

GLOBAL IMPACT OF COVID-19 ON AGRICULTURE

*Abubakar Yahaya Muhammad**

*Ali Asger Bhojiya***

ABSTRACT

The world had witnessed several pandemic diseases and each pandemic has affected the human activities and economic growth of any affected nation. The pandemic disease known as COVID-19 (Corona Virus Disease of 2019) originated from Wuhan, China, and the disease is spreading at an alarming rate. India, like every other country, enforces some measures to contain the disease and preventing its further spread. The preventive measures have immensely help in limiting the spread of the disease; however, they have caused a serious impact on major economic sectors of the country like agriculture. Agriculture in India is a very important sector due to its significant contribution to the country's economy. Therefore, this paper aims at highlighting the containment impact of COVID-19 on agriculture. The impact of COVID-19 on agriculture is complex and varied among different sectors of agriculture. The containment measures made farmers face a shortage of agricultural inputs such as seeds, fertilizers, agro-chemicals. The harvesting and marketing of crops have been affected due to the unavailability of labor. The livestock and fisheries industries were also affected by the pandemic due to limited access to labor, animal feeds, vaccines, and drugs. The marketing of dairy products and other perishable commodities got affected due to the closure of processing industries. The containment measures have led to an increase in the consumer's price of agricultural commodities. It can be concluded that the containment measures have affected all aspects of agriculture and is causing serious food security concern.

Keywords: Agriculture, COVID-19, economy, pandemic.

INTRODUCTION

A global pandemic is no longer a new scenario. The world has witnessed several pandemic diseases such as the Spanish Flu, Asian Flu, Hong King Flu, and HIV/AIDS. Each pandemic disease has affected human activities and the economic growth of the world (Hanashima and

***Abubakar Yahaya Muhammad** is Faculty of Agriculture and Veterinary Sciences, Mewar University, Gangrar, Chittorgarh, Rajasthan (INDIA).

****Ali Asger Bhojiya** is Faculty of Agriculture and Veterinary Sciences, Mewar University, Gangrar, Chittorgarh, Rajasthan (INDIA). Email: aliasger@mewaruniversity.co.in

Tomobe, 2012). The world is currently witnessing COVID-19 (Corona Virus Disease of 2019) which is an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus -2 (SARS-CoV-2). The first confirmed case of coronavirus was detected in Wuhan, China, and the rate at which the disease is spreading is of serious concern. World Health Organisation (WHO) declared the COVID-19 outbreak as a global pandemic on March 11, 2020(Cucinotta and Vanelli, 2020). The preventive measures adopted worldwide to contain and prevent further spread of the disease include border closure, travel restrictions, lockdown, social distancing, and wearing of protective materials such as facemask (Anderson *et al.*, 2020). It has been noted, that the various organizations have a significant impact on their scope and scale in terms of supplies risk, demand risk, financial risk, logistics, and infrastructure risk, management and operations, policies and regulations, and biological/environmental (Sharma *et al.*, 2020). As the number of cases of contagion rises, governments take more aggressive steps to stop the virus from spreading, affecting the global food system (Siche, 2020).

The rapidly evolving situation with COVID-19 is raising serious concern about the general global economy. The devastating impact of COVID-19 on agriculture is conspicuous; no sector has escaped its impact (Figure 1). The impact of COVID-19 on agriculture is complex and varied among different sectors of agriculture (such as crop, fisheries, and livestock) and among different segments that constitute the agricultural value chain. Therefore, this paper will discuss the impact of COVID-19 on different sectors of agriculture based on the agricultural value chain namely; input supply, production, processing, marketing, and distribution and consumption.



Figure 1: Devastating impact of COVID-19 on Farming

IMPACT OF COVID-19 ON INPUT SUPPLY

Due to the preventive measures adopted such as the closure of borders and travel restriction or travel ban which are geared toward containment of COVID-19, farmers are facing a shortage of agricultural inputs such as seeds, fertilizers, herbicides, pesticides, sprayers, etc., for crop production (Poudel *et al.*, 2020). For example, China is one of the major fertilizer producers and exporters in the world. The lockdown in China due to COVID-19 has seriously affected the international fertilizer trade. The pandemic already affected the growing of rabi season crops and if the pandemic is prolonged the growing of Kharif crops will also be severely affected because it was reported that India alone needs 250 lakh quintals of seed for crop production in the Kharif season (Singh, 2020). The travel restriction imposed due to COVID-19 has affected the delivery of the breeding stock of poultry. In many countries, COVID-19 has caused a serious impact on livestock production due to limited access to animal feeds, vaccines, and drugs. Fisheries and aquaculture in Africa, Asia, and Europe are seriously hampered by the COVID-19 pandemic. The preventive measures adopted like the travel ban, total lockdown have led to the shortage of seed stock and feeds. All these impacts of COVID-19 on input supply when combined altogether have affected the remaining part of the value chain and may have a serious impact on global food security which may, in turn, lead to hunger, starvation, the spike of the price of agricultural commodities, increase in the cost of production, among others.

