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A Study on the impact of agricultural produces during COVID -19 pandemic situations in India

Anusuya. S

Department of Management and Commerce, Amrita School of Arts and Science, Mysuru, Amrita Vishwa Vidyapeetham, India

Aashish Itigatti

Department of Management and Commerce, Amrita School of Arts and Science, Mysuru, Amrita Vishwa Vidyapeetham, India

Abstract--The COVID-19 epidemic has a wide range of negative implications for worldwide economies and people. The COVID-19 offers various problems to the long-term survival of the agriculture sector, which is particularly vulnerable because of food supply security concerns. To begin, it is critical to understand and appreciate the immediate consequences of the current pandemic on agriculture and food systems to build necessary remedies. The hazards, vulnerability, resilience, and systemic modifications of agricultural systems must be better understood to adapt to the COVID-19 pandemic. The purpose of this essay is to investigate the inconvenient effects of Corona virus on horticulture and food systems through weakness and flexibility as if it were a worldwide calamity. The literature evaluation was organized around the concepts of 'vulnerability' and resilience,' which have dominated disaster studies since World War II. The fundamental input of this study is the systematization and grouping of the key options to increase agricultural system resilience in the face of a COVID-19 pandemic, based on recent scientific papers released in 2020. Based on a detailed literature review, future research guidelines are also suggested. Any economy's foundation is agriculture. It is the vital sector that provides employment, allowing the financial process to continue. When it comes to the Indian economy, this region is home to the majority of the population. With the spread of the pandemic, ranchers' and visitors' jobs are in jeopardy. COVID-19 has disappeared from several countries. It is returning in certain cases. The agrarian area will be forever affected by a limited capacity to focus on the pandemic. We don't know when or how much of a negative impact the pandemic will have on the economy. The Covid epidemic began during the peak gathering season. The yield in more than 100 lakh hectares across the country is in jeopardy while the business

sectors are secured. Indeed, even among the fragments, the influence varies greatly between different places and between makers and horticulture compensation employees. This impact will ricochet across the economy and will take several months to appear. How is Indian agriculture responding to the issue, and how are government estimates affecting 140 million homestead families across the country, influencing the economy of a large developing country? We explore the immediate problems provided by COVID19 to the ranching community and propose moderate efforts to secure a viable food supply in the post-emergency phase.

Keywords---Challenges, Global Agriculture, Indian Agriculture, COVID-19.

Introduction

Agriculture is still a significant aspect of the Indian economy. The region meets the entire country's food needs while also ranking among the world's top agricultural exports. Several obstacles have recently beset the region, but none have been as severe as the domestic and international travel restrictions enforced during COVID-19. According to Award Thornton, the issues are divided into two categories: labor shortages and fares. Even though cultivating work in these states is primarily done by transient labor from East India, Punjab and Haryana are among India's agrarian forces to be reckoned with.

When India's cross-country lockdown was initially reported in March, the natural reaction was a massive return of traveler employment to rural primary households, as laborers moved to stay at home and observe the lockdown. The harvesting season, which usually begins in mid-April, was utterly ruined, causing major financial problems. According to Grant Thornton, one of the harvests that have suffered the most damage is the June crop. That is where the transportation area is. The development of state fringes has been significantly hampered, stifling yield growth and, as a result, their sale. When you consider the shortage of machine mechanics and other related support workers, you get the picture of a failing industry.

Objectives

1. To access the agricultural produce and its impact during the COVID-19 pandemic situation.
2. To examine the impact on farmers during a COVID-19 pandemic situation.
3. To evaluate the emphasis on the Indian government and its response.

Literature Review

1. In their work Potential Impact of Corona Virus on Agriculture Sector, Prangya Paramita Sahoo and Suvangi Rath (2020)³ found that "it very well may be fought with the coordinated efforts of the federal and state governments, as well as examination institutes and augmentation

administrations." To avoid the negative effects of COVID-19 are-up and to keep the agribusiness sector unaffected, the legislature should enact specific rules for horticulture activity, and the value structure should be reconsidered and changed so that ranchers do not suffer any financial losses. The cultivating network, as well as the workers, should be protected from Corona infection by maintaining social separation and assisting with the management of the frenzy by providing ranchers with a platform for direct advertising in order to meet the needs of the hoppers through home delivery of the farming produce and avoid any sort of wastage in the harvested products.

