design team is developing a fully autonomous agricultural robot, driven by their belief that Canada can lead the world in sustainable farming. The UBC AgroBot aims to precisely exterminate weeds and fertilize crops as well as record data from a farmer’s operation. The team has grown from four to 40 plus students with backgrounds in various engineering disciplines and many with no prior exposure to agriculture. The AgroBot project involves four teams of students. The chassis team designs the mechanical body, structure and driving system. The extermination team works on the mechanics and chemical design to target weeds. The navigation team develops the autonomous software to navigate crop rows and the image recognition team uses machine learning technology to allow the robot to identify crops and weeds.

### [Container shortages a growing problem for US agriculture shippers](#)

(The Loadstar)

Hapag-Lloyd has dealt a body blow to US shippers of soybeans and other agriculture exports with its decision to suspend carriage of container shipments of their produce from North America. The suspension is the result of an acute shortage of containers in Asia, as boxes have piled up in US warehouses. The Specialty Soya and Grains Alliance (SSGA) claimed it had reports that Hapag-Lloyd was acting to move empty containers back to Asia as fast as possible, without waiting for loads out of North America.

### [Western Cape agri shows resilience despite Covid-19](#)

(Biz Community)



Western Cape minister of agriculture, Dr Ivan Meyer, announced that the Provincial Economic Review and Outlook (PERO) and Municipal Economic Review and Outlook (MERO) have been tabled. These outlooks highlight the agricultural sector's competitive advantage. The PERO and MERO draw insights from data and evidence-based research into the agricultural sector in the Western Cape.

### [World Bank approves \\$80 Million Rural Enterprise and Economic Development Project to boost Nepal's agriculture sector and support post-pandemic recovery](#)

(ReliefWeb)

The World Bank approved a \$80 million project today to bolster Nepal's agriculture sector by strengthening rural market linkages and promoting entrepreneurship while creating jobs to support post-COVID-19 recovery. The Rural Enterprise and Economic Development (REED) Project will promote market linkages to support the growth of rural enterprises, especially those that are women-led. A key focus is on productive partnerships that will help add value, create jobs and foster sustainable linkages between small-holder producers and institutional buyers. The project will facilitate improvements in quality and meeting requirements of new destination markets to boost exports

### [Report: EU donors needs to 'green' external action on farming](#)

(Euractiv)

The lack of a comprehensive green transition strategy in the EU's external action on agriculture reduces the chances of achieving global nutrition security, a new NGO report has found. The Concord Aidwatch 2020 surveys how the EU, the world's largest donor, spends official development assistance (ODA) to third countries in the context of its international cooperation programme. The report notes that food security will remain a priority ODA policy as increasing hunger is set to be one of the most dramatic indirect consequences of the COVID-19 outbreak, exposing the strengths and weaknesses in our food systems.

### [Iowa Farmer Finds Fortune in Selling Carbon Credits to Shopify](#)

(Bloomberg)

Iowa's Kelly Garrett is the first one in five generations of toiling the family farm to cash in on what plants and soil do naturally -- trap carbon dioxide from the air. The crop-and-cattle farmer is selling credits from removing 5,000 metric tons of carbon dioxide off his Crawford County farm yearly to e-commerce company Shopify Inc. through a carbon-credit marketplace run by Seattle-based Nori LLC. Garrett expects a check for up to \$290,000 from selling credits he earned between 2014 and 2019 through a Locus Agricultural Solutions program that guides farmers through the process and offers access to soil nutrients that increase carbon absorption.

### [The path to global food security](#)

(The Manila Times)

This year, the Nobel Peace Prize recognized the inextricable link between hunger and conflict. With climate change as a further complicating factor, research, investment, and coordination with local farmers are critical for ensuring food security for all. The United Nations World Food Program (WFP) was awarded the 2020 Nobel Peace Prize for "its efforts to combat hunger" and "bettering conditions for peace in conflict-affected areas." In a world with over 850 million people who are hungry, a number that has increased because of Covid-19, recognizing and awarding a Nobel Prize to an organization that toils at the frontline of the fight to end hunger is timely.

### [Agribusiness: Both Sides Of The Coin](#)

(Business Facilities)

It's no surprise that this pandemic we're in the midst of—or, hopefully at the end of—has had a major impact on a number of industries. One that has experienced the good and the bad of it is agribusiness. Particularly toward the beginning of the COVID-19 shutdown, people were skeptical about eating food prepared by others, causing severe financial loss for various food establishments. However, this also meant that most of us were doing a lot more grocery shopping for the increase in home-cooked meals. Food sales skyrocketed, in-store as well as online. Unfortunately, not everything was a walk, car-ride or click away.

