



**Seed Connect**

**Edition 38**

A monthly newsletter of Federation of Seed Industry of India

January 2022

Late last year there were news reports from Sri Lanka on reversing a ban on imports of chemical fertilisers. A total ban was imposed on agrochemicals in May last year by The President of Sri Lanka with a goal of making Sri Lankan farming 100 percent organic. The restrictions were lifted later after farmer protests and crop failures.

The country is currently facing severe economic crisis that has triggered food shortages and the Government has now taken decision to pay 40,000 million rupees (\$200m) to farmers whose harvests were affected by the chemical fertiliser ban. The Government will also provide compensation to rice farmers whose crops were destroyed.

The lack of imported farm chemicals intensified the economic crisis, with food shortages forcing shops to ration sugar, lentils and other essentials. Food inflation in Sri Lanka hit a record 21.5 percent last month with vegetables and other staples still in short supply in the wake of the organic drive.

There is no one size fit for all and each technology can complement a set of challenges. Government policies must address challenges such as increasing productivity, adaptation to climate change, enhancing environmental performance and improving resilience of farms by adopting technology to embrace market shocks.

Policies in agriculture should be both efficient and coherent to enable farmers, industries and the whole agriculture sector to reach and achieve its full potential.

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



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## News from India and Around the World

### [Indian agriculture: The route post-CoP 26](#)

(Down to Earth)

India's pledge of Panchamrit (five-fold strategy) to fight climate change, announced during the 26th Conference of the Parties (CoP26) at Glasgow, Scotland, has caught global attention. The country's new commitments include reaching 500 gigawatt (GW) of non-fossil fuel energy capacity by 2030; producing 50 per cent of energy requirements via renewable energy sources by 2030; a reduction of 1 billion tonnes of carbon by 2030; reducing the carbon emission intensity of the GDP by 45 per cent by 2030; and most importantly, achieving the target of net-zero emissions by 2070. A basket of agreements was signed by groups of countries during the Glasgow Summit. Here, we focus our discussions on agriculture and food systems and how India should prepare and act to fight the challenge of climate change in light of CoP26.

### [India needs Green Revolution 2.0 to make agri more climate-resistant, sustainable: RBI](#)

(The Economic Times)

India needs a second green revolution along with the next generation of reforms with a view to make agriculture more climate-resistant and environmentally sustainable, said an RBI article on farm sector challenges. Observing that Indian agriculture has exhibited remarkable resilience during the COVID-19 period, the article said "new emerging challenges warrant a second green revolution along with next-generation reforms". Despite the success in terms of production that has ensured food security in the country, food inflation and its volatility remain a challenge, which requires supply-side interventions such as higher public investment, storage infrastructure and promotion of food processing, said the article titled 'Indian Agriculture: Achievements and Challenges'.

### [Top 10 Agriculture Companies In India In 2022](#)

(Krishi Jagran)

Agriculture, a vital sector of the Indian economy has a great importance. According to the Ministry of Agricultural and Farmers Welfare, agriculture and related industries provided 20.2% of the country's Gross Value Added in FY 2020-21 at current prices. According to media, the Indian agriculture sector will be worth US\$24 billion by 2025. Investing in this industry appears to be quite promising. Agriculture is one of the most important industries of the Indian economy. Agriculture employs the majority of Indians and accounts for over 17% of the country's GDP. Getting groceries from the market may appear to be a simple task. We don't consider the more obvious part of their availability because we've grown accustomed to having supermarkets and food stores nearby. Agriculture corporations have been working for years to ensure that we have enough food to eat.

## [India's agriculture exports set to touch highest ever level of \\$50 billion](#)

(Deccan Herald)

India's agriculture exports are likely to cross \$50 billion for the first time, which is the highest ever in history. Our rice exports are likely to touch 21-22 million MT this year, which is around half of the world export market (48%), the commerce ministry data showed. Exports of non-basmati rice have increased by over 46% during the year. Export of sugar has increased by 62% and the export of other cereals has increased by 79%. An increase in exports of these products has benefitted farmers in states like Punjab, Haryana, Uttar Pradesh, Bihar, West Bengal, Chhattisgarh, Madhya Pradesh, Telangana, Andhra Pradesh, Maharashtra.

