

## Transformation in the Agriculture Sector Caused by COVID-19

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### **Abstract**

The global economy and human health have been seriously impacted by the COVID-19 pandemic, a worldwide health crisis, both directly and indirectly through the necessity for drastic measures to stop the disease's spread. The food and agriculture sectors were among those that were fully exposed. Although the food supply has held up successfully thus far, the efforts taken in many nations to stop the virus's spread have begun to disrupt the flow of Agri-food items to consumers and markets domestically and internationally.

### **Introduction**

The World Health Organization (WHO) declared COVID-19 to be a pandemic on March 11, 2020, which has caused previously unreported consequences regarding public health, the global economy, and food supply chains and systems. This international health crisis has disrupted current food systems and consumer eating behaviours due to severe restrictions (e.g., lockdowns and social distancing) and the resulting labour shortages throughout the food value chain. This emphasizes the necessity for resilience and adaptability for a healthier and more sustainable food supply. Globally, consumers and food producers have greater concerns about food safety, quality, and traceability. Additionally, the pandemic accelerated the adoption of digital technologies, sparked concerns about food security, and prompted a renewed focus on building resilience within agricultural systems.

The agro-industry has long been seen as the growth engine for managing international trade relations and balancing import-export. The sector is facing serious challenges with trade, transportation, price instability, and growing debt as a result of the abrupt COVID-19 epidemic. Additionally, the statewide lockdown proclamation made matters worse by creating a labour shortage, a fertilizer shortage, an imbalance in supply and demand, and issues related to post-harvesting.

Due to the ongoing COVID-19 pandemic, the agriculture industry is having a very difficult time meeting the growing demand for food. Since the disease outbreak, factors including promoting health and nutrition-based foods, enhancing safety, reducing poverty, and promoting environmental sustainability have become critically important.

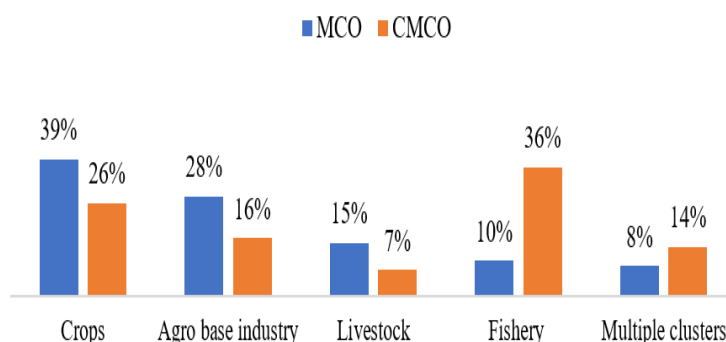
In this article, we will explore the transformations brought about by COVID-19 in the agriculture sector, examining key areas such as supply chain dynamics, labour shortages, changes in consumer demand, digital adoption, food security concerns, resilience planning, and the rise of e-commerce. By delving into these aspects, we can gain insight into how the pandemic has influenced the way we produce, distribute, and consume agricultural products, as well as the long-term implications for the future of the food system.

### Impact on the agriculture sector

The crisis has brought about significant transformations in the agriculture sector, influencing how food is produced, distributed, and consumed. Here are some key changes and trends that have emerged as a result of the pandemic

#### Supply Chain Disruptions

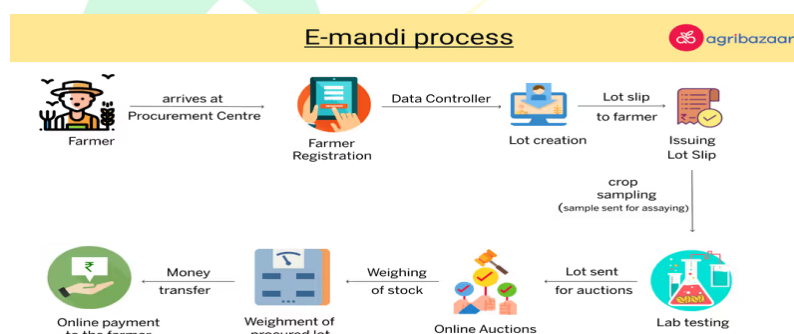
One of the most immediate impacts of the pandemic was the disruption of agricultural supply chains. Lockdowns and travel restrictions hindered the movement of agricultural inputs like fertilizers, seeds, and machinery, leading to shortages and price hikes. Movement restriction and fear of infection limited the availability of migrants and seasonal workers leading to labour shortages. During the COVID-19 pandemic, Southeast Asia implemented various movement control measures to curb the spread of the virus. The two main types of restrictions were the Movement Control Order (MCO) and the Conditional Movement Control Order (CMCO). Here's an overview of the situation during these periods:



### Agriculture Food Supply Chain Scenario during the COVID-19 Pandemic in Southeast Asia

## Digital Transformation

The pandemic accelerated the adoption of digital tools and technologies in agriculture. Farmers increasingly turned to apps and online platforms for a variety of purposes, including market access, weather forecasting, pest management, and remote advisory services. With the surge in e-commerce, many farmers now use direct farmer-to-consumer models and online marketplaces to sell their products, bypassing traditional supply chains. The Indian government released several apps, such as Agribazaar, Kisan Rath, and Kisan Suidha, to aid farmers during the COVID-19 pandemic, and have now become indispensable to daily life. Kisan rath helps farmers connect with transporters to move their produce from farms to markets, overcoming logistical challenges during the pandemic.



