



A webinar on **“Research Priorities for Indian Seed Sector”** was jointly hosted by **Federation of Seed Industry of India (FSII), Delhi and Gubba Cold Storage, Hyderabad on 23rd Jan, 2021.** The programme consisted of a panel discussion in which some of the best brains from the seed sector and research fraternity participated. The discussion was moderated by Ram Kaundinya, Director General of FSII. The focus of the discussion was on the possible scenarios of seed research in this new decade.

Opening the panel discussion, Dr DK Yadava, ADG (Seeds) of ICAR explained in details the stupendous work being carried out by ICAR in crop improvement encompassing a wide range of crops. Looking at the future of seed research he identified certain priority areas. Breeding for biofortified crops, climate resilience, environmental friendliness, improvement in grain quality of hybrid rice, oilseed development and yield improvement (crops like sunflower, mustard and sesame) and hybrid development in pigeon pea was specially marked by him for attention. He was of the view that all technological tools like GM, Gene editing, Marker Assisted Selection and other technology platforms must be exploited by the scientists to meet the challenges of this decade and beyond. He specifically pointed out the opportunity to apply GM technology in Soybean and other oilseed crops to improve yields and the possibility of support from different quarters for such a move. He called upon the private sector to enhance their research investments especially in OP crops like pulses.

Dr Ramasami, the Chairman of Rasi Seeds and also the Chairman of FSII, urged the seed industry to increase research investments. He pointed out that abiotic and biotic stress resistance should get the maximum attention, especially in crops like Paddy (gall midge, submergence tolerance, plant architecture to increase the number of plants per acre, synchronized tillering, earliness, fertilizer use efficiency, Water Use Efficiency, varieties suitable for mechanical operations, etc), cotton (sucking pests and CLCV, HDPS needs of earliness, dwarf size and suitable for mechanical picking) and others. He particularly highlighted the need to focus on pre breeding efforts with an idea of building research capacity beyond this decade. We should exploit the new tool like Gene editing to develop new varieties. He also said that seed industry should partner with food industry through contracts for customized breeding programmes which develop varieties specifically suited to their needs.

Dr Paresh Varma, the Research Director of Shriram Bioseed stressed upon the need to develop technologies and varieties to handle abiotic stresses (apart from drought and floods, he mentioned nutrient stress in soil), biotic stresses (specifically disease resistance in crops), traits to mitigate labour costs (like Herbicide Tolerance), increased mechanization in crops like Corn, Rice and Cotton, to optimize agronomy and growth in cotton, corn and rice, traits for improving the quality and scale of seed production and traits required by downstream end users (like nutrition and health in food crops, lint quality in cotton and traits for industrial applications). He particularly mentioned the need to build PPP projects on some of the above and in pre-breeding projects. Especially in oilseeds and pulses while the public systems have built enormous genetic base over the years the technology platforms set up by the private industry may be utilized to develop new varieties by the public institutions through PPP projects.

Shri Uday Singh, Chairman of Namdhari Seeds spoke about the Vegetables sector. He emphasized on the need to breed for yield, adoptability and disease resistance. He brought home the point that neglected crops like Indian greens (Coriander, Palak and Methi) needed special attention for improvement of shelf life and to improve tolerance to high temperatures. He also mentioned the need to develop shape, size and resistance to Alternaria in Onions which could help in growing the crop throughout the year and bring greater price stability. As pathogens are evolving it is necessary to breed for resistance to CMV, CLCV, Anthracnose in Chilli and Gummy Stem blight, DM and PM in Cucurbits. He urged for research collaborations between Public and Private institutions and also among private companies. He recommended pathogen profiling to be taken up in each location. Shri Uday Singh mentioned the urgent need to strengthen the implementation of PPV&FR Act in order to increase research investments, especially in OPs of Indian crops.

