

# Impact of COVID-19 influenza pandemic on agriculture in India: A study of small scale & rural sector

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**ABSTRACT:** Before the virus outbreak of COVID-19, India's economy was growing at a stable and consistent rate. The pandemic of corona virus or some likes to call it "Wuhan flu" has halted the international and internal trade all across the world. The outbreak leads to a containment lockdown for indefinite period, which has affected especially the small and marginal business. One major effect of this is faced by the farm households whose livelihoods are under pressure due to this lockdown. Since they don't have long lasting reserves for fulfilling their daily needs and the loans are not available in this situation, it is very difficult to comprehend in how much stress this sector is going through. In this paper, researcher conveys the major challenges which agriculture is facing due to pandemic. The research studies the major challenges related to the marketing, capital investments, loans, problems in supply chain due to this unforeseen event. It also focuses on the various steps taken by the government, ministries and representative bodies for stabilizing the agricultural economy in this particular happening. The government has declared various schemes such as PM-KISAN scheme, PMGKY (Pradhan Mantri Garib Kalyan Yojana), PM-CARES fund. ICAR and RBI have also taken separate measures for the agricultural sector. These steps will likely to keep the agriculture and farming in survival mode even if the nation's economy is slowing down.

**KEYWORDS:** pandemic, outbreak, lockdown, business, agriculture, economy

## I. INTRODUCTION

The current pandemic of COVID-19 has created a chaos in the lives of billions all over the world. The effect of the virus outbreak has spread in more than 200 countries around the globe. The world health organization (WHO) and center for disease control and prevention (CDC) are trying to contain this pandemic situation as fast as they

could, but the situation is getting out of hand. Many people have lost their lives and this has also affected the world economy and trade. The government of India declared a 4 phase lockdown to control it but the numbers of cases are increasing day by day. The most disruption this outbreak has caused to the small and medium business houses. The lockdown has blocked their supply chain and long term shutdown of business will have a negative effect on their livelihoods. The trade and commerce of India is facing a serious challenge for survival especially household business and farmers. According to a report from ICRISAT (6 April 2020) the containment process of this pandemic will have a negative effect on 140 million farm house hold in the nation. The farming sector in India is huge as more than 60 % of the total population depends on agriculture. Agriculture generates more than 50% of total employment and contributes 15.4% of the total GDP. The marginal farmers whose livelihood mostly depends on trading of agro products and foods were unable to take their produced products to markets and mandis. It also creates problems in storing as almost all food products are perishable in nature and since the supply chain is disturbed, the agro product cannot reach the warehouse. The blockage of food supply chain and restriction on movement of people and vehicles will have a negative impact on all the participants in agro business. The marketing is not possible in this present scenario; this will create a rift in the demand and supply of products in both rural and urban areas. The restriction on opening of any kind of small and medium business effects the lives of millions of farmers and laborers whose lives depends on this sector.

### Past pandemics and its impact on economy

The corona virus (COVID-19) is a type of influenza virus that shows symptoms similar to those inflammatory diseases but this is not the first

case of pandemics that has affected economy. Many outbreaks have occurred in last century, which has shown very similar effects on economy worldwide. Pandemics are the unforeseen occurrence that hinders the economic flow at both micro and macro level. In the pre-industrialization era, these widespread diseases were limited to certain areas due to lack of transporting carriers & worldwide trading. The modernization of global business has increased the chances for spreading these diseases rapidly. It is also to be noted that in

past due to lack in medical technology a lot of lives were lost but with time and development in medical science and vaccination, there is a huge difference between the ratios of total infecting cases and mortality rate. The last major outbreak with high fatality rate was the outbreak of “Spanish flu (1918)” which took the lives of more than 50 million (CDC report).

Let’s take a look at the past pandemic influenza that has taken a long term impact around the world.

**Table1 :Pandemics in last century with the responsible virus, the year of origin and total death toll**

pandemic	Virus	Year(s)	No. of deaths (approx.)
<b>Russian flu</b>	Probably due to H <sub>2</sub> N <sub>2</sub>	1889-90	1 million
<b>Spanish flu</b>	H <sub>1</sub> N <sub>1</sub>	1918-19	50 million
<b>Asian flu</b>	H <sub>2</sub> N <sub>2</sub>	1957-59	1.5 million
<b>Hong Kong flu</b>	H <sub>3</sub> N <sub>2</sub>	1968-69	0.5-1 million
<b>Swine flu</b>	Novel H <sub>1</sub> N <sub>1</sub>	2009-10	0.5 million
<b>Novel Corona*</b>	SARS-CoV-2	2019-present	0.5 million*

Source: data is taken from the official website of CDC ([www.cdc.gov](http://www.cdc.gov))

**Russian flu:** also known as “Asiatic flu” spread across the European nation in summer 1889. It has a very high fatality rate of 3.6% in average (savona-ventura, Charles (2005)). This pandemic was the last to happen by the end of 19<sup>th</sup> century. The responsible virus was unknown due to lack in medical technology but according to some sources it was a virus similar to that of H<sub>2</sub>N<sub>2</sub> influenza.