## This agritech startup is fixing the food supply chain with e-mandis

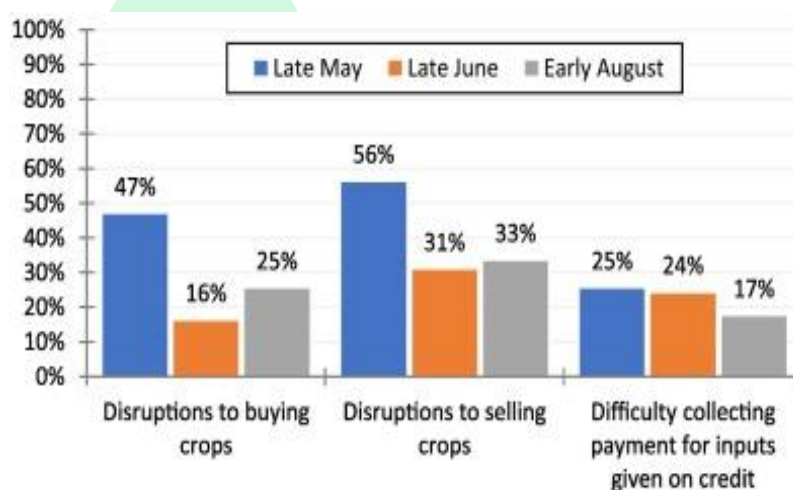
### Changes in Consumer Behaviour

The pandemic led to increased consumer awareness about health and nutrition, boosting demand for organic and health-conscious food products. With global supply chains disrupted, there was a heightened emphasis on local sourcing of food. Consumers preferred locally produced goods to avoid potential shortages and ensure freshness. Demand for fresh food and vegetables increases by around 20% to 30%. Consumers are switching to healthier foods despite their flavour, such as including walnuts, flaxseeds, and millet in their diets. In India, millet consumption increased by approximately 25% to 30%, and globally, it increased by about 15% to 20% during the pandemic. Foods high in antioxidants, vitamins, and minerals-like leafy greens, ginger, turmeric, and citrus fruits- are mainstays in diets to boost immunity.

### Economic impact

The closure of local markets and restaurants resulted in significant income losses for farmers who relied on these channels for selling their produce. The pandemic caused

fluctuations in commodity prices, leading to uncertain incomes for farmers. For instance, dairy farmers faced significant losses due to reduced demand from the hospitality sector. The pandemic caused a sudden drop in demand for certain perishable goods, while panic buying led to spikes in demand for others, creating market instability. However, no income assessment report that estimates the impact of COVID on the income of small and marginal farmers due to the nationwide lockdown is available. Agriculture and Allied Sectors registered a growth of 3.4% during 2020–21, even as overall economic growth declined by -7.2% during the same period.



### Effects of COVID-19 on late-transforming Southeast Asia's food systems and agriculture production

#### Focus on Sustainability

The crisis has accelerated the adoption of sustainable practices, driven innovation, and reshaped policies to build a more resilient agricultural system. Regenerative agriculture practices, such as cover cropping, crop rotation, and reduced tillage, gained traction as farmers sought to build soil fertility and resilience. During the pandemic, more than 62% of farmers reported that they were interested in trying more sustainable farming practices such as reducing their use of synthetic fertilizers and pesticides. Increases in the cultivation of millet, legumes, quinoa, and sorghum by approximately 25%, 20%, 15%, and 15% respectively. Governments introduced subsidies and support for farmers adopting sustainable practices, organic farming, and water conservation techniques such as Mission Organic Value Chain Development for North Eastern Region (MOVCDNER) – Launched to promote organic farming in the North Eastern states of India, this scheme gained momentum during the pandemic.

## Conclusion

The pandemic has caused significant challenges to the global agro-food systems, impacting key production sectors, dietary modifications, the environment, transportation, and the supply chain. Access to reasonably priced and wholesome food for everyone has been severely hampered by restrictions on travel, fluctuations in supply, and logistical difficulties brought on by social separation and stringent quarantine regulations. The affordability of consumers working in the unorganized sector was more impacted by COVID-19 than by those in the organized sector. Customers with lower family incomes or those who had lost their employment showed a considerably higher level of health awareness. The widespread transmission of the virus has caused significant disruptions to food systems and food security, disproportionately affecting the most vulnerable populations. It was observed that the demand for wellness and entertainment products was not affected much by affordability but by lifestyle changes while the demand for health and hygiene products was more influenced by consumer awareness towards health. Affordability, on the other hand, influenced the demand for affordable substitutes for daily necessities. This has underscored the pressing need to prioritize the development of a resilient and sustainable food system as a fundamental lesson drawn from this global crisis. Future research may show that there have been significant shifts in consumer behaviour toward plant-based, more nutrient-dense diets. With the arrival of digitalization and the expansion of digital marketing, consumers would be able to order anything and have it delivered right to their homes. We can therefore conclude that recognizing the seriousness of the situation and taking appropriate action will contribute to a more inventive socio-technological ecosystem.

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