Dr Suren Tikku, founder director of Tierra Seedscience listed some of the priority areas. We should use more of wild relatives to bring desired characters that are not available in the current germplasm. He mentioned WUE, NUE and Herbicide Tolerance as some of the targets. He laid emphasis on value addition breeding. He urged for widening our work on Indigenous vegetables. He advocated setting up of High throughput Service Centres for molecular breeding which will be very useful for medium sized and small sized seed companies. To avoid duplication of work he advocated allocating different virus strains to different organizations for research and PPP projects.

The link of the Webinar is provided below for your viewing. 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!



Link - <https://www.youtube.com/watch?v=gLIBjivIR8>



Shivendra Bajaj
Executive Director
Federation of Seed Industry of India

News from India and Around the World

[Agri share in GDP hit 20% after 17 years: Economic Survey](#)

(Down To Earth)

The share of agriculture in gross domestic product (GDP) has reached almost 20 per cent for the first time in the last 17 years, making it the sole bright spot in GDP performance during 2020-21, according to the Economic Survey 2020-2021. The resilience of the farming community in the face of adversities made agriculture the only sector to have clocked a positive growth of 3.4 per cent at constant prices in 2020-21, when other sectors slid. The share of agriculture in GDP increased to 19.9 per cent in 2020-21 from 17.8 per cent in 2019-20. The last time the contribution of the agriculture sector in GDP was at 20 per cent was in 2003-04. This was also the year when the sector clocked 9.5 per cent GDP growth,

after the severe drought of 2002 when the growth rate was negative. Following 2003-04, the share has remained between 17 and 19 per cent.

[Focus on farm policy framework](#)

(The Financial Express)

Agriculture and food security are extremely important for obvious reasons. Agriculture is a State Subject, but regulatory framework is created by the central government. This calls for alignment of purpose and action between the Centre and states. The division of power between the Centre and states has not helped farmers. Alignment of these two centres of power, and all the important political parties on a progressive national agricultural strategy document, is very important for smooth functioning of the sector. All these stakeholders should agree on our objectives for agriculture by 2030, strategies to fight climate change, technologies to use to fight abiotic and biotic stresses and increase yields, improving farmers' competitiveness in certain key crops, the country's crop portfolio, ways to improve farmers' profitability, policies to connect farmers to markets, best ways to channelise the agricultural subsidy amounts under different heads, and conserving natural resources while doing all this.

[Status quo budget for agriculture and seed industry: FSII](#)

(The Hindu Business Line)

am Kaundinya, Director General, Federation of Seed Industry of India (FSII) commenting on the budget said that 2021-22 budget was "status quo budget" for agriculture in general and the seed industry.

He said that agriculture contributed significantly to the successful fight against Covid-19 but did not get the needed attention in the budget. No transformative measures have been proposed. He said, "Investments in research in agriculture are not addressed, especially, since research and innovation is one of the six pillars of Aatma Nirbhar Bharat and there is a need to scale up private sector investments in agricultural research. There is an urgent need to step up investments in research into agri biotechnology, seed technology and modern technologies for farmers. Seed industry was expecting the restoration of 200 per cent tax deduction of research expenses, but it has not been met".

[Ushering in the dawn of diversification in agriculture](#)

(The New Indian Express)

The Survey notes that agricultural income growth can be kick-started only by diversifying into high-value commodities like horticulture, pulses, oilseeds and livestock. This will allow farmers to tap into the higher growth in demand for these products and optimise resource usage. The Dalwai Committee found that by shifting from staples to horticulture, farmers can earn an additional income of `80,000 per hectare. Farmers in different regions have already witnessed the benefits of diversification into livestock—poultry in Maharashtra, dairy in Moga district of Punjab and shrimp in Andhra Pradesh have all brought prosperity.

[Agri financing, warehousing key requirements for Indian agri economy; these two sectors may benefit farmers](#)

(The Financial Express)

Agriculture inarguably is the mainstay of the Indian economy and the role of the agriculture sector in India's economy cannot be understated. The sector has a massive indirect impact on allied sectors of the rural economy and the manufacturing & services segments of the national economy. Like Agriculture, the Agri Warehousing & Agri Financing sectors are also the key enabler of growth for India's Agri-economy and the development and growth of these two sectors will ultimately benefit the farmers.

