



# IMPACT OF COVID- 19 IN INDIAN AGRICULTURAL

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## Abstract

The COVID-19 pandemic has triggered significant disruptions across various sectors, with agriculture being no exception. This abstract study the multifaceted impact of the COVID-19 pandemic on agriculture. Firstly, COVID-19 led to labor shortages due to movement restrictions and fear of infection among migrant workers, affecting planting, harvesting, and overall farm operations. Secondly, disruptions in the supply chain, including transportation constraints and border closures, hindered the distribution of inputs like seeds, fertilizers, and machinery, as well as the movement of agricultural products to markets. Moreover, shifts in consumer behavior and demand patterns due to economic uncertainties altered market dynamics, leading to price volatility and income losses for farmers. Additionally, lockdown measures and social distancing protocols disrupted traditional markets and agricultural trade, forcing farmers to explore alternative marketing channels such as online platforms. Furthermore, the pandemic highlighted the vulnerability of smallholder farmers and exposed structural weaknesses in agricultural systems, emphasizing the need for resilience-building measures and policy interventions to mitigate future shocks. In conclusion, the COVID-19 pandemic has posed significant challenges to agriculture, highlighting the sector's vulnerability to global crises and underscoring the importance of building resilient and sustainable food systems.

Keywords: - COVID 19, Agriculture

## 1. INTRODUCTION

The COVID-19 pandemic indeed presented unprecedented challenges globally, affecting not only public health but also Agriculture, economies, food security, and various sectors of society. The initial outbreak in Wuhan, China, quickly spread to become a global health crisis. Governments worldwide implemented various measures such as lockdowns, social distancing, and travel restrictions to curb the spread of the virus. While these measures were necessary to protect public health, they had significant economic repercussions. One of the key areas affected by COVID-19 was Agriculture. Disruptions in supply chains, labor shortages, and restrictions on movement impacted agricultural production and distribution. This, in turn, led to concerns about food shortages and price volatility, particularly in vulnerable communities already facing poverty and hunger. Lessons from China's experience highlighted the delicate balance between implementing public health measures and maintaining essential economic activities like agriculture. Lockdowns and other restrictions can indeed hamper production and disrupt supply chains. Governments and policymakers must carefully consider these trade-offs and implement measures to mitigate the impact on food security and the economy. Efforts to safeguard food production and distribution

systems, support farmers and agricultural workers, and ensure access to food for all are crucial during times of crisis like the COVID-19 pandemic. Additionally, investments in resilience and adaptation strategies can help mitigate the impact of future crises on food systems and economies. Balancing public health imperatives with the need to maintain essential economic activities is essential for navigating through such unprecedented challenges. The disruptions caused by the COVID-19 pandemic on agricultural production and labor mobility have indeed been significant, with far-reaching implications for food security and economic stability. The restrictions on labor mobility, particularly the inability of farmers to access migrant labor, have resulted in manpower shortages and reduced efficiency in agricultural operations.

## 1.2 OBJECTIVES OF THE STUDY

1. Socio economic effect of COVID-19 in agriculture industry.
2. Effectivity of government assistance in mitigating problems of farmers affected by COVID-19.
3. Lifestyle changes in farmers and its effect on food industry.
4. Future strategies to combat such endemic.

## 2. RESEARCH METHODOLOGY

Research methodology is the systematic way to do research. It is a science of studying and how research is to be carried further. Essentially, the procedures by which research go forward for their work of describing, explaining and predicting phenomena is called research methodology. This chapter explicates the research design of the study, introduces factor and variables included, sample size and statistical tools which are used for analysis in the study.

1. Selection of study area .
2. Data Collection method and sources.
3. Method of analysis.

### 1 Selection of study area

- a. First stage - Selection of District
- b. Second Stage - Selection of Block
- c. Third Stage - Selection of Village
- d. Fourth Stage - Selection of Respondents

#### a. Selection of District

Madhubani district of Bihar was selected purposely for the current study as it occupies good share in agricultural production.