**Spanish flu:** often described as the mother all pandemics, is the most deadly outbreak of 20<sup>th</sup> century and has 2<sup>nd</sup> largest death count in human history after the Black Death. This was the first wave of H<sub>1</sub>N<sub>1</sub> influenza, which infected more than 500 million people worldwide with an average mortality rate of more than 5% of the total confirmed cases.

**Asian flu:** Asian flu influenza was caused due a subtype H<sub>2</sub>N<sub>2</sub> virus. The global fatality rate was around 0.67% (Nickol, Michaela.E., Kindrachuk, Jason (2019)). The infection cases were similar to that of 1918 outbreak. But fatality rate was very low due to improved medical facilities. This pandemic has extensive effects on UK as many factories and mines were shutdown.

**Hong Kong flu:** 1968 was the year when this influenza takes its impact on a global scale. The virus was very similar to “Asian flu” and has high fatality rate among the age of 65 or above

([www.cdc.gov](http://www.cdc.gov)). The good medical care was very supportive for the ill ones.

**Swine flu:** swine influenza is a swine origin virus that is a subtype of the previous flues. The transmission was originally from swine. It is a novel influenza that is very common among pigs. But the human transmission was supposed to be rare. This flu has a long term impact on several hog and pork related industries all over the globe.

**Corona flu:** the first case of this influenza was cited in the month of November 2019, from china according to most sources, this leads to a worldwide lockdown for several months. Till the date a million people have lost their lives and the number is increasing. It has impact on global economy as a lot of industries are facing a challenge due to closing of international and state’s boundaries.

Apart from the novel corona, the last major wide spread pandemic influenza was “swine flu” which has a similar overall death toll, what makes COVID-19 more risky is due to its higher mortality rate than most of these influenza outbreaks.

All these pandemics have a very similar effect on the world economy. Closing of boundaries for any kind of transportation and trade leads to reduction in import and export growth rate. The prolonged shutdown in business will affect

the lives of its workers and laborers, whose households are already in bad conditions. Any industry outside of pharmaceutical and medicals will get the heat directly or indirectly. The limited demand of consumable goods due to fear of any unforeseen events affects the business for a long period. The recovery of economy from these pandemics is generally long and slow. It takes years to reach the economy to its past glory even for already developed countries. To tackle such situations there are separate branches in globally representative bodies, that provide assistance in these situations, for example WHO, CDC, CARE international, UNICEF, United States agency for international development (USAID) etc.

## II. OBJECTIVE OF THE STUDY

The present paper primarily focuses on:-

- To study the major economic challenges and problems that agricultural business in India.
- To study the various schemes presented by the government of India and representative bodies for the assistance of agro-business houses in the nation.
- Suggestions for changes that are needed in agriculture and farming sector after the pandemic period.

## III. RELATED LITERATURE REVIEWS

Since the research is in its progress stage a lot of reviews of literature cannot be retrieved. But the researchers have collected a few related papers and articles. Most of the information is taken from newspaper articles and government reports and statistics.

**Oscar Jorda, Sanjay R. Singh & Alan M, Taylor (2020)** on the working paper “longer-run economic consequences of pandemics” studied the macroeconomic responses to historical pandemic outbreaks. They explained that the past pandemics does have a significant influence on the return on asset and wage system based on the historical data. They conclude a very similar trend is to be expected in COVID-19, but also noted the change in life expectancy rate in past to that of present.

**Ramesh Prasad & Dr Amitava Mondal (2020)** on their article “impact of COVID-19 Pandemic on Indian economy with special reference to Indian MSME sector” studied the various challenges that are faced by different MSMEs like agriculture, automotive, hotels and restaurants, tourism, textile, FMCG and E-commerce in India due to the lockdown. They also

included the various relief measures taken by the government of India for the MSMEs.