[Vice President of India inaugurates the National Dialogue on 'Indian Agriculture Towards 2030'](#)

(India Education Diary)

The Vice President of India virtually inaugurated the National Dialogue on "Indian Agriculture Towards 2030: Pathways for Enhancing Farmers' Income, Nutritional Security and Sustainable Food Systems" organised by NITI Aayog, Ministry of Agriculture and Food & Agriculture Organisation (FAO). Expressing concern over the increasing lack of interest in farming among the educated youth, Shri

Naidu opined that changing socio-economic milieu, increasing agri-input costs and diminishing returns have turned agriculture into a less preferred profession among the youth. He called for establishing strong lab–farm links and farmer–industry interaction to turn the farmers into ‘agri-entrepreneurs’. Creation of ‘Business Incubation Centres’ would also be a step in the right direction for aspiring farmers in this field, the Vice President added.

[Lemongrass To Super Crops, Local Entrepreneurship In Green Agriculture](#)

(Business World)

a Mumbai-based AgriTech firm, is empowering local farmers in India by assisting their transition into profitable commercial-scale lemongrass farming, apart from expediting the creation of super crops such as corn, rice and wheat. As we enter the third decade of the 21st century, India remains a predominantly agrarian nation, both culturally and economically. The agro sector contributes nearly 16 per cent of the nation's GDP, while over 70 per cent of its population is associated with farming, either directly or indirectly. In general, India's primary commercial crops comprise rice, wheat, sugarcane, and so on. On the one hand, the focus on sustainable methods and the overall climate consciousness has increased, while on the other, there is a growing market for organic products such as immunity-boosting tea, natural mosquito repellants and oil extracts, among others. As a potent raw material for each of these product classes, lemongrass farmers around the world are witnessing a strengthening global market for their harvest and derived consumables. So much so, that farmers shifting to lemongrass cultivation are experiencing three to four folds increase in yearly income.

[Women in Agritech: These Women Entrepreneurs are Changing the Face Of Agriculture With Their Path-Breaking Solutions](#)

(Makers India)

With the increasing proliferation of technology, entrepreneurs have come up with innovative ideas across industries, including agriculture. India is an agrarian economy, and 70 percent of its population are engaged in farming activities, which makes it even more critical to find solutions to their problems. According to a report by NASSCOM, there are over 450 agritech startups in India, growing at a rate of 25 percent year-on-year. The industry also predicts a market potential of \$24 billion by 2025. Some of the prominent agritech startups today are helmed by women, who have upped the game with their path-breaking solutions.

[Agri-Tech Start-Ups Are Shaping the Future of Farming](#)

(Analytics Insight)

Consumption patterns have been changing. People are becoming more aware of eating healthy and fresh. Besides, the pandemic has also encouraged consumers to change their dietary habits and consume food that helps prevent infections and build strong immunity against infections. The techniques of ultra-modern tech farming optimize crop production and quality and offer food safety all year round. They are grown in nutrient-rich water pesticides, harvested a few hours before it reaches the customer's plate. This has strengthened the power of making good choices and brought in a behavioural change to create a healthier food system.

[Can Farmers Beat the Data Drought?](#)

(Forbes)

In September, the Department of Agriculture launched seven new AI institutes intended to use digital tools to develop better crops, fertilizers, weather forecasts and even fruit-picking robots. It's an enticing vision, but there's a catch. Machine learning works by detecting patterns in vast datasets — but the world of agriculture is currently in the midst of a data drought that threatens to hamper innovation and leave AI tools with little to digest.

[Chia seeds may provide options for nutritional foods, capsules](#)

(ANI)

An improved extraction method involving Chia seeds may provide new options for nutritional food, medicine capsules and anti-aging products. A Purdue University Team has developed and patented the method to separate mucilage from chia seeds, yielding a protein-rich chia seed flavour with

improved bioactivity and functionality compared with conventional methods. This work was supported by the USDA National Institute of Food and Agriculture, Hatch Act formula funds project.