IMPACT OF COVID-19 ON PRODUCTION

COVID-19 has a serious impact on production in all sectors of agriculture, be it crop production, livestock production, or fisheries. The effects mainly come through worker's health and availability of labor in addition to inadequate supply of inputs. Farmers are a relatively older population as compared to the general worker population. The result of some findings revealed that the average age of a farmer is 58. Based on extensive testing of COVID-19 conducted in various part of the globe, it was reported that COVID-19 has a much higher level of severity for those in their 60's and above, thus farming population are at high risk to be infected by the disease (Mercy Corps, 2020). The social distancing and travel restriction are important measures enforced to contained COVID-19, however, the agricultural industry is seriously affected via labor shortage, meaning that the output of the different agricultural sectors are affected and this will pose a threat to global food security. International labor organization (ILO) estimated that COVID-19 has caused 81% (2.7 billion) of the global workforce to lose their jobs due to full or partial closure of workplaces. Poultry producers are also hit hard by the pandemic due to misinformation on social media that poultry is among the carriers of COVID-19. Livestock and fisheries sectors are severely affected because the subsectors are highly labor demanding (FAO, 2020).

IMPACT OF COVID-19 ON FOOD PROCESSING

Most agricultural produce needs to be processed from raw materials into a finished product for ultimate use by the consumer. The processing aspect of the value chain helps in achieving utility value. The industries involved in processing need a large workforce, which

may not be available due to lockdown, travel restriction, and social distancing. Therefore, the processing and the supply of finished products are limited and this has also affected the price of several commodities and the cost of food items may spike soon. Besides, some agricultural commodities such as meat, milk, tomato, etc., are highly perishable and cannot be kept longer without being processed. This has undoubtedly affected farmer’s cost of production and will lead to serious food security concerns (Mercy Corps, 2020).

IMPACT OF COVID-19 ON MARKETING AND DISTRIBUTION

The buying and selling of agricultural commodities are seriously hampered by COVID-19 (Figure 2). The border closure, total lockdown, and travel restriction directly affect the marketing of agricultural inputs (such as seeds, fertilizer, feeds, drugs, vaccines, seed stock) and output. Moreover, agricultural products are mostly perishable, therefore, farmers are forced to store their unsold produce and this may lead to a reduction in the quality of the food so also the cost of production. Dairy farmers are compelled to dump milk and milk products due to the closure of milk processing companies in many countries of the world. In Nepal for example, a dairy product worth NPR 2 billion have been damaged and dairy product in stock worth NPR 5 billion deteriorated. Dairy farmers in America estimated that farmers nationwide are dumping nearly 4 million gallons of milk each day(Poudel *et al.*, 2020). On the farm, another possible source of concern is the growing use of hired trucking to transport crops from the field to storage and the elevator. However, this may raise their chances of acquiring the virus and decrease the availability of truck drivers, increasing the cost of getting grain to market and possibly causing supply chain delays (Brewin, 2020).