## [How Indian Agriculture Is Being Revolutionized By Fresh Wave of Technical Innovation & New-Age Businesses](#)

(Krishi Jagran)

How the Internet of Things (IoT) is Changing Agriculture

Waste management, drones for field management, machines for regular monitoring, and soil monitoring sensors are the four primary categories of IoT in agriculture, depending on their application and usage. Here Are a Few Examples of How IoT Is Being Utilised In Agriculture: Agricultural Sensors: Today's IoT-enabled sensors can provide farmers with a complete study of the terrain as well as the available resources in a given region. Farmers may use smart farming sensors to collect data on soil quality, temperature, humidity, ammonia content, and other factors. It offers data on moisture, temperature, electric conductivity, soil pH, and organic matter content in real time, allowing for real-time soil monitoring. It's also useful in the animal husbandry industry to keep track of the types of micro-environments available to cattle.

## [India's Agriculture Export All Set To Touch "\\$50 Billion" For The First Time in 2022-23](#)

(Krishi Jagran)

India's agricultural exports, which include marine and plantation items, grew 23.21 percent to USD 31.05 billion in April-November 2021 according to the commerce ministry, and are set to surpass USD 50 billion for the "first time" this fiscal year. During the continuing COVID-19 pandemic, the ministry has taken many initiatives to encourage exports. These initiatives include extending the validity of various certifications/accreditations beyond their expiration dates, establishing control rooms to handle issues, issuing online certificates for exports, and making it easier to open new testing facilities. According to the report, India was able to meet global demand as a result of these actions, giving farm exports a boost. "With the current rate of growth, India's agriculture exports are on track to surpass USD 50 billion for the first time in history," the report stated.

## [Record foodgrains production likely in 2022; farm laws repeal, price rise bitter pills for agri sector](#)

(The Economic Times)

India achieved record foodgrains production this year but the withdrawal of three agri-reform laws and spike in cooking oil prices cast a shadow on the country's resilient agriculture sector that is on course for better harvest in 2022 despite pandemic blues. While soaring production of foodgrains that also helped the government provide free additional rations for COVID-hit poor families for many months together came as a relief, the passing year will be remembered for the long-drawn farmers' protest at Delhi borders against the three laws and subsequent repeal of the legislations.

## [Indian government to promote drone use in agriculture – Financial support being extended under 'Sub-Mission on Agriculture Mechanization'](#)

(Geospatial World)

In a major boost to promote precision farming in India, the Union Ministry of Agriculture and Farmers Welfare has issued guidelines to make drone technology affordable to the stakeholders of this sector. The guidelines of "Sub-Mission on Agricultural Mechanization" (SMAM) have been amended which envisages granting up to 100% of the cost of agriculture drone or INR10 lakhs, whichever is less, as grant for purchase of drones by the Farm Machinery Training & Testing Institutes, ICAR institutes, Krishi Vigyan Kendras and State Agriculture Universities for taking up large scale demonstrations of this technology on the farmers' fields. The Farmers Producers Organizations (FPOs) would be eligible

to receive grant up to 75% of the cost of agriculture drone for its demonstrations on the farmers' fields. A contingency expenditure of Rs.6000 per hectare would be provided to implementing agencies that do not want to purchase drones but will hire drones for demonstrations from Custom Hiring Centres, Hi-tech Hubs, Drone Manufacturers and Start-Ups. The contingent expenditure to implementing agencies that purchase drones for drone demonstrations would be limited to Rs.3000 per hectare. The financial assistance and grants would be available until March 31, 2023.

### [Agricultural reforms needed for India](#)

(The Economic Times)

Agriculture, the modern terminology which generalises economic activities ranging from farming to animal husbandry, had been the pillar of global economy before paving way for industrial revolution. As seen through the development of economies around the globe, development begins with people adopting agriculture, and the primary sector usually becomes the largest employer. Agriculture which started, in the early times, with an intent of subsistence, has effectively transitioned itself into a commercial marketplace, resulting in the formation of well-developed marketing systems, that has not only eliminated the thought of "double coincidence of wants"(barter), but has also underlined a need for a powerful exchange mechanism in the form of money.