[Agri Dept Kashmir to implement DBT in all departmental schemes](#)

(Rising Kashmir)

To ensure financial empowerment of the farmer community and cent percent transparency, the Department of Agriculture is all set to implement Direct Benefit Transfer (DBT) in different Agricultural schemes under implementation of the department. It was given out that the introduction of the DBT system will prove to be a positive shift from an old and orthodox system to a multi-dimensional online system that will envisage a transparent and accountable system in the agriculture sector. The Director impressed upon the officers to chalk out the modalities for effecting DBT/ digitalization in most of the schemes as per the vision of the Prime Minister for a digital India.

[Agriculture Minister launches seed traceability mobile app for farmers](#)

(Krishijagan)

Union Agriculture and Farmers Welfare, Rural Development, Panchayat Raj and Food Processing Industries Minister Narendra Singh Tomar launched a seed traceability mobile app on the occasion of dividend distribution by the National Seed Corporation (NSC). Through this app, information about real seeds will be available and farmers will be able to avoid fraud. Mr Tomar also inaugurated the quality control and DNA laboratory in NSC. On this occasion, Mr Tomar said that seeds have great importance in the field of farming, in which case those working in the field of seeds have a significant responsibility.

[How AI will solve agriculture's water efficiency problems](#)

(World Economic Forum)

Technology companies, along with growers, have risen to the challenge of solving this complex issue through precision farming methods and visibility tools. One area of technology that is making strides towards increasing water efficiency in the field as well as in the greenhouse is artificial intelligence (AI). Emerging technologies, devices and platforms enable us to collect and leverage unprecedented amounts of data from across multiple sources: historic rainfall patterns, aerial imagery, yield records, on-field sensors, etc. In return, the aggregated data can be processed and combined alongside forecast data (from market demand to weather) to help us make “intelligent” decisions based on the most accurate predictions we’ve ever had access to.

[Initiative Towards Securing the Future Of Sustainability In Sugarcane Supply Chain Sector In India](#)

(Business World)

India is the world’s largest consumer of sugar. The country’s sugarcane industry, second only to cotton in size, relies on more than six million smallholder farmers and countless labourers to produce its sugar. However, sugarcane farming is highly water-intensive, and recent years have witnessed significant depletion of ground water resources—threatening food security, economic growth and livelihoods of the farmers. Solidaridad, along with its consortium of partners, brought together multiple stakeholders in a policy consultation event on Friday to deliberate on the moot issues and the way forward for sustainability in sugarcane farming in India. The diverse cross-sectoral participation led to a milieu of strategic discussions on creating an enabling environment for resource-efficient supply chains in the sugarcane industry.

[Soil health, post-harvest management major concern areas; Rs 1 lakh cr fund to address these issues: Tomar](#)

(One India)

Flagging health of the soil and post-harvest management as major areas of concern for the Indian farm sector, Agriculture Minister Narendra Singh Tomar said the government has set up a Rs 1 lakh crore fund under Aatmanirbhar Bharat programme to strengthen the storage infrastructure and reduce post-harvesting losses. Speaking at a panel discussion on "Unlocking Innovation to Transform Food Systems" during the World Economic Forum's week-long online Davos Agenda Summit, the minister also said more than 80 crore people are being provided adequate food through the National Food

Security Act, under which the government provides five kg of wheat and rice per person, per month at a highly subsidised price of Rs 2-3 per kg.

[Karnataka plans to connect agri extension centres with mobile soil testing units](#)

(The Hindu Business Line)

The Karnataka government is planning to connect more than 500 'raitha samparka kendras' (agricultural extension centres) in the State with mobile soil testing facilities, according to BC Patil, Karnataka Agriculture Minister. Speaking at the launch of 'Karla Kaje', a local variety of rice from Karkala taluk, at Karkala in Udupi district on Monday, he said that the Karnataka Chief Minister BS Yediyurappa, recently launched 40 'Krishi Sanjeevani' vehicles to cater to the needs of farmers in the State. Based on the requests of farmers, these vehicles will reach their fields to test soil, and to suggest measures to tackle pest attack and diseases in their fields.

