

RESEARCH ARTICLE

**Effects of COVID-19 Pandemic on Agricultural Crop Production in Onitsha
Agricultural Zone of Anambra State, Nigeria**

J. N. Ohagwam¹, R. A. Ihenacho², C. C. Godson-Ibeji³, G. O. Aminu³

¹*Department of Co-operative Economics and Management, Imo State Polytechnic, Omuma, Imo State, Nigeria,*

²*Department of Agricultural Extension and Management, Imo State Polytechnic, Omuma, Imo State, Nigeria,*

³*Department of Agricultural Extension, Federal University of Technology, Owerri, Imo State, Nigeria*

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ABSTRACT

This paper ascertained the effects of the COVID-19 pandemic on crop production in the Onitsha agricultural zone, Anambra State, Nigeria. Data were collected with the aid of a structured questionnaire distributed to 120 respondents randomly selected from a list of 1200 farmers in the zone. Descriptive tools such as percentages and mean scores were used to analyze the data. The results obtained showed that the effects of the COVID-19 pandemic on crop production in the area include shortage of farm labor ($M = 3.40$), hindered purchase of labor for farmwork ($M = 3.55$), leads to deficiency in raw materials ($M = 3.53$), halt monitoring of crop pests and disease in the field ($M = 3.30$), disruption in the crop production cycle ($M = 3.60$), harvest/post-harvest activity stoppage ($M = 3.50$), failure to plant crops in the field ($M = 3.46$), failure to carry out varied cultural practices ($M = 3.10$), among others. Several strategies were adopted for improvement. Among these strategies were provision of food storage warehouses ($M = 2.73$), the creation of improved food market channels ($M = 2.76$), food sharing opportunities ($M = 2.70$), the provision of financial aid to vulnerable farmers ($M = 2.80$), and encourage the local food supply chain ($M = 2.70$), among others. This study therefore recommends that the government and non-governmental organizations should provide the necessary aid needed for improvement in post-COVID-19 crop production.

Key words: Agriculture, COVID-19 pandemic, crop production, farmers, lockdown

INTRODUCTION^[1-4]

The COVID-19 pandemic is a global crisis that is already affecting the agricultural sector. Farming households in Nigeria are apparently in a state of overwhelming fear concerning their mainstay with the recent clampdown as a result of the new corona virus pandemic. This global crisis is envisaged to have more tangible effects on crop production in widespread states and Nigeria at large. The country risks a looming food crisis unless measures are taken to protect the most vulnerable ruralities,

keep food supply chains alive, and mitigate the pandemic's effects across the food system. Thus, the ability of rural farmers to increase food production is pertinent in this pandemic and beyond (Ajibola, 2020). About 70% of Nigeria's population lives in rural areas, and are responsible for about 75% of Nigeria's food production. The majority of the rural populace are predominately small-holder farmers who produce staple food crops such as rice, yam, cowpea, cassava, maize, sorghum, millet, and vegetables. (Ajibola, 2020).

The COVID-19 pandemic comes at a time when around 820 million people in the world suffer from chronic hunger, and more than 2 billion are malnourished. Even before the pandemic struck, the ambitious path that was laid out by the sustainable

Address for correspondence:

J. N. Ohagwam
naemekajustin9@gmail.com

development goals was going to require a concerted effort to stay on track. COVID-19 has fundamentally changed the context in which Agenda 2030 was being pursued, and we now risk a reversal of gains made in the last few years. (FAO, 2020a; 2020b; 2020c).

According to projections, world food production will have to increase by 50% by 2050. This increase will need to be achieved with the same or fewer inputs under conditions of wide-spread land degradation, increasing competition for both land and water, and the uncertainties of climate change. The disruption to these activities caused by the COVID-19 pandemic, coupled with the ongoing stresses from transboundary pests and diseases (in particular the current desert locust upsurge) and the increasing frequency and intensification of erratic weather events due to climate change, have considerable short-, medium-, and long-term consequences. The prevalence of resources - poor smallholder farmers, significant yield gaps; sub-optimal institutions, and enabling policy regimes characterizes the crop production system of developing member countries. These are the very systems that are most vulnerable to the effects of this pandemic (FAO, 2020c). The study investigates everything, especially in the study zone, where no work on the topic has been done before.

