Decoding agriculture in India amid COVID-19 crisis

June 2020

Agriculture in India

India has the second-largest **arable land** area in the world and a **coastline** of over **7,500 kilometres.**

Largest producer

- Milk
- Pulses
- Spices
- Tea
- Jute

Second-largest producer

- Fruits and vegetables
- Poultry
- Rice and wheat
- Fish
- Cotton

[1]Agriculture dividend

58% Source of livelihood for 58% of the country's population

44% of the country's workforce is employed in agriculture

Retail 2020

- Retail market is estimated to reach **USD 1.6 trillion by 2026,** registering a CAGR of approximately 10 %
- Share of organised retail will likely increase to **22-25%** in 2021 from 12% in 2017
- Food and grocery segment accounts for the largest share in revenue of the retail industry. By 2021, this segment is estimated to constitute **66%** of the total revenue in the Indian retail sector
- In 2020, e-commerce is estimated to reach **USD 64 billion** and is expected to grow threefold to reach **USD 200 billion** by 2027

1. India retail market and food and grocery segment (India Retailing.com), Share of organised retail (Livemint) Market size of e-commerce industry across India (Statista)

Primary ways in which the agriculture sector contributes to the Indian economy:

Contribution to national income: Agriculture in India has been witnessing a steady growth over the past few years. It was valued at INR 27.6 lakh crore, witnessing a CAGR of 7.1% between 2015 and 2019[2]. Agriculture and allied sectors' contribution to gross value added (GVA) was 17.2 percent of the GDP in 2017-18.

Source of livelihood: Agriculture is the primary source of livelihood for 58% of the population in India[3]. The sector generates employment for 44% of the countries workforce[4].

Source of food supply: Agricultural products are the major source of food supply for 1.3 billion people in the country.

Role of agriculture in industrial development: Several important industries in India, such as cotton and jute textiles, sugar manufacturing, edible oils, plantation (tea, coffee, rubber) as well as many agro-based cottage industries depend on the agricultural sector for raw materials.

Share in exports: Strategic geographic location and proximity to food-importing nations favour India in terms of export of agriculture and processed foods. Over the years, India has developed export competitiveness in certain specialised products and was the tenth-largest exporter of agricultural products in FY2018[5]. The Indian agricultural exports stood at INR 38.54 billion in FY2019[6].

2. Central Statistics Office, Ministry of Statistics and Programme Implementation, (Govt. of India)
3. IBEF
4. India distribution of the workforce across economic sectors from 2009 to 2019, (Statista)
5. Trade promotion Council of India
6. IBEF

Contents

Foreword 4

Messages from industry experts 5

Executive summary 10

Impact of COVID-19 on cropping seasons: Immediate term 13

COVID-19 impact on agricultural value chain: Short to medium term 17

Agriculture inputs 18

- Seed 19
- Fertiliser 21
- Micro-Irrigation 23
- Agro-chemicals 25
- Farm equipment 27
- Agricultural insurance 29

Farming (crops and allied activities) 31

- Food grains 32
- Oilseeds 38
- Commercial crops 40
- Horticulture 42
- Floriculture 45
- Plantation crops 46
- Poultry 48
- Fisheries/Aquaculture 50
- Dairy 52

Aggregators 54

- Warehousing 55
- Cold storage 57
- Logistics 59
- Agricultural Product Market Committee (APMC/Mandis) 60
- Public Distribution System (PDS) 62

Indian government's support to agriculture 64

Future outlook 67

Good practices and innovations witnessed in testing times 73

List of Abbreviations 76

Acknowledgements 77

Contributors 78

About FICCI 79

About Grant Thornton in India 80

Foreword

“Atmanirbhar Bharat” initiative further confirmed government’s focus on the sector, with many initiatives targeted towards improving the state of agriculture in India.

We are living in unprecedented times and uncertainty continues to surround not only India but the world. COVID-19 pandemic has led to many challenges threatening livelihoods, restricting movement of people and goods, disrupting supply chains, increasing unemployment, eroding demand, production capacities, and withering liquidity, thereby impacting the economy. While the challenges remained mostly common across the economy, the impact on each sector varied dramatically.

India’s agriculture sector, known to provide direct and indirect source of livelihood to 58% of the country’s population, also faced significant challenges, particularly in the first 45 days of the lockdown. Many of its vulnerabilities were exposed but the resilient sector emerged with some positive results at the back of a good monsoon and immediate interventions by the government to support the sector. There are still many elements of the agricultural value chain which have been disrupted and are threatening the sustainability of businesses and farm workers.

Indian agriculture sector’s contribution to the Indian economy and its existing vulnerabilities has reemphasised the need for structural reforms, adoption of technology and investments in infrastructure. The Indian government’s quick response to support the sector was demonstrated by regular reforms. “Atmanirbhar Bharat” initiative further confirmed government’s focus on the sector, with many initiatives targeted towards improving the state of agriculture in India.

Grant Thornton India LLP in collaboration with FICCI is pleased to release this report themed “Decoding agriculture in India amid COVID-19 crisis” as a guidebook for agriculture based businesses and government to identify the impact of COVID-19 crisis across the value chain of Indian agriculture and understand it’s interdependencies. This report provides several meaningful insights and recommendations for various stakeholders which will assist in planning and preparing the future roadmap for the sector in India.

We also welcome the cabinet approvals and ordinances passed by the government to amend the Essential Commodity Act and revise the APMC Act in support of the agriculture sector.

Rahul Kapur
Partner
Grant Thornton India LLP

Sonika Pruthi Gupta
Associate Director
Grant Thornton India LLP

T R Kesavan
Chairman, FICCI National Agriculture Committee & Group President, TAFE Ltd

Messages from industry experts

In a nutshell, it is not only important to survive immediate crisis, but also be sustainable in long run and build an agriculture value chain that is more resilient.

Coronavirus pandemic has lot of dark sides and mankind may have many more challenges in the days to come. Nevertheless, this also presents a great opportunity for us to rethink and start looking for the hidden potential by evaluating different dimensions of the respective sectors. The coronavirus pandemic has affected businesses with varying degree of intensity across different geographies, commodities and stages of the value chain. Industry is now reworking their current models to navigate the impacts of the COVID-19 pandemic. This will certainly require serious efforts on lines of innovation and technology upgradation.

In India, the contribution of the agriculture sector is vital for the economy. Farm sector in India employs about 800 million people directly and indirectly. To address the covid impact on agriculture, Government of India has taken number of proactive measures to safeguard the interest of the stakeholders particularly the farming community. The announcements made by Finance Minister in third tranche of economic package and subsequent Cabinet approval, will have significant impact on agriculture economy. Amending the Essential Commodity Act, allowing farmers to sell their produce outside the APMC mandi yard, and having barrier-free inter-state trade will be big game changing reforms in days to come. Provision of financing facility of INR one lakh crore for building farm gate infrastructure is a welcome move. It is suggested that this fund should be pursued in PPP mode so that maximum stakeholders can leverage the opportunity. I am glad that majority of the recommendations which have been part of FICCI's comprehensive suggestions on agriculture have been accepted by the government.

Announcements by the government for agriculture and allied sectors in wake of COVID-19 calamity are significant and will have multiplier effect on agriculture economy in days to come. However, some of the areas that still need to be reviewed include - adoption of technology at various levels of the agriculture value chain and creation of Agri Council in line with GST council for an integrated approach between centre, state and all concerned ministries. Also, it's time to rethink the expenditure in the form of subsidies and allocate them as enabler for use (rather than subsidy for capex) and transmit as direct benefit transfer to farmers.

Mr. T R Kesavan

Chairman, FICCI National Agriculture Committee & Group President, TAFE Ltd

India may benefit from this shift in supply chains, attract greater investments and emerge as hub of agro-chemical supply chain.

Agri input industry has always strived to ensure availability of good quality seeds and agro-chemicals to the farmers. Government of India has been making efforts to ensure that agriculture inputs are available to farmers well in time for the upcoming kharif cropping season. However, we are in midst of coronavirus crisis and considering the constraints of limited availability of transport and workforce, production and movement of agriculture inputs for Kharif season is not an easy task. It is, therefore, critical to work collectively to ensure timely availability of inputs to the farmers. However, it is time also to look beyond the present and plan for the future so that Indian agriculture emerges stronger post COVID-19 crisis.

The COVID-19 pandemic has disrupted the global supply chains including that of agro-chemicals. Major shifts in supply chains are being witnessed now. India may benefit from this shift in supply chains and attract greater investments to emerge as hub of agro-chemical supply chain. However, to benefit from this shift of supply chains, India would need to overhaul the current regulatory mechanism which is very cumbersome and time consuming to say the least. For instance, current regulatory regime not only delays registration of new molecules but also increases the transactional and opportunity costs of investments. In agro-chemicals, therefore, there is dire need to accelerate the process for registration of new next generation molecules which have smaller environmental footprint and are more efficacious. This would benefit Indian farmers and increase India's share in global agro-chemical supply chain. Similarly, India can become the hub of hybrid seed production for Asia Pacific region. However, reforms are needed in EXIM regime to facilitate bulk import of seeds for multiplication and subsequent export of hybrid seeds. It will increase the income of farmers engaged in seed production.

Dr. Ajai Kumar

Head, Government & Industry Affairs,
South Asia, Corteva Agriscience

There is need to bring in convergence, work together and develop innovative ways to come out stronger from COVID-19 crisis.

India has surplus agriculture produce this season; however broken supply chain due to countrywide lockdown, subsequent to COVID-19 pandemic has emerged as biggest challenge. The agriculture supply chain has been impacted in several ways. Major among these are: liquidity crunch in rural areas, non-availability of labour and transportation issues which further aggravates the problem. It is a time to analyse how agricultural supply chain will respond to such current crisis and how we see it evolve post covid. If disruption in supply chain remains and farmers are not able to get remunerative prices- this may lead to shift in cropping patterns. Achieving sustainable and efficient agriculture supply chain will require a comprehensive and integrated approach at country and state level in long run. Government, industry, and farmers will have to work in tandem for upcoming agriculture cycles. The government's stimulus package for agriculture under "Atmanirbhar Bharat" have generated positive sentiments and will provide required support to the sector to grow adapting to COVID-19 conditions.

Besides innovative financial models, one major change agent in future will be extension service providers. Effective communication strategy to help farmers in such unprecedented times is imperative and therefore effectiveness of public extension service workers will be critical. Almost half of the workforce in India still remains dependent on agriculture and therefore development in this sector has a bearing on the fate of the largest proportion of the low-income population in India. There is need to bring in convergence, work together and develop innovative ways to come out stronger from COVID-19 crisis.

Mr. Sagar Kaushik

President, Corporate & Industry Affairs

UPL Limited

In these unprecedented times, government and industry should work closely to ensure that farmers get meaningful solutions and not a single Indian goes hungry.

COVID-19 has had significant impact on agriculture value chain. However, the positive news is, Government of India has been very supportive and provided timely exemptions to mitigate the damage caused by the pandemic. The economic relief package "Aatmanirbhar Bharat Abhiyan", announced by government has major reforms on agriculture and allied sectors, which are bound to bring a notable change in the agriculture economy.

Globally, agriculture value chains are disrupted. India is progressive in its food security measures and has enough food stock surplus to feed the population. However, it's time to implement a self-sufficient production strategy with minimum imports. COVID-19 has put a dual challenge for the agriculture sector. First, to have effective strategy in place, ensure harvested food grains and perishables are not wasted and procured at a fair price. Second, to get well prepared in advance for the upcoming sowing operations of Kharif season in accordance with needs of social distancing. It's imperative to ensure that the country has efficient agri logistics infrastructure and farmers have timely availability of agriculture inputs, finance and crucial information.

COVID-19 has given a fillip to technology usage across sectors. Digitisation is emerging as a key trend in Indian agriculture and will have high relevance in post-covid era too. Currently, over 1.25 lakh panchayats have access to broadband. Government measures of allowing direct purchase from farmers and Farmer Producer Networks (FPN) without the requirement of going through APMC and encouraging online buying through the e-Nam portals and private e-mandis like agri-bazaar is a positive move. Agribazaar, is an agri-tech platform which is intended to facilitate transactions of agricultural produce marketing. Besides facilitating transactions, the platform offers services like selling seeds, providing farm -intelligence and financial services to farmers via AI based intelligence systems built through satellite images.

We at Agribazaar are also at the forefront of helping the farmers connect with buyers digitally, while adhering to social distancing norms – 'Do gaaj doori ka' as mentioned by Prime Minister.

In these unprecedented times, government and industry should work closely to ensure that farmers get meaningful solutions and not a single Indian goes hungry. Also, COVID-19 is a big opportunity to realise the potential of digitisation to improve the agriculture system in the country.

Mr. Amit Mundawala

Executive Director

Star Agriwarehousing and Collateral Management Ltd.

The support extended by Government of India in third tranche of economic package laid a special focus on livestock sector.

The impact of COVID-19 on economy is serious. Many sectors are impacted due to it and agriculture and allied sector is no exception. Issues such as inability to get labour, difficulty to access markets due to transportation issues have impacted the sector profoundly. However, Government of India has responded aggressively to such challenges and should be applauded for their timely action. The support extended by Government of India in third tranche of economic package laid a special focus on livestock sector. Special attention given to creation of Animal Husbandry Infrastructure Development Fund and National Animal Disease Control Programme for Foot and Mouth Disease (FMD) and Brucellosis in economy package is praiseworthy.

India has developed export competitiveness in certain products and meat export is one of them. There is a risk of other countries capturing India's export market if we do not build resilient supply chain. For instance, Indian meat export industry is around USD 4 billion which has a potential to reach USD 6 billion, given the fact that India has the highest cattle population in the world. Brazil has just one third of the cattle population compared to India yet has an export industry worth around USD 7.5 billion. This signifies that Indian meat sector which is deeply linked to Indian rural economy and contributes significantly in farmer's income, has immense potential to become a leader in the world market.

Mr. Gulzeb Ahmed

Director

HMA Group

Executive summary

The World Health Organization (WHO) declared COVID-19 as a pandemic in January 2020; the virus has now spread to more than 190 countries. According to the International Monetary Fund (IMF), the global economy is expected to shrink by over 3% in 2020. The unprecedented rise in infections led to a nationwide lockdown, which has affected the country both economically and socially.

Agriculture continues to be prominent sector for the Indian economy as it is the primary source of livelihood for over 58% of the nation's population and generates employment for 44% of the workforce. The sector contributes approximately 17.2% to India's GDP and witnessed a steady CAGR of 2.1% between 2014 and 2018. During the same period, the value of agriculture and allied activities rose to INR 27.56 lakh crore in FY2019 from INR 20.93 lakh crore in FY2015[7]. Over the years, the share of allocation in the Union Budget has also considerably increased. In 2018, India was the ninth-largest exporter of agricultural products and stood at INR 3.5 lakh crore, constituting approximately 2.7% of the total exports from India.

Impact of the lockdown on the Indian agriculture sector has been complex and varied across diverse segments that constitute the agricultural value chain. Several activities across the agriculture value chain have been the most hit. Acute shortage of labour, reverse migration, harvest, transportation and logistics and exports were some of the unforeseen challenges that the stakeholders across the value chain witnessed.

Ironically, the onset of the pandemic coincided with the Rabi harvest and Kharif crop sowing season and is estimated to affect 140 million farmer households across the country. The lockdown delayed harvest of the Rabi crop due to non-availability of labour, machinery (harvesters, threshers, tractors, etc.) and transport, as well as restrictions on movement. Despite favourable winter conditions and above-normal output, the sudden disruption in supply chain resulted in losses on account of damaged crop and low profitability. Furthermore, the outcome of the Rabi season will have a significant impact on the liquidity and working capital requirements of farmers, which in turn may disrupt sowing plans for the upcoming Kharif season.

The Indian government has recognised the setback faced by the agricultural community, among others, and introduced a stimulus of INR 1.7 lakh crore, mostly to protect vulnerable sections from any adverse impacts of the pandemic. The benefit includes advance release of INR 2,000 directly to the bank accounts of farmers under PM-KISAN scheme.

However, despite relaxations, waivers and financial support given by the government at each phase of the lockdown, the agricultural community has faced several challenges.