## New Research

### [Division scientist wins \\$324K grant to examine new weed management tactics in furrow irrigated and conventional rice production](#)

(StuttgartDaily)

A team led by Tommy Butts, extension weed scientist for the University of Arkansas System Division of Agriculture, will be exploring new ways to manage herbicide-resistant weeds in row rice and traditional flooded field production, thanks to a \$324,000 grant. The grant is part of a \$4.6 million investment by the National Institute of Food and Agriculture, or NIFA, part of the U.S. Department of Agriculture, toward the development of innovative pest management strategies.

### [CSIR launches hybrid maize seed production Manual](#)

(News Ghana)

The Council for Scientific and Industrial Research has developed a Manual on hybrid maize seed production to equip seed growers with the requisite skills and resource to efficiently produce the desired quality and quantity required by farmers. The Manual also addresses the various requirements, practices and day-to-day field operations for a successful hybrid maize seed production. It could be used by agriculture extension agents, farmers, students and end-users, who want an education in hybrid maize seed production in the different agro-ecological zones of the country. It was developed by scientists from the Council for Scientific and Industrial Research-Savanna Agriculture Research Institute (CSIR – SARI), Nyankpala and CSIR-Crops Research Institute (CRI), Kumasi.

### [Illinois Scientists Rev Up Plant Breeding For Organic Corn](#)

(Successful Farming)

A new \$2 million grant from the U.S. Department of Agriculture Organic Agriculture Research and Extension Initiative (OREI) will support University of Illinois scientists and collaborators as they develop improved seed corn tailored to the needs of the rapidly growing organic industry. Martin Bohn, associate professor in the Department of Crop Sciences at Illinois, will partner with scientists Paul Scott of the USDA Agricultural Research Service, Thomas Lübberstedt of Iowa State University, and Angela Linares from the University of Puerto Rico-Mayaguez on the four-year grant.

### [SARE grants to support Purdue's sustainable agriculture programs](#)

(AgriNews)

Faculty, staff and graduate students from the Purdue College of Agriculture and Purdue Extension were recently awarded eight North Central Region Sustainable Agriculture Research and Education Program grants, accounting for over 20% of the \$4.1 million that was awarded. The NCR-SARE competitive grant programs are offered to researchers, graduate students, organizations and others to develop research-based methods that support sustainable agriculture in the Midwest.

### [Knowledge Center Crop Biotech Update October 28, 2020 Issue Scientists Find Gene for Slim Inflorescence Shape of Barley](#)

(ISAAA)

An international research team led by the Leibniz Institute of Plant Genetics and Crop Plant Research (IPK) has identified a gene that plays a decisive role in the development of barley's slender inflorescences called spikes. The COMPOSITUM1 (COM1) gene was discovered to have acquired a new function during grass evolution. The "spikelet meristem" (SM) plays a central role during the development of the grass inflorescence. To do this, however, cells destined to become SM must first attain the SM identity. This is achieved, among other things, by gene regulation. Dr. Naser Poursarebani, first-author of the study and discoverer of the COM1 gene explains that the COM1 barley mutant e.g. is compromised in a way that the corresponding cells cannot perceive or convert the SM identity signal. The signal transmission does not function properly so that the cells cannot attain their correct cell identity, she added.

### [Research Team Finds Hormones Control Root Length](#)

(ISAAA)

A research team at the Technical University of Munich (TUM) led by Professor Caroline Gutjahr has found new communication channels for hormones that influence root growth. The protein SMAX1 slows down the production of ethylene, the plant hormone that triggers or accelerates the ripening of numerous fruits and vegetables. Ethylene can also trigger other processes in plants. When less of the gaseous hormone is produced in the plant, this stimulates the plant to grow long roots and short root hairs. It is also understood that the SMAX1 brake can be released if the Karrikin signaling pathway is activated, which brings another hormone into play. This turns on the production of ethylene, which means that the roots stay short and the root hairs grow longer.

### [Researchers Pinpoint Peanut Genes Linked to Salt and Drought Tolerance](#)

(ISAAA)

Shandong Peanut Research Institute found peanut genes involved in salt and drought tolerance. The details of the study are published in BMC Plant Biology. Peanut is one of the most important oil crops globally. Transcription factors (TF), which are vital in switching on or off gene expression, control several biological processes. One plant-specific TF family known as NAC has been found to regulate response to salt and drought stresses. However, there is a limited understanding of peanut NAC. Thus, the researchers conducted a comprehensive genome characterization of peanut NAC.