Objective of the Study^[5,6]

The broad objective of this study is to ascertain the effect of COVID-19 on crop production in the Onitsha Agricultural Zone, Anambra State, Nigeria. The specific objective of the study includes:

- a. Ascertain farmers' awareness of the COVID-19 pandemic in the study area
- b. Identify sources of the COVID-19 awareness in the study zone
- c. Examine the perceived effects of the COVID-19 pandemic on crop production in the area
- d. Identify the perceived strategies needed for improving crop production in the study.

METHODOLOGY^[7-10]

This study was carried out in Anambra State. Anambra State is among the five states in the eastern part of Nigeria. Anambra State has a population figure of

about 3.6 million people (NPC, 2006). It lies within the latitudes 6°45' and 5°44' and the longitude 6°36' and 7°20' of the Greenwich meridian. It is located in the eastern part of the River Niger, and its capital is Awka. Anambra State is bounded to the north by Kogi State, to the south by Imo State and Abia State, to the east by Enugu State and to the west by Delta State. The state extends towards the north through a land area of approximately 9707.4 km². It has good soil and climate, sitting at a about 201 m above sea level, and the soil is well drained (NPC, 2006). The lowest rainfall of about 0.16 cm is normal in February, while the highest is about 35.7 cm³ in July (NPC, 2006). Anambra State has twenty-one local government areas and is divided into four agricultural zones by the ADP, namely, Onitsha, Aguata, Awka, and Anambra. All crop farmers in the Onitsha Agricultural Zone of Anambra State constitute the population of this study. A multi-stage sampling technique was used in the study. The first involved the purposeful selection of three LGAs, namely, Onitsha North, Idemili South, and Ogbaru. In the second stage, two communities were purposively selected from each of the LGAs: Ibekwe and isiokwe, were selected from Onitsha North; Alor and Ideani, from Idemili South; Atani and Umunankwo, from Ogbaru LGA, making a total of six communities. In the third stage, 20 farmers were randomly selected from a total list of 1,200 farmers obtained from the community heads. This gives a total of 120 farmers. Primary and secondary sources of data were used for this study. Frequency counts and percentages were used to analyze objectives 1 and 2. Objectives 3 and 4 were analyzed using the mean score. Objective 3 was achieved on a 4-point Likert-type rating scale of strongly agree = 4, agree = 3, disagree = 2, and strongly disagree = 1. This was computed as follows:

$$\text{Mathematically, } M = \frac{4 + 3 + 2 + 1}{4} = 2.5$$

Therefore, a mean value of 2.5 was accepted as a perceived effect of COVID-19 on crop production, while any mean value below 2.5 was not accepted. Objective 4 was also achieved on a 3-point Likert-type scale of highly needed = 3, needed = 2, not needed = 1.

$$X = \frac{3 + 2 + 1}{3} = 2.0$$

Therefore, a mean value of 2.0 was accepted as a perceived strategy for reducing COVID-19 spread, while any mean value below 2.0 was not accepted.

RESULTS AND DISCUSSION

Awareness of COVID-19 Pandemic^[14]

Awareness is about knowing, perceiving, and being cognizant of events. It can also be the ability of one to agree that information about an issue is available and can bring to bear on the direction of a wide range of behaviors with the balloon. [Table 1] shows that all the respondents (farmers) are aware of the Corona pandemic, and that information was quite widely circulated.

Sources of Awareness of COVID-19 Pandemic

Table 2 shows that 100% of the information was gotten from radio sources, 96.7% from television, 83.3% from newspapers, 66.7% from their fellow farmers, 60% from church, and 3.3% from cooperative society. This implies that radio is the most successful means of passing information to the farmer.

Effects of the COVID-19 Pandemic on Agricultural Crop Production

Table 3 shows the effects of the COVID-19 pandemic on agricultural crop production. The scourge led

to: shortage of farm labor ($M = 3.40$), meaning that farm labor was not available as movement restrictions and fear of contacting the virus made them to stay indoors, which led to the shortage of farm labor. Post-harvest activities stoppage ($M = 3.50$), the pandemic hinders the post-harvest activities such as processing, drying, winnowing, etc., as these involve farm labor and there is no farm laborer to do such a job. Disruption in the crop production cycle ($M = 3.60$) due to the restriction of movement: the crops planted are left in the field without being attended to it and harvested them at the right time, and the ones that are purposed to be planted are not due to the restriction, as such leads to an interruption in the production cycle of the crops. Hinders supply of farm inputs ($M = 3.50$). The markets were on lockdown, and the retailers were not seen to supply farm input to the farmers, which caused lack of supply of farm inputs. The markets were on lockdown, and the retailers were not seen to supply farm input to the farmers, which caused lack of supply of farm inputs and it leads to a deficiency in raw materials ($M = 3.53$). There is a shortage of raw materials as the country remains in lockdown with no importation of raw materials. Failure to plant crops in fields ($M = 3.46$): farmers