- According to a livelihood survey carried out by the Azim Premji University between April 13 and May 9, nearly 90% of the farmers were unable to harvest/sell produce or have sold it at reduced prices.
- India's unemployment rate soared close to 27%[8] for the week ending 3 May 2020. The uncertainty translated into a loss in confidence amongst outstation labourers, who are the primary farm workers.
- Supply chain bottlenecks resulted in a dip in farm prices of a range of commodities such as tomato, grapes, wheat, other fruits and vegetables, broiler chicken and eggs.
- The seed industry witnessed a 15-20% drop[9] in sales due to disruptions in supply chain. Restrictions in movement disrupted the flow of seeds from production fields to factories, especially in the case of maize and cotton. Initial estimates suggest that 30% of the cotton and maize hybrid seeds replacement market is lost for the current Kharif season.
- The micro-irrigation sector is heavily dependent on Pradhan Mantri Krishi Sinchayee Yojana (PMKSY). In the absence of an annual PMKSY action plan, there is a significant uncertainty and the industry is expected to shrink by 50% in the short term. Installation of micro-irrigation equipment is expected to decrease by 40% in the current Kharif season.
- In the agro-chemical industry, many players are import dependent and have witnessed constrained availability of raw material, technical support and import of finished products.
- Acute shortage of labour could have led to adoption of mechanisation tools and equipment. However, with dealers shut and limited financing alternatives, the situation has only worsened. As a result, the overall farm equipment industry is forecasted to de-grow 10%.

7. Central Statistics Office, Ministry of Statistics and Programme Implementation, Govt. of India
8. Centre for Monitoring Indian Economy (CMIE)
9. Primary interviews with industry experts and GT analysis

- Unseasonal rainfall and hailstorm in northern parts of India, combined with the lockdown, have adversely affected the yield and delayed (for most crops other than wheat) the yield estimation for agri- insurance companies. This has resulted in an increase in agri-claims and delay in payouts.
- Due to high government procurement, wheat stocks are likely to go further up. This not only casts a huge burden of carrying stocks but also leads to a negative trading interest and a subdued market environment. It may lead to government becoming the only buyer of wheat from farmers.
- Rice crop in India this year is estimated to be the biggest harvest in the last five years and despite global lockdown, demand for rice continues to rise. However, exports of rice were disrupted due to the initial 21-day lockdown in March and April 2020.
- About 80% of the production of maize is used by the animal feed market. The depressed demand for animal feed and poultry sectors led to a sharp fall in maize prices.
- Perishable food items, such as fruits and vegetables, were severely affected. Pile up of harvested or un-harvested perishables has led losses, which were expected to swell to INR 40,000-50,000 crore[10] by the end of lockdown. Reduced supplies to mandis resulted in wholesale rates falling while retail prices are on the higher side.
- Flower farmers were one of the worse affected. With March and April being the peak season for flowers and people confined to homes, the demand plummeted leading to complete loss of produce.
- The poultry industry has also witnessed an acute decline, as the production capacity eroded due to lack of demand, insufficient working capital, lack of manpower and closure of shops. Farmers were forced to destroy more than 50 crore birds[11] as there was no money to feed them.
- Dairy industry had to deal with operational challenges such as transportation of material, procurement of milk and commute of workers. This led to severe duress for farmers, as thousands of litres of milk was wasted in various parts of the country.
- With retail disruption, aggregators started storing produce at warehouses. High carry over stocks from last year's harvest, coupled with a bumper 2020 Rabi harvest, the government warehouses were stressed as they were overstocked. On the other hand, the uncertainty has reduced the inventories of private players. With goods only moving out of the warehouses, the industry is bearing the burden of operating and maintaining underutilised capacities.
- Similarly, with uncertainty related to reaching cold storage facilities, many farmers opted to sell their produce at lower prices. This resulted in cold storage facilities being highly under-utilised.
- India's exports were largely affected as the two biggest export markets, the European Union and United States were under lockdown. Moreover, for the next six months' farmers and export-based companies will continue being affected.

As part of the fight against COVID-19, the Government of India announced the **Atmanirbhar Bharat Abhiyan** (self-reliant India initiative), aimed at seizing all possible opportunities to "revive and reboot" the economy. The third tranche of the government announcements were focused on the agriculture sector. The 11 measures announced favouring agricultural and allied activities include strengthening infrastructure, logistics, governance and administrative reforms. The prime minister highlighted the ability to turn this crisis into an opportunity for the country by 'going vocal for local'- reinventing the domestic agriculture supply chain to meet local as well as global demand.

Some requirements of the industry have been addressed in the financial stimulus package:

- The proposed amendment in the Essential Commodities Act and revision of the APMC law will enable farmers to get the best price for their produce, be it local, national, or global markets.
- The INR 1 lakh crore agro infrastructure fund will help in strengthening farm gate infrastructure for farmers and benefit both supply and demand.
- The provision of INR 50,000 crore for animal husbandry and fishery will enhance the scope for alternate income avenues for rural population.
- The INR 10,000 crore scheme for the formalisation of micro food enterprises (MFE) and the cluster-based approach will help in building capacity at regional levels and better supply chain integration.
- Extension of Operation Green to all fruits and vegetables will enable farmers to diversify their produce and add much needed quicker cash generation, which comes with shorter sales cycles of fruits and vegetables.
- Several additional and emergency working capital funding schemes have been announced to improve the liquidity with the farmers.

10. Financial Express article dated 13th April, 2020
11. Primary interviews with industry experts and GT analysis

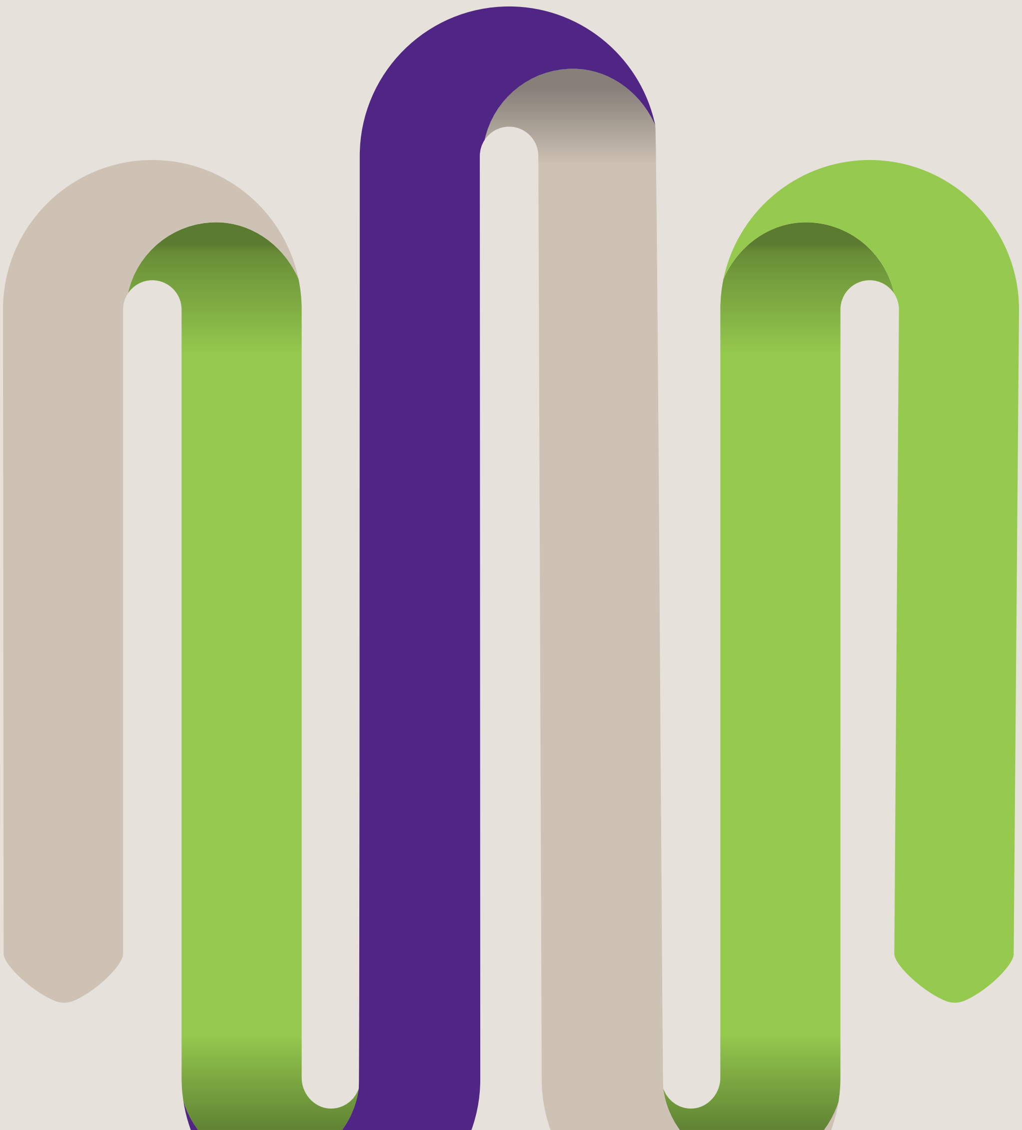
While many essential areas have been taken into consideration by the government as long-term initiatives to make India a global powerhouse in agriculture and for farmers' income to rise in sync with the rest of the economy, a few additional areas of significance are listed below:

- Creation of an agri council on lines of the GST council to enable coordination and enforcement between centre, state and other ministries.
- The future agri supply chains need to have integration of market intelligence with demand estimation. To achieve this, integrating Internet of Things (IoT), geospatial mapping and cloud computing must be explored.
- Advance data analytics and network mapping to monitor produce flow and identify gaps is a necessary for information on risks in supply chain. This will also be valuable while devising suitable strategies to curb post-production losses.
- Larger allocation should be made in technology, farm mechanisation and research and development to ensure increased productivity and improved quality at global levels.
- To improve the efficiency for agri input subsidies given by the government to the farmers, all the agri-input cost should be calculated on the basis of one hectare and farmers should be given DBT as soon as the requirement arises.
- Government needs to develop more custom hiring centres (CHCs) to enabled small and marginal farmers adopt use of machinery in farming activities at reasonable prices.
- India should prioritise the export of value added agri food products. A step in this direction includes promoting India's food processing industry globally. The government can offer a 20% export incentive under the Remission of Duties or Taxes on Export Products (RoDTEP) scheme for the food processing industry.
- Government should start purchasing milk powder and butter at remunerative prices and distribute it further under mid-day meals and other PDS schemes to manage the excess capacity generated by the diary sector and also increase the level of nutrition to its citizens.
- The COVID-19 pandemic is likely to have a lasting impact on global supply chains for all chemical products, including agro-chemical products. India may benefit in the long run by way of leveraging this shift and attracting greater investments and emerge stronger. There is dire need to accelerate the process of registration of new molecules.
- One option is to use clause 9(3) of the Insecticide Act to provide ad hoc/provisional approvals for new molecules. Alternatively, new molecules, which are in the regulatory pipeline for scrutiny for more than two years, should be given an emergency one-time approval.

This report provides thought-provoking recommendations and suggestions for stakeholders within the agricultural value chain to consider, evaluate and adopt.

Impact of COVID-19 on cropping seasons: Immediate term

Crop cycle in India has two main seasons -
Rabi (October to March) and Kharif (June to September).
The lockdown driven by the pandemic has severely impacted both the cycles.



Rabi season

The Rabi season crops, such as wheat, gram, lentil and mustard (including paddy in irrigated tracts), were affected just before harvest. This is also the time when the harvest reaches mandis (market yards) for assured procurement by designated government agencies. This is also the time for harvesting of plantation crops such as pepper, coffee and banana. Post the harvest season, the farmer and the rural population witness an increase in disposable income which is crucial for the economy. Listed below are some of the challenges pertaining to the Rabi season:

- A range of crops affected by the lack of timely harvest and then marketing included wheat, grapes, watermelons, bananas, muskmelon, chana, cotton, chillies, turmeric, cumin, coriander, onion and potato. According to Grant Thornton in India's analysis, the first lockdown 1.0 further led to:
  - Disruptions in the procurement of food grains by government agencies
  - Disruptions in the collection of harvests from the farms by private traders
  - Shortage of workers to harvest the Rabi crop
  - Shortage of drivers to transport produce
  - Blockades in the movement of agricultural commodities across highways
  - Closure or limited operations of APMC mandis
  - Shutdowns of retail agricultural markets
- These bottlenecks have led to a fall in the farm prices of a range of commodities in agriculture. Below are a few examples observed during the 21-day lockdown.
  - Farmers in Maharashtra witnessed drastic decline in tomato prices (lowest price of INR 2 per kg)
  - Decrease in demand for sawan grapes led to loss of INR 1000 crore[12]
  - For many other crops, prices were below the minimum support price
  - In Delhi's livestock market, the price of broiler chicken fell from INR 55 per kg in January 2020 to INR 24 per kg in March 2020[13]
  - Tamil Nadu experienced a fall in price for eggs from INR 4 per egg to INR 1.95 per egg
- Due to insufficient farm labour, harvesting was delayed
- Disruption in supply chain lead to scarcity of agricultural produce across the country

Current Kharif season

As mentioned earlier, the delay in the Rabi harvest has led to a cash crunch, which will impact the farmers' ability to sow the Kharif crop.

With the closure of factories in urban and rural India during the lockdown, manufacturing of all agricultural inputs also took a hit. Farmers are facing issues with timely availability of seeds, fertilisers, pesticides, machinery, and credit on easy terms. Manufacturers are struggling to facilitate supply despite the demand.

To ensure smooth supply and successful sowing of the upcoming Kharif season, manufacturers and the government need to make available agricultural inputs, such as seeds, fertilisers, micronutrients, pesticides, machinery and credit to the farmers.

12. The COVID-19 Pandemic and Indian Agriculture: A Note by M S Swaminathan research foundation
13. Primary interviews with industry experts and GT analysis

Two key challenges affecting agriculture value chain

The lockdown resulted in disruptions across the value chain. However, two broad challenges permeate across the agriculture supply chain and have impacted the majority of processes and activities

1. Labour scarcity

The pandemic and consequent nationwide lockdown resulted in a mass exodus of migrant labour. Scarcity of farm labour has posed significant challenges. Presented below are some of the issues faced and our recommendations to overcome these issues:

Challenges

- Initial restriction on labour movement imposed by the government thwarted the Rabi harvesting and procurement process.
- Northern states, such as Punjab and Haryana, rely mainly on migrant labour from East India to harvest winter sown staple food grains.
- The resulting loss in produce has impacted liquidity and working capital requirements amongst farmers, which will further impede their Kharif sowing plans.
- Reverse migration of labour to their hometowns prior to the nationwide lockdown has created operational capacity shortages most milk processing plants, cold storage units and warehouses.
- The Jute industry suffered during the initial period of the lockdown. Labour scarcity further hindered the preparation of land and sowing of jute crop.
- Manufacturing plants catering to the irrigation industry have been operating at 30% capacity.
- Use of mechanised equipment was impacted due restrictions in free movement due to lockdown. Further, shortage of drivers/ operators for harvesters was reported from some regions. Machine repair shops were also closed, and mechanics were unavailable.
- Reverse migration has led to surplus labour in Bihar, Jharkhand, Chhattisgarh and Uttar Pradesh.

Recommendations

- Holders of all MGNREGS job cards should be provided an unemployment allowance or assistance.
- District Authorities should prioritise and enable farm level deployment of labour given the criticality of cropping season.
- Agriculture provides a short-term option to engage the returned labourers. Labour-intensive sectors, such as livestock, fisheries and food processing, can be further developed.
- State governments should formulate a taskforce to promote adoption of farm machinery, direct seeding technology and crop diversification as labour scarcity will impact the sowing of Kharif crops such as paddy.

2. Exports

European Union and United States are top importers of agricultural produce from India. Lockdowns in these markets have severely impacted India's exports. This slowdown is expected to last through the year.

Challenges

- Exporters faced delays in clearances of containers, which attracted increase in demurrage and container freight station charges.
- About 400,000 tonnes of non-basmati rice and 100,000 tonnes of basmati rice meant for export in March 2020 and April 2020 were stuck in the supply chain[14]. There is a risk of other countries capturing India's export market share if the lockdown continues to hamper exports.
- The months of March to May are the peak season for export of grapes to European nations. Lockdown has delayed the export of this perishable fruit, which is subjected to stringent quality control at the port of import
- Transportation and logistics combined with significant backlog at ports and airports have impacted exports.
- Customs clearance has recently been included in special exempted category. However, ground-level implementation and process continues to be slow.
- Despite government's effort to ease custom clearances, shortage of packing material and containers has impacted exports.
- Many ports were not able to operate during the lockdown due to limited number of vessels.

Recommendations

Medium-term recommendations (up to six months)

- As non-essential shipments have clogged ports and airports, agricultural produce for exports should be given priority.
- Charges against delays in clearances of import containers should be waived. Additionally, relaxations to submit export-related documents would ease the pressure.
- Air freight charges should be regulated as rising costs are discouraging the exporters to ship their produce.
- Banks should prioritise credit and provide special cash credit funding for imports related to exports.

