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Impact of Covid-19 on Agricultural System and Food Prices: The Case of India

Pradyot Ranjan Jena, Rajesh Kalli and Purna Chandra Tanti

Abstract

The present study focused on evaluating the impact of Covid-19 lockdown on the agriculture system in India. A telephonic interview was conducted with farmers among various states between April to May 2020. A total of 494 farmers participated in the survey identifying the challenges they faced during the lockdown. First, the study has outlined the knowledge and perception of respondents on the Covid-19 virus and second the impact of Covid 19 induced restrictions on the agricultural system and food prices in India has been analyzed. The study classified the impact of lockdown on the agriculture system into four broad classifications - Farm Inputs, Farm Produce and Supply Chain, Agriculture and Allied Activities, Pandemic and Food prices. The detailed analysis across these four dimensions is discussed. Due to the shutdown of many supply routes, the availability of agricultural inputs such as fertilizer and seeds was disrupted, which jeopardized farmers' investment planning. Furthermore, the seasonal migrants who would work in urban areas enter off-season and return to their native villages for farming could not carry it on. Such a rapid chain of events created massive short-run income shortages for small and marginalized farmers across the country. The special economic package for agriculture empowerment announced by the Government of India in the tune of two lakh crore rupees, equivalent to ten per cent of India's GDP, has been the government's first response to deal with this agricultural crisis. Finally, the chapter puts forward policy suggestions to strengthen resource-poor farmers' capabilities plagued with a low-income-low-yield vicious cycle.

Keywords: COVID 19, Lockdown, Agriculture Supply Chain, Farmers Income, Food Security, Risk Assessment, Healthcare

1. Introduction

The impact of the Covid-19 on the global economy is highly devastating. The increased restriction among the nations has disrupted the economic activities causing a significant decline in economic growth [1]. The previous pandemic outbreaks were limited to certain regions (Spanish flu and Ebola). However, the spread of the Covid-19 virus was evidenced in more than 215 countries worldwide [2]. Given its deepening threat to human lives and economies, there is a need to understand the pandemic's impact on different sectors. Agriculture is one such sector that is certain to face the brunt of the crisis [2, 3]. The global trade came to be suspended, causing a threat for most of the agriculture exporting countries. With government interventions in place, the agriculture trade continued to be

flat during the lockdown. The scenarios of both export and import restrictions on Agri-commodity were evidenced among major economies [4]. Few economies restricted imports to control the spread of the virus. Subsequently, these restrictions were eased for the movement of goods, while prices of staple food crops increased and a fall in prices was noted in high-value agricultural produce. Supply chain disruptions caused an immense impact on the agriculture sector of all the countries [5, 6]. This disruption leads to a decline in the income source of rural livelihood. A shortfall in the movement of agricultural produce increased the food insecurity threat among most of the developing nations.

In India, more than 80% of rural livelihood directly or indirectly depends on the agriculture sector. Food security and self-sufficiency are the main goals of

Time line (2020)	Cases	Deaths	Events	Lock down
January – February	1		Kerala Govt. declared state calamity	
1st - 16th March	2	1	Odisha declared Disaster and Delhi Govt declares closure of Educational Institutes	
March 22nd	360		14-hour ‘Janata curfew’	
March 25th	606	10	A nationwide lockdown was imposed till April 14th	Lockdown 1.0
March 31st	1397	37		
April 14th	10, 000		Lockdown extended till May 3rd	Lockdown 2.0
April 29th	31,787	1008		
May 1st			Lockdown extended till May 17th	Lockdown 3.0
May 17th			Lockdown extended till May 31st	Lockdown 4.0
May 31st	1,82,143	5164		
June 8th				Unlock 1.0
June 30th	5,66,840	16,893		
July 1st				Unlock 2.0
July 31st	16,38,870	33,747		
August 1st				Unlock 3.0
August 31st	36,21,245	64,469		
September 7th				Unlock 4.0
September 30th	62,25,763	97,497		Unlock 5.0
October 31st	8,137,119	1,21,641		
November 30th	9,431,691	1,37,139		
December 31st	10,266,674	1,48,738		