### [India emerges as largest exporters of cucumber and gherkins](#)

(Mint)

India has emerged as the largest exporter of gherkins in the world. India has exported cucumber and gherkins to the tune of 1,23,846 metric tonnes with a value of \$ 114 million during April-October (2020-21). India has crossed the \$ 200 million mark of export of agricultural processed product-pickling cucumber, which is globally referred as gherkins or cornichons, in the last financial year. In 2020-21, India had shipped 2,23,515 metric tonnes of cucumber and gherkins with a value of \$ 223 million. Following directions of the Department of Commerce, Ministry of Commerce and Industry, the Agricultural and Processed Food Products Export Development Authority (APEDA) undertook a series of initiatives in infrastructure development, product promotion in the global market and adherence to food safety management system in processing units.

### [9 Budget provisions that can bring decisive transformation in Indian agriculture sector](#)

(Rural Marketing)

Agriculture continues to be a dominating employment generating sector and contributes a significant proportion to India's GDP. Even in the unfortunate pandemic, the sector climbed new heights with record production of various food grains, exhibiting resilience and ensuring food security. Despite the success in terms of production that has ensured food security in the country, food inflation and volatility in prices continue to remain high causing inconvenience to consumers and uneven income for farmers. Besides pandemic wrecking substantial physical, social, economic and emotional havoc on all the stakeholders of the Indian agricultural system, locust infestation from East Africa to India, natural calamities, and depleting natural resources only added to the sector's woes. Even though the policymakers accelerated a raft of measures and announced reforms to give thrust to the sector, it has reached an inflection point that needs immediate attention. Thus, the forthcoming budget offers an opportunity to fix an array of ancillary problems and fast run the wheels of reforms to accelerate the growth engine of the Indian agriculture sector.

### [5G in India: A Step Towards Intelligent farming](#)

(Krishi Jagran)

Now-a-days farms use a variety of Internet of Things (IoT) devices to assist producers reduce operating costs, boost yields, and gain improved insight in a volatile environment. By 2023, it is expected that over 12 million agricultural sensors will have been placed throughout the world. 5G is projected to take things to the next level by allowing machine learning and near-real-time communication between devices and the cloud, as well as much higher internet speeds (up to 100 times faster than 4G). Agricultural original equipment manufacturers (OEMs) may profit from automated agricultural procedures enabled by next-generation 5G technologies, which allow them to gather and analyse rich data from their machines and terrain from a distance.

### [Making India a food export powerhouse](#)

(The Hindu Business line)

India's total share in world trade is only 2 per cent, making agricultural exports as low as 2 per cent of the domestic GDP. While the country is a food surplus one, supply chain inefficiencies hurt exports. Further, the choice of seeds and cultivation practices makes only a select range of Indian crops competitive in the global market. Looking closely at each category of products, and the production and consumption pattern, certain inefficiencies and reliability issues need to be corrected before the country takes its place as a powerhouse of food exports. India being the second-largest agricultural producer in the world with 98 per cent of agricultural commodities seamlessly complying with the legally permissible upper limits for pesticide residues makes its food products among the safest commodities.

### [India reaps high growth from agriculture, allied products in FY22](#)

(Money Control)

India's agriculture and allied exports grew at a brisk 21 percent in the first eight months of the current financial year despite broken supply chains and various challenges brought about by the COVID-19 pandemic. Exports were boosted by increased access to markets in the United States, European Union and the United Arab Emirates, and targeted efforts by the government to expand the global reach of processed food from India. Commerce ministry data shows that exports of farm produce, both processed and unprocessed, climbed to \$29.51 billion between April and November 2021. The government expects total exports from the sector to rise to \$43 billion by March 2022. The growth in farm produce exports was led by a sharp rise in the exports of non-basmati rice, other cereals, dairy items and sugar, all of which grew by at least 40 percent in the April-November period of 2021-22.

### [Buoyed by favourable policies, new-age technologies and booming agri-services, India's agricultural sector is poised for stellar growth in 2022](#)

(The Times of India)

Country's agricultural sector brightened up the GDP growth of the country in another year battered by the pandemic, which caused a significant decline in India's economic activity. In the last fiscal year, while economic activity in the country suffered, agricultural sector posted a robust growth of 3.4%. The pandemic has a silver, or rather, green lining in the form of a thriving agricultural sector. Several legislations and technologies that have the potential to take India's agricultural productivity to a higher orbit will become a part of the mix as we move towards the budget for fiscal year 2022-2023. Indian agricultural sector facing several challenges needs dedicated reforms. It is hobbled by lack of reforms, that could support better market linkages, farm productivity through better access to new technologies, supporting the country's agri-services sector etc. that is yet to realize its full potential. These challenges are ripe for change in 2022.