Long-term recommendations

- Government buffer stocks are more than double the prescribed norms. The cost and risk of carrying additional stocks are high. The government needs to rethink agri export policy to leverage the present situation. This will also help in minimising the economic losses resulting from the current COVID-19 situation.
- Exports of commodities with surplus production can improve farm prices. Additionally, an impetus to increase the exports of processed food through policy intervention and infrastructure support will be useful.
- Development of export-supportive infrastructure and logistics with the support of the private sector.
- Certain measures by other countries make Indian goods less competitive. China has increased its export refund facility by 2%, which can be considered by India through an additional duty drawback of at least 3% for the next six months.

14. Reuters and Economic Times article dated 26th March, 2020

COVID-19 impact on agricultural value chain: Short to medium term

India's agricultural value chain is presented below. The effects and magnitude of the disruption on account of COVID-19 varies across the sector. In this section, we have mapped and assessed the challenges faced by different sub-sectors, bringing forth the vulnerabilities in the supply chains and gathered key risk mitigation recommendations. This report primarily deals with the pre-harvest agricultural activities and stakeholders.

- Seeds
- Fertilisers
- Crop protection
- Farm Equipment
- Irrigation
- Agriculture insurance

- Wholesalers (mandis)/aggregators
- Distributors
- Warehousing
- Logistics
- Cold storage

- Small stores
- Mega malls
- Unorganised
- Retail stores
- Vendors
- HoReCa (Hotels, restaurants and cafés)

- Farming
  - Food grains
  - Horticulture
  - Commercial crop
  - Oilseeds
- Poultry and livestock
- Dairy
- Fisheries and aquaculture

- Organic food
- Cold storage
- Food processing
- Logistics

Pre-harvest

Post-harvest

Agriculture inputs

Seed

15-20%

The seed industry witnessed 15-20% drop in sales during the lockdown.

30%

of the cotton and maize hybrid seed replacement market is lost for the Kharif season.

The seed sector is worth INR 28,700 crore[15], of which

20% Cotton

30% Vegetables

15% Maize

The nationwide lockdown can have severe implications on farmers as they prepare their fields for the upcoming Kharif season:

- Social distancing and limited logistics have constrained the execution of contracts with small and marginal farmers who grow specific hybrid seeds
- Factories are facing severe shortage of workers
- Small and marginal farmers, as well as those not represented by Farmer Producer Organisation (FPOs) in remote districts of the country are facing delays in seed supply due to constrained logistics and reluctance of transport sector to ply over long distances
- Disruptions in courier facility operations impacted the movement of vegetable seeds to markets during the lockdown. However, railways helped in cotton seed movement to the northern states of the country

15. Industry reports

Challenges

- Lockdown restrictions impacted the movement of seeds from production fields to factories. In case of maize, the delay in transporting corn cob led to considerable drop in quality and is likely to have an adverse impact on the quality of hybrid maize seed.
- Hybrid cotton seed movement to north Indian markets that usually start in April is delayed. This is likely to threaten the cotton acreages in Punjab, Haryana and Rajasthan.
- According to the Seeds Act, manufacturers must provide labels with specifications in each seed bag. As printing services and factories do not qualify as essential services and were not allowed to operate during the lockdown, seeds bags could be sold with printed labels in compliance with government requirements.
- With restricted operations of ports, air freight and testing labs, import of high-quality vegetable seeds has been significantly impacted, forcing farmers to opt for low quality seeds.
- Companies were also unable to move stock from one retail shop to another to cater to demand promptly.
  - This is resulting in slower liquidation of inventory and further addition of working capital pressure.
  - Limitations on movement of sales and marketing teams is impacting both sales and collections of receivables.

Recommendations

Medium-term recommendations (up to six months)

- Empowering FPOs to play a larger role can solve many issues as they play a crucial role in acting as an aggregator of farm seeds to be processed further and buy in bulk directly from the manufacturer. This can also help with local mobility ensuring social distancing.

Long-term recommendations

- Most of the seed is produced in India, except for some vegetable seeds (cabbage, cauliflower and cucurbits), which come from temperate countries. Thus, India has the potential to be developed as a major seed export hub.
- Incentivise companies to further invest in research and development of more resilient and efficient seed varieties.
- Bulk hybrid seed imports should be allowed for export purposes to aid in increase of farmer income.

Outlook

Farmers usually depend on experience and profitability while planning for the next year crop. Uncertainty prevails with respect to the choice of crops the farmers will opt for. This is likely to impact the market share of seeds especially in the fruits and vegetables segment.

Fertiliser

Record fertiliser sales

witnessed during COVID-19 lockdown.

50-70%

The fertiliser industry operated at 50-70% of its capacity during the 45-day lockdown period.

Fertiliser manufacturers are facing challenges from labour scarcity and limited operating capacity. A dearth of truck drivers due to the overarching fear of contracting COVID-19 is disrupting transportation from manufacturers and shortage of labour at plants is impacting production capacity. Subsequently, manufacturers have been able to achieve only 50-70% of their operating capacity.

- Scarcity of labour is a challenge for the smooth functioning of the fertiliser factories involving hazardous chemicals as it requires safety measures that require sufficient labour. This makes it difficult for factories to run effectively.
- The rake movement followed by the fertiliser sector is experiencing delays due to labour scarcity.
- Other related industries, such as bag and thread producers, which are essential to the fertiliser sector, have been granted permission to operate at a 20-30% capacity.
- Manufacturers are focusing production on fertilisers demanded during the early stages of the Kharif season, as farmers are prioritising sowing of certain crops.
- The on-ground realities are still restricting seamless flow of goods such as fertilisers. Many companies have stock stuck in warehouses since the beginning of the lockdown.
- Certain pockets of the country witnessed a temporary shortage of urea.
- Fertiliser dealers purchased 1.6 million tonnes of crop nutrients during April, which is a 46% increase compared with the same period last year, according to the Department of Fertiliser.
- POS sale of fertilisers to farmers also increased by 32%, comparison with last year.
- Cost of imported fertilisers, such as urea, has seen price inflation due to an increase in exchange rate and higher freight costs.

However, farmers are able to buy fertilisers at affordable prices under the Department of Fertiliser's initiative to subsidise prices by 30-70%.

Challenges

- Shortage of packaging bags at the plant is affecting the movement of fertilisers, leading to pile up at the storage silos.
- Given the low-income levels and cash crunch, farmers will be price sensitive to use speciality fertiliser, which may lead to reduced yield and low-quality produce.
- Increased cost of imported fertilisers due to the current exchange rate and higher costs of freight such as urea.
- Specialised fertiliser movement is focused on transportation hubs. Most depots are situated in zones that are still under containment or wherein transportation movement is restricted.

Recommendations

Medium-term recommendations (up to six months)

- Government could facilitate release of payments owed to fertiliser companies under the subsidy policy.
- Government could facilitate cheaper working capital loans especially for the MSME.

Long-term recommendations

- Companies may consider increasing the silos capacity (specially designed industrial storage).
- To ensure subsidies reach directly to the beneficiaries, government may consider strengthening PM KISAN and all input costs be calculated on the basis of per hectare (increase from the current INR 6000). Farmers can be given DBT just before it is required to procure necessary agri-inputs. This will ensure that all inputs will be sold at reasonable cost by the manufacturers and suppliers and will bring back normal commercial and economic operations faster.

Outlook

Due to labour scarcity resulting from the lockdown, farmers are opting for greater mechanisation in their processes. This includes greater demand for irrigation equipment, which in turn will increase the demand for water soluble fertiliser in the coming Kharif season.

Barring the short-term dip in production, supply and purchasing capacity of the farmer due to liquidity constraints, the fertiliser sector is optimistic and expects demand to grow by the winter season cropping cycle. A favourable monsoon forecast ahead of Kharif season will also support the demand for agriculture inputs.

Micro-irrigation

The sector is expected to

Shrink by 50%

in the short term due to the absence of an annual action plan of PMKSY.

Installation of micro-irrigation system to reduce by

More than 40%

in the current Kharif season.

- The first quarter from April to June is the peak season for the irrigation sector.
- The sector is heavily dependent on PMKSY. In the absence of an annual action plan of PMKSY, there is uncertainty and the industry is expected to shrink by 50% in the short term.
- After the relaxations offered by the government, irrigation manufacturers have commenced businesses. However, due to liquidity crunch and transportation challenges, they were under serious pressure for timely delivery of machines and installation of micro-irrigation systems.

Challenges

- Despite the relaxations offered by the government for the sector, most of the companies were unable to start production during the lockdown. The remaining companies were operating at 50-70% capacity due to shortage of labour.
- Low attendance at government offices delayed the release of work orders/approvals for subsidies and disbursements.
- State governments will find it difficult to fulfil demand of farmers to get irrigation equipment due to insufficient stock in the warehouses.

Recommendations

Medium-term recommendations (up to six months)

- Release of state-wise allocation of Annual Action Plan (AAP) for FY 2020-21 and first instalment for the AAP for FY 2020-21. Given the critical need of farmers for Kharif sowing, the state-wise allocation of the budget and release of first instalment may be prioritised to enable the states to provide the benefits to farmers without any further delay.
- Overdue outstanding of over 200 days from various state governments is about INR 3,000 crore. Due to this all micro-irrigation companies (most of them being MSMEs) are reeling under tremendous cash flow pressure and some of them are on the verge of closure. Thus, the Agriculture Ministry may consider making these payments at the earliest to save and bail out the industry.
- Farmers could be provided with the necessary and quick credit required to purchase micro-irrigation equipment on priority. The government may also facilitate transport of equipment to farms to avoid delays.

Long-term recommendations

- The process of subsidy can be digitalised and strengthened for swift processing of payment files, releasing work orders and an absolute time-bound process for approval and disbursement of funds.

Outlook

An immediate surge in demand to be witnessed, as the first quarter from April to June accounts for almost 40% of total area covered under micro-irrigation. However, going forward, the demand post Kharif sowing season is expected to remain low. The states and farmers will focus on core input for survival over yield increase. Farmers may consider working without micro-irrigation as it increases the efficiency and reduces the overall labour requirement but is expensive.

Agro-chemicals

Liquidity constraints

to lessen competition from the unorganised sectors.

- Availability will be constrained in the sector as many players are import dependent for raw materials, technical support and finished products.
- Proprietor molecules, which are largely imported, have been affected by the spread of coronavirus in China since January 2020. Imports from China have been limited and inventory stocks are either depleted or diminishing fast.
- Local formulators who depend on large players and traders for generic inputs are also suffering due to limited stock availability and prevailing uncertainty.
- Shortage of raw material and labour are the main reasons resulting in plants not being able to run at full capacity.
- Cost of production is escalating due to shortage in supply of labour and transportation.
- Demand is expected to stay strong on account of positive monsoon forecast.
- Unprecedented rainfall in central India, coupled with excess buffer stock at government warehouses, has led to an increase in demand for fumigation and pesticide services.
- Farmer outreach through digital means will continue to remain an important medium.

Challenges

- Global supplies are disrupted. Although when import of goods from China resume, additional lead time will be required to supply product effectively.
  - There is a 60-day lead time from issue of the purchase order to the time the product is available in retail stores during the normal course of business.
  - Port clearance delays have further added to the lead time and has led to production planning being out of rhythm.
- The sector is facing stretched working capital as the entire value chain, starting from the farmer, is facing liquidity problems.
- Although agro-chemicals have been categorised as essential commodities, ancillary industries were not.
  - Supply chain disruptions to continue on account of ancillary industries such as packing and labelling.
- Customer outreach will continue to be a major challenge due to restrictions on movement, coupled with reduced budgets available for marketing initiatives.
  - Both of the above will threaten customer loyalty and retention.

Recommendations

Medium-term recommendations (up to six months)

- Government may consider focusing on expediting the completion of the Rabi season harvest procurement to infuse some liquidity amongst farmers.
- Pest control and fumigation services at warehouses are required for thwarting the spread of the coronavirus pandemic and keeping agriculture commodities free of infestation during storage. The government can issue guidelines explicitly enlisting pest control and fumigation services as essential services and exempting pest control personnel from any future lockdown restrictions.
- Manufacturing and distribution of fumigation equipment must adhere to government standard operating procedures (SOPs). Factories must maintain social distancing guidelines and ensure workers' hygiene and sanitary requirements.
- The industry may come together and use available transportation to ensure products reach across the country. Sharing transportation will also bring down costs and lead to efficient utilisation of resources.
- Government needs to support the industry in developing an efficient credit policy capturing all channels present. Credit relief to be given to all stakeholders and thereby understanding the impact across the value chain is essential for design. Credit policy designed to sustain the sector should ensure movement of cash across the value chain.
- Government to explore the possibility of airlifting imported raw material with low inventory levels. For this, the government can facilitate negotiating an affordable price with the air freight carriers.
- Companies need to collaborate and come together using digital platforms to connect with farmers and ensure that continuous support is provided at the farm level.
- Industry bodies can play a leading role in bringing resources and technologies for the larger benefit of the sector.
- The agricultural inputs industry to adopt the e-commerce model for selling.

Long-term recommendations

- With global supplies disrupted and India being the fourth largest manufacturer of agro-chemicals, the nation can play a pivotal role in the global value chain.
- The government can significantly reduce the time required for regulatory compliances by introducing fast-track regulatory regimes. A similar approach could be followed for the fertiliser sector with respect to monitoring production, distribution and movement of the other agricultural inputs amid COVID-19.
- Given the significant backlog to register new molecules, the Registration Committee may consider the following to accelerate the registration process by:
  - Using clause 9(3) of the Insecticide Act to provide ad hoc/provisional approvals for new molecules
  - New molecules which are in the regulatory pipeline for scrutiny for more than two years may be approved on an emergency basis

Outlook

First and second quarters will witness product shortages, especially in the case of herbicides, which have a limited window for sale. However, the industry is optimistic that conditions would improve and stabilise to cater to the mid-Kharif season demands.

Limited supply and escalating cost with stable demand will lead to price volatility in the short term, mainly affecting the early sowing in the Kharif season. The sector believes that the new normal will demonstrate higher levels of mechanisation at the farmer level and increased use of digital technology across the value chain.

In the case of proprietary molecules, companies will dictate the credit terms in the markets and for generic formulation the dealers will hold the bargaining power with respect to credit terms.

Competition from small and medium players, especially belonging to the unorganised sectors will lessen as liquidity will be the main driver determining market share for the next one to two years.

Farm equipment

10%

The farm equipment industry is forecasted to de-grow by 10% during the year[16]

- The farm equipment industry was valued at INR 43,245 crore in FY2020. Whereas, tractor contributions were over 90% (INR 38,995 crore) of the industry[16].
- Due to the present crisis, the world's biggest market for farm equipment is in disarray. Due to the acute shortage of labour in this peak season, a large number of farmers are looking for mechanisation as an alternative. With tractor dealers shut and banks and financial institutions offering limited services, situation has worsened as 95% of tractors in India are bought on credit. Furthermore, with no renting or buying of farm equipment, farmers are facing severe challenges.
- With relaxed guidelines, the government has exempted agri-machinery and spares from the lockdown.

16. Primary interviews with industry experts and GT analysis

Challenges

- There is an ambiguity on the definition of farm machinery that has led to complications in the movement of goods at the state level.
- Around 95% of the tractors in India are bought on credit, with restricted banking and financial service, farmers are unable to buy or rent a new tractor.
- An acute shortage of labour is prompting farmers to take to mechanisation. However, owing to the equipment dealers being shut, farmers are unable to make the shift.
- Reduction in imports from China have significantly impacted the availability of handheld tools and spare parts in the country.

Recommendations

Medium-term recommendations (up to six months)

- To obviate the immediate concerns of scarcity of farm labour, policies must facilitate easy availability of machinery through state entities, farmer producer organisations (FPOs) and custom hiring centres (CHCs) with suitable incentives.
- Banks should start lending for tractors and dealers should be permitted to open outlets and service centres at ground level, enabling large number of farmers to adopt mechanisation.

Long-term recommendations

- Time sharing of farm equipment is required. The government may introduce lucrative rental model for farm equipment, considering purchasing capacity is going to be limited for farmers.
- Instead of giving subsidies to the farmers on tractors and implements, the amount should be used to reimburse the actual cost per hectare of equipment rental through direct benefit transfer (DBT). This will encourage farm mechanisation.
- Equipment rental should be covered under Kisan Credit Card Scheme to encourage farm mechanisation.
- Agricultural tractors and equipment should be tested for safety and regulatory compliance only and the current cumbersome and multiple testing requirements by different ministries should be done away with.
- The government should consider removing tendering by only L1 criteria to help bring new and better technologies to the farmers.

Outlook

Increasing farmer income and agricultural yield depends on the adoption of new technology in farming and increase in the speed at which farms are mechanised. The current dependency on manpower in farms is significantly high.

In the short term, the overall farm equipment industry is forecasted to de-grow by 10%. Tractor market is estimated to drop in sale volumes by about 1 to 1.2 lakh tractors. Dealer level prices, which increase by 8-10% annually, are likely to be reduced by around 5%. Private financers are reluctant to give loans for new tractor purchases[17].