Table 1.
Presents the timeline of events in India due to Covid–19 outbreak.

the Indian agriculture. The major problem in India's agriculture sector is the inefficient market system and complex supply chain issues. The movement of crops from production centers to the markets is challenging with increased players in the supply chain [7, 8]. It has been highlighted by researchers repeatedly the need for adequate storage facilities (cold storage and warehouse) and facilitating the movement of food crops without any considerable wastes [5]. The recent COVID 19 pandemics is certain to expose this bottleneck and adds additional stress to the existing crisis in the agriculture sector. The early assessment of the pandemic impact on agriculture looks profound [2, 3, 5–13]. However, disaggregated studies will provide insights for a better policy response. Boosting agricultural productivity and maximizing farm income is the critical pathway policymakers should focus on in the aftermath of the current pandemic. Against this backdrop, the present study evaluates the challenges faced by the agriculture sector for an appropriate policy response. This leads to some important questions- what was the impact of Covid-19 induced lockdowns on agriculture operations? How did it impact in terms of the income from both agriculture and its allied activities? how did the agriculture markets and food prices behave during the pandemic outbreak? The study explores the following questions using a qualitative framework, where farmer respondents are the primary source of information. Globally, restrictions were imposed to avoid the spread of the Covid-19 pandemic. **Table 1** presents the timeline of events in India due to Covid–19 outbreak. In India, a complete lockdown was first initiated from 24 March 2020 to 14 April 2020 and extended till 31 May 2020. By the end of the lockdown, the total reported cases in India were 1,82,143, with casualties of 5164. Due to fewer reported cases and low casualties, the government re-opened the economic activities with guidelines to prevent further outbreaks.

2. Materials and methods

The Covid-19 induced lockdown has a differential impact on the agriculture system in India. With restricted economic activity, the aggregate demand and supply shrank, causing a ripple effect on employment and income. This prolonged lockdown could become a larger economic crisis, especially in the primary sector of the economy. The agro-based economies found difficult in all the stages, where the availability of inputs (fertilizers, pesticides, labor, and seeds), logistics and supply chain challenges, farm operations, and allied agricultural activities are impacted in various ways. To understand these effects, the study collected information from different regions in the country. The authors focused on the follow-up interviews from the previously available baseline dataset of farmers [14, 15]. Due to the severity of the pandemic and the restriction to travel imposed by the government, field visits were not feasible. Thus, we conducted telephonic interviews with nearly 494 farmers from different states of India. The discussion with the farmers was for the period between April and May 2020. The study administered a pre-structured questionnaire (attached in appendix) involving farmers perception of the Covid-19 pandemic and its impact on farm operations, accessibility to markets, credit availability, other income sources, and support from the government. descriptive statistics Table have been included in the appendix to show the summary of the surveyed household. The study also reviewed major literature focused on the pandemic's impact on agriculture, which includes scientific articles (both quantitative and qualitative), reports from state and national level government agencies, media articles, and reports from various international agencies (World Bank, IMF). In this current situation, there is a need to ameliorate the agriculture sector, which has been lacking for many years; apparently, the direction towards sustainable

development is slow in the Indian context. Against this backdrop, we outline several *prima facie* challenges and urge to formulate appropriate policy responses for sustainable development in the agriculture sector.

3. Results and discussion

3.1 The impact of COVID 19 on agricultural operations

The exposure to digital and social media has created awareness about the Covid-19 pandemic among the rural community. The farmers indicated their knowledge of the pandemic and its likely consequences. They expressed that precautionary measures have been instructed to them by various organizations. However, they noted their limited ability to follow these measures among the rural community. Though the respondents were aware of the precautionary measures such as washing hands using sanitiser, wearing a mask, and social distancing, they did not follow these measures thinking that Covid-19 is only an urban problem. Few farmers reported that hardly 10 to 20% in their villages followed the precautionary measures.

