



Seed Connect

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Agriculture has witnessed series of changes that has revolutionised the sector and made it more robust as it is now. Each new challenge has made the sector adopt solutions that has helped in increasing the yield and profitability, brought in efficiency that were implausible previously.

Digitising the agriculture sector has been on the books for quite a long time but be it the reluctance of farmers or gap in their technological understanding it did not take a flight. But with the pandemic, digitisation in agriculture has moved in leaps and bounds. With the closure of Rabi crops and onset of Kharif crops and with limited physical movements from farm to market place and vis a vis, farmers have started embracing technology for the movement of their procuremet.

In this direction, few state governments have relaxed the APMC (Agriculture Produce Market Committee) norms to allow farmers to sell their produce directly to buyers eliminating the *mandi* (marketplace) and middlemen and setting up new procurement centres. Additionally, the government is also propagating the use of eNAM (e-National Agriculture Market) gateway to serve as *e-mandi* and provided a logistics app for farmers to ensure the movement of their produce.

Farmers and farmer cooperatives are now increasingly taking interest in adopting technology and mobile applications to reach out to the buyers and consumers directly. Quite a number of urban AgTech startups are helping the farmers in many innovative ways and business models such as *E-mandis* has been created to replicate the physical *mandi* where farmers can register and upload his produce and buyers like merchants, traders and corporates can give orders for purchase. To ensure sale of fresh produce, collection centres are set up within four kilometers of farm reducing the travel period and time for farmers. This produce is then taken to a logistics partners to its distribution centres across different cities. To streamline farming industry operations, another start up is providing the service of quality inspection of the farmers' produce using artificial intelligence and machine learning. Its smartphone app can be used by an individual or an enterprise for quality analysis of the produce by analyzing the image. The AI-powered feature can detect count, uniformity, color and external defects in the produce.

Following the above farm-to-fork models of supply chain, agri input such as seed, fertiliser, pesticide can also be adopted to an e-Commerce platforms that offer farm inputs. This step can help in making sure that quality seeds and inputs reaches straight to the farmers' home, it will reduce the impact of disruptions such as the one created by the pandemic and will additionally help in generating data that will benefit the sector.

With the end of this pandemic we are hopeful that more farmers will adopt technological interventions in their field for better informed decisions and realise profits by increasing yield, producing quality food and getting the right price for their produce.

In this newsletter we have included a new section '[Thoughts & Views](#)' where we will cover an interview of an industry expert conducted by the FSII Secretariat. We have also covered several important developments on agriculture across India, globally and in the area of research in this newsletter. We hope you find it a good read!



Shivendra Bajaj
Executive Director
Federation of Seed Industry of India

COVID-19

[Nirmala Sitharaman announces Rs 1.63 lakh crore stimulus for agriculture and allied sectors](#)

(The Times of India)

Announcing the third instalment of government's Rs 20 lakh crore economic package to deal with the economic fall out of Covid 19 pandemic, Sitharaman said that the government has taken several measures in the last two months to support farmers, including minimum support price (MSP) purchases of Rs 73,300 crore.

[From Plate to Plough: A 1991 moment for agriculture](#)

(The Indian Express)

The finance minister's package had 11 major points, of which eight pertain to miscellaneous items, ranging from Rs one lakh crore for building agriculture infrastructure to Rs 500 crore for beekeeping and another Rs 500 crore for tomatoes, onions, potatoes, and other fruits and vegetables. These are steps in the right direction, but we do not have details on how they will be implemented. Most schemes of this government — including the project to double farmers' incomes by 2022 and the programme to complete 99 irrigation projects by 2019 — have had a success rate of less than 50 per cent.

[Agriculture key to unlocking economic potential](#)

(The Tribune)

Covid-19 and the resulting lockdown are among the biggest challenges that the modern world is facing. Covid-19 has attacked the very core of our present society and has thrown light on many problems the states will face going forward. One must not forget that Covid-19 may pass, but global warming simply will not. Now is the time we need to rethink how we approach the agricultural sector and the Indian economy.

[How States Are Regulating Agricultural Marketing In India AMid COVID-19](#)

(The Logical Indian)

To ensure the continued supply of agriculture produce during the lockdown and control the spread of the disease, some states have amended their respective Agriculture Produce Marketing Committee (APMC) laws. This article explains the manner in which agriculture marketing is regulated in India, steps taken by the centre for the agriculture sector during the COVID-19 crisis, and the recent amendments in the APMC laws that are being announced by various states.