Contract farming is, however, set to grow resulting in growth in sales of harvesters, threshers and paddy special tractors.

17. Primary interviews with industry experts and GT analysis

Agricultural insurance

20%

Farmer claims have increased by 20% on account of losses due to the COVID-19 lockdown.

- Agricultural insurance penetration in India remains marginal at around 20-30%[18].

Challenges

- Unseasonal rainfall and hailstorm in North India (Rajasthan, Haryana, Punjab and Uttar Pradesh) and lockdown affected the yield and delayed the yield estimation process. Thus, resulting in an increase in claims.

- Farmers are asking insurance companies to pay out for damages due to delays caused. Insurance companies, however, with delayed ground assessment are unable to fairly evaluate the damages. Thus, resulting in 10-20% increase in pay outs.

Recommendations

Medium-term recommendations (up to six months)

- There should be an immediate expansion of the Pradhan Mantri Fasal Bima Yojana (PMFBY) to ensure compensation payments to farmers affected by the COVID-19 pandemic.
- Government should consider intervening to offer an amicable and practical solution between insurance companies and farmers.
- Government should make it mandatory for farmers to utilise insurance payout for only agricultural inputs and activities. This will assist in bringing back cash into the system.

Long-term recommendations

- Agricultural insurance should be encouraged and farmers who have received a payout should compulsorily renew their insurance. However, the government has made the scheme optional.
- Government should mandate FPOs to encourage farmers to buy insurance.
- Government should extend agricultural insurance cover through NBFCs and increase penetration.

18. Primary interviews with industry experts and GT analysis

Outlook

With significant uncertainty in the yield and harvest due the unpredictable rainfall and ongoing crisis, the agriculture sector continues to operate at high risk. Going forward, the government should increase awareness and make FPOs and NBFCs responsible for encouraging farmers to buy agricultural insurance.

In the future, post-harvest yield assessment should be classified as an essential agriculture service. This will ensure farmers get paid timely and insurance companies do not incur additional losses due to delays in field estimations.

Farming
(crops and allied activities)

Food grains

MSP of wheat for 2020-21 increased by

4.61% to INR 1,925 per quintal

but is still at its lowest in the last five years.

Despite a bumper wheat crop, farmers' profitability is impacted.

Wheat

Wheat is largely grown in Punjab, Haryana, Madhya Pradesh, Uttar Pradesh and Rajasthan in the Rabi season. Yield from Punjab and Haryana constitutes 70% of the total central wheat pool[19].

Despite bumper wheat crop, delayed harvesting and increased labour costs, with ill effects of adverse weather, led to low realisations by farmers.

Punjab and Haryana are expected to procure 135 LMT and 90 LMT of wheat, respectively. This is higher than 2019-20 when Punjab and Haryana contributed 129.12 LMT and 93.2 LMT and 2018-19 when the two states contributed 126.92 and 87.84 LMT, respectively.[20]

Punjab government has managed to procure nearly 98% of the total wheat from mandis despite challenges posed by the lockdown. This procurement constitutes 65% of its estimated procurement target.

Although the government increased the MSP of wheat for 2020-21 Rabi marketing season by 4.61% (to INR 1,925 per quintal[21]), it is still the lowest in the last five years.

19. India today article dated 27 April, 2020
20. India today article dated 27 April, 2020
21. Primary interviews with industry experts and GT analysis

Challenges

- State governments allowed entry of only 100 tractor trolleys a day in each mandi, slowing the pace of procurement.
  - These restrictions, coupled with scarce labour at mandi, led farmers to make multiple visits, which in turn increased their expenses.

- Lack of labour and jute bags posed several hurdles in the procurement framework of wheat and other crops.
- With the additional procurements of wheat expected through the year, stocks are likely to go up further. It will not only pose a burden on carrying stocks but will also lead to a negative trading interest. The government may be the only buyer of wheat from farmers.

Recommendations

Long-term recommendations

- Government should increase capacities of modern steel silo storage through private investment, especially in Punjab and Haryana.
- According to the Abhijit Sen Committee's recommendations in 2002, MSP should become a floor price and be strictly based on C2 cost.

Outlook

Wheat is one of the prominent crops holding a significant share of India's overall agricultural produce. Timely harvesting and procurement influences the success of the crop. Thus, the government should provide means for timely harvest and increase capacity of procurement centres. Additionally, a sound public distribution system (PDS) is an essential way forward to ensure food security for Indian citizens. With ample stocks in the godowns, the government could explore more opportunities to export the surplus stock and minimise carrying costs.

Rice production in India is all set to be to the tune of

117 million tonnes

for 2020-21.

This year is estimated to be the biggest harvest in the last five years.

Rice

India is the world's second-largest grower of rice and is estimated to have produced a record 117.5 million tonnes of the grain in 2020-21. India exports about 11 million tonnes of rice each year.[22]

Punjab and Haryana contribute almost 15% to India's entire rice production. This year, Telangana reported a paddy cultivation of almost 4 million acres, translating into a yield of 10 million tonnes of rice.[23]

Despite global lockdown, the demand for rice continued to rise. Moreover, the domestic as well as global markets had peaked just before weeks the lockdown was announced.

Due to the lockdown, trade had come to a standstill. Even though milling was being exempted under essential services during the lockdown, the supply of rice initially got affected due to labour shortage and transport restrictions. Tonnes of basmati rice meant for export in March and April got stuck in the supply chain. Additionally, there was also a risk of other countries capturing India's export market if the lockdown continues to hamper the supply chain.

Interestingly, the surplus rice available with Food Corporation of India (FCI) is likely to be converted to ethanol for utilisation in making alcohol-based hand-sanitisers and in blending for Ethanol Blended Petrol (EBP) programme.

22. Livemint article dated 27 April, 2020
23. Tribune article dated 29 April, 2020

Challenges

- With gradual improvement in logistics and labour, companies continue to struggle at ground level.
- Companies are facing shortage of packaging material.
- Companies continue to face delays in rice export due to procedures and backlog at ports.

Recommendations

Long-term recommendations

- Ensure uninterrupted exports of rice to avoid risks of other countries capturing India's market.
- On ground improvement of logistics must be ensured for uninterrupted domestic and international supply.

Outlook

Despite global lockdown, demand for rice has picked up domestically and globally. Amidst rising demand and sufficient supplies, companies faced shortage of packaging material. Therefore, going forward, a large number of companies might adopt in-house packaging solutions or alternative packaging solutions for uninterrupted supply.

The prices of rice are expected to increase in international markets in event of the extension in lockdown.

9. Primary interviews with industry experts and GT analysis

Around 80%
of maize production is used by the animal feed industry.

Lack of demand in poultry and other livestock sector has led to the drop of maize market prices.

Maize

Bihar and Madhya Pradesh account for the highest production of maize in India. The estimated annual production in Bihar is 35-40 LMT, followed by Madhya Pradesh at 28 -35 LMT. However, despite a bumper maize production, severe challenges continue to persist.[24]

Around 80% of maize production is consumed by the animal feed industry.[25] Out of this 80%, 55% is consumed by poultry sector alone. Given the crises in poultry and animal feed segments, sales and prices of maize were impacted.

The prevailing prices of maize were around INR 25 per kg in southern region and around INR 19-20 per kg in the northern states. During the lockdown, mandi prices significantly dropped to INR 11-12 per kg in Bihar, INR 12 per kg in Madhya Pradesh and INR 13.5 per kg in Telangana.[26]

24. Primary interviews with industry experts and GT analysis
25. Primary interviews with industry experts and GT analysis
26. Primary interviews with industry experts and GT analysis

Challenges

- As an impact of current crisis, the poultry and other livestock sector has reduced purchase of maize.
- Maize farmer's have been challenged for the last 2 year due to invasive pest Fall armyworm (FAW). In the absence of suitable pest management, yield losses may be as high as 50%.
- With a bumper harvest this year and falling demand from poultry industry will lead to decline in maize price and farmers may not even recover the production costs.
  - MSP for maize set by the government is INR 17.5 per kg. Farmers are facing severe challenges as the maize prices are not expected to increase beyond the average prevailing price INR 11.5 per kg across India.[27]

Recommendations

Medium-term recommendations (up to six months)

- Poultry and livestock sectors should be revived to create a demand for maize.
  - Until the government gives some form of stimulus and incentives to the farmers in the poultry industry to recover the capital lost during the crisis, it would be difficult for the industry to revive in short term.
  - Steps to increase consumption of maize should be evaluated.
- Globally Integrated pest Management is considered the best approach against FAW. While regulators have been agile in providing Foliar application options against FAW, the farmers in India still lack options in Seed Application Technology (SAT). Regulators needs to adopt same proactive approach for SAT solutions against FAW.

Long-term recommendations

- Central government should raise MSP of maize and provide incentives to set up maize-based industries.

Outlook

With gradual improvement in the current situation, demand for poultry is estimated to witness a monthly increase of 4-5% over the next few of months. Moreover, with opening of markets, which includes the HoReCA segment, railways, domestic and international flights, and opening of state borders for road transport, the demand is estimated to rise by 10%.

The demand for maize is directly linked to the demand for poultry and other livestock products. As the poultry sector is reviving, the demand for maize is also expected to revive 4-5% per month as the lockdown eases.

27. Primary interviews with industry experts and GT analysis

Oilseeds

Demand for soybean has dropped to

Less than 50%

due to lack of demand from the poultry sector.

Soybean

- Soybean is an essential ingredient for livestock, including poultry, and aquaculture feed. With poultry sector operating at 30-35% of its capacity and aquaculture operating at 70% of its capacity, demand for soybean has dropped to almost less than 50%,[28] during the lockdown.
- The production of soybean was around 85 LMT and is estimated to increase by a minimum of 1.2 LMT this year.[29]
- However, the consumption of oilseeds is miniscule because of the poultry sector being severely affected by the ongoing crisis.
- Further, drop in soybean demand is likely to lead to shutdown of major solvent extraction crushing plants. As companies continue to crush for oil, they will face a shortage of storage capacities for the meal, which constitutes 20% of the output.
- With over 50% drop in demand for meal, there is a reverse pressure on soybean seed pricing, which is estimated to have dropped from prevailing INR 38 per kg to the current INR 32-35 per kg.[30]

28. Primary interviews with industry experts and GT analysis
29. Primary interviews with industry experts and GT analysis
30. Primary interviews with industry experts and GT analysis

Challenges

- The ongoing crisis in the poultry and other livestock sectors has led to a drop in the demand for soybean as it is an essential ingredient in animal feed.
- Solvent companies are under tremendous pressure as there is decreased production of oil, due to lack of demand for the meal. Further, dependency on imports will result in negative outflow of reserves.
- India is outpriced because of its premium pricing in export markets, with prices being almost 35% higher at port. Thus, no soybean exports are likely to happen for soybean meals.

Recommendations

Medium-term recommendations (up to six months)

- Ensure uninterrupted supply of oilseeds to refineries, which already have cut down their operating capacities.
- Government should give some incentives or stimulus to revive the poultry sector. Else, it would be difficult for oilseed farmers and companies to sustain.
- The export benefit that was earlier given for soybean by the government should be reinstated.

Outlook

With government support, sectors such as poultry and livestock, are likely to pick up. Thus, demand for soybean is also expected to revive.

There is an increasing trend of urban Indians looking for more nutritional meals, which are easily available, affordable, and moreover, vegetarian. If marketed right, it would result in increased demand of soybean.

Commercial crops

The sugarcane industry is facing severe liquidity crisis across the value chain.

The jute industry is facing massive delays in order processing.

Sugarcane

- Transport and labour shortage is contributing to delays in the sale of sugarcane. Moreover, lack of proper storage facility is damaging the harvested crop, thus affecting farmers' income.
- During the lockdown, delay in payments from sugar mills is resulting in farmers selling sugarcane produce to local traders at much lower prices. In a few instances, sugar mills have also given farmers sugar instead of cash, resulting in an increased cash crunch in the hands of the farmers.
- Due to the fear of virus spread and with advisories on avoiding social or religious and public gatherings, sugar consumption has drastically dropped. The entire supply chain is facing liquidity issues due to low demand of sugar.

Jute

As use of jute bags is mandatory for packing food grains, sugar, and for export of other crops, the demand for jute bags witnessed a rapid growth during the lockdown. However, the supply was constrained due to labour shortage, transport, etc., resulting in shortage of jute bags.

Cotton

- Cotton, which accounts for 29% of India's textile trade, is expected to get adversely impacted. Demand for cotton has drastically reduced over the past few months.
- Post relaxation, textile mills are operating at half of their capacity and overall demand for cotton and inventory levels remain subdued.

Challenges

- Transport companies, which help sugarcane farmers with their produce from the farm to weighing docks and onwards to the mandis, are either absent or charging exorbitant prices.
- Solvent companies are under tremendous pressure as there is decreased production of oil, due to lack of demand for the meal. Further, dependency on imports will result in negative outflow of reserves.
- Several sectors are impacted on account of shortage of jute bags. May is the peak month for the demand for jute bags to cater to transport and post-harvest storage of Rabi crop.
- Jute mills have pending orders to the tune of 6 lakh bales of jute.
- Jute mills are unable to meet export orders due to supply chain constraints and increased domestic demand.
- Closure of textiles mills due to the lockdown has affected the demand for cotton.

Recommendations

Medium-term recommendations (up to six months)

- Ensure uninterrupted supply of oilseeds to refineries, which already have cut down their operating capacities.
- Government should give some incentives or stimulus to revive the poultry sector. Else, it would be difficult for oilseed farmers and companies to sustain.
- The export benefit that was earlier given for soybean by the government should be reinstated.

Long-term recommendations

- Government should procure cotton from farmers to ensure stable returns.
- Government should include jute bags under essential commodities in the future.

Outlook

Labour shortage may encourage farmers to switch to cotton, which is less labour intensive. Consequently, it may lead to saving water and reducing pollution that comes from burning stubble of replaced crops after harvesting.

Post this crisis, private companies and government should encourage mechanisation techniques to overcome farmers' dependence on labour. Government and sugar mills should increase their storage capacities to ensure the crops are not damaged.

Post lockdown, the demand for sugar is expected to rise, especially because of demand from the traders to refill the pipeline. Increased consumption is also expected on account of high demand for beverages, ice creams, juices, etc., in the summer months.

Horticulture

Losses due to pile up of harvested and unharvested perishables estimated to swell to

INR 50,000 crore

during the lockdown.

Fruits and vegetables

- Perishable food items, such as fruits and vegetables, are severely affected due to the COVID-19 lockdown.
- Initial speculation with respect to the situation, resulted in hoarding of semi-perishable items such as potatoes and onions, followed by sudden spike in demand, impacting retail prices.
- Pile up of harvested and unharvested perishables have caused farmers losses of INR 15,000 crore and this is estimated to swell to INR 40,000- 50,000 crore in the coming months[31].
- Mango growers across the country are expected to lose close to INR 6,000 crore this season[32].
- The fruits and vegetables sector is primarily unorganised, with 95% sales coming through sole owned provision stores, convenient stores, petty hawkers, itinerant vendors, etc. The lockdown has resulted in complete disruption of this network.
- Trucks and other vehicles for transportation have not been reaching farmers in many parts of the country.

31. Primary interviews with industry experts and GT analysis
32. Primary interviews with industry experts and GT analysis

Challenges

- Inventory of perishable commodities has been piling up, which has led to wastage.
  - Mandi timings mandated to sell fresh produce is not enough for farmers to complete transactions while following social distancing.
  - Farmers dealing in exotic vegetables, such as lettuce, broccoli and capsicum, have suffered as restaurants and hotels continue to be shut.
  - Grape farmers are forced to convert their produce to raisins as exports are at a standstill due to logistical challenges.

- Supplies to mandis have reduced by 40-45% and forwarding has reduced by 20-40%. This has resulted in dip in wholesale rates, while retail prices continue to be high.

- The air freight charges have increased significantly impacting all exporters.

- Lack of cold storages facilities at the farm level is resulting in dumping of fresh produce.
  - Where cold storages are available, the fee levied by the service providers have made it unviable for the farmers who are unable to predict the demand or price of the produce in future.

- Chinese imports have stalled since January 2020. Hence, availability of manual and semi-manual farm equipment used by small and marginal farmers engaged in fruits and vegetable farming has witnessed shortages.