[No dirt? No farm? No problem. The potential for soil-less agriculture is huge](#)

(Los Angeles Times)

Imagine kale that doesn't taste like a punishment for something you did in a previous life. Envision leafy greens that aren't limp from their journey to your plate. Anticipate the intense flavor of just-picked herbs that kick up your latest culinary creation a notch or three. Then consider the possibility that such advancements will play a role in altering the face of agriculture, becoming sources of flavorful, fresh produce in "food deserts" and making farm-to-table restaurant cuisine possible because produce is grown on the premises, even in urban areas.

[Climate Change Uproots Global Agriculture](#)

(Eos)

In much of the world, climate change is altering regional growing conditions and making them more unpredictable. Farmers are finding it harder to consistently grow enough food to meet increasing demand. Securing the world's food supply for the future, experts assert, requires us to tally the good and the bad in the current agricultural structure, including the infrastructure and technology in food distribution systems. Small farms, which account for about 90% of the world's 570 million farms, are particularly vulnerable to changes in seasonal climate. Land tended by families for generations may suddenly become nonarable. A change in the timing or intensity of yearly rainy seasons or the El Niño-Southern Oscillation (ENSO), for example, could bring rains or drought that wipe out a family's crops.

[Digitisation in Agriculture: A Necessity For India](#)

(Business World)

The world is speeding towards a digital economy, the importance of which has been reinforced by the pandemic. With a move towards digitisation leading to greater efficiency and transparency across all sectors of economy, it was only a matter of time that agriculture sector too would experience its inevitability and follow suit. As per Niti Ayog's report on Artificial Intelligence, to maintain an annual growth rate of 8-10%, agriculture must grow at 4% or higher rate presently. To achieve this kind of success, digitisation is critically important. The use of technology includes sensor-assisted soil assessment, which is backed by digitisation, automated monitoring of free-ranging animals on pastures, and the targeted control of agricultural machinery. Modern farming methods should enable the management of spatial and temporal variability within plots of land. The produce and the farm products management, logistics, Mandis and retail sellers are using digitisation in a big way and reaping the benefits of reduction in agri-waste, efficiency in cost optimisation. Internet of Things, nanotechnology along with digital education are the 3 main elements that form the foundation of digitization in farm sector.

[How Tech Trends Make Farming Smarter](#)

(Medium)

AgriTech is sprouting as an industry that attracts increasingly more investors. It aims to make farming easier, more data-oriented, ecological, and profitable. BIS Research predicts the global smart farming market to reach around \$23 billion by 2022 and grow at a compound annual growth rate (CAGR) of almost 20% from 2017 to 2022. Such accelerated development is triggered by the increasing demand for crop yield and food production with the same resources. Technologies help agriculture

businesspeople reinvent farming strategies and empower farmers with machine learning, IoT, big data analytics, and computer vision in agriculture.

[AgNext — cultivating tech to analyse farm produce quality in 30 seconds!](#)

(The Hindu Business Line)

Start-up hopes to revolutionise food testing with an ‘MRI-like scanner’. Among the many problems that beset Indian agriculture is the absence of quality standards in the proverbial farm-to-fork food chain. While matters of productivity and better market access for farmers often get precedence, the lack of standards disincentivises innovative farmers who try to produce qualitatively better food — and takes away from the consumer the option of buying better. Even globally, ascertaining the quality of farm produce is a largely subjective exercise, often involving conjecture. Usually, farm commodities are put through physical parameter tests using touch-and-feel, visual appeal, smell and taste. As a result, the ability of farmers who grow higher quality, or pesticide and chemical-free produce, to command a premium is rather limited.