[Despite the recent plunge, India's farm export story may not be so gloomy](#)

(Business Standard)

Like most other sectors, Indian agriculture exports are passing through a difficult phase due to the Covid-19 lockdown, with shipments of most major farm produce declining sharply in April both, in dollar and rupee terms. The decline, which came in the backdrop of an equally unimpressive performance in March, has raised fears of overall slump in farm exports in 2020-21—something that can have a direct bearing on the well-being of a large number of farmers.

[Covid crisis has shown India's food policy must have buffer stocks at community level too](#)

(Business Standard)

Accustomed to healthy demand, India's vegetable and fruit growers were in for a rude shock when the coronavirus pandemic hit. Since these commodities diversify farms and boost nutrition, there is a need for creating multiple market avenues, including e-platforms and links with processors, to minimise risk and prevent a glut that can crash prices once the lockdown is lifted. Following the Union government's recommendations, many states temporarily suspended the Agricultural Produce Marketing Committee (APMC) Act and let farmers sell farm produce anywhere. This is an opportunity to develop consensus across states to reform agricultural marketing and minimise restrictions on movement and sale of agricultural commodities. Also, agro-processing enterprises should be allowed to buy produce directly from farmers and back-linkages to farms must be encouraged.

[Refile-west african food trade under strain as covid-19 shuts borders](#)

(Successful Farming)

In ordinary times, it takes Boureima Diawara two or three days to truck his mangoes the 1,200 km (745 miles) from southern Mali to Senegal's seaside capital Dakar. But since coronavirus restrictions came in, some shipments have taken more than twice as long. After struggling with border delays and a dusk-to-dawn curfew in Senegal, Diawara's workers have ending up dumping sacks of rotten fruit in landfill. Trading across borders in West Africa, with its rutted roads and bribe-hungry police, has never been easy. But restrictions imposed by governments in response to COVID-19 are crippling the trade in perishable goods and livestock like never before, according to commercial data and interviews with traders.

News from India & Around the World

[Need for innovative technology in agriculture - Dr Shivendra Bajaj, FSII](#)

(ANI)

The importance of agriculture to India needs no mention. Although not the number one revenue generator for the country but more people in India depend on agriculture than any other sectors. The uniqueness of the region lies in agriculture being more than just a profession, it provides sustenance and livelihood and is entwined with social and cultural beliefs. Ironically, agriculture has seen the least modernization in India than any other sector. There are many aspects that can be modernized in India and be up to date with the rest of world such as mechanization, post-harvest, logistics but everything starts with a better seed.

[End of a monopoly](#)

(The Indian Express)

Agriculture is a state subject under the Constitution, but the Green Revolution wouldn't have happened without the political leadership at the Centre in 1966 approving the import of 18,000 tonnes of seeds of high-yielding semi-dwarf wheat varieties from Mexico. The same goes for the Narendra Modi government's decision now to enact a Central law to dismantle the monopoly of agricultural produce market committee (APMC) mandis in the wholesale trading of farm commodities. It's all very well to say that "agriculture" and "markets and fairs" fall under the State List of the Seventh Schedule. However, state governments have done very little all these years to remove barriers to trade in farm produce.

[India needs to rethink farm export policies to revive agriculture](#)

(The Financial Express)

While eminent thinkers and experts are weighing in daily on the broader macroeconomic policy choices, the focus of this piece is on agriculture and the options available to revitalise the sector. In

this scenario, an export-led agricultural strategy offers an inclusive pathway towards growth, income, employment and rural poverty reduction. One may argue that India is already a major exporter of items like frozen buffalo meat, marine products like shrimp, and basmati rice, besides a varied basket of goods ranging from grapes to spices. However, exports of agri-products in 2018, at \$38 billion, made up only 11.76 % of India's total exports and hardly 2.5 % of global agri-trade. In contrast, a small country like Holland exports \$100.5 billion worth of agri-products every year and commands a 6.7% share of the world trade in agri-goods.

[How India can script a self-reliance success story in agriculture](#)

(The Economic Times)

In the context of making India atmanirbhar, the task of achieving self-reliance and self-sustainability in agriculture is easier and more cost-efficient compared with other sectors of the economy. The first set of measures rely on branding of local farm products to be sold globally, the branding helping to tide over price spirals and making farmers quality conscious.

[India's Second Plague: Locusts](#)

(The Diplomat)

Locust sightings and attacks in India's border states of Gujarat, Rajasthan, Punjab, and Uttar Pradesh have been giving sleepless nights to farmers and authorities since last winter. Concerns are intensifying as the sowing period for kharif or monsoon crops like rice, maize, millet, pulses, soybean, and groundnut approaches in June. For farmers, locusts are the most destructive of insects. They feed voraciously on almost all types of crops; a large swarm can eat as much as about 35,000 people in one day. Locusts also breed rapidly, with a single female desert locust laying 60-80 eggs thrice during its roughly 90-day life cycle.