**Andrea I. Steege, Sherry Baron & Marie H. Sweeney (2009)** on their paper “pandemic influenza and farm workers the effects of employment, social and economic factors” noted the impact of influenza pandemic among farm workers. They explained employment, social and economic factors among farm workers that have deep influence on pandemics. They recommend surveillance of farmer workers and separation of immigration workers from local and emergency workers during the outbreak.

**Thom S. Jayne, Marcela Villarreal, Prabhu Pingali & Gunter Hemrich (2004)** on their working paper “interactions between the agricultural sector and the HIV/AIDS Pandemic: implications for agricultural policy” concluded the three major effects on agriculture were-increased rural inequality among poor households; wealth reduction among farmers; problems in transferring knowledge to next generations. This study was based on African continent. It was suggested to invest in agro-based research and improving the technologies. They also recommend the instituting crop and input marketing systems for small scale farmers.

A report has been published by the **FAO (food and agriculture organization)** a subsidiary of UN organization on “**COVID-19 Pandemic-impact on food and agriculture**” (dec-2019). The report answers various questions related to COVID-19 impact on food security, its implications on present and future conditions, pandemic’s impact on food demand and global economy, its connection to animals and FAO recommendations to mitigate the risks on food security and nutrition.

## IV. AGRICULTURE SYSTEM IN INDIA

India is a nation where a lot of people depends on agricultural activities for their livelihood. Farming is one of the three core sector that contributes a lot for the economic growth of the country. The geographical environment also plays a significant role in the production of diverse food products-vegetables, fruits, floriculture, spices and livestock. As per the report of ISIC (international standard industrial classification) 2018, India is ranked 2<sup>nd</sup> just behind China in net value. The agriculture is an integral part of our nation, as it contributes a lot to the country’s GDP and essentially to the employment. The primary classification of agriculture comes under (1) subsistence farming which a lot of small and household farmers follows in India. More than

50% of farmers in the country comes under this category.(2) Organic farmers who contributes a lot to food supply across the nation and (3) industrial farmers who supply their products for both internal and external export all over the globe. Most agricultural lands owned by the farmers are used for subsistence farming, as the number of small farmers in India is very large in India compared to other nation.

#### 4.1 IMPACT OF PANDEMIC ON AGRICULTURE AND FARMERS OF INDIA

India has a huge agricultural market. The agriculture of India contributes more than 50% of the overall employment. The crop cycle is divided into Rabi and kharif crops. The Rabi crops are harvested in summer and spring period, while kharif crops are for monsoon season. The agro business in India is very diverse and disorganized. The main challenges that most farmers face is due to their lack of knowledge related to government initiatives, supply chain problems, low level of soil management and losses in harvesting. These factors are responsible non-payment of debts by the farmers, which will be going to increase during this pandemic. During the containment process of this COVID-19 outbreak, a lot of problems occurred due to the blocking of nation and state routes for trade and transportation, which created a challenge for all sectors including agriculture. The following are few problems in the agriculture sector faced during the corona virus lockdown. It is to be noted that these factors are interconnected to one another directly or indirectly.

##### 1. Shutdown of agro and wholesale market

During the first 3 phases of lockdown all the marketing activities were prohibited due to risk of easy spreading and contamination of the virus in market crowd. This rule was applicable to all the markets from small and traditional to huge and organized. Even the digital markets were affected due to lack of import. Agro-markets in India are unorganized and crowded which most likely might become a major source for the virus spread. So, the government declared shutting all the major markets where the presence of any crowd is felt. This has a direct impact on the supply of food products. Even when the supply is steady, the reduction in demand will affect the price and earning in agriculture.

##### 2. Shortage of labour

Since the transportation is unavailable at the moment harvesting in a lot of farmlands are not possible. This situation mostly affects the large farmers who require labours for various

agricultural activities. When the outbreak hit the nation it was already the period for Rabi crops, but since the accessibility to farm workers is not possible during the lockdown. A lot of challenges are faced by the farmers. The main reason for this is due to lack of transportation, strict rules for working class people even in most rural areas and fear of this unknown virus.

##### 3. Instability in the agricultural value chain

Due to the change in the disruption in supply chain of food, a lot of people have to go through starvation during the lockdown. The wholesale market was shut in many rural and urban areas as well as weekly markets were closed during the week days in many villages and towns. This changed the demand and supply rate in many places. Some demand of some food increases while others decreases, this created a fluctuation in the value of agricultural and farm goods. The change in demand and supply of agricultural products like fruit and vegetables, created an unequal earning for many farmers in many states of India.