[DA extends validity of sanitary permit for imported staple](#)

(Business Mirror)

Saffron Tech announced its technology for automated, year-round saffron growing, is challenging the global Iranian monopoly on saffron supply of 90-95% of world demand, which has been in place for the past 1,000 years! The reason Iran was the dominant player in supplying 90-95% of world demand for Saffron lies in the fact it has natural conditions fit for the growing and production of saffron in traditional, labor intensive methods. The company is developing a technology that hopes to provide turnkey automated growing solutions for high-quality, high-yield saffron all year round. The company is in advanced stages of developing and testing its automated vertical farm for saffron growing, based on the company’s knowledge in plant biology and providing optimal conditions for each stage of the plant’s development to reach optimal product quality.

[This illuminated field isn't just pretty - it's helping to grow crops](#)

(World Economic Forum)

A 20,000-square-metre artwork that sees coloured lights appear to dance over a field at night is said to encourage crop growth – and is highlighting the importance of innovation in creating sustainable agriculture. Dutch artist and innovator Daan Roosegaarde’s GROW project is inspired by photobiology light science technologies, which indicate that certain combinations of blue, red and ultraviolet (UV) light can enhance plant growth and may reduce the use of pesticides by up to 50%. GROW, which was developed with partners Wageningen University and Rabobank, is trialling its vertical ‘light recipe’ across an enormous field of leek at Lelystad in the Netherlands. The country is one of the world’s largest agricultural producers, exporting €65 billion (\$78.8 billion) of fruit, flowers, vegetables, meat and dairy products each year.

[DA chief assures agriculture sector’s rebound in 2021](#)

(CNN)

Agriculture Secretary William Dar says he is confident about the sector's recovery in 2021, as it remains a vital factor in the country’s recovery from the global health crisis. “We have sound fundamentals — with systems and policies already in place that would allow us to bounce back strong in 2021 and beyond,” Dar said in a statement. Last year, Philippine agriculture was challenged by the “perfect storm” -- the Taal volcano eruption, the continued spread of African Swine Fever, and the series of typhoons that devastated the country in the latter part of the year. Data from the Philippine Statistics Authority showed that the agriculture sector contracted by 3.8% in the last quarter of 2020 due to lower production of livestock, fish, and crops. This brought the full-year growth to -1.2%, from a slight growth of 0.3% reported in 2019.

[Philippines: Government intensifies soil rejuvenation program](#)

(Hortidaily)

The Department of Agriculture (DA) will intensify its soil rejuvenation program nationwide to sustain the increased productivity of rice, corn, vegetables, coconut, fruits, and other major crops. “One of our continuing major challenges is how to increase productivity and reduce the cost of production.

And as soil is the foundation of agriculture, we must protect, preserve, and nurture it to sustainably produce adequate, affordable, and nutritious food for all Filipino families,” said Agriculture Secretary William Dar. “We, therefore, instructed all our commodity banner program directors to make soil rejuvenation as the basic foundation of their productivity strategies,” said Secretary Dar, underscoring that “from healthy soils, come bountiful crops.”

[Exports Empty Canada'S Canola Bins, Driving Prices To Near Records](#)

(Successful Farming)

Canada, the world's biggest canola grower, is running short of the oilseed six months before the next harvest, with strong export demand driving prices to nearly 13-year highs last week. Supplies of major commodity crops are dwindling worldwide as buyers hoard food supplies during the COVID-19 pandemic. China is loading up on grains and oilseeds that it can feed to animals, raising food inflation and causing some nations to restrict exports of their crops.

[Program to encourage youth to consider agricultural careers](#)

(Weyburn)

Protein Industries Canada announced an investment into a program that will introduce youth in Kindergarten through Grade 12 to the career opportunities available to them in the plant-protein, agrifood and digital agriculture sectors. Part of a \$2 million co-investment with the Enterprise Machine Intelligence & Learning Initiative (EMILI), national STEM outreach charity Actua and Agriculture in the Classroom Canada (AITC-C), the project is intended to help address the agriculture industry’s growing need for a skilled workforce. In particular, it focuses on building capacity and fostering a competitive business environment within the plant-protein sector as Canada works toward positioning itself as a global leader in the supply of plant-based ingredients, food and feed.