[Blockchain, AI, IoT: How India can help farmers by leveraging these technologies](#)

(The Financial Express)

Farm sector growth has been stunted by low productivity, fragmented landholding, recurrence of over/under production reflecting a clear market asymmetry, lack of good agricultural practices and reforms in farm marketing. The problems are well known but have persisted, thus calling for tech intervention to break the status quo. Tech majors like IBM, Microsoft and Cisco have initiated pilot projects across the agriculture value chain. Microsoft's project in Andhra Pradesh uses an AI sowing app to recommend farmers on sowing date, land preparation, soil test-based fertilisation, farm yard manure application, seed treatment, optimum sowing depth, etc. This has resulted in 30% increase in average crop yield per hectare. In collaboration with United Phosphorus, Microsoft is building a pest risk prediction app that leverages AI and machine learning.

[How digital technology has revolutionised the agricultural sector globally](#)

(Your Story)

Food trade in a smaller and more connected world is changing what is produced, consumed, and the way food travels. Not so long ago, it was impossible for an average business to know whether the produce was sustainably grown, and whether the labour was fairly treated. But now, with the help of technologies like traceability, it is easy to know the ecological footprint of any produce. As more and more countries adopt stringent standards and compliances, traceability becomes a fool-proof mechanism to provide information on the provenance of produce and guarantee food safety. This is the reason why various countries and regulators have put in place their own system for traceability.

[Will the world's breadbaskets become less reliable?](#)

(Mckinsey)

Climate change could affect food production through both continuous environmental changes—for example, increasing temperatures and changes to precipitation patterns—and more frequent episodes of acute stress, such as drought, heat waves, and excessive precipitation. The COVID-19 pandemic is exposing weaknesses in the global food system which we find is already vulnerable to climate change as a growing population depends on four key crops with high geographic concentration of production.

[Why India needs to tread with caution on agricultural changes](#)

(Deccan Herald)

The changes proposed by the government raise important issues about the possible impact on the farming community. The proposed changes are fundamental and hence it may be useful to consider their possible impact. Since the fine print has probably not even been conceptualised one can only go by the statements of intent. New investments in agricultural infrastructure and contract farming will invariably be built on greater use of existing practices, probably the introduction of some reforms and the inevitable entry of new players. In the case of agriculture, the transformation that may be expected includes – (a) agriculture becoming a technology and capital intensive, (b) emergence of large and probably global players, (c) increased importance of electronic trading and/or e-marketplaces, (d) highly financialised and therefore likely to be more prone to market volatility than at present.

[Remote Sensing Technology Continues to Expand in Indian Agriculture](#)

(Precision Ag)

Pre-harvest crop production forecasts are done for wheat, rice, jute, mustard, cotton, sugarcane, and sorghum, based on spectral indices and weather parameters. This forecast project called “FASAL” (Forecasting Agricultural Output using Space, Agro-meteorology, and Land-based Observations) is undertaken by Mahalanobis National Crop Forecast Centre (MNCFC) established in 2012. The project aims to gather monsoon data and monitor crop growth and production. The project “KISAN” (Farmer) began in 2015 by the MNCFC for optimum crop cutting experiment (CCE) plan and enhanced yield predictions by using high-resolution remote sensing images from satellites and UAVs. CCE locations were established using several factors, such as the sowing date, NDVI (Normalized Difference Vegetation Index), Biomass, and Leaf Area Index (LAI) obtained by remote sensing. Around 250 CCEs were done in the selected districts of four different states: Haryana, Karnataka, Maharashtra, and Madhya Pradesh. Such projects enable the farmers to make crucial decisions within the season, essentially before crop harvesting.

[Strengthening Agricultural Marketing Opportunities For Farmers Through e-NAM](#)

(Outlook India)

One key challenge is farmers getting competitive and timely remunerative prices for their agricultural or horticulture produce sold in the regulated markets. International Fund for Agricultural Development (IFAD) has reported the case of Kiran Khalkho, a marginal farmer of Chitarkota village in Ranchi District, Jharkhand. During the pandemic and for the first time from the farm gate, she was able to sell 15 quintals of watermelon through the e-National Agricultural Market (e-NAM) portal with the assistance of the Pandra Market Committee. Online auctioning on the portal led to purchase of her produce at Rs 8 per kilogram by the “All Season Farm Fresh Company” based at Golmuri, Jamshedpur. This transaction fetched her an income of Rs 12,000 and the payment for her produce was deposited directly into her bank account through the e-payment gateway.