The agriculture sector in India faced an unprecedented challenge during the Covid-19 pandemic outbreak; the study classified four broad concerns highly experienced by the majority of the farmers. Each of these challenges is discussed in the following sections.

3.1.1 Farm inputs

The agricultural system in India varies due to its large and diversified topographic characteristics, climate, and soil. The onset of monsoon begins at the end of May in southern India. By the end of April, farmers start preparing the land and build inventory for the upcoming Kharif season. The imposed restriction created a shortage of fertilizers, pesticides, herbicides, and seeds in several regions of the country. For instance, districts in the northern interior region of Karnataka faced a huge shortfall in fertilizer, especially urea in May [16]. A similar shortage of inputs was noted in the districts of Maharashtra and Odisha [17, 18]. Several reports also cited that traders stocked up the fertilizers for higher price realization due to the lockdown. The major reason for the unavailability of the fertilizer was the restrictions imposed by the government. More than 50% of the respondents complained that disruption in the supply chain caused unavailability of at least one kind of input (For example Urea, DAP, NPK, Seeds, Sprayers, and others). This shortage also led to delay in cultivation in some regions. Further, farmers reported that even government outlets were shut down due to a shortage of fertilizer availability. Nearly 35% of the respondents expressed that they paid additional money (50 to 80% higher prices) to purchase fertilizer. However, after the initial 21 days of the first phase of lockdown, government announced the relaxation to the farm operation. This helps in building up the inventory related to farm inputs among the farming community. Though the relaxation was provided, the confusion in the implementation process caused jittery among farmers several other inputs.

The credit crunch faced by the farmers was observed from the survey due to a steep decline in agriculture prices and restriction to market access. The burden of cash flow and high labour costs caused additional stress among the farming community. Farmers hold agriculture produce for a shorter period for

better price realization, while lockdown, procurement in the wholesale market was limited. This caused a glut of agricultural produces among farmers leading to a liquidity crunch to purchase the inputs for the next growing season. In the past, small farmers used to migrate to nearby towns after rabi season to form capital for the upcoming Kharif season. However, with the closure of economic activities, most of the part-time migrant laborers had to return to the villages without enough capital for the next farming season. The return of the full-time migrant workers from the urban locality caused an additional burden among the families without any source of income. Though the availability of the labourers increased in the rural community with the addition of the migrant workers, the employment creation or the farm activities involving labours decreased due to the financial constraint among the large and medium-scale farmers. The mismatch in the wages was also evident, where the migrant workers demanded higher wages. Few of the large-scale farmers reported that they used tractors and machinery due to increased labour wages. Few of the respondents owning large farmland reported that some of the lands were left barren due to increased input cost.

3.1.2 Farm produce and supply chain

The cropping pattern in India varies among the states. During March and April, rabi crop harvesting will be at its peak among major states. The pandemic outbreak coincided during this time causing a significant effect on farm production. Due to lockdown, farmers could not complete land preparation and provide irrigation on time, which caused a negative impact on crop productivity. The farmers from Uttar Pradesh and Bihar reported that wheat harvesting was in the process and they were worried about the increased restrictions due to the pandemic. Additionally, hailstorms and unseasonal rain destroyed the standing crops like green gram and black gram, where harvesting was delayed due to restriction. The primary survey on farmers in India reported that 24% of the respondents did not harvest due to lockdown-related reasons (price instability and transport cost) [19]. A similar discussion was evident from the present survey, as farmers from northern India reported that harvesting was delayed due to lower prices in the market. Farmers in southern India faced a similar problem in terms of vegetables and fruits. A significant setback was evident in the case of Mango, where harvesting and the pandemic-induced lockdown coincided during the same timeline. Additionally, mango cultivators in southern Indian states were hit drastically due to restricted travel bans, shut down in developed markets (delayed exports), and a shortage of labourers. A significant reduction in the tune of 26% was noted in the arrival of mangoes in the market during 2020–2021 compared to the previous calendar year [20]. Perishable agricultural products were more affected compared to non-perishable goods. Crops such as wheat can be stored, while perishable goods such as vegetables and fruits significantly impacted the pandemic outbreak. Farmers during the interview from all the regions said a significant loss in the cultivation of vegetables. The farmers who cultivate vegetables reported that they were left unharvested in the field due to lower demand, significant fall in the farmgate prices, and lack of market access. The lockdown restricted both interstate and intrastate movement of the vehicles resulting in disruptions in the supply chain of the vegetables and fruits. Further, increased transport charges also played a significant role in the stoppage of vegetables to reach the urban market. Though the government announced few relaxations for the movement for the vegetables in the later stage, ineffective