New Research

[MIT develops method for lab-grown plants that eventually lead to alternatives to forestry and farming](#)

(Tech Crunch)

Researchers at MIT have developed a new method for growing plant tissues in a lab — sort of like how companies and researchers are approaching lab-grown meat. The process would be able to produce wood and fibre in a lab environment, and researchers have already demonstrated how it works in concept by growing simple structures using cells harvested from zinnia leaves. This work is still in its very early stages, but the potential applications of lab-grown plant material are significant, and include possibilities in both agriculture and in construction materials. While traditional agricultural is much less ecologically damaging when compared to animal farming, it can still have a significant impact and cost, and it takes a lot of resources to maintain. Not to mention that even small environmental changes can have a significant effect on crop yield.

[Research reveals how crop roots penetrate hard soils](#)

(ANI)

Scientists have discovered a signal that causes roots to stop growing in hard soils which can be ‘switched off’ to allow them to punch through compacted soil – a discovery that could help plants to grow in even the most damaged soils. As per the findings published in the journal science an international research team led by scientists from the University of Nottingham’s Future Food Beacon and Shanghai, Jiao Tong University has discovered how the plant signal ‘ethylene’ causes roots to stop growing in hard soils, but after this signal is disabled, roots are able to push through compacted soil.

[New tool uses satellite imagery to accelerate sustainable agriculture](#)

(Climate-KIC)

Supported by EIT Climate-KIC and developed by its partner Quantis, geoFootprint, a sustainable agriculture tool launches on 26 January. It combines data from satellite imagery with environmental metrics, allowing users to visualise the footprints of key commodity crops on an interactive world map at high resolution. Agriculture is responsible for over 20 per cent of global greenhouse gas emissions.

The complex, globalised nature of agricultural supply chains presents a massive data management challenge for companies: Crops are traded globally, but their footprints are calculated locally.

[Reducing food waste through sustainable insect production in Calgary](#)

(Cision)

The Honourable Marie-Claude Bibeau, Minister of Agriculture and Agri-Food announced that Enterra Feed Corporation (Enterra) received \$6 million under the AgrilInnovate Program to help increase the production of sustainable, nutritious products to feed animals while helping to keep food out of landfills. This funding supported the construction of a full-scale commercial facility, as well as the adoption of innovative equipment and processes to increase production capacity and improve efficiency, making it the first operation of its kind in Canada. Through the AgrilInnovate Program, Enterra has established a state-of-the-art, 188,000-square-foot production facility just north of Calgary, Alberta in Rocky View County. At this facility, Enterra has been producing insect-based feed ingredients, with products for the pet food, poultry and wild bird markets being shipped throughout North America as well as recent expansion to the European Union. The announcement took place during a virtual visit at Enterra's new facility, where the Minister saw how the company is helping to reduce food waste through sustainable insect production. Enterra has developed proprietary farming methods to raise black soldier flies, a beneficial, non-invasive insect species with a rich nutritional profile. The company uses recycled food waste from local farms, grocery stores and food production facilities to feed the insects, which are then dried and processed into animal feed ingredients and fertilizer for plants. At its new facility, Enterra is able to recycle more than 130 tonnes of food waste per day. Operation of the facility also brought more than 65 jobs to the local economy.

[Indian research can help cut nitrogen fertiliser waste](#)

(Down to Earth)

A group of Indian scientists have found a way to improve crops by reducing wastage of nitrogen fertilisers applied to them. They were able to identify phenotypes, or visibly identifiable features that determine the efficiency with which cultivated rice varieties (cultivars) use nitrogen. This efficiency is known as nitrogen-use efficiency (NUE). The group led by N Raghuram of Guru Gobind Singh Indraprastha University, Delhi, also identified genes associated with the identifiable features that can improve crops further. The research involving interdisciplinary research in biotechnology, crop physiology, agronomy, soil science, statistics and bioinformatics was published in journal *Frontiers in Plant Science* January 20, 2021. Crops generally use up 30 per cent of nitrogen fertiliser applied; the rest seeps into the environment, harming health and adding to climate change.
