

Seed Connect

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A monthly newsletter of Federation of Seed Industry of India

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After a rigorous biosafety assessment which took extensive trials and evaluation, the Bureau of Plant Industry of the Agriculture Department, Philippines, announced that golden rice has been found to be as safe as conventional rice for food, feed and processing.

The Department's ruling marks a big step forward in the regulatory approvals of golden rice across the world. The biosafety permit has been addressed to the Philippine Rice Research Institute (PhilRice) and International Rice Research Institute (IRRI), which details the approval of GR2E Golden Rice for direct use as food and feed, or for processing (FFP). The FFP approval is the latest regulatory milestone in the journey to develop and deploy Golden Rice in the Philippines.

According to IRRI, despite public health interventions by government like oral supplementation, nutrition education, complementary feeding, Vitamin A Deficieny (VAD) among children aged 6 months to 5 years increased in the Philippines from 15.2 percent in 2008 to 20.4 percent in 2013, underscoring the urgent need for Golden Rice. The beta-carotene content of Golden Rice, which provides 30 to 50 percent of the estimated average requirement of vitamin A for pregnant women and children, is intended to now provide additional nutrition and add to existing nutritional interventions by the government in the country.

As a next step, to complete the Philippine biosafety regulatory process, Golden Rice will require approval for commercial propagation before it can be made available to the public. This follows from the field trials harvested in Muñoz, Nueva Ecija and San Mateo, Isabela in September and October 2019.

In 2018, Food Standards Australia New Zealand, Health Canada, and the United States Food and Drug Administration published positive food safety assessments for Golden Rice. The Philippines now joins these select group of countries that have asserted the safety of Golden Rice. Further, a biosafety

application was lodged in November 2017 and is currently undergoing review by the Biosafety Core Committee in Bangladesh.

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



Shivendra Bajaj Executive Director Federation of Seed Industry of India

New Research

Nitrogen pollution policy beyond the farm

(Nature Food)

Current approaches to agricultural nitrogen policy do not take into account all the actors in the agrifood chain. A narrow focus on farmer behaviour is not only a challenge for policymakers but it also omits a much broader range of actors across the agri-food chain. By introducing the main actors common across almost all agri-food chains and the range of policy interventions that apply to them, coupled with criteria to aid policymakers in selecting where and how to intervene, this study broadens the scope of policy opportunities for countries suffering the impacts of excess nitrogen.

Expansion of the cassava brown streak pandemic in Uganda revealed by annual field survey data for 2004 to 2017

(Nature.com)

Cassava brown streak disease (CBSD) is currently the most devastating cassava disease in eastern, central and southern Africa affecting a staple crop for over 700 million people on the continent. A major outbreak of CBSD in 2004 near Kampala rapidly spread across Uganda. In the following years, similar CBSD outbreaks were noted in countries across eastern and central Africa, and now the disease poses a threat to West Africa including Nigeria - the biggest cassava producer in the world. A comprehensive dataset with 7,627 locations, annually and consistently sampled between 2004 and 2017 was collated from historic paper and electronic records stored in Uganda.

Star fruit could be the new 'star' of Florida agriculture

(Phys.org)

Increasing the diversity of crops that are grown in various areas is important for several reasons," says Freidenreich. First, crops like oranges are under pressure from a disease called citrus greening. It's a blight disease that causes trees go into decline and die within three years. The disease destroys the production, appearance, and economic value of citrus trees and their fruit, and there is no cure. Similarly, laurel wilt has been greatly impacting the avocado industry in south Florida. Different crops are being planted to replace avocado groves. Establishing crops like star fruit will help diversify the biological system of a farm. It also diversifies the income stream for growers. Just like a well-balanced retirement portfolio, balancing the mix of crops on a farm can reduce overall risk. This is good for the environment and the sustainability of our food sources.

Bee efficiency boosts diversified farming

(Washington State University)

The more diverse a farm's plant population, the more beneficial it is for bee pollinators, and the more efficiently those pollinators work. Those are the conclusions in a new paper published in the journal Ecology Letters by former Washington State University graduate student Elias Bloom. Bloom and his

co-authors, WSU entomology professors Tobin Northfield and David Crowder, looked at pollinator and plant populations on small farms (under 30 acres) and urban gardens in western Washington.