operations in the vegetable warehouses and the limited procurement from the government caused a significant decline in the arrival of vegetables in the market. Due to low prices and no procurement in the market, farmers dumped their vegetables and fruits on the road [21]. Farmers during our discussion reported that disruption in the supply chain had led to selling the vegetables in the nearby villages, where the market prices were so low that the revenue did not cover the input cost. Furthermore, the export of vegetables and fruits was reduced by 70% in India during March 2020 and May 2021 with increased freight charges by the airline cargo companies [22].

3.1.3 Agriculture and allied activities

Agricultural allied activities such as horticulture, fishery, forestry, dairy, and floriculture generate additional income for the farming community. As discussed earlier, India is the largest producer and exporter of mango and mango pulp. The food processing industries which process mango were shut down and import was banned by major economies. This created a significant effect on the mango food chain. Similarly, India’s milk supply chain, which follows a complex structure with many verticals, was disrupted due to the pandemic outbreak. The procurement by the co-operatives fell due to weak demand for dairy-related products. Moreover, the closure of the restaurants and other businesses (bakery, sweet shops, and tea par-lour) had a significant impact on the dairy industry. Farmers reported that milk was distributed among the neighbors due to weak demand in the village collection center. Farmers indicated their concern about the payment of the loans availed for the dairy business. In most regions of India, farmers avail themselves of financial support from the Self-help groups to initiate dairy farms. This is highly fragmented, where farmers own a minimum of 2–3 cows. This led to a decline in non-farm income from the dairy business and created additional stress for the repayment of the financial support.

Farm laborers who work in construction or small business enterprise in agricultural off-seasons became unemployed due to the lockdown that created an

Figure 1.
Pulses WPI.

additional burden on the rural economy. Most of the daily wage laborers reported that the Government financial support was helpful, while few others complained of not getting benefits from the direct benefit transfer scheme initiated by the Government of India. The poultry sector experienced the biggest impact due to the pandemic. The projected estimate shows a loss of INR 22500 crore in the poultry sector [23]. The huge disruption in the farm inputs of poultry was also evidenced and a sharp increase in the prices can be noted due to disruption in the supply chain. Farmers in the telephonic interview stated that rumors about poultry being a source of the spread of coronavirus has declined the prices of the poultry to the

Figure 2.
Vegetables WPI.

Figure 3.
Fruits WPI.

bare minimum in the rural localities. The farmers reported that the whole chicken bird was sold at Rs. 10 (0.14 USD) in the villages. It was observed from the respondents that the small and marginal farmers lost a monthly average income of INR 10000 to 30000.

3.1.4 Pandemic and food prices

The global food prices of agriculture fell drastically with weak demand [20]. Prices of corn decreased considerably due to a decline in the demand for gasoline [24].

Figure 4. Milk WPI.

Figure 5. Egg WPI.

Similarly, demand and supply fell drastically in the Indian context which led to a fall in the prices of agri-commodities. A decline in mandi prices was evident for most of the products. In most cases, wholesale prices have declined, and retail prices were on an upward trend. This phenomenon of the increased retail price was associated with the imposed restriction and increased transaction cost for the retailers. The daily prices analysis by the Reserve Bank of India (RBI), for 22 essential food items indicated that retail food prices rose by 2.3% from March to

Figure 6.
Oilseeds WPI.