[India bracing for its 4th Recession](#)

(The New Indian Express)

It’s down to the wire, but if it happens, it will be for the fourth time the country will course through a recession. Incidentally, the past three recessions seen in 1958, 1966 and 1980 were all tied to one reason — unfavourable monsoon — which broke the economy’s back. This time, however, agriculture, which accounts for 17% of the GDP, could swing the balance and end up as the last man standing for growth, provided monsoon plays ball.

[Here’s why Shaktikanta Das calls agriculture a beacon of hope in a falling economy](#)

(The Financial Express)

RBI Governor Shaktikanta Das called agriculture and allied services as the beacon of hope in the middle of the coronavirus crisis. He said that amidst the encircling gloom, agriculture and allied activities have provided a beacon of hope on the back of an increase of 3.7 per cent in foodgrains production to a new record. The RBI Governor added that the forecast of a normal southwest monsoon in 2020 by the India Meteorological Department (IMD) has also given hope for improved agricultural output. However, it is not the first time when the agriculture sector has been considered as the rescuer of the falling Indian economy. The strong assurance from better than expected monsoon, 40-60 per cent higher water availability in the reservoirs, and 5 per cent higher offtake of fertiliser during the first four months of this year are the major signs indicating a bumper production this year. Adding to it, 20 per cent increase in the sale of seeds and high food prices show a better term of trade and more encouragement to the farmers to produce.

[NCW mulls advisory on policies to aid women farmers](#)

(The Hindustan Times)

The National Commission for Women (NCW) conducted a virtual day-long consultation to come up with an advisory for states that would enable them to prescribe policy changes in aid of women farmers hit by the lockdown due to the coronavirus pandemic. The NCW expects to issue the advisory before the kharif season begins next month and is treating the matter as urgent since several migrants are making their way home during the lockdown. NCW chairperson Rekha Sharma said that as women migrants made their way home to work in farms, policy rethinks are crucial.

[Cotton Association draws Agriculture Minister's attention to locust attack](#)

(The Economic Times)

The Cotton Association of India (CAI) has asked the Agriculture Minister Narendra Singh Tomar to look into the massive locusts' attacks and sought the Centre's assistance in dealing with the menace. With cotton planting to begin in central and south India, the industry is worried that the outbreak of locust attack will pose a threat to the crops. CAI says that it is currently receiving reports of locusts' attacks in several states of India. Locust attacks, which have taken place in Punjab, Haryana, Rajasthan, Madhya Pradesh, Gujarat and Maharashtra states, have wreaked havoc, destroyed the standing crops and threatened the peoples' livelihood. These locusts are very dangerous and are feasting on all sorts of plants, vegetation and the standing crops.

[Two more states opt out of PM crop insurance scheme](#)

(The Economic Times)

Telangana and Jharkhand have opted out of the crop insurance scheme, saying the premium is too high. Premium increased 2-3% after the scheme was made voluntary for farmers. More than 6 million farmers from these two states had enrolled for the scheme. West Bengal, Bihar, Punjab and Andhra Pradesh have already exited, and officials said Rajasthan and Maharashtra were debating whether to continue with the scheme.

[Agriculture officials seek ANGRAU, experts help to prevent locusts](#)

(The Hindu)

Special Commissioner (Agriculture) H. Arun Kumar said there were no incidents of locusts damaging crops in the State in the last few decades. However, as the problem was more in some neighboring States and the swarm of locusts were attacking the crops in one after the other States, government is focussing on the issue he said. We represented the matter to Acharya N.G. Ranga Agriculture University (ANGRAU), agriculture scientists and experts in different crops and asked them to suggest methods to prevent crop loss, if the swarm of locusts enters in to AP.

[Moment in the sun: Agritech startups are helping farmers thrive during Covid-19 lockdown](#)

(The Economic Times)

The nationwide lockdown due to coronavirus has resulted in acres of farmers' produce left to rot or sold at dirt cheap prices- Rs 3 per kg for onions in Maharashtra's Lasalgaon mandi. Transport constraints, labour shortage and limited market access, with almost no buyers, is deeply hurting the farmers in India. Even though the government has lifted certain restrictions in order to ease the operations in the agriculture industry, the farming community is still striving to cover the losses.

[How India and Africa Can Start A Revolution In Agriculture And Food Security](#)

(The Hindu)

India- Africa collaboration has the potential of turning the existing farm-centered system into a more commercialized and productive business. But the governments in both India and African states needs to work closely with the private sector to ensure that farmers as well as small and medium-sized enterprises have access to the market with minimum loss and maximum profit on their agricultural products. This will help the growing need to respond swiftly to changing diets that improve immunity and help the growing economy.