2. With COVID-19 spreading across India, the government has declared a 21-day nationwide lockdown to prevent the virus from spreading further. Given the precarious employment situation of many Indians, agricultural, food security, and safety net strategy and programme responses are also crucial. Prof. Mahendra Dev, an Indian academic and policymaker, adds to the discussion by pointing out what actions and reforms are urgently needed. — CGIAR Research Program on Agriculture for Nutrition and Health Director John McDermott, series co-editor (A4NH).
3. Agricultural Systems 189 (1030492) despite a sluggish start (Lowe and Roth, 2020). Ranchers' cash concerns for the upcoming 2020 Kharif season may have been influenced by the delay in acquiring the 2019-2020 Rabi season creation (July-November).
4. (Reddy, 2017). At the same time, 85 percent of Indian farmers are small and marginal, 50% rely on informal loans, and 20% buy agricultural inputs with credit. Food grain output during the Rabi and Kharif seasons of 2019–2020 has increased by 5% and 2%, respectively, when compared to the previous year. For the Rabi seasons 2019–2020, one may claim that the season's major farming tasks were accomplished before to the lockdown.
5. Varshney et al. (2020b) demonstrate that the planning of PM-KISAN advantages moved to ranchers matters for choosing an agricultural enterprise. In any event, the remaining three plans provide a bonus under the bundle. Despite the fact that these plans are not explicitly intended for ranchers, the benefits obtained through these plans have implications for ranchers' liquidity difficulties. When compared to fixed assets such as houses, the fungibility theory implies that spending is more sensitive to pay and fluid resources.
6. (Levin, 1998). Farmers' cash have been diverted for involuntary obligations, according to empirical studies on fungibility in microfinance for Bangladesh and India.
7. (Mahajan and Ramola, 1996; Sharma and Zeller, 1997). As a result, ranchers are virtually likely going to use the advantages they've gained to further their agricultural interests.
8. The study adds to the body of knowledge by enhancing government assistance in minimising the risk for a productivity shock in the agricultural sector as a result of the Pandemic of COVID-19 (Jhajhria et al., 2020; Ceballos et al., 2020) The research of the correlative function of various plans contributes to the lack of experimental writing on the fungibility of benefits obtained through friendly assistance plans.
9. Improving knowledge for innovation in production methods can provide food and nutritional safety while also promoting ecosystems and water

- resources, according to sustainable and biological models (Barcaccia, D'Agostino, Zotti, & Cozzi, 2020).
10. From agriculture to food processing, technological transformation will be a constant element of the food supply chain. The use of cutting-edge automated frameworks that will significantly reduce the requirement for labourers, as well as the innovatively advanced AFS with a competent worker force, will be among the ventures (Christiaensen, Rutledge, and Taylor, 2020).
 11. A holistic approach to sustainable food systems is required to properly accomplish nutritional goals (Barcaccia et al., 2020; Dupouy Gurinovic, 2020). Unquestionably, a commercial enterprise can serve as a game-changing specialist in terms of sustainability.
 12. (Apostolopoulos, AlDajani, Holt, Jones, & Newbery, 2018) and agrifood business can use the pandemic issue as a chance to improve. As indicated by (Cowie, Townsend, & Salemink, 2020), one of the 4IR technologies is smart grids, which aim to govern distribution generation, storage, consumption, and flexible demand practises.
 13. Since the 2008 economic and monetary crisis, there has been a surge in research interest in agrifood businesses.
 14. Despite the fact that the economic crisis and the epidemic are not the same, they have both had an impact on income and demand. The pandemic has centred on agrifood security challenges, like as food production strategies that preserve customers' health while minimising environmental impact (Mishra et al., 2021).
 15. (Di Vaio et al., 2020). The epidemic has led us to reconsider agriculture's role, how critical it is to human survival on the planet, and how it can continue to be so while also improving the environment and climate and contributing to long-term growth.
 16. A shift from face-to-face to digital relationships has been a feature of the pandemic (Phillipson et al., 2020).
 17. (Charlton and Castillo 2020; Luckstead, Nayga Jr, and Snell 2020). The last element is especially important if the producers are unable to find a buyer for their harvests, as most can't be planted for another year. Changes in animal choices could be felt this year or next, but they could also be significant in the long run, as working back stocks needs investment.
 18. Trade is an alternative, but Chenarides, Manfredo, and Richards (2020) point out that COVID-19 has disrupted supply networks around the world, and some nations have imposed, or are considering imposing, trade restrictions to get local food sources.
 19. Maliszewska, Mattoo, and van der Mensbrugge (2020) use a CGE model that includes labour and capital shocks, international trade costs, a drop in travel services, and a shift in interest away from activities that need closeness between individuals. These early examinations misunderstood the virus's negative monetary results, as would be shown in the results.