Figure 7.
Mutton WPI.

April 13, 2020 [25]. However, on a large-scale price were risen at the end consumer side, farmers saw a steep decline in the farmgate prices. Especially, in the case of vegetables and fruits, which are perishable, the farmgate price declined due to the unavailability of the transport. Farmers from the survey indicated that prices of the vegetables fell more than 50%, where they could not recover the cost of production. Due to the restriction and fewer transport vehicles, the transaction cost increased, which decreased the significant margin for the farmers in

Figure 8.
Fish inland WPI.

Figure 9.
Fish marine WPI.

vegetables and fruits. The wholesale price index (WPI) showed a rising trend in March and April only for pulses, fruits, milk, and beef due to the procurement by the agriculture marketing board, while in the case of cereals, a decline in WPI and increase in consumer price index (CPI) is noted [20]. This variation in the WPI and CPI was due to disruption in the supply chain and supply-side shocks. The government initiated the necessary movement of the crops from the procurement states and distributed them effectively. The prices of the fruits increased due to

Figure 10.
Poultry Chicken.

Figure 11.
Condiments and spices WPI.

supply chain disruptions, especially, apple and mango. Milk prices were hiked by Rs. 2 to 3 per liter by private dairy organizations [20]. **Figures 1–14** presents the Wholesale Price Index (WPI) of thirteen products – Cereals, Pulses, Vegetables, Fruit, Milk, Egg, Oil seeds, Mutton, Condiments and Species, Fish inland, Poultry Chicken, Wheat, and Paddy from January 2019 to April 2021. The WPI of vegetables and eggs fell drastically, where the revival of demand was evidenced post unlocking the lockdown from July 2020. The WPI of the pulses has steadily increased from the time of the pandemic outbreak, i.e., March 2020.

Figure 12.
Cereals WPI.

Figure 13.
Paddy WPI.

Figure 14.
Wheat WPI.

4. Review of government assistance during COVID 19 for farmers

The government relaxed the restrictions imposed due to the pandemic outbreak from April 14, 2020, for the agriculture sector after the first phase of lockdown. Though farming activities were restored in all the states, farmers were unsure about investment decisions due to the unavailability of inputs, price shocks in agro commodities, and liquidity crunch. ICAR (Indian Council of Agriculture Research) issued guidelines for farming activities with physical distance and hygiene standards. The government took several resilient measures to cope up with the current pandemic. Under the public distribution scheme, food grain was freely provided to the families below the poverty line. The scheme was successfully implemented among the states and demonstrated a strong response from the government during the crisis. Nearly 90% of the respondents from the survey indicated that they received food grains free of cost and helped them. Further, the government disbursed nearly Rs. 18253 crores under Pradhan Mantri Kisan Samman Nidhi, each farmer received Rs 6000 per year as minimum income support. Pradhan Mantri Kisan Samman Nidhi was highly recognized among the respondents from the survey. They also indicated that schemes involving Direct Benefit Transfer are beneficial, as they receive money directly to their account. Further, the government announced several measures for the farming community – Rs. 16.3 Lakh-Million package for Agriculture and Allied Sectors as stimulus packages. The fund was allocated to agriculture infrastructure projects at farm-gate and aggregation points. The main aim was to restructure the post-harvesting management infrastructures and maintain an effective value chain. The government also reported that nearly three crore farmers with agricultural loans totalling Rs. 4,22,113 crore availed the benefit of the three-month loan moratorium announced by the Reserve Bank of India.