[Agriculture driving demand for plastic pipes industry; this stock can more than double](#)

(Money Control)

Plastic pipes industry is one of the sectors that got some relief to work with lower than normal capacity, so that social distancing norms can be followed properly. The sector is also getting help from

the opening up of agriculture segment, which accounts for 48 percent of the business, while the no demand from construction activity is the only concern for the pipes sector.

[Minister encourages industries to produce locally processed foods](#)

(Asia One)

Indonesia's Agriculture Minister Syahrul Yasin Limpo has encouraged domestic industries to develop and diversify processed local food products under the efforts to boost the country's food resilience. Limpo noted in a statement that the public should partake in enhancing the role of local foods under the National Food Resilience Campaign. This must be started, right from us. The Minister emphasised that Indonesia is rich in various staple foods, not just rice but also tubers, pumpkin, sago, and others. He further commended the initiative of an agricultural training center in Cepu Sub-district, Blora District, Central Java, to process pumpkin into egg roll snack product. The business has developed, and currently, it recorded a monthly turnover of Rp15 million, with production volume of 500 to one thousand packs.

[Chinese tariffs to re-route global barley trade flows](#)

(Farm Weekly)

AS the dust settles, and the early panic (and anger) subsides, we feel it is important to focus on the alternative markets that may become available to Australian barley now that China has decided to look elsewhere. Despite local barley coming under pressure from China's boycott, the global barley balance sheet hasn't changed, in that the supply and demand ratio is still relatively even. What will change, however, is the trade flow - when one door closes, another one opens. The United States Department of Agriculture (USDA) estimates China's barley imports for 2020/21 at six metric million tonnes (MMT). This estimate could be viewed as conservative if we consider the current values of the Dalian Corn exchange (Chinese Corn Futures Market) which has been trading at five-year highs.

New Research

[Microalgae food for honeybees](#)

(Eurekalert)

A microscopic algae ("microalgae") could provide a complete and sustainably sourced supplemental diet to boost the robustness of managed honey bees, according to research just published by Agricultural Research Service (ARS) scientists in the journal *Apidologie*. Poor nutrition in honeybees is often an underlying factor in colony losses because malnutrition amplifies the detrimental effects of parasites, pathogens, and pesticides. Habitat loss decreases in flowering plant diversity and large tracts of crop monoculture (cultivation of a single crop over a large area) all can potentially contribute to lessening natural pollen sources, which provide bees essential nutrition.

[Evaluation of Climate Change in the Rice-Growing Zone of Ukraine and Ways of Adaptation to the Predicted Changes](#)

(Springer)

The main trends in changes of meteorological characteristics and their possible effect on the conditions of functioning rice irrigation systems as well as on the natural and ameliorative state of irrigated areas were identified. The most significant influence on the condition of functioning of RIS is air temperature, which directly effects duration of maturation and total value of water consumption of rice crops. It is established that in the last decades a significant increase in the average value of air temperature for the growing season happened (April–October): 1981–1990—16.9 °C, 1991–2000—17.5 °C, 2001–2010—18.1 °C, 2011–2017—17.7 °C. It is determined that at the existing rates and levels of weather and climatic changes, we should expect a significant deterioration of functioning conditions of RIS and natural reclamation state of irrigated land. In this regard, were examined core measures regarding the adaptive potential enhancement and development of the rice-growing zone under the conditions of climate change.

[Flaxseed Oil Microcapsules Prepared Using Soy Protein Isolate and Modified Starch: Process Optimization, Characterization and In Vitro Release Behaviour](#)

(Springer)

In this study, soy protein isolate and modified starch were evaluated as coat material for developing spray-dried flaxseed oil microcapsules. The emulsions were prepared by varying total solids (TS) and oil load (OL) using high shear mixer and then atomized in spray dryer for encapsulation of flaxseed

oil. Emulsions exhibited shear thinning behaviour. Microencapsulation efficiency (ME), bulk density, tapped density and flowing properties of microcapsules were studied. ME of microcapsules varied from 63.79 to 95.84%. The microcapsule prepared with 30% OL and 30% TS owing to more oil load and zeta potential was selected for evaluation of certain characteristics. Microcapsules were spherical in shape with average particle size of 37.917 μm . Alpha-linolenic acid (18:3) content was 61.67% in the oil extracted from microcapsule. Fourier transform infrared spectra also confirmed the encapsulation of flaxseed oil by selected coat materials. 38.24% oil was released in simulated gastrointestinal conditions from the flaxseed oil microcapsules, and it increased to 60.86% when accompanied with heating prior to digestion.