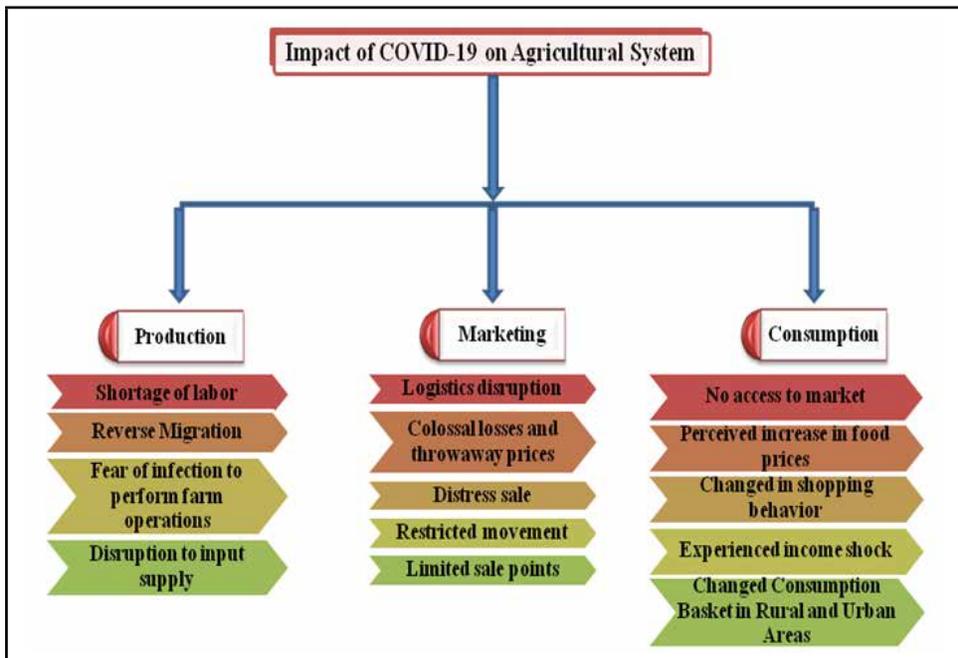


Figure 2:Impact of COVID-19 on Production, Marketing, and Consumption in Agricultural System

Impact of Covid-19 on Consumption

The demand which is the desire and capacity of the consumer to purchase goods and services in a given period of time is affected due to a reduction in income of the consumers and purchasing capacity. Hoarding of farm produce is now common and has affected food availability and price as consumers now have to pay for an exorbitant price for a given commodity. However, the price of the commodities depends on the country and its ability to control the COVID-19 pandemic.

CONCLUSION

It can now be concluded that COVID-19 has a serious impact on agriculture. It affects all aspects of agriculture and the value chain of each sector. The global concern of the impact of COVID-19 is on food security which is the ability to assure, on a long-term basis, that the system provides the total population with a timely, reliable, and nutritionally adequate supply of food. The other devastating impact of COVID-19 decrease in labor availability, loss of jobs across the different agricultural value chain, increased cost of production, the spike of the price of agricultural commodities, reduction in quality of crop production, and deterioration of highly perishable commodities such as milk, egg, vegetables, and fruits. The devastating impact of COVID-19 on agriculture cannot be over-emphasized as it affects all sectors of agriculture and different segment of the agricultural value chain of each sector. Therefore, the government should enforce measures that will help in containing the disease and preventing its further spread without sacrificing the food security of its nation.

ACKNOWLEDGMENT

The authors acknowledge the Mewar University for providing facilities to draft the manuscript.

REFERENCES

1. Brewin D.G. (2020). "The impact of COVID-19 on the grains and oilseeds sector". *Canadian J of Agricultural Economics*. **68**:185–188.
2. Cucinotta D, Vanelli M. (2020, March 19). "WHO Declares COVID-19 a Pandemic". *Acta Bio Med* **91**(1):157-60. Available from: <https://www.mattioli1885journals.com/index.php/actabiomedica/article/view/9397>.
3. FAO (2020). "*How is COVID-19 affecting the fisheries and aquaculture food systems*".
4. Hanashima M, Tomobe K. (2012). "Urbanization, industrialization, and mortality in modern Japan: A Spatio-temporal perspective". *Ann GIS*; **18**:57-70.
5. Lopez-Ridaura, S., Barba-Escoto, L., Reyna, C. et al. (2019). "Food security and agriculture in the Western Highlands of Guatemala". *Food Sec.*, **11**:817-833. <https://doi.org/10.1007/s12571-019-00940-z>
6. Mercy Corps (2020). *COVID-19 RAPID MARKET IMPACT REPORT*. May.
7. Anderson, J., Durand-Morat, A., Miller, W., Popp, J., Rainey, D., Rainey, R., Stiles, S., Watkins, B. (2020). *COVID-19 Impacts on Arkansas' Agricultural and Rural Economies*.

U of A Division of Agriculture Research and Extension, University of Arkansas System.

8. Poudel, P. B., Poudel, M. R., Gautam, A., Phuyal, S., Tiwari, C. K., Bashyal, N. & Bashyal, S.(2020). “COVID-19 and its Global Impact on Food and Agriculture”. *J. Biol. Today's World*, **9**(5): 221. <https://doi.org/10.35248/2322-3308.20.09.221>
9. Sharma, R., Shishodia, A., Kamble, S., Gunasekaran, A. & Belhadi, A. (2020). “Agriculture supply chain risks and COVID-19: mitigation strategies and implications for the practitioners”, *Int. J. Logist. Res. Appl.*, DOI: [10.1080/13675567.2020.1830049](https://doi.org/10.1080/13675567.2020.1830049)
10. Singh I.S (2020). “Agriculture in the time of Covid-19”. *The Hindu Business Line*. April 3.
11. Siche R. (2020). “What is the impact of COVID-19 disease on agriculture?”, *Scientia Agropecuaria* **11**(1): 3-6.