##### 4. Blocking the agro supply chain

When the government declared a nationwide lockdown in the end of March, a lot transportation routes were blocked not only that government blocked the trading both at internally and externally. This created a challenge for all the participants of supply chain from producer to consumer. In the case of agro business, it stopped the movement of products from farmers to consumer and in any kind of export.

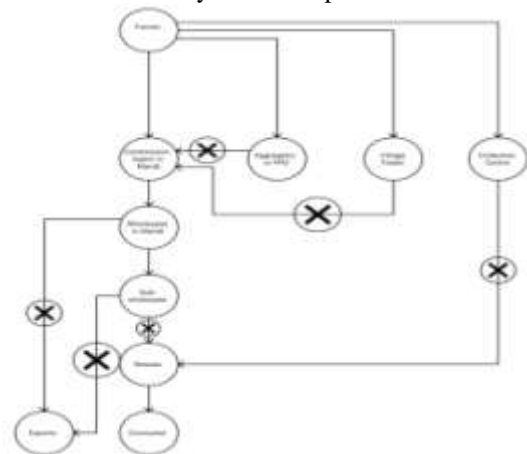


Fig 1 : blockage in agricultural supply chain due to lockdown.

##### 5. Increasing food loss

Even before the pandemic, a lot of food all across the India was suffering due to excessive food loss in many regions, but after the lockdown,

the quantity just increased by many folds. The storage of food is not applicable on many agro based products and the warehousing and inventory management is not that developed in many regions of India. This cause a lot of loss for the farmers and venders as the markets were closed and inventories were already full from the past stocks. It cost a lot of farmers around the nation.

#### 6. Problems related to relief

Even when the government and ministry of agriculture declared a relief for the farmers and other household laborers, the fund will not be sufficient, as the number of farmers and farm workers is a lot more and there are also the chances for corruption in between. A lot of farmers and labour class people have not received any kind of financial assistance even after the declaration of relief funds two months ago. A lot of people in agricultural sector and their families are suffering due to this. It should be the duty of local authorities to give the necessary assistance.

#### 7. Increasing debts

During the shutdown period, farmers were allowed with permission to go to their lands for farming. But due to the lack in transporting facility in lockdown a lot of consumable goods were not able to reach the market. Especially in rural areas, where the distance between the place of production and selling market are long. This reduces the earnings and in some cases even the expenditure is not recovered. Most farmers in India are not capable of paying any loans, even if the government has taken initiative for benefits of farmers. In most backward areas these initiative don't reach and farmer gets bankrupt. "A farmer in India commits suicide every 30 minute"(NYU school of law's Centre for human rights and global justice), which might increase during the lockdown period.

#### 4.2 Interventions Taken By Government And Authorities For Agricultural Stability In Containment Process

The government and ministries have taken many steps for infrastructural change in agriculture and farm business through various schemes for benefiting the farmers and related participants. The paper will only focus on few schemes and initiatives which were beneficial, during the shutdown period.

1. **PM- KISAN Scheme:** the finance minister of India has disbursed Rs 18,253 crores under this scheme (www.ndtv.com), which will provide a minimum support for household and marginal

farmers in different states. The government has already announced a 1.7 lakh crore package of free food grains to the poor households under PM Garib Kalyan Yojana (PMGKY)

2. **E-NAM** (electronic-national agriculture market): The E-Nam platform is an online platform which assists the farmers during the lockdown periods. The platform will allow the farmers to sell their produce online without the need of any middlemen. This will provide a lot of benefits for the farmer during the pandemic.
3. **PM-CARE Fund:** prime minister's citizen assistance and relief in emergency situations fund was announced in March, following the pandemic outbreak in India. The fund will assist in all short of help required during the containment and requirement of any relief to the poor during the lockdown.
4. **PM-Fasal Bima Yojana:** PM-Fasal Bima is an government initiative for ensuring the crop loss for farmers. It works as an insurance in case, any losses arises during the agricultural activities. According to news reports, during the pandemic lockdown, Future general insurance group of company has settled a Rs 276crore insurance claim under this policy. This has benefited more than 2 lakhs of loanee and non-loanee farmers(www.Indiainfoline.com).
5. **ICAR Initiatives:** the ICAR has responded on taken major advisory and policy directing roles issued by the government of India. The council has issued a national level agro-advisory in 15 major languages and has prepared state-wise agro advisories for farmers in all 29 states. This includes crop cycle, crop management, and crop security during pandemic and related farm operations.
6. **RBI initiatives:** the RBI has prohibited the farmers from paying any installment for three months during the period of lockdown on all term loans including the crop loans. This will benefit the farmers as they don't have to pay any penal interest and still get benefits under interest subdivision scheme.