[Innovation can accelerate the transition towards a sustainable food system](#)

(Nature)

Future technologies and systemic innovation are critical for the profound transformation the food system needs. These innovations range from food production, land use and emissions, all the way to improved diets and waste management. Here, we identify these technologies, assess their readiness and propose eight action points that could accelerate the transition towards a more sustainable food system. We argue that the speed of innovation could be significantly increased with the appropriate incentives, regulations and social licence. These, in turn, require constructive stakeholder dialogue and clear transition pathways.

[Global adoption of novel aquaculture feeds could substantially reduce forage fish demand by 2030](#)

(Nature)

Combining production data, scenario modelling and a decade of experimental data on forage fish replacement using microalgae, macroalgae, bacteria, yeast and insects to illustrate how reducing future fish oil demand, particularly in high-value species such as salmonids, will be key for the sustainability of fed aquaculture. However, considerable uncertainties remain surrounding novel feed efficacy across different life-cycle stages and taxa, and various social, environmental, economic and regulatory challenges will dictate their widespread use. Yet, we demonstrate how even limited adoption of novel feeds could aid sustainable aquaculture growth, which will become increasingly important for food security.

[Organic management promotes natural pest control through altered plant resistance to insects](#)

(Nature)

Reduced insect pest populations found on long-term organic farms have mostly been attributed to increased biodiversity and abundance of beneficial predators, as well as to changes in plant nutrient content. However, the role of plant resistance has largely been ignored. Here, we determine whether host plant resistance mediates decreased pest populations in organic systems and identify potential underpinning mechanisms. We demonstrate that fewer numbers of leafhoppers (*Circulifer tenellus*) settle on tomatoes (*Solanum lycopersicum*) grown using organic management as compared to conventional. We present multiple lines of evidence, including rhizosphere soil microbiome sequencing, chemical analysis and transgenic approaches, to demonstrate that changes in leafhopper settling between organically and conventionally grown tomatoes are dependent on salicylic acid accumulation in plants and mediated by rhizosphere microbial communities. These results suggest that organically managed soils and microbial communities may play an unappreciated role in reducing plant attractiveness to pests by increasing plant resistance.

Mr Ganesh Nanote, a farmer from Maharashtra featured in [CropLife Asia's Covid-19 Frontline #Foodheroes](#). Mr Nanote shares his views on growing food for the consumers during the ongoing pandemic

COVID-19 FRONTLINE #FOODHEROES

"We continue to farm because we have to feed our countrymen. If we stop farming during this period, people will have difficulty in finding food. We still stand along with everyone fighting this pandemic and continue to serve the people and the country, through agriculture"

GANESH NANOTE

Cotton, Wheat, Chickpea, Papaya &
Soyabean Farmer
from Maharashtra, India



Thoughts & Views



Dr. Siang Hee TAN is currently Executive Director of CropLife Asia, the voice of the plant science industry across the continent and part of a global federation. At CropLife Asia, he is responsible for directing regulatory, crop protection, seeds, intellectual property, biotechnology as well as communications and outreach programs in 15 Asian countries. His other professional experience includes: establishing the University of Putra Malaysia's (UPM) Genome Centre; management of two startup ventures developing bioinformatics software and prenatal genetic testing; and establishing the biotechnology section for the Sime Darby Technology Centre among other roles. Dr. Tan holds a BSc in Plant Pathology from the Universiti Pertanian Malaysia, an MSc in Genetic Engineering from Universiti Putra Malaysia and a PhD in Molecular Biology (Plant Virus) from Okayama University in Japan. Professional recognition includes a Silver Award at the 2005 Geneva International Exhibitions & Inventions of New Techniques and Products, a US Government Cochran Fellowship for biological research at Case Western Reserve University in Ohio, and UPM awards for Research and Development.

1. Should Food security be restricted to staples, how crucial is nutritional security for Asia Pacific?

A: Since the outbreak of COVID-19, countries have been hard-pressed to manage food security by maintaining a steady flow of food from farm to fork. The issue of nutritional insecurity is exacerbated as horticulture cash crops like flowers and ornamentals are equally impacted, reducing farmers' income and

their ability to provide their families with sufficient food and nutrition. Should food sources be restricted to staples alone, nutritional security would become an even greater challenge among Asia-Pacific countries, India included.

With food security and food system resiliency, India, like most countries, faces its fair share of challenges – even prior to COVID-19. Whether considering its rank in the *2019 Global Hunger Index* (102nd out of 117 countries) or troubling malnutrition rates with a “large number of people, especially women and children, suffering from micronutrient deficiencies” as noted by the World Food Programme (WFP) – there are areas of concern where food value chain stakeholders within the public and private sectors can do more by working together.