#### b. Selection of Block

There are 20 blocks in Madhubani district of Bihar. Out of these 20 blocks, Madhubani block was selected purposely on the basis of maximum area and a greater number of farmers for the current study.

#### c. Selection of Villages

5% villages were selected purposely having highest number of farmers.

#### d. Selection of Respondents

Village wise list of all the respondents was prepared and 10% respondents were selected for the study.

### 2.2 Method of Collection of Data

Primary as well as secondary data were collection to meet the objectives of the study.

#### a. Primary data

Primary data was collected from the respondents (Traders and farmers) with the of semi structured questionnaire. Questionnaire for the both farmers and dealers was prepared to interact with them.

#### b. Secondary data

Secondary data was collected from the different websites and the agricultural office of particular selected village because everything is not available from one source. The whole research was mainly based on secondary data.

### 3. RESULT AND DISCUSSION

#### 3.1 Objective 1: - Socio economic effect of COVID-19 in agriculture industry.

The COVID-19 pandemic has exerted profound socio-economic effects on India, with agriculture being no exception. In this study, we'll delve into the socio-economic effects of the pandemic on the agriculture industry, in India. From disruptions in the supply chain to shifts in consumer behaviour, the pandemic has reshaped the agricultural landscape in multifaceted ways.

**1. Disruptions in Supply Chain:** The COVID-19 pandemic indeed wreaked havoc on agriculture. The intricate web of supply chains that ensures the timely delivery of agricultural products faced unprecedented challenges during lockdowns and restrictions. Labour shortages, both due to illness and travel restrictions, hampered crucial activities like planting, harvesting, and processing, disrupting the flow of produce from farms to consumers.

**2. Shifts in Demand:** As the pandemic unfolded, consumer behaviour underwent significant changes. With restaurants closed and people confined to their homes, there was a shift in consumption patterns. Demand for fresh produce and staple foods surged as individuals stocked up on essentials. Conversely, demand for luxury or non-essential agricultural products declined. This shift in demand necessitated adjustments in production planning and distribution strategies within the agriculture sector.

**3. Price Volatility:** The uncertainty surrounding the pandemic led to increased price volatility in agricultural markets. Fluctuations in demand and disruptions in the supply chain created imbalances, causing prices to fluctuate unpredictably. For example, the closure of restaurants and schools led to a decrease in demand for dairy and poultry products, resulting in surplus supply and plummeting prices. On the other hand, panic buying and hoarding behaviour led to temporary spikes in prices for certain agricultural commodities.

**4. Farmer's Livelihoods:** Small-scale farmers, already vulnerable due to limited access to resources and markets, bore the brunt of the pandemic's economic fallout. Many lacked the financial resources to weather the crisis, leading to loss of livelihoods and food insecurity. Closure of local markets and restrictions on movement further restricted their access to buyers, exacerbating their plight. In some cases, farmers were forced to abandon crops due to lack of labour or market opportunities, leading to significant income losses.

**5. Government Interventions:** Governments worldwide implemented various measures to support the agriculture sector in the pandemic. These included financial aid packages, subsidies, and loan deferrals aimed at alleviating the financial burden on farmers. Additionally, some governments-initiated programs to facilitate the distribution of surplus produce to food banks or vulnerable communities. However, the effectiveness of these interventions varied, and many small-scale farmers still struggled to access support due to bureaucratic hurdles or lack of awareness.

#### 3.2 Objective 2: - Effectivity of government assistance in mitigating problems of farmers affected by COVID-19.

Mitigating the effect of COVID-19 on the farming community in India has been a paramount concern for the government, given the sector's significance in the country's economy and its role in ensuring food security. The pandemic posed unprecedented challenges to farmers, ranging from disruptions in the supply chain to labour shortages and market uncertainties. In response, the Indian government implemented various measures aimed at providing assistance and support to farmers. This Study will delve into the effective steps taken by the Indian government to mitigate the challenges faced by the farming community during the COVID-19 pandemic.

**1. Direct Financial Assistance:** One of the primary measures initiated by the Indian government was the provision of direct financial assistance to farmers. Under the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme, small and marginal farmers received direct income support of Rs. 6,000 annually, disbursed in three equal instalments. This scheme proved crucial during the pandemic, providing immediate relief to farmers grappling with the economic fallout.