Challenges of the agriculture in COVID 19

The purchasing of nutritious grains by government entities has been hindered. Harvest gathering from homesteads by private merchants has been hampered.

- The Rabi crop cannot be harvested because there are insufficient laborers.

- A shortage of drivers in the transportation sector.
- Barricades beside main highways in rural product development Conclusion of the APMC mandis or restricted tasks
- Retail farming market closures Wheat, grapes, watermelons, bananas, muskmelon, chana, cotton, chillies, turmeric, cumin, coriander, onion, and potato have all experienced a drop in output.

Effects on India

Agriculture accounts for about 17% of India's GDP. Horticulture, with its many sub-disciplines, is India's largest source of job opportunities. 70% of provincial families rely solely on agribusiness for employment.

1. Pinnacle collects with no acquisition: This is the top of India's Rabi season, when wheat, gram, lentil, mustard, and other crops (including paddy for inundated parcels) were ready to harvest or near it. b. Homestead crops are often brought to the mandis for guaranteed acquisition by government entities.
2. Workplace inaccessibility due to counter-clockwise movement: a. Agricultures that benefit from the transfer of harvesting innovation, such as Paddy and Wheat, are frequently better safeguarded because they don't demand a lot of hard work.
3. A scarcity of public goods. The most basic test is to make food grains, soil products, and other necessities available to purchasers in both rural and urban locations. b. First and foremost, last-mile conveyance specialists have been badly handicapped by railway and street transportation of public dissemination framework (PDS) goods.
4. Sale Restrictions: Ranchers/workers, like reaping and related homestead machines, were prohibited from migrating between and within states.
5. Gracefully chained interruptions: a. The lack of transportation offices, together with vigilantly obstructing routes, restricts the growth of transitory collect work and agricultural machines. b. Similarly, trucks and work vehicles do not contain all "ranch hardware" by definition.
6. The lockdown imposed obligations and cash-flow constraints. a. Ranchers' most serious issue is repaying product advances, gold credits, and other unanticipated commitments. b. Yield credits are reimbursed between April and May, and a new advance is authorized at the start of the following season.

Impact on food demand and food security Report:

A request is a customer's desire and capacity to acquire goods and services within a certain time frame. Food demand has been affected by lower-income and purchasing power. Panicked Food supply and pricing have been affected as a result of consumer stockpiling. The government, on the other hand, sets the price of commodities as part of its pandemic preparedness program. Price stability is likely for needs, according to Siche, but price spikes for high-valued products are possible [15]. Because of the erroneous idea that animals are viral reservoirs, animal protein intake has declined dramatically in recent years. Simply speaking, food security refers to the availability and accessibility of adequate food.

Small farmers and fishers, according to the FAO, may have difficulty selling their products, resulting in a decrease in income and purchasing power. COVID19 has exacerbated food insecurity, with the poorest and most vulnerable individuals

bearing the brunt of the consequences [19]. Chronic hunger affects 820 million individuals worldwide, while acute extreme insecurity affects 113 million people [29]. As a result, a pandemic that disrupts food access has a significant and immediate impact on these people. Approximately ten million teenagers rely on school lunches to achieve their nutritional needs. Due to school closures and the suspension of school meal programs, these youngsters no longer receive regular school meals, which may limit their opportunities.

Methodology

This is a descriptive investigation. Using secondary records sources, this has become more complete. Secondary records have been gathered from a variety of published sources, including books, journals, newspapers, magazines, and websites. This test will be conducted in India. A well-structured interview schedule was used to compile the number one report. Farmers' records have been evaluated and collected into a conserve near table. In the long run, the records were analysed using statistical techniques.