Recommendations

Medium-term recommendations (up to six months)

- To ensure food supply chain is not disrupted, mandis in non-hotspot areas should be allowed to run smoothly after ensuring appropriate safety and hygiene measures
- Green corridor and freight rails should be operated in line with market requirements, allowing smooth passage to fresh and vegetables with the country.
- Traders and large retailers should leverage e-commerce and novel delivery model (door-to-door delivery) to meet household demand.
- Developing e-NAM into a platform of platforms to enable e-commerce and encouraging private participation.
- The Ministry of Civil Aviation should step in to ensure that airlines give a better air freight rate for exports.
- Large retailers/food processors can get into contracts directly with FPOs/farmers for procuring the produce at a fixed price (which would at least be equal to the cost of produce) instead of the prevailing market price to restore confidence in farmers and protect them from incurring further losses.
- Local retailers and street vendors to be provided with capital to resume business and stock inventory once the lockdown is over.

Long-term recommendations

- Concessional credit flow to strengthen agriculture infrastructure should be provided to FPOs that can play a vital role in consolidating the industry.
- The unorganised sector should become more formalised; wherein state governments should maintain a record of companies that operate vendors in various localities/areas.
- Exporters should be granted loans at subsidised rates to ensure that the momentum of growth of exports prior to lockdown remains intact.

Outlook

Production and supply of fruits and vegetables are likely to get impacted in the coming months. Corrective measures in respect of agricultural marketing, management of marketable surplus and access to institutional credit are likely to stabilise farmers.

There will be inflation in fruits and vegetables over the next 3-4 months as farmers are expected will reduce the area under cultivation for vegetable crops, owing to losses suffered during the lockdown

The role of FPOs is expected to increase considerably and it is likely that they will engage in trading of produce through the online portals.

Spices

Prices have remained relatively stable as spices have a longer shelf-life compared to perishable food items. During the lockdown spice companies were operating at 50% of their capacity.

Challenges

- Spices which are exported to USA, Europe and Gulf Countries are impacted heavily due to both decrease in demand and low operating capacity of manufacturing units.
- Shortage of labour continues to remain a challenge for farmers who are unable to work in farms despite relaxations announced by the Government.
- Exports of spices require numerous permissions for many government agencies. Lockdown has posed a challenge to get these permissions in time leading to delays in exports.

Recommendations

Medium-term recommendations (up to six months)

- Government should consider setting up an online clearance portal to aid in the export process. Facilitation of required paperwork through digital copies should be accepted to ensure ease of doing business.
- Adopted of online trading should be promoted among the industry players.

Outlook

The industry has been operating at around 50-60% capacity and it is likely to take another 4-6 months for the industry to get back to stable levels.

Floriculture

Floriculture industry is expected to
Shrink by 50%.

March and April are the peak season for the floriculture industry, accounting for almost 50% of the annual sales. Moreover, the industry only gets 80-110 days in a year for business. The lockdown has severely impacted the demand for flowers, not just in India but also overseas.

Tonnes of locally grown flowers, such as roses, lilies and marigold, destined for decoration, events and temples are being dumped or destroyed by farmers.

With no international demand and exports at a standstill, the INR 550 crore flower export business is expecting the industry to shrink by 50%[33].

Challenges

- Many small farmers, who cultivate flowers as a cash crop, have incurred significant losses in the peak season.
- The exports have been severely impacted amid lockdown and slump in global demand.

Recommendations

Medium-term recommendations (up to six months)

- Government should provide relief to the farmers with standing crops of flowers.
- State governments should expedite the payouts under subsidy for growing flowers in poly houses.
  - The dues stand at INR 30-40 crore over the last two years.

Long-term recommendation

- Government should design sufficient incentive schemes to ensure continuity of the segment.

Outlook

With no visibility by when the pandemic will be under control, the demand for flowers over the next year is expected to remain muted and there is unlikely to be any significant traction due to subdued outdoor events, weddings and religious visits.

Starting from planting of seeds, the floriculture growing process can take up to three years. Challenges with distribution and consumption of flowers will continue to dismantle the industry.

33. Primary interviews with industry experts and GT analysis

Plantation crops

Plantation crops are suffering on account of weak prices and disruptions in exports.

The tea industry has suffered an overall crop loss of 10-25% due to the lockdown. Assuming an auction price of INR 152 per kg of tea, Assam has already suffered a loss of INR 1,218 crore as it lost 80 million kg in the months of April and May 2020[34].

The cashew industry in Kerala contributes to 50% of the overall trade in the country. It is estimated that the industry may have lost around INR 4,000 crore due to the lockdown.

Rubber production losses are estimated at 30,000-35,000 tonnes across the country until 15 April 2020[35] and the reduction in consumption during the same period is expected to be much higher at 50,000 tonnes.

Challenges

TEA

- As leaves have not been plucked on time by skilled labour, the yield and quality of tea has drastically fallen.
- Skiffing of overgrown tea leaves had to be done for 35% of leaves leading to increased expenditure and wait period to about three weeks after which plucking can be resumed again.
- There has been a sharp fall of around 35-40% in the selling price of tea in the export market (from INR 200 to INR 120 per kg)

CASHEW

- As a result of demand-supply mismatch, farmers have been selling below the MSP.
- Delay in state approvals poses the risk of infestation and damage of overstocked cashews.
- India's cashew exports are losing out to competing nations such as Vietnam.

RUBBER

- As per the new guidelines the rubber farmers can operate with 50% workforce, however, due to shortage of labour there has been a drop in production.
- 70% of the natural rubber is consumed by automobile tyre manufacturers. With the tyre industry halting production, the rubber plantations have also been severely impacted .

34. Economic Times article dated 15 April, 2020
35. Business Standard article dated 10 April, 2020

Recommendations

TEA

Medium-term recommendations (up to six months)

- Since the carry over stock from previous year has already been sold and there is no tea in the pipeline, uninterrupted supply of tea must be ensured by overcoming the ground-level challenges, including transportation across district and state borders, packaging, etc.
- Government must take vital steps to ensure smooth and safe plucking of second flush to facilitate exports and domestic consumption.
- Tea plantation, packaging, transportation, processing, and marketing should adhere to government guidelines and SOPs to maintain sanitary and hygiene requirements.
- Plantations facilitating stay-in facilities for workers must ensure social distancing and proper sanitary and hygiene protocols.

CASHEW

Medium-term recommendations (up to six months)

- It has been observed that there is an increased demand of hurrack, alcohol made of cashew apple juice. Thus, government can encourage the sale of hurrack and help the farmers sell their produce and reach the markets in time.
- A fixed price should be set by the government to ensure farmers and traders get a fair price.
- Sufficient steps must be taken by industry players to stop deterioration in quality of raw cashew nuts to ensure minimal loss of produce.

RUBBER

Medium-term recommendations (up to six months)

- The government should gradually start opening the economy with certain standard operating guidelines as there is no sale of rubber sheets or natural rubber due to shutdown of commercial establishments and automobile industry.

Outlook

Decrease in the overall supply could help bring some buoyancy in prices for tea in the near future.

Rubber crops will witness a low demand for at least next 4-6 months as auto sales are expected to remain low until end of October 2020.

The exports of cashew look promising, however, domestic consumption of cashew is expected to be low.

Poultry

The poultry industry losses stood at
INR 27,000 crore
until April end.

Further, the industry is expected to incur
INR 3,500 crore
loss per month till situation normalises.

The industry had been affected in early February 2020, when rumours regarding the spread of virus by the consumption of meat and poultry started doing the rounds. The projected losses in this sector by the end of April 2020 were estimated at INR 27,000 crore.[36] This also impacted 10 lakh broiler poultry farmers and 2 lakh layer farmers.

The price realised by these farmers crashed to INR 10-25 per kg in March, while the cost of production was about INR 70-80 per kg. The price of eggs also fell from INR 3-4 per egg to INR 1-2 per egg at the farm gate level. Poultry farmers are suffering an average loss of INR 130 per bird.[37]

Since early May 2020, there has been a revival in the prices of chicken. The industry is currently operating at a capacity of 30-35% due to low domestic consumption and negligible demand from hotels and restaurants. The cost of production has increased by 15% due to the low utilisation of capacity and shortage of logistics and labour. The cost of production now stands at INR 85 per kg. The prices and consumption of eggs has also revived.[38]

The loss of egg layer industry stands at INR 500 crore per month and for the broiler industry it is INR 3,000 crore per month.[39]

Challenges

- Due to the low demand in poultry products, maize and soya farmers are in distress as the poultry sector provides direct benefit to more than three crore farmers. The prices of maize and soybean have significantly dropped.
- Constraint supply chain and low demand has led to more than 50 crore placed chicken to be destroyed.
- The poultry industry is unable to provide salaries to workers in the current situation. Farmers are unable to pay the labour engaged at the farms.
- Production capacity has eroded due to lack of demand, insufficient working capital and closure of markets.
- Cost of production has increased by 15% due to the lower utilisation of capacity and shortage of logistics and labour.

36. Primary interviews with industry experts and GT analysis
37. Primary interviews with industry experts and GT analysis
38. Primary interviews with industry experts and GT analysis
39. Primary interviews with industry experts and GT analysis

Recommendations

Medium-term recommendations (up to six months)

- There should be strict regulations against fake news and propaganda in the market impacting farmers and food processors. Government should issue a fresh advisory against such fake news.
- A restructuring of loans allowing conversion of existing working capital loans cash credit (CC) limits to term loans with two years' moratorium along with repayment period of five years. The government will incur no significant cost to provide the above, however, it will benefit the industry in its pursuit to revival.
- 100% Interest subvention on all borrowing for two years amounting to INR 2,200 crore stimulus to the industry.
- Small farmers with less than 20,000 capacity farms should be provided with a compensation of INR 100 per bird based on purchase bill paid through banking transactions. This compensation amount is estimated to be INR 1,800 crore.
- Farmers, whose bank loans are turning NPA due to the COVID-19 situation, should be granted six more months to repay loans.

Long-term recommendations

- Removal of GST on soybean and other oilseeds as it adds to the input cost to the livestock feed to the farmers.
  - Under the VAT regime, indirect tax was not levied on soybean. However, levy of GST on oilseeds has increased the cost by 1%.
  - Removal of GST on frozen chicken may be considered by the government.
- Reduction in GST on egg powder and egg liquid, pasteurised and hygienically packed; thus, incentivising poultry farmers to install egg processing machines.
- There should be incentives to set-up poultry processing units and cold storage infrastructure. Further rebates and subsidies, be provided to encourage farmers to create and operate such infrastructure.

Outlook

Despite a revival in demand, the industry is expected to see a 70-75% of its capacity in the next six months.

Demand in the poultry sector is expected to revive 4-5% per month as the lockdown eases and markets continue to open.

Further, the month-on-month is expected to increase to 10% per month depending on the opening of the HoReCa sector, which is linked to opening of domestic and international air travel, railways and opening of the state borders for road transport.

Due to the crisis in the industry, working capital of companies has been completely choked up and unless certain steps are taken by the government to revive the sector, it will continue to be in severe distress.

A robust and resilient cold storage infrastructure will be in greater demand going forward, and several small/medium-sized players would be inclined to utilise such facilities.

Fisheries/Aquaculture

A positive outlook for the
Indian shrimp
industry as a result of rising export demand.

Farmers' price increased by
25%.

Fish, being a robust species, can survive on low food leading to farmers continuing fish farming. The fish industry is facing consumption challenges due to shutdown of the HoReCa sector. Fish consumption has decreased by 40%, putting the price pressure on farmers.

The average farm price of fish was INR 70-100, which is now estimated to have fallen below production cost to INR 50-55.[40]

Slowdown in global shrimp imports had put processors in a temporary phase of oversupply, as 98% of the shrimp production in India is exported.

Further, the shrimp farm gate prices have plunged heavily due to the lockdown, leading to market instability.

Most of the brood stock is imported into India. Due to the ports and logistics providers not operating during the lockdown, this has put pressure on the seed production in the shrimp hatcheries.

Presently, with increased export demand and low production, shrimp prices have increased by 25% for farmers.[41]

Challenges

- Due to the spread of coronavirus, many shrimp farmers have panic harvested, which has resulted in lower production and processor buying shrimp at lower prices.
- There has been a shortage of cold storage facilities for shrimp farmers to freeze their surplus stock leading to wastage and cheap sales.
- Low availability of labour for hatcheries, farm input producers, processors and large farms affecting operational activities.
- Lack of technical advisory support for summer crops due to absence of farm visits by technicians and consultants.
- Domestic demand for fish and shrimp has been adversely impacted due to shutdown of the HoReCa sector.

40. Primary interviews with industry experts and GT analysis
41. Primary interviews with industry experts and GT analysis

Recommendations

Medium-term recommendations (up to six months)

- Government intervention in the fishery/aquaculture sector to stabilise the price for fish at a minimum of INR 75-80, enabling farmers to reduce losses. This will also safeguard the interest of maize, soybean and oilseed farmers.

Long-term recommendations

- The National Fisheries Development Board should help establish mega cold storage facilities at all major ports to store the fishes/shrimps to better manage the country's export potential.
- Government should intervene by involving authorities and providing financial assistance to the sector.
- Government should be incentivising the private sector to establish shrimp processing units and cold storage infrastructure dedicated for the fishery/aquaculture sector.

Outlook

Once the HoReCa segment is operational, the market will start stabilising gradually and the industry will try to boost domestic consumption to absorb the oversupply of the fish sector.

There exists an immense demand for shrimp from Indian exports, with other countries unable to meet their demand through domestic sources. India is well poised to increase its export market share.

All these factors will result in shrimp prices going up for farmers as there is increased demand from processors.

Dairy

Dairy sector to witness a slump in production of milk as a drop in yield is expected in the short term.

Perishable food items, such as milk, have been severely affected due to COVID-19. Milk cannot be stored without proper processing, thus, leading to farmers draining or selling milk at extremely low prices.

Small players are not procuring usual quantities due to the low demand. However, dairy cooperatives, such as Amul, have been procuring more volumes of milk than before to support the farmer community leading to surplus milk in most states.

Dairy farmers and plants have been converting milk into ghee, butter and other dairy products, which have a longer shelf life.

Farmers have been under severe duress as thousands of litres of milk in certain parts of the country has been wasted due to logistical problems, which has created a mismatch in demand and supply.

Companies have been facing logistical problems because of limited window time to complete the distribution and sale of their products

Challenges

- The dairy industry is dealing with operational challenges such as transportation of material, procuring milk and workers commute.
- States, such as Maharashtra and Rajasthan, are unable to collect milk as processing capacity is overbooked.
- Farmers are finding it difficult to maintain their cattle as cattle feed is hard to procure and prices have shot up by 40%.
- Private plants, which are mainly involved in the production of value-added dairy products, are witnessing major liquidity crisis.
- Artificial insemination has stopped due to the lockdown because of which farmers have been inseminating cattle using low-quality bull available. This will result in low-quality offspring next year, resulting in low yield and income for farmers.

Recommendations

Medium-term recommendations (up to six months)

- Manufacturers and suppliers of dairy equipment should ensure backup service during such crisis, so at least the spare parts and service are available to avoid downtime in production.
- As storage of dairy is a challenge, its demand must be ensured across sectors where dairy consumption is high.
- Government should start purchasing milk powder and butter at remunerative prices and distribute it further under mid-day meals and other schemes.
- Companies should start maintaining more inventory as the demand post lockdown is expected to be greater than supply.
- GST on ghee should be reduced from 12% to 5% to spur demand.
- Companies should invest more resources in their supply chain partners and communicate with them efficiently to better understand their needs.
- Government should ensure ease in availability of credit for companies to meet their working capital requirement. Further, it can also encourage banks to grant loans against the stock of long shelf life products such as skimmed milk powder, butter and ghee.
- Government to incentivise famers to opt for artificial insemination to ensure industry yield is maintained.

Outlook

There will be tremendous inflation for perishable food products, such as milk, and other perishable items as farmers will be investing less in such products.

Production of liquid milk is expected to go down by 5-10% in the next 6-12 months due to undernourished cattle and low-quality offspring next year. This would result in low yield and income for farmers.

Prices of milk derivatives, such as skimmed milk powder and butter, are expected to decrease.

Further, milk procurement prices are expected to recover with the onset of summer season.

Expansion and capital expenditure plans of several companies will most likely decelerate for the rest of the year.

Aggregators

Warehousing

Major policy reforms required to deduce the potential of

warehousing in India.

Government guidelines to ease the impact of the lockdown include granting warehouses the status of legal selling points. Therefore, enabling buying and selling at warehouses, thereby reducing transportation costs incurred while using the traditional mandi route.

With retail disruption caused due to the lockdown, producers and aggregators are storing produce at warehouses. Due to high carryover stocks from last years' harvest, coupled with a bumper 2020 Rabi harvest, warehouses are running at a healthy capacity utilisation.

Challenges

- Agriculture warehousing is a labour-intensive business. The lockdown restrictions on public transportation and reverse migration have impacted operations at warehouses.
- Uncertainty due to the pandemic has led farmers to sell their produce in distress, even at prices below the MSP. Farmers prefer the liquidity achieved from selling their produce rather than storing the produce in warehouses in speculation of prices increasing in the future.
- Similarly, disruptions caused to exports of agriculture commodities have had a direct impact on storage capacity at warehouses. With exports being limited due to disruptions in global supply chains, warehouses have received subdued demand from farmers and FPOs.
- Central and state warehouses corporations are running at full capacity due to high carryover stocks and massive Rabi crop procurement taking place.