**2. Credit Support:** Recognizing the money constraints faced by farmers, especially during the pandemic-induced lockdowns, the government enhanced its focus on providing credit support. The Agriculture Infrastructure Fund (AIF) was launched with a corpus of Rs. 1 lakh crore to catalyse the creation of post-harvest infrastructure. Additionally, the government increased the agricultural credit target to Rs. 15 lakh crores in pandemic time, ensuring adequate credit availability to farmers for agricultural activities.

**3. Market Interventions:** The disruption in supply chains and market closures posed significant challenges for farmers in selling their produce. To address this, the government undertook various market interventions. The electronic National Agriculture Market (e-NAM) platform facilitated online trading of agricultural produce, enabling farmers to connect with buyers across the country. Furthermore, the government announced several reforms aimed at liberalizing agricultural markets, such as the Farm Acts, which aimed to create a more conducive environment for farmers to engage in direct marketing and access remunerative prices for their produce.

**4. Provision of Inputs and Subsidies:** Ensuring the availability of agricultural inputs such as seeds, fertilizers, and pesticides was crucial to mitigating disruptions in agricultural activities. The government continued its support through various schemes like the Pradhan Mantri Fasal Bima Yojana (PMFBY), which provides crop insurance to farmers, ensuring financial protection against crop losses. Additionally, subsidies on fertilizers and other inputs were maintained to alleviate the financial burden on farmers.

**5. Technology Adoption and Extension Services:** Technology played a pivotal role in mitigating the impact of COVID-19 on agriculture. The government promoted the adoption of modern agricultural practices and technologies through schemes like the National Mission on Oilseeds and Oil Palm (NMOOP) and the National Mission for Sustainable Agriculture (NMSA). Extension services were also ramped up to disseminate information about best practices, weather forecasts, and market trends, enabling farmers to make informed decisions.

### 3.3 Objective 3: - Lifestyle changes in farmers and its effect on food industry

**1. Shift towards Technology Adoption:** In response to mobility restrictions and the need for social distancing, many farmers have increasingly embraced technology in their agricultural practices. This includes the use of digital platforms for accessing market information, online procurement of agricultural inputs, and the adoption of precision farming techniques. The integration of technology has enhanced efficiency, productivity, and resilience in farming operations, thereby positively impacting the food industry through increased agricultural output and improved supply chain management.

**2. Diversification of Agricultural Activities:** The pandemic-induced disruptions highlighted the vulnerabilities of traditional farming practices reliant on monoculture or a limited range of crops. In response, farmers have diversified their agricultural activities by exploring alternative crops, engaging in mixed cropping, or integrating livestock rearing with crop cultivation. This diversification strategy not only mitigates risks associated with market fluctuations but also contributes to food security by enhancing the resilience of the agricultural ecosystem.

**3. Focus on Local and Regional Markets:** The disruptions in transportation and logistics during the lockdowns prompted farmers to reevaluate their marketing strategies and focus on local and regional markets. Direct-to-consumer sales, farmers' markets, and community-supported agriculture (CSA) models gained prominence as farmers sought to reduce dependence on distant markets and intermediaries. This shift towards local and regional marketing channels has facilitated greater consumer-producer engagement, promoted the consumption of fresh, locally sourced produce, and supported the development of resilient food systems.

**4. Adoption of Sustainable Practices:** The pandemic underscored the importance of building resilience in agricultural systems to withstand shocks and disruptions. In response, farmers have increasingly adopted sustainable agricultural practices aimed at conserving natural resources, enhancing soil health, and minimizing environmental impact. Practices such as organic farming, agroforestry, and water-efficient irrigation techniques have gained traction, reflecting a broader societal shift towards sustainability and resilience in food production.

**5. Labour Dynamics and Mechanization:** The pandemic-induced migration of labourers from urban to rural areas disrupted traditional labour dynamics in agriculture. To cope with labour shortages and ensure continuity in farming operations, farmers have increasingly invested in mechanization and automation technologies. The adoption of farm machinery, such as tractors, harvesters, and drones, has not only improved operational efficiency but also reduced reliance on manual labour, thereby transforming the labour landscape in agriculture.