The statistical tools are

1. Simple Percentage
2. Chi-Square Test
3. Weighted Average Method

Limitations of the Study

- The statistical methods used to analyze the data have their limitations
- The study is limited to a selected sample of Mysuru District, and so the results of the study cannot be generalized.

Table no1
Simple percentage

Factors	Number Of farmers N=200	Percentage
Gender		
Male	106	53
Female	94	47
Age (Years)		
Up to 25	48	24
26 to 50	94	47
Above 50	58	29
Educational Qualification		
Up to School Level	116	58
Graduate	62	31
Post Graduate	22	11
Annual Income		
Up to Rs.1,00,000	68	34
Rs.1,00,001 to	48	24

Rs.2,50,000		
Above Rs.2,50,000	84	42
Farm size (acres)		
Up to 5	74	37
5 to 15	88	44
Above 15	38	19
Farming experience(years)		
Less than 10 Years	86	43
11 to 40Years	50	25
Above 40 Years	84	42
Type of Family		
Nuclear Family	92	46
Joint Family	108	54

Describes the farmer demographic profile used in this study. Out of two hundred farmers surveyed, it was modified decided that the majority (53%) of the respondents are male, (47%) are a number the at the same time as 26 and 50, (58%) of the farmers have completed immoderate school, (42%) of the farmers have annual profits of more than Rs.2,50,000, (54%) of the farmers have a farm vicinity of 5 to 15 acres, (42%) of the farmers have more than 40 years of farming experience, and (54%) of the farmers have more than 40 years of farming experience.

Table no2
Relationship between Farmers Demographic Profile and Level of Impact on
COVID-19 towards Agriculture Production

Variables	Level of Impact			Total	x2 Value	Table Value	Remarks
	Low	Moderate	High				
Gender							
Male	26	44	56	106	7.64	5.991	S
Female	36	26	32	94			
Age (Years)							
Up to 25	8	10	30	48	12.46	9.488	S
26 to 50	35	32	28	94			
Above 50	24	10	24	58			
Educational Qualification							
Up to School Level	32	40	44	116	16.18	9.488	S
Graduate	36	16	10	62			
Post Graduate	8	6	8	22			
Annual Income							
Up to Rs.1,00,000	22	14	12	68	12.83	9.488	S
Rs.1,00,001 to Rs.2,50,000	18	18	12	48			
Above Rs.2,50,000	28	36	20	84			

Farm size (acres)							
Up to 2	24	16	34	74	13.63	9.488	S
2 to 10	38	26	24	88			
Above 10	8	18	12	38			
Farming experience (years)							
Up to 2 Years	16	22	28	66	12.53	9.488	S
2 to 10 Years	30	42	36	50			
Above 10 Years	16	12	10	84			
Type of Family							
Nuclear Family	34	20	38	92	3.58	5.991	S
Joint Family	36	48	24	108			

*significant at 5% percent level.

The graph depicts the affiliation among positive demographic variables and the quantity of the effect of covid19 on farmers' crop production. There isn't any great affiliation among gender, age, annual income, gender, instructional qualification, farm size, farming experience, kind of own circle of relatives of the farmers, and stage of the effect of COVID-19 on agriculture production, because the calculated chi-rectangular price is extra than the desk price on the 5% stage.

Table no3
Impact of COVID-19 on Farmers– Friedman Rank Test

Factors	sum of wi xi	weighted average	Rank
Scarcity of Capital			
wx1	331	6.4	2
Less Demand and Supply			
Wx2	333	5.53	1
Transportation Facility			
Wx3	294	2.9	5
Scarcity of worker's			
Wx4	312	4.13	3
Demand for seeds and fertilizers			
Wx5	310	3.78	4

The Friedman Rank Test of COVID-19's Impact on Farmers is proven with inside the desk above, and their diploma of importance is 0.000, indicating that there's a courting among the ranks. The effect of COVID-19 on farmers is proven with inside the desk above. It is found that almost all farmers revel in a decreased call for and delivery of their commodities, shortage of capital, shortage of workers, call for seeds and fertilizers, and transportation facilities. As may be visible from the chart above, the bulk of the farmers said that COVID-19 had a massive poor have an impact on their livelihood.