Recommendations

Medium-term recommendations (up to six months)

- All registered warehouses should be declared as market yards by state governments as per local norms and compliances.
  - Warehouses to provide testing of goods at the facility itself that can ensure farmers better price for their produce.
- FPOs should be encouraged to collaborate with warehouses as aggregators of produce.
  - Farmers will also have the option to store goods in event of the transaction not completing at the desired price.
  - Government should encourage farmers to avoid distress sale of produce and for storing it with registered warehouses. For this the government should consider subsidising the storage and promoting warehouse receipts loans.
- As central and state warehouses corporations are running at full capacity due to high carryover stocks, it is time for the government to initiate partnerships with private players to procure, store and manage MSP stocks.

Long-term recommendations

- Agri product warehouses can replace traditional mandis and warehouse Operators and service providers (WSPs) would engage with mandi adatiyas for directing farmers to bring produce directly to warehouses nearest to the village.
- Warehouse operators can tie up with national companies in post-harvest management of agri supply chains and use their online platforms for connecting with buyers locally and nationally.
  - At this stage, warehouse companies can provide the quality assurance required to boost confidence for increased adoption of online platforms across the value chain.
- State governments must provide single-window clearances for large infra projects in building warehouses capacities such as silos and food park storage facilities.

Outlook

Government's initiative granting warehouses as legal selling points should be one of the major policy reforms in the long term and must successfully be implemented at ground level to reduce the transport cost of a farmer.

As current warehouses are running at full capacity due to high carryover stocks and the lockdown disrupting the retail and export supply chain, demand for warehouse witnessed a rapid surge. Moreover, clear evidence of success and utility of a warehouse during such crisis has been established. Thus, government along with private player participation should increase investments in warehousing capacity enhancement. More innovative and mechanised warehouses would be required to bring down the operational cost.

Cold storage

Despite high demand,

cold storage industry

suffered on account of labour shortage and unviable operating capacity.

Stocks of fruits and vegetables stored in cold storage units have been sold at mandis during the lockdown, as procurement of the current harvest was disrupted due to the initial restrictions of the lockdown.

Fruit farmers are faced with a challenge as they continue to store their produce in cold storages across the country due to closure of mandis and disruption in transportation services. For instance, apple growers from Kashmir have suffered as 15-20% of their produce sits idle in cold storages due to subdued demand from mandis and delays in transportation.

Many producers are transforming perishable produce, such as fruits and milk, to processed foods that have longer shelf lives. This has, in turn, increased demand for storage at cold storage units.

Challenges

- On the supply side, social distancing guidelines and a shortage of labour has limited the number of cold chain units functioning across the country. The operational ones are working at a lower capacity due to government guidelines and SOPs.
- Lack of automation and technology in cold storages and overreliance on manpower has been a hurdle during the lockdown.
- Cold storage units in India are largely situated near trader markets and not easily accessible to farmers. In the present situation, cold storage units are operating with low capacity due to their vast sizes and are becoming economically unviable.

Recommendations

Medium-term recommendations (up to six months)

- The coronavirus pandemic has exposed vulnerabilities in the country's storage of perishable produce. Consequently, we need to emphasise and prioritise the expansion of our domestic cold chain storage capacity at the farm level.
- FPOs should be incentivised and mandated to open, operate and maintain cold storage for the farmers at the village level.
- Stranded migrant labour should be mapped according to their skills and experience. Those with the required background could be provided part-time jobs at cold chain units within the state limits.

Long-term recommendations

- Government needs to focus on increasing the penetration of cold storage units and warehouses in the country. At present, cold storages are running at low capacity utilisation due to their vast size. However, government should focus on engaging with private players to establish a network of smaller cold storage units across the country at district levels to ensure small and marginal farmers can access with ease and at low costs.
- Capacity building for poultry, fishery and aquaculture is required by incentivising the private sector.

Outlook

With fresh deliveries of perishable items accelerating for fruits, vegetables and other perishable items, the demand for cold chain facilities is expected to increase.

Prior to the lockdown, almost 65-70% of the cold storage facilities in India were utilised for storage of potatoes only. However, going forward this trend is likely to change and we could see a surge in multi storage cold chain facilities for other perishable food items.

Industry players believe, post lockdown, the migrant labour will return to their hometowns due to the uncertainty associated with the duration of the pandemic. This will impact operating capacity at cold storages across urban and tier 1-2 cities. Labour scarcity will become an imminent challenge.

Logistics

Logistics costs for all sectors have increased between
20-40%
due to shortage of truck drivers.

The inclusion of Kisan Rath on e-NAM has enabled farmers to source transportation requirements with ease. More than 11.37 lakh trucks and 2.3 lakh transporters have registered on e-NAM to ensure fast movement of farm produce.[42]

The pandemic-induced lockdown has disrupted transportation services. Initial restrictions on certain transportation coupled with a dearth of truck drivers has increased price of logistical requirements. This has translated to higher retail and wholesale prices for agriculture produce as traders and middlemen have incurred higher costs.

Challenges

- The supply of transportation has been impacted as there is a current dearth of truck drivers. This is primarily because many of them fear contracting the virus and as a result have refrained from undertaking inter-state journeys.
- Supply-side constraints on transportation service providers have led to an increase in rates. This has subsequently raised retail and wholesale prices of agricultural commodities as middlemen incur higher transportation and storage costs.

Recommendations

- Neighbouring states should work in tandem during the entirety of the lockdown to ensure seamless flow of agriculture produce, goods, personnel and equipment.
- Logistics companies to be encouraged and incentivised to expand capacity for reefer trucks, which are essential to transport perishable food products from locations where cold storage facilities are not available.
  - Lucrative financing options should be given to small players located in semi-urban and rural areas.

Outlook

With a ban on manufacturing and logistics of non-essential items during the initial lockdown, the trucking industry is expected to contract by around 5% in FY2021. This contraction is due to the lack of demand and slow post-lockdown revival of major sectors, such as automobiles and cement, on which the industry is majorly dependent.

42. Ministry of Agriculture and Farmers Welfare, Government of India

Agricultural Product Market Committee (APMC/mandis)

Policy reforms required to unleash the potential for the agriculture market.

While there is a robust supply of food grains, pulses and oilseeds in the Rabi season, there is a depression in demand due to non-operative oil expellers, millers, and processors. Agri marketing system needs to respond to match the supply with the demand and regenerate the operational viability of markets and processing units as the pandemic unfolds.

Value of agricultural produce has fallen by 30-40%.[43] This has caused prices to crash, with many farmers selling their produce below MSP. The severely impacted produce includes fruits and vegetables (perishables), which are selling at merely 15-20% of its normal price.

The disruption caused to the agriculture value chain has inflated retail prices during the lockdown. However, this price increase has not benefited the farmers, as prices have fallen dramatically at the farm during this period.

Mandis are currently operating at close to 40% capacity due to social distancing requirements.

Presently, to decongest the markets and to ease the flow of produce, the Electronic National Agriculture Market (e-NAM) app has been revised with modules on procurement, logistics and farmer-friendly interface for advance registration of the produce for sale.

Challenges

- Due to closure of HoReCa, the demand for certain agricultural commodities has reduced by 30-40% at the mandis.
- Mandis in severely affected areas, such as those in Maharashtra, have stopped operations, resulting in shutting down of procurement from the farm gate and farmers not getting remunerative prices for their produce.
- Operational mandis are working at lower capacities and due to the uncertainty regarding the pandemic, there are frequent price variations.
- Government guidelines with respect to establishing warehouses as legal selling points and allowing buyers to source produce directly from farmers has reduced demand at mandis.

43. Primary interviews with industry experts and GT analysis

Recommendations

Medium-term recommendations (up to six months)

- Due to unprecedented impact of COVID-19 on the agriculture supply chain, the APMC and Essential Commodities Act (ECA) need consideration to be fully reviewed (discarded if need be) to open up market access and ease of movement of produce.
- Law giving exclusive rights on agriculture produce marketing to the mandis will have to be formally suspended. This provision would imply a suspension of mandi fee and lowering transaction costs.
- The existing rural haats need to be upgraded as grams by identifying SPOCs for uninterrupted flow of produce for better income of farmers.
- Keeping a long-term perspective, this is a golden opportunity to invigorate the moribund e-NAM platform. A decentralised system of trading on e-NAM can supplement the mandis and direct farm gate buying. FPOs, cooperatives, SHGs, SMEs and others can be allowed to offer produce directly on the e-NAM platform.

Long-term recommendations

- The ECA should be withdrawn from the staple category for the coming year. This will enable corporates, processors, retailers and others to hold bulk stocks over the prescribed limits.
- Move agriculture/agri-marketing to the concurrent list to build on the one-India market concept. Presently, agriculture being a state subject, the role of the centre is limited to advisory, with enforcement in the hands of states. Create an agri council on the lines of the GST council to enable coordination and enforcement between centre, state and all the connected ministries.
- India should ease rules restricting farmers to sell their produce at designated APMC market yards. Stringent regulations curtail farmers' options to sell their produce, forcing farmers to pay high commission fee and absorb transportation costs. Focus should be on expansion of markets through model APLM Act 2017.
- Strengthening e-Nam by technology diffusion and vast adoption across states, to build up direct links between traders and farmers. The e-NAM adoption by states will depend on the use of 3Cs: commerce, content and collaboration. Collaboration with private companies and start-ups for strengthening e-NAM is envisaged.

Outlook

Mandis have already been operating at a lower capacity and even going forward, this trend would continue as social distancing guidelines would be stringently followed for at least another year, thus resulting in lower traction and footfall.

The development of first-mile Gramin Agricultural Markets (GrAMs) for integrated flow of produce from farms to consumers is observed. The key functions to include aggregating the local production, undertaking cleaning, grading, and packing in lots to transport to other markets.

More mandis to get registered on the e-NAM platform and government will try to identify more warehouses, cold storage units and wholesalers to list them on the platform.

Public Distribution System (PDS)

Utilisation of the
public distribution system
increased by 65% during the lockdown period

Under the Pradhan Mantri Garib Kalyan Yojana, the central government is facilitating the supply of food kits to those below the poverty line for three months. The government has partnered with processors to ensure families below the poverty line to get processed commodities under this initiative.

The utilisation of PDS has increased by approximately 65% in rural areas.

The central government has established a relief package for those households in need of food security during the lockdown period. Under PDS, the government is providing 5 kg of either rice or wheat and 1 kg of preferred pulses per month free, offered in two instalments. This is in addition to the pre-existing entitlement of 5 kg of low-cost wheat/rice per person per month.

Additionally, state governments have established their own relief measures with respect to the pandemic-induced lockdown to ensure food security to those in need

With excess food grain stock held by the Food Corporation of India (FCI) to the tune of 24.7 million tonnes of wheat and stock of rice, including unmilled paddy was 49.15 million tonnes, the distribution under PDS is not expected to be impacted during the lockdown period.[44]

Challenges

- With stocks in government warehouses at peak, the inability to make further procurement at MSP in Rabi could result in collapse of crop prices and impact farm incomes.
- Social distancing guidelines and restriction on movement have disrupted operations at fair price shops in severely affected areas.
- A large percentage of population in India does not have a ration card. Many stranded outstation labour, whose family members may have the ration card, are not covered under the current PDS. These individuals cannot access the PDS, hence and face a threat to basic food security in the coming months.

44. Primary interviews with industry experts and GT analysis

Recommendations

- Due to the excess food grain stocks available with the FCI in the present scenario, it is recommended that food grains be provided at least for three months to the migrant workers who do not have ration cards in the states they are currently in. The provision can be done on the production of Aadhaar number.
- The very first initiative of the central government to provide three months' worth of food supply to those below the poverty line be extended for another three months. This recommendation is made considering the current stock of food grains available with the FCI and the estimated off-take from PDS. In addition, the government may assess the financial viability of universalising the PDS for a period of three months.
- A temporary and immediate solution for those individuals who do not have the ration card or are in a different state, and unable to present the same, be issued a pre-paid card for a period of three months to alleviate the threat to food security during the extended lockdown.

Long-term recommendations

- The PDS can also serve the purpose of building nutritional security of people at the bottom of the pyramid. Enhancing nutritional intake of the poor will boost immune system and contribute to the ability to resist the virus.

Outlook

The significance of the PDS will increase in the coming months due to the increased dependence Indians will have on the system as unemployment number increase amidst the pandemic.

Indian government's support to agriculture

The central government has been proactive in implementing strict measures to curtail the nationwide spread of coronavirus. It has also ensured financial support through fiscal stimulus and key sector reforms to protect lives and livelihoods in India. The agriculture sector has featured prominently in the economy revival strategy of the government.

Pre-lockdown 2.0

On 26 March, the government had announced an economic stimulus package worth INR 1,70,000 crore (USD 22.5 billion). The stimulus aimed to help millions of low-income households cope with the 21-day lockdown. As per the details of the package, 15% of the funds will be deployed towards the agriculture sector.

Benefits were given to the farmers under the PM-KISAN scheme with a transfer of INR 2,000 each into their bank accounts. INR 17,986 crore have been transferred to the beneficiaries since 24 March 2020. Furthermore, instalment due for the period 1 April to 31July 2020 has been paid to 8.13 crore beneficiaries within the first two weeks for April.

The PM Fasal Bima Yojana has been made voluntary for all farmers on their request, but there has been no change in farmers' share of premium. Consequently, the government will bear 90% of premium subsidy liability for the North Eastern states, in place of the 50% subsidy given earlier.

The Reserve Bank of India (RBI) has granted a moratorium on agricultural term and crop loans for a period of 3 months (till 31 May 2020), with a 3% concession on the interest rate of crop loans, up to INR 3,00,000, for borrowers with a good repayment record.

Post-lockdown 2.0

As India continues to deal with the ongoing crisis, Prime Minister Narendra Modi had unveiled a broad outlay for a comprehensive package of INR 20,00,000 crore under the Atmanirbhar Bharat Abhiyan campaign to build a resilient India. At 10% of GDP, the package emphasises to create a self-reliant India and the need to promote local products and brands so that the nation builds a robust supply chain as per global standards.

Later, every day from 13 May to 17 May, Finance Minister Nirmala Sitharaman had announced an action plan categorised under five tranches. The action plan included detailed breakup of the INR 20,00,000 crore economic package under PM's Atmanirbhar Bharat Abhiyan, an initiative for bold reforms for a vibrant India. All 5 tranches addressed the immediate and long-term concerns relating micro, small and medium enterprises (MSMEs), provident fund, non-banking financial companies (NBFCs), agriculture, coal, aviation, public health, among others. However, tranches 2 and 3 focused largely on rural population and Indian agriculture. Some key are given in the following pages.

Atmanirbhar Bharat Abhiyan Tranche 2 - 14 May 2020[45]

On 26 March, the government had announced an economic stimulus package worth INR 1,70,000 crore (USD 22.5 billion). The stimulus aimed to help millions of low-income households cope with the 21-day lockdown. As per the details of the package, 15% of the funds will be deployed towards the agriculture sector.