### 4.4 Objective 4: - Future strategies to combat such endemic.

Combating COVID-19 in the context of agriculture requires a multi-faceted approach that addresses both immediate challenges and long-term resilience-building efforts. Some future strategies to effectively tackle the impact of the covid-19 pandemic on agriculture are as follows:

**1. Investment in Digital Agriculture:** Leveraging digital technologies can enhance the resilience of agricultural systems by improving access to information, markets, and extension services. Future strategies should prioritize investment in digital infrastructure, such as broadband connectivity and mobile platforms, to facilitate e-commerce, online market linkages, remote sensing, and precision agriculture. Promoting digital literacy among farmers and integrating digital tools into extension services can enhance productivity, reduce post-harvest losses, and strengthen the resilience of farming communities.

**2. Promotion of Climate-Smart Agriculture:** Climate change exacerbates vulnerabilities in agricultural systems, making resilience-building imperative. Future strategies should prioritize the promotion of climate-smart agriculture practices that enhance adaptive capacity and mitigate climate risks. This includes practices such as conservation agriculture, crop diversification, agroforestry, water harvesting, and soil conservation. Integrating climate resilience into agricultural policies, research, and extension services can help farmers cope with climate variability and ensure sustainable food production.

**3. Enhanced Market Integration and Diversification:** Strengthening market integration and diversification can mitigate the impact of supply chain disruptions and market uncertainties. Future strategies should focus on enhancing infrastructure for storage, transportation, and market access to facilitate the efficient movement of agricultural produce. Promoting value addition, agro-processing, and market linkages can create opportunities for farmers to access higher value markets and reduce dependence on volatile commodity markets. Regional and international trade agreements can also facilitate market diversification and enhance the resilience of agricultural economies.

**4. Investment in Rural Infrastructure:** Improving rural infrastructure is critical for enhancing agricultural productivity, market access, and rural livelihoods. Future strategies should prioritize investment in roads, irrigation, storage facilities, cold chains, and market infrastructure to reduce post-harvest losses and improve access to markets. Developing rural agri-business hubs and agri-logistics parks can promote agri-entrepreneurship, value addition, and employment generation in rural areas. Public-private partnerships can mobilize resources and expertise for infrastructure development, ensuring inclusive and sustainable rural development.

**5. Strengthening Social Safety Nets:** COVID-19 has exacerbated food insecurity and poverty, highlighting the importance of social safety nets in protecting vulnerable populations. Future strategies should strengthen social protection programs, such as food assistance, cash transfers, and insurance schemes, to safeguard the livelihoods of smallholder farmers and marginalized communities. Targeted interventions for women, youth, and migrant workers can enhance their resilience to shocks and ensure inclusive agricultural development. Community-based approaches, such as self-help groups and cooperatives, can empower farmers to collectively manage risks and access support services.

#### 4. CONCLUSION

The impact of COVID-19 on Indian agriculture has been profound, affecting every aspect of the sector from production to distribution and market access. Despite the challenges posed by the pandemic, the resilience and adaptability of Indian farmers have been remarkable, demonstrating the sector's ability to overcome adversity and innovate in the face of crisis. From disruptions in the supply chain to labour shortages and market uncertainties, the pandemic exposed vulnerabilities in the agricultural ecosystem while also catalysing transformative changes that are reshaping the future of farming in India.

The lockdown measures implemented to contain the spread of the virus disrupted agricultural activities, leading to delays in sowing, harvesting, and marketing of crops. Labour shortages, exacerbated by the migration of workers from urban to rural areas, further hampered agricultural operations during critical stages of the cropping cycle. Smallholder farmers, who constitute the majority of the agricultural workforce in India, were particularly vulnerable, facing challenges in accessing inputs, credit, and markets. The closure of Mandis and marketplaces disrupted price discovery mechanisms, leading to volatility and uncertainty in agricultural commodity markets.

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