To reduce the disruption in the supply chain, the government announced special assistance for the transportation of crops from a surplus area to a deficit area to maintain the availability of food items. The “Kisan Rath” app was launched to connect traders and farmers. The application was developed to facilitate transportation by connecting farmers to traders to sell food grains, especially perishable goods, during the lockdown. The government initiated a special financial package for agri-processing units to strengthen them during the crisis. Kisan Credit Cards (KCC) was issued to provide financial support to farmers at low interest rates. Approximately 25 lakh new KCC beneficiaries were

sanctioned with a loan of Rs 2.5 lakh-Million. Other central agencies also launched rescue measures; for example, the Reserve Bank of India has directed banks to provide crop loans at 2% interest concession for the repayment from the borrowers for the extended period of 31 May 2020. NABARD also extended financial support of Rs. 29500 crores to cooperative banks and RRBs to support the agriculture sector. The government allocated Rs. 40000 crores under Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme. MGNREGA is the world's biggest livelihood scheme ensuring the "Right to work" for the rural people. The northern states such as Uttar Pradesh and Bihar saw huge inward migrants due to the suspension of the economic activities among the urban locality. To employ these migrant labourers, the central government announced to allocate a higher proportion of the budgeted money from the MGNREGA to the states with the higher recipient of migrant workers. This would act as additional income for the migrant workers until the economy stabilizes.

5. Conclusion and policy implications

COVID-19 has plunged the agricultural sector in India into certain vulnerabilities. The findings from the study show that farmers faced operational difficulties in the agriculture system. The disruption in the supply chain induced a significant fall in farmgate prices. Perishable food items, in particular, had a significant negative impact as the restrictions became longer over the months in the second quarter of 2020. Lack of accessibility to selling points of the crops and increased transport rates were the major concern among the farmers. This delay in the sale of agricultural products caused a capital crunch among the farmers to purchase inputs for the upcoming season. The non-availability of the farm inputs compounded this distress among the farming community. The migrant labor increased the burden on the rural livelihoods. In the past, migrant workers supported their families in the rural economy, which was lost due to the subsequent unemployment of these workers in urban areas. The addition of labor in the rural areas has increased in the wages among a few communities and dropped in the wages among a few others.

The lessons from the pandemic can help solve the issues in the agriculture system in India. Market access and better price realization are the long-standing issues in the Indian agriculture sector. Strengthening market access is an immediate policy concern for the governments. Reliable transport and logistics solutions need to be the primary goal to reduce further vulnerabilities in the sector. The government focused on several measures to support the farmers during the crisis. The poor infrastructure in the farm sector needs to be addressed. Being an agriculture-based economy, the cold storage chain and warehouses need to be upgraded, where an efficient cold storage chain network can enhance the market of fresh vegetables and fruits in the international market encouraging exports. Handling the Public Distribution Scheme (PDS) by reducing wastage and proper storage would be highly beneficial. At the same time, extending the financial support that emphasizes agribusiness (cold chain, warehouse, grading and standardization, food processing industries) could make agriculture self resilient. Ensuring employment in the rural areas is an utmost priority, while the MGNREGA needs to be efficiently administered and implemented in the districts with high migrant inflow.

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Appendix 1

Questionnaire

Farmers during COVID19 Pandemic Lockdown: Fears and perception about their situation in the coming days?

1. Basic Details.

Name of the Farmer:
Social Category: Gen/SC/ST/OBC.
Gender: Male/Female.
Age:
Education.
Village:
Block:
District:
Mobile Number:
Number of Members in a Family:
Primary Income Source: Agriculture/Agriculture Labour/Business/Service/Self Employed.
Secondary Income Source: Agriculture/Agriculture Labour/Business/Service/Self Employed.
Annual Family Income: <1 Lakh.
Between 1 lakh to 5 lakh
>5 Lakh

2. Cropping Details:

Crop Pattern: Mono/Multiple.

Crop Names:	Area	Starting Month	Harvesting Month	Current Status of Crop in April Month

3. Knowledge and Perception on COVID 19.

Q: Do you know about the Corona Virus Spread in Our Country? (Yes/No/Does not Know).