Table 1: Awareness of COVID-19 pandemic

Awareness	Frequency	Percentage
Yes	120	100
No	0	0

Source: Field survey data, 2022

Table 2: Sources of awareness

Source of awareness	Frequency	Percentage
Radio	120	100
Television	116	96.7
Newspaper	100	83.3
Extension agent	--	---
Fellow farmers	80	66.7
Church	72	60
Cooperative society	4	3.3
Town crier	----	----
Traditional rulers	----	----

Source: Field survey data, 2022

Table 3: Effects of COVID-19 pandemic on agricultural crop production

Effects	Means	SD
Shortage of farm labour	3.40	0.62
Harvest/post-harvest activities stoppage	3.50	0.72
Disruption in crop production cycles	3.60	0.55
Hinders supply of farm inputs	3.50	0.49
Leads to deficiency in raw materials	3.53	0.56
Failure to plant crop in fields	3.46	0.72
Hinder purchase of labour for farm work	3.55	0.49
Hinder purchase of farm work	3.53	0.50
Failure to carry out varied cultural practices	3.10	0.70
Scarcity of expected crop material and produce	3.30	0.53
High risk of loss of food crops and vegetables	3.30	0.58
Markets for crops produce are shutdown	3.30	0.64
Halt monitoring of crops in fields	3.13	0.72
Halt monitoring of crop pest and disease in field	3.30	0.54
Difficulties in crop pest and disease control	3.30	0.75
Low purchasing capacities of farmers	3.48	0.62
Blockage of essential food supplies	3.43	0.61
Hinders transportation of crop produce	3.36	0.60
Failure to use needed quantities / quality of inputs	3.20	0.56

Source: Field survey data, 2021, SD: Standard deviation

failed to plant as a result of a lack of farm laborers, no input supplies, and the fear of contacting the virus if they eventually stepped outside of their homes. Hinders purchase of labor for farm work ($M = 3.55$). The pandemic has put a stoppage on the purchase of labor as none were seen outside their homes. Hinders purchase of farm inputs ($M = 3.55$). The markets were closed and inaccessible, and as such, the farmers could not purchase the farming inputs. Failure to carry out varied cultural practices ($M = 3.10$): cultural practices such as clearing, planting, spacing, etc., were not done as the farmers were not available on the farm, and when available, a lack of farm laborers can still halt the activities from being done. Scarcity of expected crop material and produce ($M = 3.30$). Markets' closing is the major factor that contributes to these effects. Farmers were unable to access planting material, and when they eventually produced, there was no market to sell to consumers, which led to the scarcity of crops and vegetables. High risk of loss of food crops and vegetables ($M = 3.30$). There is a high risk of loss of food crops and vegetables due to a lack of storage activities and markets to sell out these produce since they are perishable food. Markets for crop produce are shut down ($M = 3.30$), as stated earlier. One of the effects of this pandemic on crop production were market been shut down and the farmers were not able to buy or sell their produce, which led to a shortage of their income earnings. Halt monitoring of crops in fields ($M = 3.13$). Movement restrictions put a stop to farmers going to the field to monitor their crops, and some crops got damaged by pests or covered with weeds, etc. Halt monitoring of crop pests and disease in fields ($M = 3.30$). Delay in monitoring the crop pest and disease in the field leads to the loss of many crops to the pest, which causes a scarcity of crop produce. Difficulties in crop pest and disease control ($M = 3.30$).

When the movement restriction is lifted by the government, the crops pests and diseases on the farm have grown too much and are now difficult to control with the mere application of pesticides. Low purchasing capacities of farmers ($M = 3.48$) and a lack of income earnings by the farmers during the lockdown have led to their having low purchasing capacities when the market is opened. Blockage of essential food supplies ($M = 3.43$), movement restriction, travel ban, and closing of the market

have led to a lack of importation of food supplies and the sale of the supply to consumers. Hinders transportation of crop produce ($M = 3.36$): movement restriction has hindered transportation of crop produce, which leads to damage of perishable food crops, and the farmers who find means to transport those produce are at a loss due to the transportation charge that transporter will put on the produce. At the end, it becomes a waste of their efforts as there is little or no return on investment to even purchase more farm inputs or feed their families. Failure to use needed quantities or quality of inputs ($M = 3.20$) or lack of supplies of farm inputs leads to a lack of needed input to cultivate or a lack of improved varieties due to the closure of the market.