2. Do you think countries should depend less on imports and grow food locally?

A: While achieving food autarky may seem ideal, it also poses risks. For example, in the event of natural disasters, countries that rely solely on domestic produce may not have alternative food sources to fall back on. Agricultural productivity is also highly dependent on the comparative advantages of countries. Being able to import food that can be produced at a lower cost compared to domestic production will give people a greater variety of options at potentially cheaper prices. As such, it is preferable for countries to balance the use of imports and local produce to diversify food baskets and minimize the threats of food insecurity.

For countries like Singapore that have limited capacity to produce domestically, it is imperative that strong trade relations are created and maintained to ensure a steady supply of food to feed the nation. Although 90% of food for local consumption is imported, Singapore was ranked as the most food secure country in the world by The Economist Intelligence unit (EIU). This ranking was based mainly on high affordability of food with the average household in Singapore spending less than 10% of its income on food which is 20-40% less than some of its neighbours. Singapore’s case shows that reliance on imports should not always be perceived as a deficiency but can actually be used as a means for bolstering food security.

3. What will it take for third world farmers to treat agriculture as a business venture and not a means for sustenance?

A: To encourage a shift from subsistence to commercial farming, public and private sectors have to work together to ensure farmer adoption of practices that can increase farm output, profit and their own welfare.

There was enlightening research conducted in Indonesia recently to better understand why farmers there engage in either subsistence or commercial farming; it revealed certain contributing internal and external factors. Internal factors reported include financial endowment and farmer knowledge. External factors included access to credit, technology (including crop protection products as well as quality seeds), and market information. In situations where these factors were favourable, farmers were more inclined to farm commercially.

To overcome reservations that farmers have about moving into commercial farming, there is a need to reform marketing systems and price regulation for the agricultural product being farmed. Agribusiness terminals and marketing infrastructure can also be used to increase market efficiency, so that the harvest during peak season can be absorbed and distributed evenly to other marketing regions. Soft loan or microcredit should also be accessible and locally available.

<https://onlinelibrary.wiley.com/doi/full/10.1002/app5.276>

4. How does CLA support active outreach for technology to counter anti-technology propaganda?

A: As the chief advocacy organization for the plant science industry in Asia, CropLife Asia is represented by two national associations in India: CropLife India and the Alliance for Agri Innovation India. Collectively they serve as the national voice promoting crop protection and plant biotechnology innovations to better enable and empower India’s farmers in driving food production. Both have partnered with numerous food value chain, government and civil society stakeholders in advancing broader adoption of the technologies as well as responsible use practices that go along with their use.

We have a strong history of partnership with food value chain stakeholders from around the region – particularly with national governments. That collective work and spirit of private-public sector partnership are both at the core of our outreach and advocacy efforts.

5. How is COVID-19 impacting the seed movement in the Asia Pacific region?

A: While things are improving, early indications about the impact of the pandemic on seed movement were troubling. According to a survey done by the Asia Pacific Seed Association (APSA), seed companies reported a negative effect on the demand for seeds as a result of measures implemented to curb the spread of COVID-19. Nearly all aspects of the seed business have been negatively affected in some way and varying degrees – international and domestic seed shipments, difficulties in getting inputs, difficulties getting labor for seed production and processing, and reduced access to finance. International seed shipments were the most severely affected, as problems arose with getting export and import permits, phytosanitary certificates, and customs clearance. If left unchecked, such reduction in seed demand and international seed shipments could certainly have consequences for the region’s food and nutrition security and the income of smallholder farmers.

To alleviate this, governments can try to ease bottlenecks in the seed supply chain by exempting seed production, distribution and trade from lockdown restrictions and ensuring timely processing of import/export permits and phytosanitary certificates. It’s particularly important that bottlenecks are addressed before the upcoming seed production season and that local situations are monitored closely.

<https://www.apsaseed.org/asia-pacific-seed-trade-reeling-from-covid-19-lockdown-survey/>

6. What impact can you see on Agriculture regionally and globally due to current crisis?

A: This pandemic has and will continue to put a strain on food supply chains – an inherently complex web involving farmers, agricultural inputs such seeds, chemicals and fertilizers, processing plants, shipping, retailers and more. Logistical hurdles, movement restrictions and retail closures can present challenges in food supply continuity. Media coverage has also profiled growers in India and Malaysia who have been forced to essentially dump vegetables and fruits as a result of transport disruption in the food supply chain.