For small and marginal farmers

- NABARD to provide INR 30,000 crore emergency working capital fund to small and marginal farmers. It is expected to assist farmers meet post-harvest (rabi) and current kharif requirements in May and June 2020
- INR 2,00,000 crore concessional credit to be extended to 2.5 crore farmers through Kisan Credit Card (KCC) special drive. It is expected to enable 2.5 crore farmers to gain access to institutional credit at concessional interest rates

---

Atmanirbhar Bharat Abhiyan Tranche 3 - 15 May 2020[46]

Support for agriculture

- Minimum support price (MSP) purchase of more than INR 74,300 crore
- Fund transfer of INR 18,700 crore under PM-KISAN released
- Payment of INR 6,400 crore released under PM Fasal Bima Yojana

Support for animal husbandry

- 560 lakh litre per day (LLPD) milk bought by co-operatives to overcome reduced demand
- Additional 111 crore litre milk procured, with payments of INR 4,100 crore
- New scheme to provide interest subvention at 2% per annum to diary co-operatives in 2020-21
  - To release additional INR 5,000 crore liquidity
  - To benefit 2 crore farmers
  - Additional subvention of 2% per annum on prompt payments

Support for fisheries

- Validity of sanitary import permits (SIPs) for import of shrimp brood stock extended by three months
- One-month delay in arrival of brood stock consignments condoned
- Re-booking of quarantine cubicles for cancelled consignments allowed with no extra charges
- Verification of documents and grant of NOC for quarantine relaxed to three days
- Registration of shrimp hatcheries and Nauplii rearing hatcheries extended for three months

Farm-gate infrastructure development - INR 1 lakh crore Agriculture Infrastructure Fund to be created

- To provide impetus for development of infrastructure at farm-gate and aggregation points
- Infrastructure expected to support financially viable post-harvest management
- Funding will be available for agricultural cooperative societies, farmer producer organisations, agriculture entrepreneurs and start-ups

Micro food enterprises (MFEs) - INR 10,000 crore scheme for formalisation of MFEs

- Scheme to support two lakh MFEs in technical upgradation to attain FSSAI food standards, build brands and market products
- Scheme will follow a cluster-based approach to take advantage of strong production areas in states
- Expected to facilitate growth in retail and export markets

Pradhan Mantri Matsya Sampada Yojana - INR 20,000 crore allocated for fishermen to support integrated, sustainable, and inclusive development of marine and inland fisheries

- INR 11,000 crore for activities in marine, inland fisheries and aquaculture and INR 9,000 crore for building infrastructure such as fishing harbours, cold chains and markets
- Focus on islands, Himalayan states, the North East and aspirational districts
- Additional 70 lakh tonne of production and employment for 55 lakh people

National Animal Disease Control - National Animal Disease Control programme for foot-and-mouth disease (FMD) and brucellosis launched with outlay of INR 13,343 crore

- To ensure 100% vaccination of cattle and farm animals (53 crore animals)
- 1.5 crore cows and buffaloes tagged and vaccinated till date

Animal Husbandry Infrastructure Development Fund – allocation of INR 15,000 crore

- To provide investment in dairy processing, value addition and cattle feed infrastructure
- Incentives to be given to establish plants to export niche products

45. Press Information Bureau, Government of India
46. Press Information Bureau, Government of India

Promotion of herbal cultivation

- Outlay of INR 4,000 crore to cover 10,00,000 hectares under herbal cultivation in the next two years. This will lead to INR 5,000 crore in income for farmers
- Network of regional mandis to be formed for medicinal plants
- National Medicinal Plant Board to develop 800-hectare corridor of medicinal plants along River Ganga

Beekeeping infrastructure development - INR 500-crore scheme to develop infrastructure

- Funds to be used by beekeeping development centres for collection, marketing and storage
- Aims to increase income of two lakh beekeepers with special thrust on capacity building of women

Operation Green – TOP to TOTAL - To be extended from tomatoes, onions and potatoes (TOP) to all fruits and vegetables

- Additional INR 500 crore earmarked for supply chains disrupted by lockdown
- 50% subsidy to be given on transportation from surplus to deficit markets
- 50% subsidy to be given on storage, including cold storage
- 7 Pilot phase for six months and to be extended

Essential Commodities Act - The Essential Commodities Act (1955) to be amended to enable better price realisation for farmers by attracting investments and make the agriculture sector competitive

- Amendments to tackle abundance of crops
- Agriculture food including cereals, edible oils, oil seeds, potato and onion to be deregulated
- No stock limit to be applied on storage (may be imposed under very exceptional circumstances)

Agriculture marketing reform - Central law to be formulated to provide farmers

- Adequate choice to sell produce at appropriate price
- Barrier-free inter-state trade
- Framework for e-trading of agriculture produce

Agricultural produce price and quality assurance - Legal framework to be created to enable farmers to engage with farm supply chain stakeholders in a fair manner

- To ensure risk mitigation for farmers
- To assure returns and quality standardisation

Tranche	Atmanirbhar Bharat Abhiyan - relief package value for agriculture sector[47]	INR crore
2	NABARD emergency working capital fund	30,000
2	Kisan Credit Card – concessional credit	2,00,000
3	Fund for farm gate infrastructure	1,00,000
3	Fund for micro food enterprises	10,000
3	Matsya Sampada – marine activities and infra	20,000
3	National Animal Disease Control Programme	13,343
3	Animal Husbandry Infrastructure Fund	15,000
3	Animal husbandry interest subvention	5,000
3	Herbal cultivation promotion	4,000
3	Beekeeping infrastructure development	500
3	TOP to TOTAL subsidy	500
	Total	**3,98,343**

47. Press Information Bureau, Government of India

Future outlook

The ongoing crisis led by the COVID-19 pandemic has had far-reaching implications on every sector of the global economy. It is hard to forecast the outlook of economic activity as we look to overcome the pandemic.

Most of the countries today are facing the disruptions caused by the virus and are either under the lockdown or just emerging out of it. India continues to witness rise in cases, however, it has started opening up the process of unlocking from 31 May.

There is every possible chance that the global economy will go into recession, which might also lead to a shortage in food supplies.

Impact on food security globally

In the early stages of the pandemic, experts estimated disruptions to accumulate mainly to global manufacturing supply chains and foreign direct investment as well as the likely implication of a slowdown in the Chinese economy on global GDP growth. However, an externality that was not anticipated by many was the devastating effect COVID-19 could have on food security around the globe. World over, supply chains had faced large-scale disruptions due to closure of borders, nationwide lockdowns and panic behaviour from buyers and sellers, which may lead to a global food crisis.

Given the rampant spread of coronavirus across the globe and the bleak reality of eradicating the virus soon, it is imperative for both exporting and importing countries of agricultural and allied commodities adopt accommodative trade policies that seek to enhance the lives of their respective citizens.

In India, despite the bumper harvest of crops, such as rice and wheat, the pandemic and the consequent nationwide lockdown has disrupted various processes, from procurement to marketing, of agricultural and allied commodities. Restriction on movement and social distancing guidelines has inflicted unprecedented implications on the agriculture sector as physical interactions between industry players are limited. However, the government has ensured the delivery and access to basic food to every citizen not to be interrupted under any situation.

How India can play a pivotal role in the global agriculture market

As the global economy seeks to overcome the pandemic and return to normalcy, food security related risks are emerging. For India to play pivotal role as a global food supplier, it needs to establish a long strategy and enabling environment for catering to domestic demand and promoting agricultural exports. Many aspects of this are reflected in the significant announcements made during Atmanirbhar Bharat tranche 3. The financial stimulus for the agriculture sector included long term reforms in agriculture, new legislative reforms, freeing the farmers from restrictive laws, opportunities to increase farmers' income through diversification. Essentially, the strategy would address needs with a two-pronged approach:

- Re-structuring the domestic market
- Enabling an export-oriented environment

Re-structuring the domestic market

India seeks to claim the dominant position in global agriculture trade, thus, it needs to strengthen its domestic agriculture market by focusing on:

1 **Re-designing the supply chain of agriculture and allied commodities**

2 **Re-prioritising the Union Budget, schemes and subsidies**

3 **Empowering the FPOs**

4 **Increased adoption of mechanisation**

5 **Increased application of technology**

1. Re-designing the supply chain of agriculture and allied commodities

- To begin with, the government will amend the ECA, which is a welcome initiative. After the amendment, cereals, edible oil, oilseeds, pulses, onions and potato will be deregulated. The amendment of the ECA will incentivise private sector to buy from farmers and enable better price realisation.
- The agri-supply chains need to be responsive to disruptions. The backend supply chain operations need to have collection centres and pack houses for aggregation, quality certification and demand information. Addressing this, a financing facility of INR 1 lakh crore for funding agriculture infrastructure projects at the farm-gate and aggregation points will provide the boost.
- With approximately only 5,000 mandis (APMC) in India at present, the APMC mandi network was impeding the ability of farmers to sell their produce at a desired location. Farmers are unable to choose where to sell their produce and due to large distances, they end up paying more transportation costs. Lastly, the commission fee at APMC mandis makes farming almost unfeasible. The government has now decided to dismantle the monopoly of APMC in the wholesale trading of farm commodities. This is a very positive step towards freeing agriculture
- At present, the cold storages are running at low capacity utilisation due to their vast size. The government's agri-infrastructure fund can assist in establishing a network of smaller cold storage units across the country at district levels to ensure small and marginal farmers can access with ease and at low costs.
- Financing the supply chain is very important. The government has several financing schemes as a part of the financial stimulus. Around 30% of agri-trade financing should be targeted at FPOs, cooperatives, self-help groups (SHGs) and rural small and medium enterprises (SMEs) with a turnover of less than INR 10 crore.
- The government should encourage agri-entrepreneurs and partner with private sector players to provide modern value addition across the value chain. Thus, facilitating the interaction of agriculture sciences, information, and communication technology (ICT) and allied sectors, which will help deliver sustainable and scalable solutions.
- The future agri supply chains need to have integration of market intelligence with demand estimation. To achieve this, integrating IoT, geospatial mapping and cloud computing may be explored.
- Advance data analytics and network mapping to monitor produce flow and identifying gaps is a necessary tool to have information on risks in supply chain. This is also valuable while devising suitable strategies to curb post-production losses.

2. Re-prioritising the Union Budget, schemes and subsidies

The rampant spread of the virus is the potential threat to food security. Thus, government needs to re-prioritise the Union Budget, scheme and subsidies supporting the agri-value chain. In the Union Budget 2020, the fund allocated for the agriculture and farmer's welfare ministry was increased by 30% at INR 1,42,762 crore[48]. However, the prioritisation of fund allocation across the value chain can give greater benefits. Larger allocation should be made in technology, farm mechanisation and research and development to ensure increased productivity and improved quality at global level.

Presently, farmers get subsidies for inputs like seeds, fertilisers, pesticides, etc., worth value of INR 2,40,000 crore. To ensure such large investment in the sector and government allocated funds reach to the farmers. Rather than giving it through Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) INR 6000 per farmer, to improve the efficiency, all the above input cost should be calculated on basis of one hectare and farmers should be given DBT just before they need. Further, it will ensure that all inputs will be sold at normal cost by the manufacturers and suppliers bringing back normal commercial and economic operations.

3. Empowering the FPOs

FPOs provide an organisational mechanism to mobilise farmers' collective interests and seek to improve the economic well-being of SMFs. FPOs have the ability to give farmers greater bargaining power whilst creating a more transparent agriculture market. Thus, the government should empower the FPOs across the country to better represent the core sect of India's farming population.

- Favouring the export policy, FPOs can be provided with a platform to establish a mechanism for linking FPOs through a public private partnership (PPP). Further, explore the possibility of developing a portal, which could include providing an e-commerce platform for direct export linkage.
- The government should support FPOs through facilitating incubation services that could strengthen the ability of FPOs to network and negotiate with stakeholders to better realise economies of scale.
- The government should establish a mechanism to provide access to equity and institutional funds for FPOs at initial stages. This would enable FPOs to invest in necessary infrastructure facilities to complement their business activities.
- To increase the bargaining power of these farmers, FPOs need to be provided with a stronger role such as:
  - They need to be provided seed, fertiliser, pesticide sales licence, as well as APMC licence on a priority basis
  - Farmer centric schemes of the government may be routed through FPOs to the extent feasible.

4. Increased adoption of mechanisation

Agriculture activities in India are largely labour dependent. However, it is during the lockdown and ongoing crisis India's lack of dependence on mechanisation was widely accepted. From harvesting and procurement to transportation and storage, activities across the value chain got disrupted due to a dearth in labour. Thus, the government must prioritise the penetration of mechanisation in agriculture across the supply chain, which would subsequently support India's ambitions of being a dominant force in the global agriculture market.

- Currently, penetration of farm mechanisation is approximately 40% in India. However, the government needs to support the private sector, to ensure a larger number of farmers receive the appropriate machinery at affordable prices.
- The government can support the adoption of agricultural machinery and equipment through subsidiaries and fiscal support related to the purchase of such machinery, such as loans at subsidised rates and co-payments for the purchase of machinery and equipment.
- The government needs to develop more CHCs, as they have enabled small and marginal farmers to adopt the use of machinery in farming activities at reasonable prices.

5. Increased application of technology

The present proactive government already has larger focus on the use of technology and its applications across sectors. However, the application of technology is yet to pace up across the agriculture value chain. Increased usage of technology in infrastructure development will thrust greater productivity and efficiency in farming practices. Supply chain agri start-ups focused on e-distribution and e-marketplaces can develop the procurement processes whilst ensuring farmers receive fair prices for their produce will complete transparency. Fintech enabled solutions in the agriculture sector will facilitate greater deployment of farm loans and introduce innovative models for payments and revenue sharing.

Interestingly, during the lockdown, there has been extensive application technology and mobile-based applications to ensure procurement, logistics and marketing of crops is seamless. The government platforms, such as e-NAM and KISAN RATH have enabled farmers to conduct operations, albeit at lower capacity, during the pandemic induced lockdown. The technological advantage of these platforms combined with an easy user-interface, wide-spread applicability and low cost will push these platforms in the long term.

With the rapid growth of mobile and internet connectivity in rural India, adoption of technology-enabled solutions amongst farmers will grow. The government must facilitate efficient and cost-effective channels to enable a larger

48. Economic Times article dated 02nd February, 2020

number of small and medium farmers to access such data solutions and the technology infrastructure.

Increased application of technology in agricultural machinery is also vital. As in automobiles, agricultural tractors and equipment should also be tested for safety and regulatory compliance. This will increase time to market and also incorporate customer suggestions in time.

The government should adopt geo-tagging technology, to ensure mapping of agriculture land, farmers and crops digitally across India. Moreover, geo-tagging will not only enable the government to collect land, farmer and crop specific data but it will also help to provide an essential support required while formulating policies.

Enabling an export-oriented environment

The COVID-19 pandemic has led to unprecedented disruptions to global supply chains. The export and import across countries have come to a standstill. Amidst this trade lock, India stands a chance to take advantage of this unprecedented situation and emerge as a dominant force in the global trade of agriculture and allied commodities. This provides India an opportunity to capture demand from international markets that would increase foreign exchange earnings and enable producers to earn higher prices for farm produce. This can be achieved by largely focusing on:

- **Accommodative export policy**
- **Encourage and incentivise more research and development facilities**

Accommodative export policy

The Indian agricultural exports stood at INR 38.54 billion[49] in FY19 and witnessed a CAGR of 14.1% from 2010 to 2019. Today, Indian agricultural/horticultural and processed foods are exported to over 100 countries/regions, such as the Middle East, Southeast Asia, SAARC countries, the European Union and the United States. India's strategic geographic location and proximity to food-importing nations works in its favour in terms of export of agriculture and processed foods. Over the years, India has developed export competitiveness in certain specialised products and was the ninth largest exporter of agricultural products in 2018.

Despite the ongoing crisis India had witnessed a bumper harvest. Massive production coupled with its potential to scale up its agricultural output, India stands a great chance to increase its share of exports. Currently, India needs to refine its existing export policy for promoting agricultural exports that would make India emerge as a dominant global player. To strengthen its exports government needs to strengthen its supportive infrastructure and logistics with due participation from state governments and private sector.

As a first step, India should identify the key countries to supply agricultural products, including the product requirements and respective sanitary import requirements. This can be achieved by creating a dedicated council to oversee agriculture exports during this period.

Exports of commodities with surplus production can improve farm prices, and there should not be any restrictions imposed on the same. As India has a trade-surplus in commodities like rice, meat, dairy products, horticulture products, tea and honey, it may seize this opportunity by exporting such products with a stable agriculture exports policy. For example, the prices of maize dropped this year as it is majorly dependent on poultry industry. Only export can help maize price go up. Thus, a strategy regarding this should be built around maize.

India has developed export competitiveness in certain products and meat export is one of them. Indian meat export industry has immense potential given the fact that India has the highest cattle population in the world. Also, government in its recent financial stimulus package for the economy (tranche 3) has launched National Animal Disease Control programme to ensure 100% vaccination of 53 crore animals, with an allocation of INR 13,000 crore[50]. The programme will not only boost livestock health but, will improve the global demand and perception of the Indian products.

India should prioritise the exports of value added agri-food products. A step in this direction includes promoting India's food processing industry on the global stage. By supporting the food processing industry, the government can provide a 20% export incentive under the Remission of Duties or Taxes on Export Products (RoDTEP) scheme. This will support the increase in processing levels of fruits and vegetables from the current 10% to approximately 80%. Thus, providing a boost to the exports of processed foods in line with the current government scheme Merchandise Exports from India Scheme (MEIS).

State governments should include agriculture exports in the state export policy. Providing such a platform to agri exports could usher developments in the APMC act, promote Good Agriculture Practices (GAP), prioritise quality assurance systems, establish pre- and post-harvest infrastructure for value addition and incentivise value addition and food processing industries. State government can further work together to establish an approach of developing specific clusters in different agro climatic zones that would help overcome several supply sides issues.

There is a need to align with European Union testing norms and have state of art testing centres accredited with EU and USA, to quickly launch products for exports markets.

India is the largest exporter of tractors and must convert it as the largest mechanisation product exporter. An additional promotional support of 10% for brand building from MEIS and aggressive EXIM banks thrust in markets like Africa with subsidised credit can be of great help to take on the competitors in the market. Further, government interventions (political & otherwise) for exports to countries like Africa required a country-specific model.