New wheat varieties offer hope to farmers

(The Tribune)

Even as wheat variety HD2967, developed by the Indian Agricultural Research Institute (IARI), continues to be popular among farmers due to its high yield, they now have new options of seed varieties like HD3226, WH1184 and DBW187 this rabi season and are hoping to get better returns. Agriculture experts say that though HD2967 has been a good choice due to a high yield for the past several years, it will be interesting to observe the performance of the new varieties that have been released for sowing by three institutions.

News in India

Embracing Conservation Agriculture to Enhance Farm's Financial Health: Dr Shivendra Bajaj, FSII (Krishi Jagran)

An agricultural system with low inputs, high returns and sustained growth while conserving environment called Conservation agriculture (CA) is the need of the hour. CA utilizes scientific knowhow and technology to improve and conserve input resources like soil health and water to achieve economically and ecologically sustainable agricultural production. Soil carbon retention by minimal tilling and cover crops, nutrient and weed management along with diversified crop rotation are critical attributes of CA.

How this farmer's son built an agritech startup to bring business and scale to agriculture in rural India

(Your Story)

The platform is specifically designed to cater to rural India, keeping in mind the specific challenges of the agriculture sector in the region. SmartFarms started with a B2C model – delivering products directly to the farmers by sourcing from companies/distributors. The team claims to deliver faster than Amazon and takes margins on every product and service on the platform.

Organic, ZBNF, Biodynamic or GM – Way for future farming in India

(AgroSpectrum)

The challenges of meeting the food security and nutritional security of the country in a profitable way for the farmer and in an environmentally sustainable way are enormous. We have to get ready to feed 150 crore population in the next ten years, with the bottom of the pyramid requiring food at affordable prices. Science helped our country to achieve a breakthrough in crop yields and ensure food security except in oil seeds. Starting with High Yielding Varieties (HYV) of Rice and Wheat fifty years back we passed through hybridization and Genetic Modification in some crops to achieve this success. Our food grains production quadrupled in last fifty years.

Secondary agriculture: The shift Indian farming needs

(The Financial Express)

Secondary agriculture assumes prominence with the announcement of the goal of doubling farmers' incomes. The term 'secondary' has a bearing on climate change adaptation and its mitigation, small farm viability and profitability, food security, nutrition, sustainable utilisation of natural resources, and optimal usage of produce from primary agriculture and farm incomes.

A view through missing links

(The Telegraph)

An inquiry into the political economy of agrarian transformation in contemporary India, Whither Rural India? is a volume of essays on the current status of Indian agriculture when viewed against the backdrop of the past. It is a festschrift for Venkatesh B. Athreya, an eminent agricultural economist. The book reveals that one of the major developments after the economic reforms of the 1990s has been the rise of agrarian capitalism in India, which is demonstrated by the rise of corporate retail giants that have bought agricultural outputs from Indian farmers and sold agricultural inputs to them. However, the agricultural labour force in India has not changed in the direction of homogenization and still remains largely segmented.

Agriculture in need of economic stimulus

(The Tribune)

Before a 'leaked' 2017-18 National Sample Survey Office (NSSO) report on consumption expenditure — which the government decided to shelve — showed that rural households were spending less and less on food, the Economic Survey 2016 had brought out the unpleasant truth. The average farm income in 17 states, which means roughly half the country, stood at a paltry Rs 20,000 a year, which indicated the low farm household expenditure on consumption.

Pre-budget meet: Demand for scrapping agri-inputs GST

(Deccan Herald)

This is the fourth pre-Budget meeting on agriculture and agro-processing sectors. Already, consultations with IT/start-ups, financial sector and industry have been held. Bharatiya Kisan Sangh's (BKS) Dinesh Kulkarni said that there should be zero GST on every farm inputs such as fertilisers, seed and agri equipments. He also said there should be no futures trading in agri-commodities as it does not benefit either consumers or farmers. He also urged the government to increase procurement of various crops at the minimum support price (MSP). Bharat Krishak Samaj Chairman Ajay Vir Jakkar demanded that the Pradhan Mantri Fasal Bima Yojana (PMFBY) should be replaced with new crop insurance and compensation scheme or a set up a farmer's disaster and distress relief commission.