7. Which crops do you think will be most affected because of the lockdown imposed in India? Do you see prices of agricultural produce sharply fluctuating in the coming months?

A: Highly perishable crops will continue to be affected the most. With street markets and farmers’ markets being temporarily closed to limit public gatherings, smallholder producers and their associations are prevented from selling directly to consumers. This creates bottle necks where perishables are left to waste. In addition, delays due to required sanitary checks and roadblocks have led to losses in quality or complete damage of perishable products and to the accumulation of non-perishable products.

Price fluctuation is likely if countries continue to impose export restrictions and areas with produce surplus are unable to move to areas of deficits. To manage this, policy makers have to monitor consumer stockpiling behavior and market shortages by fortifying food reserves.

<https://www.straitstimes.com/business/economy/key-food-prices-surg-ing-in-some-parts-of-the-world-from-coronavirus-effect>

8. Many countries like Middle East, China, United States and European Union have put in restraints for exports? How do you think it will play out for Asia-Pacific region?

A: The potential combined impact of COVID-19 on unemployment, households’ purchasing power, food prices, and food availability in local markets could severely jeopardize access to food in the most vulnerable countries. Any additional inflationary effect of protectionist policies through import tariffs and export bans could cause a significant increase in the number of people facing severe food insecurity worldwide. Considering these risks, participating Agricultural Ministers in the recent G20 meeting committed to enhancing global cooperation, facilitating trade flows and avoiding the implementation of unnecessary export restraints and taxes to prevent excessive food price volatility. The same goes for the Asia-Pacific region where it is crucial that countries ensure the continued flow of food, products and inputs essential for agricultural and food production to safeguard global food security and nutrition.

9. Due to COVID-19 many agricultural activities have taken a back seat. What do you think is the future of technologies like biotech and gene-editing given the current agricultural landscape?

A: Biotech and gene-editing will continue to serve an important role in agricultural development. Deeper scientific research regarding technology like CRISPR/Cas9 is still required to uncover the potential for creating plant varieties that have desirable characteristics. As the world’s population projection expands to over nine billion people by 2050, the challenge to plant scientists, farmers and the agriculture industry is not only how to meet that demand, but how to do it in an increasingly sustainable manner under changing

climatic conditions. The development of crops with increased yield potential, better nutritional value, greater drought tolerance and an increased ability to withstand the dynamics of climate change, will need to utilize all plant breeding tools, including gene editing technology and other plant breeding innovations.

https://croplife.org/wp-content/uploads/2019/12/CRP17043_CaseStudy_Lettuce_FINAL.pdf

10. Can you share with us some good practices in agriculture and its allied industries adopted by other countries during this crisis that can be implemented in India as well?

A: It is important that provincial/state governments align with national policymakers to make certain movement and lockdown exemptions for agricultural inputs are realized and effective (as is being effected in Australia and India). India has been responsive and making great strides with this, as evidenced by the Ministry of Home Affairs having issued two addendums to the restricted movement guidelines exempting the manufacture, distribution and sales of crop protection products and seeds, and a majority of state governments have also reinforced the exemption from the current lockdown.

Other countries where similar efforts are underway:

- Australia – Confirmed by the Minister of Agriculture as well as all the governments of all states and territories, the nation’s agriculture, primary production and food systems (including all agribusiness and farming input industries and their respective supply chains) have been declared essential and will continue to function without interruption.
- Philippines – Based on the Department of Agriculture’s Memorandum Circulars No 7 & 9, all healthy farmers and farm workers, fishers and agribusiness personnel are exempt from restricted movement orders (as farming and fishing activities shall be allowed to continue). Additionally, movement of all supplies used for agriculture and fisheries will remain unhampered and all agricultural supply stores/outlets nationwide must be allowed to operate.
- New Zealand – The wider national crop protection industry has been classified by government as essential businesses. This includes all facets of the supply chain and production.

11. What changes will happen in the seed and crop protection industry post COVID 19 crisis?

A: The COVID-19 crisis has highlighted the need to support farmers with digital tools to manage production using data, providing information and access to farming supplies and markets. Additionally, greater emphasis has been placed on collaboration between the public and private sectors to create more resilient food systems and flexible supply chains. Among industry players, representatives from the Asian Development Bank and Grow Asia have mentioned that they will focus on investments into policy and infrastructure for traceability technology like barcode-based systems, while the International Rice Research Institute will build a stronger portfolio of disease-resistant varieties.

There will undoubtedly be a host of learnings and opportunities in the wake of this crisis. One certainty, farmers will continue to need access to quality crop protection products and seeds to grow the nutritious food we enjoy and depend upon – and CropLife will be there to advocate for them and their access to that technology.