### [Efforts are going on to make Mutant Corn the Future of Agriculture](#)

(KrishiJagran)

Researchers are working to figure out how to make other plants do their own nitrogen fixation. Switching over to Sierra Mixe corn probably won't be the good option, as it takes eight months to mature, and that's too slow for American appetites used to a three-month maturation period. The issue of intellectual property rights could be a problem, but the researchers started on the right foot with the Mexican government by putting legal agreements in place that ensure the Sierra Mixe community benefits from research and possible commercialization.

### [CIMMYT releases its first ever maize genetic resource lines](#)

(AgroSpectrum)

The International Maize and Wheat Improvement Center (CIMMYT) announced the release of a new category of maize inbred lines called CIMMYT Maize Genetic Resource Lines (CMGRL). The CMGRLs are derived from crosses between elite CIMMYT lines and landrace accessions, populations or synthetics from the CIMMYT Germplasm Bank. Although high standards of yield and agronomic performance are applied in their selection, CMGRLs are not intended to be used directly in commercial hybrids but rather by breeders as sources of novel alleles for traits of economic importance. These lines should also be of interest to maize researchers who are not breeders but are studying the underlying genetic mechanisms of abiotic and biotic traits.

### [IIT Guwahati develops technology to make psychoactive drugs from agri- resources](#)

(AgroSpectrum)

Indian Institute of Technology Guwahati researcher has developed a low-cost membrane technology to produce psychoactive drugs and anti-aging compounds from wide range of agricultural resources like camellia sinensis, citrus fruits and peels especially orange peels, berries, ginkgo biloba, parsley, pulses, tea, sea buckthorn and onions. The technology is patented and developed by Prof. Mihir Kumar Purkait, Head, Centre for the Environment, and Professor, Department of Chemical Engineering, IIT Guwahati along with his M Tech student V L Dhadge. The low-cost technology doesn't use any organic solvents.

### [CSIR-IHBT promotes asafoetida farming & develops its agro-technology](#)

(AgroSpectrum)

Due to efforts of CSIR constituent laboratory, Institute of Himalayan Bioresource Technology (IHBT), Palampur, a historical shift in farming practices is in the offing with farmers of the remote Lahaul valley in Himachal Pradesh taking up cultivation of asafoetida (Heeng) to utilize vast expanses of waste land in the cold desert conditions of the region. CSIR-IHBT brought in seeds of asafoetida and developed its agro-technology. India imports about 1200 tonnes of raw asafoetida annually from Afghanistan, Iran and Uzbekistan and spends approximately 100 million USD per year. Lack of

planting material of *Ferula assa-foetida* plants in India was a major bottleneck in cultivation of this crop. The first seedling of *asafoetida* was planted by Dr Sanjay Kumar, Director, CSIR-IHBT on 15th October 2020 at farmer's field in village Kwaring of Lahaul valley to mark initiation of cultivation of *asafoetida* in India. Since *asafoetida* is a major condiment in Indian cuisines, team CSIR-IHBT made relentless efforts for introduction of this important crop in the country. The institute introduced six accessions of seeds from Iran through ICAR-National Bureau of Plant Genetic Resources (ICAR-NBPGR), New Delhi in October 2018.

### [ARI scientists develop new high yielding wheat 'Aestivum'](#)

(AgroSpectrum)

Farmers now have a wheat variety 'Aestivum', developed by Indian scientists with significantly high yield. The chapati from the flour of this wheat also scores high on quality. This wheat variety called MACS 6478 and developed by Scientists from Agharkar Research Institute (ARI), an autonomous institute of the Department of Science and Technology (DST), Government of India, has doubled the crop yield for farmers in Karanjkhop, a village in Maharashtra. The farmers of the village in Koregaon tehsil of Satara district in Maharashtra are now getting a yield of 45-60 quintal per hectare with the new variety as against earlier average yield ranging 25-30 quintal per hectare when they cultivated Lok 1, HD 2189 and other old varieties.

### [Scientists Uncover Molecular Mechanisms in Drought Sensitivity of Rice](#)

(ISAAA)

To understand the molecular mechanisms involved in drought tolerance of rice, Guangxi University researchers used the CSSL (Chromosome Single-substitution Segment Line) PY6 to map the regions of the DNA involved in the trait. The results are published in BMC Plant Biology. The researchers mapped the quantitative trait locus onto the short arm of chromosome 1 of rice. The analysis showed that the identified differentially expressed genes showed a downregulated trend and were primarily enriched in photosynthesis-related gene ontology terms. This implies that photosynthesis was highly hindered under drought conditions. Further analysis showed that specific gene modules were strongly correlated with H<sub>2</sub>O<sub>2</sub> (4 modules) and Malondialdehyde (3 modules), respectively.

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