National Agri Marketplace eNAM Growth Slower Than Expected, Reveals Data (Inc42)

The government-run online agriculture marketplaces eNAM and UMP, lets farmers and traders buy and sell agriculture produce and inputs online. Since its launch in 2016, eNAM has been growing at a slower pace than expected, as per a recent report. The platform has a total of 1.65 Cr farmers from 18 states and union territories across India. It is present in 47 out of 189 market committees in the country. In terms of turnover, in 2018, the platform saw a turnover of around INR 25K Cr. If this continues, the turnover would be around 30K Cr in 2019. On the other hand, Karnataka-backed UMP (backed by Rashtriya e-Market Services), launched in 2014, is restricted to farmers in Karnataka. In FY18, it recorded INR 40K Cr transactions and is estimated to reach INR 40K Cr for FY19 ending in March. In terms of turnover, UMP is likely to record a turnover of INR 51K Cr to 52K Cr in 2019, which is double that of national platform eNAM.

Karnataka to offer incentives for agri-related units: BS Yediyurappa

(The Hindu Business Line)

Karnataka Chief Minister BS Yediyurappa said that the government would take measures to set up industrial clusters based on the agriculture produce grown in particular regions and offer attractive concessions to those setting up agri-related units. He called upon farmers to minimise chemicals in agriculture by switching to organic farming.

Women lead with climate-smart farming in Marathwada

(The Hindu Business Line)

Marathwada is often called the the epicentre of India's agrarian crisis. Farmers in this dry region of the western province of Maharashtra have been killing themselves over wilted crops and intolerable debts. Erratic rainfall and rising temperatures due to climate change have added to the distress. Smallholder and marginal farmers are the worst-hit. Farmers in this parched land continue to cultivate water-guzzling soybean, cotton and sugarcane, and when landholdings are less than five acres, they have no fallback at all if the crop fails. An increasing number of women in the climate-hit region Marathwada are now feeding their families and making money through diversified organic agriculture.

<u>'Lack of agriculture data obstacle in achieving sustainable development goals'</u> (The Indian Express) Pietro Gennari, chief statistician at the Food and Agriculture Organization of the United Nations (FAO), talks about why countries need to start investing in statistics to improve agricultural data, productivity and safeguard the livelihood of farmers. The Sustainable Development Goal (SDG) 2030, for example, is a complex agenda and the reason why there are so many data gaps is because of many indicators that are completely new and cover areas where the traditional national statistical offices were no venturing into. This isn't something one can build overnight and requires prolonged efforts and investment by all parties, from national governments to the donor community.

Making agriculture sustainable is good and not for climate alone

(Down to Earth)

The natural systems involved are extremely complex, with multiple layers of feedback, and significant variations across regions and ecosystems. Nevertheless, a lot of technical progress has been made on this front. Greenhouse emissions from agriculture are estimated at around 5.4 gigatonnes of carbon-dioxide-equivalent in 2017, around 10 per cent of the 53.5 gigatonnes of total emissions in that year. The top 10 historical emitters are China, India, the Soviet Union, Brazil, the United States, Australia, Indonesia, Pakistan, Argentina and the Russian Federation.

India needs energy-efficient cold chain: expert

(The Hindu Business Line)

India badly needs an energy-efficient cold chain to cover all, or at least most, parts of the country to make agriculture more remunerative and sustainable by maximising the return for the farmer, according to Vikram Murthy, the president of the Indian Society of Heating, Refrigerating, and Air-conditioning Engineers (ISHRAE). He said the Union Government had drawn up a India cooling action plan to make refrigeration affordable and energy-efficient.

Tomar inaugurates Phase 3 of PMGSY to ehance connectivity of villages with hospital, school and agri markets

(UNI)

Shri Narendra Singh Tomar launched Phase III of Pradhan Mantri Gram Sadak Yojna (PMGSY) that aims to consolidate 1,25,000 km through routes and major rural links that connects habitations to Gramin Agricultural Markets (GrAMs), Higher Secondary Schools and Hospitals at an estimated cost of Rs 80,250 crore.