ILO (2020a, b) posits that the pandemic may also have a serious impact on labor-intensive crop production and processing due to shortages and the temporary cessation of production. For example, in Nigeria and worldwide, the agricultural sector is facing a dramatic labor shortage due to border closures that permit hundreds of thousands of seasonal workers from reaching their farms that rely on their labor during the harvest period. The pandemic may also have a significant negative impact on the livelihood of millions of plantation workers engaged in export-oriented, labor-intensive agricultural production in developing countries. For example, the recent temporary suspension of one of the world's largest tea auctions in Mombasa, Kenya, where tea from many eastern African countries is traded, if prolonged, could have a devastating effect on local, national, and regional economics. The immediate impact will be in various nodes of the chain, including factories, warehouses, and transporters, as well as farms, which may be forced to stop production and lay off pluckers, who are often among the most disadvantaged workers and highly vulnerable to economic reversal (ILO, 2011, ILO, 2019; ILO, 2017). Panic buying and stockpiling by consumers and national trade-related policy responses to the pandemic, especially any limitations on exports, may result in price spikes and increased price volatility, destabilizing international markets.

Again, Rural 21 (2021) on the effects of COVID-19 on production and productivity posited that farm field work depend mainly on affordable hired labor from local communities and villages. In rural villages,

investments in resources by subsistence farmers depend on what their relatives living in urban areas can provide. Some of the small-scale farmers usually travel from urban and peri-urban areas to rural farm fields. The farmers in Nigeria have resorted to staying at home to avoid breaking the law.

Strategies for Improvement

Table 4 shows that the most perceived strategies needed for improvement include the provision of financial aid to vulnerable farmers ($M = 2.80$). The government should be able to provide loans or grants to those farmers at high risk of the pandemic. Information sharing on cropping activities ($M = 2.83$). Extension workers should be put in place to share knowledge and information with farmers on the preferred time and date for planting to avoid disruptions in the production cycle. Food production has to be performed in time by farmers ($M = 2.88$), provision of a food storage warehouse ($M = 2.73$). Warehouses should be made available to farmers for storing food crops to avoid food shortages and food insecurity. Creation of improved food market channels ($M = 2.76$), encouraging local food supply chains ($M = 2.70$), food sharing opportunities ($M = 2.70$), payments of stipends ($M = 2.80$), and insurance coverage ($M = 2.73$). Insurance should be greatly considered by the government for farmers in case of any eventuality; they will fall back on it without losing everything. Cash transfer ($M = 2.80$), cooperative works ($M = 2.80$), moratorium/grace period ($M = 2.50$).

Table 4: Strategies needed for improvement

Strategies	Mean	SD
Provision of food storage warehouse	2.73	0.51
Creation of improved food market channels	2.76	0.49
Food production has to be performed on time by farmers	2.88	0.34
Moratorium/grace period	2.50	0.32
Food sharing opportunities	2.70	0.49
Information sharing on cropping activities	2.83	0.37
Cooperative works	2.80	0.32
Encourage local food supply chain	2.70	0.51
Provision of financial aid to vulnerable farmers	2.80	0.51
Payments of stipends	2.76	0.51
Insurance coverage	2.73	0.51
Cash transfer	2.80	0.52

Source: Field survey data, 2021, SD: Standard deviation

This agrees with SSWFO (2020), that even though the government announced mitigating measures, these often have meant very little in the lives of small-scale farmers. For example, soon after reports about the negative impacts of movement restrictions on agriculture made it to the public, the federal government declared agriculture an essential service that should be allowed to operate freely.

CONCLUSION

The COVID-19 pandemic is a global crisis that is already affecting the agricultural and other sectors of the country. Given the impact of this pandemic across the globe, COVID-19 has been declared a pandemic by the World Health Organization. This global crisis is envisaged to have more effects on food and crop production across the country. The effects on food production can be conceptualized as a looming food crisis unless measures are taken to protect the food value chain. Rural populations, which are predominately farmers, have experienced a setback in their income earnings, and their living conditions are threatened. This shows that in addition to food insecurity, the pandemic is associated with a restriction of cash flow as people learn to hoard the little they have, thereby limiting their ability to have the purchasing power of the needed resources. The dominant effects revealed in the study are disruption of the crop production cycle, low purchasing capacities of the farmers, hindered purchase of farm work, etc.

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