Q: Are you worried about the Current Pandemic? (Yes/No/Does not Know).

If yes, give three reasons for your worry –.

- 1.
- 2.
- 3.

Q: Whether the current Lockdown has an adverse impact on your farming activity? (Yes/No/Does not Know).

Q: If yes, how has it affected? Give three reasons –.

- 1.
- 2.
- 3.

Q: What is the intensity of the effect of the lockdown on your Farming Activity? (Greatly/Moderately/Neutral/No Impact).

Q: Do you feel the decision of lockdown is correct for farmers? (Yes/No).

Q: Are precautionary measures issued by the regulations are followed in your village? (Yes/No).

4. Effect of Lockdown on Agricultural Activities.

Q: Whether market opening time is overlapping with your farming time? (Yes/No).

Q: Are you in fear to go to the market due to infectious diseases? (Yes/No).

Q: Whether input dealer is charging high price during lock down?

Q: Is there access to agricultural mechanization? (Yes/No).

Q: Are you getting sufficient labour for Farming activities? (yes/No).

Q: Whether labour cost is high during Lockdown? (Yes/No).

Q: Have you started harvesting pulses/cereal (Yes/No).

If No, why not?

Q: Do hail storms and Kala Baisakhi adversely effecting your final crop due to lock down? (Yes/No).

Q: Is there excess harvesting of vegetables but no demand due to Lockdown? (Yes/No).

If yes, what will be your plan to sell them? Please explain.

Q: Whether your crops damaged due to lack of transportation to home? (Yes/No).

Q: Are you facing difficulties with cash in hand for production or labour payment? (Yes/No).

Q: Whether money lenders are charging high interest during Lockdown? (Yes/No).

Q: Whether the harvesting period is getting delayed?

Please explain.

Q: Is there any problem to prepare input seeds for next season?

Please explain.

5. Effect on Agribusiness during Lock down.

Q: where you used to sell your product before lock down? (Local market/ nearest town/ Govt Mandi/Middle man/...).

Q: Where are you selling now your product after lockdown? (Local market/ nearest town/ Govt Mandi/Middle man/.....).

Q: Is there any changes in the selling price due to lock down? (yes/No).

Q: If yes than what is the price changes? (Increased price/decreased price/ Constant) and by what percentage roughly?

Q: What is the basic problem of selling your product in the market?

- a. Not selling at a desirable price
- b. not more buyers/ short period of selling time
- c. no cold storage to keep the excess product
- d. No transport facility to export outside village
- e. No government mandi to purchase at desirable rate

Q: What are the Fears of Famers during Lockdown for COVID19?

- a. Expecting Increase in Input Price
- b. Damage of the perishable product
- c. Low price and loss

- d.Fail to repay the current loan
- e. Labour shortage during Harvesting
- f. Fail to prepare field for next season
- g. Going to loss agricultural labour works

6. Government Aid and support.

Q: What is the monetary and non-monetary support from Government so far after lockdown?

- 1.
- 2.
- 3.

Q. Are you aware of any schemes that the Government has announced for you after lockdown?

If yes, what are they?

- 1.
- 2.
- 3.

Q: What are the Government Aids provided during Lock down?

DTI (Direct Transfer of Income in Rs)
Additional PDS (Public Distribution System)
Loan waiver
Assured Market Place
Govt Sabji Mandi
Transport facility
Others

Appendix 2

Descriptive Statistics.

Variable	Mean	Std. Dev.	Min	Max
Total Area Owned	3.073	2.964	0	22
Farming experience	26.137	12.468	1	65
Age	50.863	11.688	18	82
Member in SHG	0.711	0.454	0	1
Member in NGO	0.079	0.27	0	1
Member in Govt Extension	0.70	0.459	0	1
Migration	0.261	0.44	0	1
Education	8.349	5.477	0	17
Member in Cooperative Society	0.281	0.45	0	1
Household Size	4.902	1.654	1	11
Total Sample 494				

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