### [Technology is forging new possibilities for India's farmers](#)

(The Times of India)

For thousands of years, agriculture in India has sustained its people in many ways. A source of nutrition and livelihood, it has served as a pillar of strength for the economy for eons. Yet, despite its criticality for the Indian subcontinent, this sector is plagued with long-festering challenges of low profitability and productivity that have been aggravated over time. There is, however, a new era of hope dawning. The past two years have proven beyond a shadow of a doubt how far and deep technology can go in removing even the most formidable obstacles and improving our lives. And as digitization takes root, we know that to unleash its true potential for India, transformation must begin with the primary sector. Currently, though agriculture's contribution to the GDP hovers around 18%, it employs about 45.6% of the population, as per the government's Periodic Labour Force Survey of 2019-20. A recent NASSCOM study found that India incurs 40% post-harvest loss and its farmers have one of the lowest income growth rates globally at 3.4%. Against this backdrop, technology can act as a great enabler in removing the major roadblocks in Indian agriculture.

### [Sri Lanka to pay \\$200m compensation for failed organic farm drive](#)

(Aljazeera)

Sri Lanka has announced compensation for more than a million rice farmers whose crops failed under a botched scheme to establish the world's first 100-percent organic farming nation. The island country is currently reeling from a severe economic crisis that has triggered food shortages and rolling blackouts as the COVID pandemic sent the tourism-dependent economy into a tailspin. Agricultural chemicals such as fertiliser were among the imports banned last year as authorities tried to save dwindling foreign currency reserves. The restrictions were lifted months later after farmer protests and crop failures. The government will pay 40,000 million rupees (\$200m) to farmers whose harvests were affected by the chemical fertiliser ban, agriculture minister Mahindananda Aluthgamage said.

### [Food Sustainability Index ranks countries on food waste](#)

(Food Magazine)

Produced by Economist Impact with the support of the Barilla Foundation, the Food Sustainability Index (FSI) 2021 assesses the food-system sustainability of 78 countries according to three pillars: food loss and waste, sustainable agriculture, and nutritional challenges. The 2021 edition is the fourth edition of the FSI, and it places Sweden, Japan, Canada, Finland and Austria at the top, as having the most sustainable food systems in the world. Despite food waste being a global issue, just 28 percent of countries in the entire FSI have a dedicated food waste strategy. According to the FSI, within the food loss and waste pillar, the top five performing countries include Canada, Italy, Germany, Japan and the Netherlands. According to Economist Impact, there continues to be major gaps in policy to build sustainable agricultural systems in countries around the world. Less than 50 percent of all countries in the FSI are mainstreaming climate change into their agricultural policies and only 36 percent are prioritising agriculture in their Nationally Determined Contributions (NDCs). The FSI shows that countries performing best in the sustainable agriculture pillar include Finland, Estonia, Austria, Tanzania and Sweden.

## New Research

### [UK partnership launched to tackle agricultural challenges](#)

(Gov.UK)

The UK Government launched the UK Agriculture Partnership (UKAP), a new forum which will bring together stakeholders from across the UK to identify and improve collaborative working on shared issues facing the agricultural sector. Discussions will explore topics such as on-farm water usage optimisation, the role of science and agri-tech in supporting food production, and solutions to reduce pollution and carbon emissions in the sector. The first meeting of the UKAP will take place at the Royal Agricultural University, Cirencester, and will focus on water quality. Attendees will hear from a range of experts who will set out the challenges the UK is facing and discuss solutions for improving water quality across the agriculture sector. Sustainable agriculture has a vital role to play in helping to solve many of the most pressing issues the world faces such as biodiversity decline, meeting net zero targets and growing the food needed to feed an increasing population.