Exports should be classified under the essential services to ensure restriction-free movement of cargo between states. Delays in filling bills of entry and payments of customs duty can be given a relaxation. As other countries are strengthening their trade barriers to safeguard their domestic industries, the government should compensate agriculture exporters through an additional duty drawback of 3% for the next six months.

49. IBEF
50. Press Information Bureau, Government of India
51. Bloomberg quint article dated January, 2019

Encourage and incentivise more research and development (R&D) facilities

India spends around 0.3% of its agriculture GDP on research and development, compared with countries, such as Brazil and South Africa, which spend 1.8% and 3.06% respectively[51]. With research and development being a significant component in India's agriculture growth, the government should prioritise allocating a larger share of the agriculture budget. A consortium of experts, including government officials, industry players and sector experts should oversee the establishment of agriculture R&D. Players across developing and developed countries must be invited to compete in the agriculture industry to disseminate knowledge over best practices and novel technologies that would support the growing domestic R&D efforts. Furthermore, public funds should be spearheaded towards domestic players contributing to R&D efforts, which may include agri-entrepreneurs, universities and government research institutions. The government should facilitate the institutional ecosystem, including incubators, mentorship programmes and accelerators aimed to foster the robust development of agriculture start-ups.

It must be ensured that international standards are met by domestic players, which will further raise productivity levels and ensure greater quality and hygiene standards.

Conclusion

While the gloom and doom surrounding COVID-19 is palpable, the crisis has thrown up some great opportunities for India as several western manufacturers are already looking at moving their manufacturing bases out of China.

The current crisis is likely to have a lasting impact on global supply chains for all chemical products, including agro-chemical products. India will benefit from this by designing its regulatory mechanism and leveraging this shift, attracting greater investments and emerge stronger post COVID-19.

Going forward, a comprehensive approach to agrarian economy is required by devising farm-to-fork delivery models, enhancing value, upgrading quality, improving agri-logistics and making technology work for rural areas in such a way that there exists exchange of value in terms of money, nutrition and quality of food between farmers and consumers. The agri-supply chain needs to be designed to link the Indian village community to urban centres to have fork to farm linkages.

In order to become a leading exporter of agricultural produce, India needs to hike the research and development spends, facilitate more private investments, ensure a strong quality regime and further promote value-added exports with global certifications. In addition, we need to have a more robust and holistic export policy with a greater involvement of state governments while attaining improved production, productivity, and better farmer realisation. These factored in, India can further expand its horizons ushering in more product varieties into the export categories and unleash its true potential.

Good practices and innovations witnessed in testing times

Case Study 1

Surakshit Mandi

Overview

The ongoing crisis has disrupted the agriculture supply chain in India. The increased gap between origin prices and destination prices explains the severity of the situation. While on one hand farmers are resorting to distress selling of their produce, on the other hand consumers are overpaying for purchase. Moreover, if the current situation continues it will have a significant impact on cropping pattern adopted by farmers across India.

Challenges

Currently, a post-harvest agri-value chain starts with primary mandi or APMC. This mandi acts as a platform for effective price realisation by farmers and aggregation centres of the produce for stockiest, traders, processors and other participants. Due to the lockdown, agriculture value chain faced multiple challenges, such as acute shortage of labour and transportation. Due to the lack of labour and social distancing measures, mandis too faced labour shortage at operational level. Thus, farmers were only allowed to visit mandis at a fixed time slot and could only sell a part of their produce per visit. However, these multiple visits to mandis resulted in an additional cost burden on the farmers. Large number of farmers in distress started selling their produce at lower rates to local traders.

Solution

Since it is difficult for farmers to bring their produce to mandis by bearing additional costs, alternative arrangements should be made for the sale of produce.

To overcome these challenges, government considered allowing warehouses to act as mandis. Further, these warehouse operators collaborated with national-level companies in post-harvest management of agri-supply chains. This tie-up helped warehouses use e-market platforms to connect with buyers locally and nationally.

To regulate the arrival and manage logistics in accordance with social distancing guidelines, a SMS-based pre-registration system was implemented.

On receiving a SMS, the farmer reaches at warehouse with its produce. Further, the WSP carries out each step of exchange and transfer, i.e., weighing, sampling, grading and quality assessment, thereby minimising crowd and contact before handing over a receipt to the farmer. Later, WSP can sell the produce on e-market platforms.

Farmers are to be paid directly into their bank accounts within 24 hours of completion of the auction of the produce.

In case, any farmer is not willing to sell his produce at the time of deposit at WSP, the farmer, with assistance from WSP, can pledge the produce with any of the scheduled commercial bank by accessing warehouse receipt finance.

Benefits

- The above solution will ensure the smooth operation of the agri-value chain and help farmers generate cash against their produce without any distress selling.
- The solution will also help normalise the supply of essential commodities during the lockdown by directing farmers produce straight to the warehouse through commission agents or arhatiyas.
- This pledge facility will help farmers to generate cash against their produce without doing any distress selling.

Case Study 2

Flexible Hermetic Storage (FHS) solutions

Overview

A study conducted by one of the fastest growing warehousing service providers in the country, with 92 FPOs in 48 districts, suggests that logistics breakdown was one of the major reasons for significant impact on FPOs operations during the COVID-19 lockdown.

Challenges

The ongoing crisis resulted in disruptions across the agriculture value chain, which led to challenges in procurement and logistics. While one hand village aggregators or FPOs were not able to procure produce from their members, on the other, they were unable to transport procured commodity to warehouses or even if transport was managed, shortage of labour to unload and stack the commodity in warehouses was another challenge.

Solution

To overcome these challenges, a company in India is currently providing innovative structures that can be transported and installed at any location with ease. These hermetic storage structures can stock non-perishable commodities for long periods without any chemical pest control interventions. Moreover, these structures can stock commodity volumes ranging from 50 MT to 300 MT.

Apart from versatility and mobility, the structure also provides for commodity quality upkeep without any chemical intervention, making them the only available technology to store organically labelled produce in the world.

Benefits

- It is a good alternative for regular storage structures, but it would require certain policy level support from the government to make it a viable alternative as a community level storage structure.
- It offers hosts of benefits, such as versatility and mobility, in the current situation. However, these systems are to be imported and currently have a single manufacturer so the cost is relatively high. Also, insurance companies consider material stored in FHS at par with storage in open field, thus resulting in higher charges.

Case Study 3

Farm to Fork

Overview

Despite the increase in mango acreage to 23.09 lakh hectares in 2019-20 from the previous year's 22.96 lakh hectares, mango production in India is estimated to decline due to unseasonal rains, hailstorms and the COVID-19 lockdown. The unseasonal rains in November affected the development of flowers in mango trees, followed by hailstorms between December and February that damaged orchards. Lastly, the lockdown towards the end of March disrupted the trade of all mango varieties.

This sequence of events has led to mango enthusiasts frantically searching for ways to find their favourite fruit and mango cultivators are looking for a way to sell their produce.

Challenges

Due to the ongoing crisis, farmers had faced multiple challenges such as lack of transportation, labour and packaging. At ground level, farmers were not able to reach the markets, be it local, regional or foreign. In certain parts, transportation cost went up over 100%. The supply of mangoes across cities was disturbed and if the situation continues, farmers are estimated to suffer losses of about 70-80%.

Solution

Helping farmers to find a market and for consumers to be able to enjoy the fruit, a company in Maharashtra, along with the state government, is making innovative efforts to bring mango from farm to one's doorstep through technology.

Starting through social media adhering to government rules, the company is now planning to launch an app soon. The app has provided farmers a readymade market for their produce and ensuring they get value for their products. Also, the app would be a common platform for both farmers and consumers to sell and buy their favourite fruits, thus, benefitting both.

Benefits

- Through technology, the company ensures that consumers receive the best-quality fruit, naturally ripened and with geographical indication at affordable rates at their doorstep.
- It helps sustain lakhs of mango farmers to can sell their produce on time and at the right price.
- Government rules of social distancing and usage of sanitisers are strictly followed.

List of Abbreviations

AAP	Annual Action Plan
APLM Act	Agriculture Produce and Livestock Marketing Act
APMC	Agricultural Product Market Committee
CAGR	Compound Annual Growth Rate
CAP	Common Agricultural Policy
CC	Cash Credit
CHC	Custom Hiring Centres
COVID-19	Corona Virus Disease of 2019
CWC	Central Warehousing Corporation
DBT	Direct Bank Transfer
EBP	Ethanol Blended Petrol
EC Act/ECA	Essential Commodities Act
e-NAM	Electronic National Agriculture Market
e-NWR	e-Negotiable Warehouse Receipt
EXIM	Export-Import
F&B	Food and Beverage
F&V	Fruits and Vegetables
FCI	Food Corporation of India
FHS	Flexible Hermetic Storage
FMCG	Fast Moving Consumer Goods
FPO	Farmer Producer Organization
FSSAI	Food Safety and Standards Authority of India
GAP	Good Agriculture Practices
GrAM	Gramin Agricultural Markets
GST	Goods and Services Tax
HoReCa	Hotel, Restaurant, Café
ICT	Information and Communication Technology
INR	Indian Rupee
IoT	Internet of Things
KCC	Kisan Credit Card
LLPD	Lakh Litre per Day
LMT	Lakh Metric Tonne
MEIS	Merchandise Exports from India Scheme
MFE	Micro Food Enterprises
MHA	Minister of Home Affairs
MOA	Ministry of Agriculture
MSME	Micro Small Medium Enterprises
MSP	Minimum Support Price
MT	Metric Tonne
NABARD	National Bank of Agricultural and Rural Development
NBFC	Non-Banking Financial Company
NOC	No Objection Certificate
PDS	Public Distribution System
PM-KISAN	Pradhan Mantri Kisan Sammaan Nidhi
PMFBY	Pradhan Mantri Fasal Bima Yojna
PMKSY	Pradhan Mantri Krishi Sinchayee Yojana
POS	Point of Sale
PPP	Public Private Partnership
RBI	Reserve Bank of India
RoDTEP	Remission of Duties or Taxes on Export Products Scheme
SAARC	South Asian Association of Regional Cooperation
SHG	Self Help Group
SKU	Stock Keeping Unit
SME	Small and Medium Enterprises
SMS	Short Message Service
SOPs	Standard Operating Procedures
TOP	Tomatoes, Onions and Potatoes
USD	United States Dollar
WDRA	Warehousing Development and Regulatory Authority
WSP	Warehouse Service Providers
WTO	World Trade Organization

Acknowledgements

In preparation of this Report we have received invaluable suggestions from following people. We would like to acknowledge them for their inputs and expert guidance.

Mr. T.R. Kesavan, TAFE Ltd.

Dr. Ajai Kumar, Corteva Agriscience

Mr. Sagar Kaushik, UPL

Mr. Siraj Chaudhry, NCML

Mr. Sanjay Sacheti, Olam Agro India Pvt Ltd

Mr. Siraj Hussain, Adviser FICCI

Mr. Pravesh Sharma, Adviser FICCI & Co-founder & CEO, Kamatan Farm Tech Pvt Ltd.

Mr. Amit Mundawala, Star Agri

Mr. Gulzeb Ahmed, HMA Group

Dr. A K Padhee, ICRISAT

Mr. Kaushal Jaiswal, Rivulis Irrigation India Pvt Ltd

Mr. Unupom Kausik, NCML

Mr. Gulrez Alam, IB Group

Mr. Sunil Kajaria, Keventers

Mr. Ekram Husain, Essar Exports

Mr. Mayank Tandon, Freshtop Fruits Ltd.

Mr. Rajiv Palicha, Nedspice Processing India Pvt Ltd.

Mr. Anand Chandra, Arya Collateral Warehousing Services P Ltd

Mr. Sanjiv Kanwar – Yara fertilizers India Pvt Ltd

Dr. Sangita Ladha - Jain irrigation Systems Ltd.

Mr. Gurmeet – GMH Agrihub Pvt Ltd.

Mr. Umesh Mongia – Zoom Insurance Brokers Pvt Ltd

We would like to especially thank TAFE, Corteva Agriscience, UPL, Star Agri and HMA for their support, time and guidance to us for this report.

Contributors

Project Team: FICCI

Ms. Jyoti Vij, Deputy Secretary General, FICCI

Ms. Ruchira, Joint Director-Agriculture, FICCI

Ms. Shikha Dutta, Assistant Director- Agriculture, FICCI

Grant Thornton Team

Author

Rahul Kapur
Partner, Growth
E: rahul.kapur@in.gt.com

Sonika Pruthi Gupta
Associate Director, Growth
E: sonika.pruthi@in.gt.com

Vinayak Saxena
Assistant Manager
E: vinayak.saxena@in.gt.com

For media queries, please contact

Rohit Nautiyal
E: rohit.nautiyal@in.gt.com

Editorial Review

Charu Sharma

About FICCI

Established in 1927, FICCI is the largest and oldest apex business organisation in India. Its history is closely interwoven with India's struggle for independence, its industrialisation, and its emergence as one of the most rapidly growing global economies.

A non-government, not-for-profit organisation, FICCI is the voice of India's business and industry. From influencing policy to encouraging debate, engaging with policy makers and civil society, FICCI articulates the views and concerns of industry. It serves its members from the Indian private and public corporate sectors and multinational companies, drawing its strength from diverse regional chambers of commerce and industry across states, reaching out to over 2,50,000 companies.

FICCI provides a platform for networking and consensus building within and across sectors and is the first port of call for Indian industry, policy makers and the international business community.

Agriculture Division
Federation House, Tansen Marg New Delhi-110001, India
E: agriculture@ficci.com
P: +91-11-23487415
F: +91 11 2376 5333

About Grant Thornton in India

Grant Thornton in India is a member of Grant Thornton International Ltd. It has 4,500+ people across 15 offices around the country, including major metros. Grant Thornton in India is at the forefront of helping reshape the values in our profession and in the process help shape a more vibrant Indian economy. Grant Thornton in India aims to be the most promoted firm in providing robust compliance services to dynamic Indian global companies, and to help them navigate the challenges of growth as they globalise. Firm's proactive teams, led by accessible and approachable partners, use insights, experience and instinct to understand complex issues for privately owned, publicly listed and public sector clients, and help them find growth solutions.

4,500+
people

15 offices in
13 locations

One of the largest
fully integrated
Assurance, Tax &
Advisory firms in India

Contact us

To know more, please visit www.grantthornton.in or contact any of our offices as mentioned below:

NEW DELHI
National Office
Outer Circle
L 41 Connaught Circus
New Delhi 110001
T +91 11 4278 7070

NEW DELHI
6th floor
Worldmark 2
Aerocity
New Delhi 110037
T +91 11 4952 7400

AHMEDABAD
7th Floor,
Heritage Chambers,
Nr. Azad Society,
Nehru Nagar,
Ahmedabad - 380015

BENGALURU
5th Floor, 65/2, Block A,
Bagmane Tridib, Bagmane
Tech Park, C V Raman Nagar,
Bengaluru - 560093
T +91 80 4243 0700

CHANDIGARH
B-406A, 4th Floor
L&T Elante Office Building
Industrial Area Phase I
Chandigarh 160002
T +91 172 4338 000

CHENNAI
7th Floor,
Prestige Polygon
471, Anna Salai, Teynampet
Chennai - 600 018
T +91 44 4294 0000

DEHRADUN
Suite no. 2211, 2nd floor Building
2000, Michigan Avenue,
Doon Express Business Park
Subhash Nagar, Dehradun - 248002
T +91 135 2646 500

GURGAON
21st Floor, DLF Square
Jacaranda Marg
DLF Phase II
Gurgaon 122002
T +91 124 462 8000

HYDERABAD
7th Floor, Block III
White House
Kundan Bagh, Begumpet
Hyderabad 500016
T +91 40 6630 8200

KOCHI
6th Floor, Modayil Centre point
Warriam road junction
M. G. Road
Kochi 682016
T +91 484 406 4541

KOLKATA
10C Hungerford Street
5th Floor
Kolkata 700017
T +91 33 4050 8000

MUMBAI
16th Floor, Tower II
Indiabulls Finance Centre
SB Marg, Prabhadevi (W)
Mumbai 400013
T +91 22 6626 2600

MUMBAI
Kaledonia, 1st Floor,
C Wing (Opposite J&J office)
Sahar Road, Andheri East,
Mumbai - 400 069

NOIDA
Plot No. 19A,
7th Floor
Sector – 16A
Noida 201301
T +91 120 485 5900

PUNE
3rd Floor, Unit No 309 to 312
West Wing, Nyati Unitree
Nagar Road, Yerwada
Pune- 411006
T +91 20 6744 8800

For more information or for any queries, write to us at contact@in.gt.com

Follow us @GrantThorntonIN