Rice exporters seek govt backing to take on China

(The Economic Times)

Facing stiff competition from China in export of white rice, Indian exporters have asked the government to release excess stock from the Food Corporation of India warehouses in the open market. They have also demanded renewal of incentives for exports, which would increase foreign trade and create more space for the new crop. As per the data released by the Agricultural & Processed Food Products Export Development Authority, rice exports fell 40 per cent year-on-year to 2.81 million tonnes in the seven months to October 2019. In value, non-basmati rice exports were low.

Reaping the benefits: Tech emerging as the farmer's best friend

(The Financial Express)

While the government, intending to boost farmers' income, has set-up 713 Kisan Vigyan Kendra and 684 agriculture farm community centres, progress on technology adoption has been slow. This has allowed agritech start-ups to step in and act as technology enablers. Data from Tracxn highlights that there are 508 agritech start-ups in the country. But the government's response, in some instances, has been muted. Although Punjab government's PAGREXCO announced a deal with CropIn to ensure potato traceability—this will be done using QR code, wherein farmers will be able to differentiate between certified seeds and, in turn, the government will be able to assess output—not many states can boast of such initiatives. Agri-tech can't do much to weaken the hold of APMCs, which enjoy too much control over the market. There should be a policy to encourage agri start-ups.

World Bank approves new agri-biz project in Maharashtra, 1mn farmers to be benefited (Devdiscourse)

The World Bank's Board of Executive Directors have approved the Maharashtra Agribusiness and Rural Transformation Project worth USD 210 million. It will assist in building capacity of the nodal departments and institutions; increase private sector investments in agricultural value chains, removing constraints for producers and entrepreneurs in accessing emerging domestic and export markets, building the capacity of the state to respond to commodity-price fluctuations by providing access to timely information on markets and production trends, and enhancing adoption of climate-resilient production techniques in the state.

SBI writes off agriculture loans worth Rs 14,000 crore in 5 years; NPAs jump to 13.49% (Business Today)

Country's largest bank State Bank of India (SBI) has written off close to Rs 14,000 crore worth of agriculture loans over the last five years with rising non-performing assets (NPAs) in the agriculture sector raising concerns of higher write-offs in the coming years. The gross NPAs in agri have pole-vaulted from 8.89 per cent five years ago to 13.49 per cent in September 2019. Many public sector banks are likely to mirror the SBI's high level of agri bad loans in the current year.

Free Farmers: Make agriculture the engine of growth

(Free Press Journal)

Pulling farming community out of distress is eminently essential for pulling the Indian economy out of deep recession. The crisis in agriculture has continued for an inordinate long period and it needs massive political will on the part of the government to implement solutions which organisations like All India Kisan Sabha and other farmers' organisations have submitted to the successive governments umpteen number of times. The foremost of these is ensuring adequate income to farmer families and augment their purchasing power.

Self-driving tractors: Next big thing in agriculture

(Asian Age)

If the change from manual or animal assisted agricultural operations to tractors, was a revolution, another huge change is in the offing. Farmers will soon be able to till the soil, sow seeds and harvest crops, using a driver-less tractor. Indian companies are among the world's early movers in developing a driverless tractor. The Mahindra group unveiled its version last year. The farmer can sit in the shade, and control the tractor and its tilling pattern, from a tablet computer. He can also set a geo-fence using GPS so that the tractor does not stray into an adjoining field. And if an obstacle like a cow comes in the path, it is intelligent enough to avoid it! Another Indian company staking its space is Escorts, with its autonomous tractor.

News Around the World

Strengthening partnerships for agricultural resilience in Africa (Relief Web)

The International Centre for Tropical Agriculture (CIAT) signed an agreement for future joint research with the Mohammed VI Polytechnic University (UM6P) in Morocco. Going forward, the UM6P and the Alliance between Bioversity International and CIAT will work to initiate cooperation in research, education, and outreach with the aim of contributing to the advancement of science to address the challenges of sustainable agricultural intensification globally.

Philippines approves Golden Rice for direct use as food and feed, or for processing (IRRI)

After rigorous biosafety assessment, Golden Rice "has been found to be as safe as conventional rice" by the Philippine Department of Agriculture-Bureau of Plant Industry. The biosafety permit, addressed to the Department of Agriculture - Philippine Rice Research Institute (DA-PhilRice) and International Rice Research Institute (IRRI), details the approval of GR2E Golden Rice for direct use as food and feed, or for processing (FFP).