Suggestion

1. With a thriving people, there is a looking at climb in food interest in India.
2. A post-COVID situation offers that striking event to reuse the ongoing food and agribusiness procedures for a more profitable people.
3. India, being trade surplus on things like rice, meat, milk things, tea, nectar, green things, etc may exploit the godsend by exchanging such things with a stable agri-sends out strategy.
4. This is uplifting news in the COVID situation, expecting horticulture can rehearse generally solid.
5. These aims for a food framework reform in India must be incorporated into post-COVID agricultural planning.
6. Farmers' incomes dropped as a result of disruptions in agricultural production marketing in mandis and rural hats, as well as lower farm gate prices, resulting in a weak recovery.
7. To halt the spread of the corona pandemic, SHGs, FPOs, and FCs in rural areas may conduct a large-scale awareness campaign on Covid 19.
8. The capacity of rural godowns and cold storage infrastructure in rural areas must be increased.
9. With NABARD's help, a model farm equipment bank/fodder bank with FPOs might be created.

Conclusion

The agriculture sector and farmers in India will be more affected by the Covid19 pandemic lockdown phase. The agriculture sector in India is beset by challenges with labourers and agricultural supplies. Even though agriculture products are free from lockdown instructions, agriculturists face numerous challenges due to certain restrictions. In India, the agriculture industry is experiencing monsoon interruptions, crop loss, and now, disruptions caused by the Corona virus. According to the findings, both the federal and state governments should make substantial efforts to assist farmers. Basic reforms, such as land rental, contract farming, and private rural business sectors, have been upheld for a long time to bring improved interests into the agribusiness sector and to push its development. However, because state governments have not consistently implemented these statutes, the area's maximum capacity has been disguised. These reforms will require strong political will. The conclusion of the lockdown will not solve the problems. Surprisingly, they are likely to intensify at the start of the new horticultural planting season. There is a greater demand for government support as a source of information for other farming sources. The lack of assistance will further exacerbate the rural emergency. The requirement for greatness.

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2. Lowe and Roth, 2020 The time lag in the procurement of 2019–2020 Rabi season production may have impacted the liquidity concerns of farmers for

- the upcoming 2020 Kharif season (July-November). 4. Reddy, 2017 The food grain production for the 2019–2020 Rabi and 2020 Kharif seasons has increased significantly by 5 and 2%, respectively, compared to the previous year.
3. Varshney et al. (2020b) PM- KISAN benefits transferred to farmers matters for taking the investment decision for the agriculture sector.
 4. (Levin, 1998). Empirical studies on the fungibility in microfinance for Bangladesh and India suggest that the funds received by farmers have been diverted for involuntary commitments.
 5. (Mahajan and Ramola, 1996; Sharma and Zeller, 1997)Therefore, it is likely that farmers may use the benefits received here to leverage their investments in agriculture.
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 11. Apostolopoulos, Al-Dajani, Holt, Jones, & Newbery, 2018 agri-food entrepreneurship can see the pandemic crisis as an opportunity for continuous improvement.
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 14. Mishra et al., 2021 The pandemic has focused on agri-food security issues, such as good agricultural practices in the production of food that respects consumers' health and reduces the environmental footprint.
 15. Vaio et al., 2020). The epidemic has caused us to rethink agriculture's place in society.
 16. Phillipson et al., 2020. A move from face-to-face to digital contacts has been a feature of the epidemic.
 17. Charlton and Castillo 2020; Luckstead, Nayga Jr, and Snell 2020). The latter point is particularly important if producers do not and a buyer for their crops, as most cannot be planted for another year.
 18. Chenarides, Manfredo, and Richards (2020) note that COVID-19 has disrupted supply chains worldwide; and it has been noted that some

countries impose, or are thinking of introducing, export restrictions to secure domestic food supplies.

19. Maliszewska, Mattoo, and van der Mensbrugghe (2020) also employ a CGE model with shocks to labour and capital, international trade costs, a reduction in travel services, and demand is being redirected away from activities that need people to be in close proximity to one another.