#### 4.3 Suggested Remormsinagriculture And Food Business(Post-Covid-19 Pandemic)

The PM of India has outlined major agriculture reforms in the post-pandemic events and has asked the ministry on changes in farm food prices and unifying the farm economy both organized and domestic markets into integrated global value chain. The government is interested on bringing the agricultural marketing under a single roof, the "one nation, one market" policy. Other

changes which likely to occur are investment in genetically modified crops, its pros and cons. The following will be the most likely changes in agriculture and farming sector after the pandemic is slowed down or halted.

#### **Self-awareness and training for farmers**

It is essential for the farmers to adopt the new methods in irrigation, sowing of seeds, harvesting etc. The agricultural methods has not faced many changes since independence as many farmers in lot of rural areas still follows the traditional methods for farming, this is applicable to many states of India. It is time, the ministry and representatives should take necessary steps for new agricultural methods, techniques and management, not only that but NGOs should also actively participate in providing a self-awareness among farmers in post-lockdown such as maintain social distance, using of masks and hand gloves in farming. Proper training is also important to follow certain norms which will help these people during such stressful situations.

#### **A New supply chain model for agriculture**

The agricultural supply chain in India has not changed in last few decades, but it is time to make some changes to it. The reason behind a new model is due to the pandemic and lockdown. As we know, the government has declared that agricultural sector will be exempted from containment process as food is required for more than 1.3 billion people in India. But, due to transportation and problems in agents, the food was not able to reach its destination in right time and in right quantity. The government is likely to invest in a contingency supply chain for food products to tackle this kind of events occur in near future.

#### **Reduction in food wastage**

With the massive population of more than 1.3 billion of people, a lot of people in the country is going through malnutrition. According to CSR journal report, more than 40 % of the total produced foods do not reach the needies at the moment. More than million tonnes of fruits and vegetables get wasted during transit or in inventories. The government should take major reforms in food wastage and security management to contain this problem. In post lockdown events, it is essential to reduce this wastage as much as possible. This can be only achieved by people awareness, inventory and waste management.

#### **research in genetically modified crops**

As per the news article of 'Hindustan Times' published on May 2020, the government is interested in making investment on genetically modified crop, which will increase the productivity and reduce the expenses. But it is a long catch, as a lot of household farmers are prone to choose natural crop rather than transgenic ones. The main problem lies with its nutrition and its impact on natural crops. The people also fears it's negative side effects on health. Currently most transgenic crops are used in industrial farming.

#### **A self reliant nation**

In the early June, PM Narendra Modi, sought for India to become self reliant due to the border dispute with China, during the pandemic situation. This is also applicable to agriculture and farm houses as, it government is planning on reducing the food import and export from china. This will have an influence on various sectors from employment to business and agriculture. The food products which are exported from China will likely to reduce by a lot. Import presently made by India is likely to reduce in near future.

### **V. CONCLUSION**

The whole world is suffering due to this pandemic. Many nations have closed their boundaries but the number of cases is increasing astonishingly, even after following measures like social distancing and using facemask and sanitizers. The COVID-19 flu will have a long-term impact on global economy. Even before the outbreak, India's growth rate was already in pretty bad condition, but this situation just escalated it. Agriculture is one of the core sector of India. The government has the exempted the farming and food sector from the lockdown but since the markets and supply chain operation is blocked, a lot of farmers are recurring losses. Getting food is an essential right of every human in India and the government knows that stopping the agriculture will create chaos all across the nation. The government has declared many schemes and initiatives for the farmers and related sectors like PMKGY, E-NAM, RBI, ICAR initiatives etc. the government has also devised a plan by providing food products directly through home delivery. This might help both the people and farmers to some extent but the service is currently available in some major cities, if this system reaches to small towns, it will help a lot of folks as a major portion of people reside in small towns and villages.

Lastly, a reform is much needed in post-pandemic period, not only in agriculture but in all the sectors. It is time, thenation should unite for

tackling this present situation and maintain order so that it will help the poor and needed ones. It is not only the duty of Government, But all the people of this nation to help one another in this difficult times. It is important for humans to keep themselves self aware from these dangerous influenzas and other transmitting diseases, maintaining a healthy lifestyle is not only important for oneself but for the nation.

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