The huge potential of agriculture to slow climate change (UN Environment) Soil's contribution to climate change, through the oxidation of soil carbon, is important, and soils and thus agriculture—can play a major role in mitigating climate change. Through multiple agricultural practices, one could help store vast amounts of atmospheric carbon in the soil, while at the same time regenerating soil fertility, plant health and whole ecosystems. This is a no regret option that offers multiple benefits and deserves high-level visibility.

Enhancing NDCs: Opportunities in agriculture

(Relief Web)

Climate change affects food production in many regions, including lost crops and dwindling employment opportunities. These impacts will become more severe by 2030 and beyond, putting at risk global food security and the livelihoods of hundreds of millions of people. Now is the time to scale up efforts to reshape the agriculture sector to support farmers, avoid the extensification of food production, improve the productivity of farms, build resilience and reduce emissions.

Seven global agricultural projects funded for Venture37

(Dairy Reporter)

The non-profit arm of Land O'Lakes has received funding for seven new projects to support dairy productivity, pest management and food safety. Since rebranding the non-profit in August, the non-profit arm has been working to strengthen agricultural and food systems in developing nations.

Soil erosion must be stopped 'to save our future', says UN agriculture agency

(UN News)

Healthy soils are the basis for healthy habitats for all living beings. They provide food, clean water, raw materials and various ecosystem services. But salinity, acidification and loss of biodiversity are just some of the threats that soils are currently facing. This year's World Soil Day commemoration focuses on reversing soil erosion for our future.

Uncertainty remains on Wall Street about China-US phase one agreement: 'More trade truce than deal'

(CNBC)

The "phase one" trade deal between the U.S. and China, supposedly a game changer for the global economy going by the stock market's rise to a record after the announcement, has left many analysts and investors puzzled about what was specifically agreed to by both sides. Skepticism is brewing in the markets as much of the details have not been confirmed by both sides. China, in particular, has been reluctant to commit to the amount of agriculture products it's willing to buy, while big numbers are floating from Washington. Beijing has also been quiet about tariffs on U.S. goods as well as an enforcement mechanism.

The role of women and gender in the fight against climate change

(Lifegate)

It's now an established fact that climate change is a risk factor for the life and fundamental rights of millions of people in ways that reflect social and economic inequalities within their communities. Less obvious is that women are among the groups most exposed to the consequences of this phenomenon and some simple considerations help perceive the global significance of this fact.

Precision farming market to reach \$12 billion by 2025

(GPS World)

The precision farming market is set to grow from its current market value of more than \$4 billion to more than \$12 billion by 2025, as reported in the latest study by Global Market Insights, Inc. The market growth is attributed to the rising adoption of smart agricultural practices to increase productivity. The use of Big Data along with information and communication technologies will provide farmers with more accurate insights into the existing crop conditions.

<u>Global recognition 'opens doors' for peasant groups, right to land</u> (Reuters) Across the globe, rural workers and rights groups are testing an international agreement they say could help hundreds of millions of people protect their right to own and use land. In Ukraine this month, land rights advocates sought to use the legal tool, known as the U.N. Declaration on the Rights of Peasants, to push back on a major planned liberalization of farmland they say would leave millions vulnerable.

Can algae save the planet by changing the way we eat?

(Quartz)

Now scientists and engineers are discovering new ways to harness algae's unique qualities. They are putting it on our plates, using it to sequester carbon dioxide, even making sneakers out of it. Proponents are touting algae as a way to break some of our most damaging habits, from petrochemical use to eating meat. If the trend continues, perhaps algae will have helped us mitigate some of the effects of climate change.

The road to climate-smart agriculture

(Policy Forum)

Farmers, backed by research and development, have been remarkably successful in ensuring food production has kept up with the global population increase over the last 60 years. However, there are still approximately 800 million undernourished people in the world and, worryingly, an increasing number – approximately two billion – of over-nourished, overweight and obese individuals. These numbers are backed up by global individual calorie consumption, a number that has risen from 2200 calories per day to over 2900 calories per day between 1960 and 2019. Growing demand for food has increased land degradation and accelerated forest clearing and wetland reclamation, resulting in significant biodiversity decline. This is demonstrated by an unprecedented rate of species extinction.