### [Plant pathologists collaborate to share knowledge on a growing threat to corn production](#)

(Science Daily)

A growing threat to corn around the world, tar spot has had a significant impact on United States corn production. From 2018 to 2020, the disease resulted in a loss of 242.6 million bushels and this number is expected to grow after the 2021 season. Tar spot of corn was first spotted in Mexico in 1904. It spread to 15 additional countries throughout Central and South America and the Caribbean and made it to the United States in 2015 and Canada in 2020. When environmental conditions are ideal for infection, tar spot can result in yield losses of up to 100 percent. To combat this growing threat, a group of 22 plant pathologists from 12 institutions have compiled a recovery plan that reviews the current knowledge and the future needs of tar spot, with the intention of mitigating the disease's impact. They used new technology to monitor tar spot onset and progress in real time and also worked closely with plant pathologists across North America to compare notes.

### [Nutrient Loss Threat: Illinois agriculture continues to battle nutrient pollution](#)

(Capitol News Illinois)

Nutrient loss is one of the most serious pollution threats faced in the U.S., causing a Rhode Island-sized dead zone in the Gulf of Mexico, poisoning local lakes and streams and causing serious health problems for people and domesticated animals. This year, Illinois lawmakers are considering how to best direct state resources to help reduce nutrient runoff, particularly in the agriculture sector and suburban sewage runoff. One goal is to incentivize farmers to adopt nutrient runoff reduction strategies through government incentives and other policy changes. It's an effort to better fulfill a runoff reduction strategy that began in 1995 but hasn't led to the results lawmakers had hoped for. Illinois is one of 11 states in the Mississippi River basin that have pledged to develop strategies to reduce the nutrient loads leaving their borders. Illinois aimed to reduce nitrates and nitrogen by 15 percent and phosphorus by 25 percent by 2025, but the latest update showed that nutrient loss increased by 13 percent and phosphorus losses increased by 35 percent, compared with a baseline period from 1980 to 1996, according to the Illinois Nutrient Loss Reduction Strategy Implementation Biennial Report.

### [Researchers find tradeoff between water quality and emissions on the farm](#)

(Science Daily)

With water quality guidelines compelling more farmers to act on nitrogen loss, cover crops and split nitrogen applications are becoming more common in the Midwest. But new University of Illinois research shows these conservation practices may not provide environmental benefits across the board. "As researchers, we tend to look at one type of pollution at a time. Ours is one of the first studies to evaluate the nitrogen cycle more holistically. Conservation practices relating to water quality have gained a lot of attention lately, but it's also important to know how they might affect emissions of nitrous oxide, an important greenhouse gas contributing to climate change," says Giovanni Preza-Fontes, who worked on the study as a doctoral student in the Department of Crop Sciences at U of I. Preza-Fontes is now a postdoctoral researcher at Purdue University. As greenhouse gases go, nitrous oxide is a doozy. With a potency 298 times that of carbon dioxide, nitrous oxide is released when soil microbes metabolize nitrogen, an essential nutrient required to grow corn. When soils warm up in the spring and summer, microbes get to work on any nitrogen not taken up by crops, turning a portion into the powerful greenhouse gas.

### [Conduct research on impact of climate change on agriculture: Indrakaran](#)

(Telangana Today)

Forest Minister A Indrakaran Reddy stressed on the need to conduct more research for ensuring pollution-free environment and the impact of climate change on agriculture sector. The Minister released the Environmental Table Calendar – 2022 prepared by Environment Protection Training & Research Institute (EPTRI) at Aranya Bhavan. EPTRI Director General Adhar Sinha was also present on the occasion. Addressing on the occasion, the Minister wanted EPTRI to conduct research on the impact of climate change and share the information with government. Awareness should be created among people on energy savings and the benefits of protecting natural resources, he said.

### [UC Davis researchers use high-tech methods to improve agriculture in the face of climate change](#)

(The California Aggie)

UC Davis researchers in the College of Agricultural and Environmental Sciences and College of Engineering are using plant genetics, artificial intelligence and three-dimensional (3D) modeling to develop new varieties of crops that will be able to withstand future climates. GEMINI stands for GxExM Innovation in Intelligence for climate adaptation. The acronym GxExM is a common abbreviation in agricultural science that relates plants' features as a function of genotype, environment and management. The team is focusing on three major crops grown and consumed in various African countries: common beans, black-eyed peas, also known as cowpeas, and sorghum. The team hopes that with the help of this new technology, they will be able to predict the effects of future and ongoing changes in climate and then develop varieties that will be best suited to grow in those conditions. To do this, three researchers are utilizing their different strengths to tackle this issue.

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