Agriculture Bill Providing Pathway to Citizenship Passes Quietly in House Amid Impeachment Frenzy (The Texan)

On December 11, the Democrat-controlled House quietly passed a bill expanding provisions for alien farm workers. The legislation passed with strong Democratic support in the House by a 260-165 vote. The Farm Workforce Modernization Act of 2019 establishes a path for certain agricultural workers to apply for temporary immigration status, also known as certified agricultural worker (CAW) status, valid for five and half years with room for extension, while also making changes to the H-2A agriculture visa program. The bill extends dependent status to family members of workers under the program and authorizes workers to apply for permanent residency after meeting various requirements, including performing agricultural work for a designated number of years.

Upcoming Events

December 2019

International Conference on Food, Nutrition Security and Sustainable Agriculture Date: December 01-03, 2019 Venue: Grand Nile Tower Hotel, Cairo, Egypt

African Farming Agro Investment Summit Date: December 02-03, 2019 Venue: The Tower Hotel, London, UK

AgriBusiness Global Trade Summit Southeast Asia Date: December 03-04, 2019 Venue: Jakarta, Indonesia

Women in Food & Agriculture summit

Date: December 03-04, 2019 Venue: NH Collection Grand Hotel Krasnapolsky, Amsterdam, Netherlands

ANZ Smart Farms and AgTech Forum

Date: December 03-05, 2019 **Venue:** The Langham Melbourne, Melbourne, Australia

KISAN 2019

Date: December 11, 2019 **Venue:** Pune, Maharashtra

ISCA International Science Congress

Date: December 08-09, 2019 **Venue:** Bhilai Institute of Technology Durg, Durg, India

International Conference on Plant & Soil Science Date: December 09, 2019 Venue: Park Taipei Hotel, Taipei, Taiwan

International Conference on Agricultural, Biological and Environmental Sciences Date: December 09-10, 2019 Venue: Mercure Pattaya Ocean Resort, Pattaya, Thailand

EU Agricultural Outlook Conference Date: December 10-11, 2019 Venue: Brussels, Belgium

International Conference on Green Urbanism Date: December 11-13, 2019 Venue: Università degli Studi Roma Tre - Architettura, Rome, Italy

International Conference on Agricultural and Biological science Date: December 19-20, 2019 Venue: Palm Garden Hotel, Putrajaya, Malaysia

January 2020

Grain Tech fair Date: January 10, 2020 Venue: Pune, Maharashtra

South West Agriculture Conference Date: January 07-08, 2020 Venue: Canada, North America

Cropping Systems Conference Date: January 07-08, 2020 Venue: Kennewick, USA

National Youth Summit on Agri Science Date: January 09-12, 2020 Venue: Chevy Chase, USA

Hi-Tech Agri Fair (iKISAN)

Date: January 10-13, 2020 Venue: Bhuj, India

Annual Northeast Aquatic Plant Management Society Conference (Annual NEAPMS Conference)

Date: January 14-16, 2020 Venue: North Elba, USA

Wheat Industry Winter Conference (WIWC)

Date: January 13-18, 2020 Venue: Washington DC, USA

Global Forum for Food and Agriculture Berlin (GFFA) Date: January 16-18, 2020

Venue: Berlin, Germany

9th Edition Krushi Mahotsav Date: January 23-27, 2020 Venue: Nashik, Maharashtra

International Production & Processing Expo Date: January 23-30, 2020 Venue: Atlanta, USA

February 2020

International Conference on Chemical, Agricultural, Biological and Environmental Sciences (ICCABES) Date: February 02-03, 2020 Venue: New Delhi, India

Asta Vegetable & Flower Seed Conference Date: February 01-04, 2020 Venue: Monterey, USA

Digital Ag India Conference (DIAC) Date: February 04, 2020 Venue: Hyderabad, India

International Conference on Advances in Agricultural, Biological and Environmental Sciences (RAABE)

Date: February 03-05, 2020 Venue: Ciampino, Italy

National Symposium on Trends in Plant Biotechnology and Agriculture (NSTPB) Date: February 06-08, 2020 Venue: Patiala, India

International Conference on Plant & Soil Science (ICPSS)

Date: February 09, 2020 Venue: Taipei, Taiwan

International Symposium of the Society for Plant Breeding Date: February 11-13, 2020 Venue: Tulln, Austria