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Effects of COVID-19 Pandemic on Women's Farming Activities on Some Selected Food Crops in Delta State, Nigeria

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Abstract

This study was carried out to examine the effect of the COVID-19 pandemic on women's farming activities on some selected crops in Delta State. A multistage sampling procedure was used to randomly select 120 cassava and maize female farmers.

The major effect of COVID-19 on women's farming activities identified in the study was a reduction in crops produced and sold ($\bar{x}=2.51$). There was a -27.59% and -17.64% decrement in the output of cassava and maize respectively and an increase in the respondents' income as the cassava farmers incurred a 28.7% increment in their income while the maize farmers had 28.5%. There was a significant difference in the income generated from cassava production ($t=-3.54$, $p=0.00$) and maize production ($t=-2.83$, $p=0.01$). It was concluded that the effects of COVID-19 on farming activities were a decrease in the quantity of crops produced and sold, huge cost of farm input, low profit from crops sold, increase in post-harvest loss due to lack of storage, high standard of living, high cost in labour, cost of production and farm input. Subsidy should be placed on farm inputs like fertilizers, seedlings, pesticides and herbicides to reduce the cost of production for the farmers and provide an avenue for the farmers to be able to make a profit from their farms

Keywords: Rural women, COVID-19, farming activities.

Introduction

Before COVID-19, Nigeria's agricultural sector had been affected by several challenges that ranged from drought and flooding occasioned by climate change, as well as widespread instability caused by terrorism and cattle rustling in the North, and the farmers-herders clashes across the South and Middle Belt regions (Oyaniran, 2021). The outbreak of COVID-19 further exacerbated the challenges of the country's agricultural sector, thereby impacting the nation's food security. COVID-19 pandemic greatly affected social, economic and farming activities in the agriculture systems (Oyaniran, 2021). The extent of pandemic disruptions on agriculture food production system is lamentably scanty in rural areas (Mthembu et al., 2022) Food security has been jeopardised both directly and indirectly as a result of the virus's destabilisation of food systems and the effects of lockdowns on family revenue and physical access to food (Devereux et al, 2020). The presence of coronavirus disease hurts all four pillars of food security, which are the availability of food, accessibility of food, utilisation of food, and stability of food (Nechifor et al, 2021; Laborde et al., 2020). To cope with the pandemic, several countries including Nigeria implemented public health safety measures (PHSM). (Ilesanmi et

al, 2021). In Nigeria, agricultural labour is operated manually daily due to the unavailability of mechanized farming tools, therefore the period of peak agricultural activity necessitates high demand for labour, but the lockdown and restriction of movement therefore limited access to farmlands by farmers and labourers. As a result, the available workforce for cultivating farmlands diminished, and agricultural production across the country reduced. The harvesting period for some crops such as maize, rice, sorghum, millet, tomatoes, and cucumber which are highly perishable falls between March and July (Ilesanmi et al, 2021). Consequently, the PHSM implemented during this period resulted in a shortage of labour for harvesting crops, spoilage of ready-to-harvest farm produce, and food shortages in the market. These events resulted in increased cost of food items, hunger and subsequently protest by Nigerians (Microsoft news. 2021). These impacts were felt by the food and agriculture sector. While the supply of food has held up well to date, in many countries, the measures put in place to contain the spread of the virus disrupted the supply of agro food products to markets and consumers, both within and across borders (Organisation for Economic Co-operation and Development, 2020).

Given that women play major roles in agriculture through their essential contributions to the food, agricultural and rural economies in all developing countries (Opata et al, 2018), they are also expected to bear the brunt of the impact because they are overrepresented in affected sectors on the front lines of the pandemic's response (Adisalem et al, 2020). Women constitute nearly 50% of the agricultural workforce and own one-third of small and medium enterprises (SMEs) in Africa, making them a key pillar of Africa's food systems (Agra, 2020). As COVID-19 continues to spread in Africa, women in agriculture struggle not only with restrictions to limit the spread of the disease but also with endemic inequalities that undermine their capacity to respond to and recover from the pandemic's impact. The pandemic is exacerbating existing structural inequalities, increasing the burden on women as they strive to manage their families, farms, and small businesses. Furthermore, gendered access to opportunities means that women and men have different resources available to them to prepare for, cope with, and recover from such a crisis. As COVID-19-related restrictions come into force in various countries, women's livelihoods and business activities were threatened, along with household food and nutrition and family well-being, which are key priorities addressed by women's incomes. So, this study identified the effect of COVID-19 pandemic on women's farming activities on some selected food crops in Delta State, Nigeria

Specifically the study sought to:

1. determine the effects of COVID-19 on farming activities before and after its outbreak,
2. examine the output of cassava and maize before and after COVID-19
3. examine the income of the respondents before and after COVID-19.

Methodology

This research work was conducted among rural women in Delta State and the food crops selected were Cassava and Maize. A multi-stage sampling procedure was used to randomly select 120 female farmers for data collection. Primary data were collected from the respondents through the use of a well-structured questionnaire that contained open and closed ended questions to elicit information about various areas of the study from the selected respondents. Effects of COVID-19 on farming activities was

analysed with mean statistic and standard deviation. Its cut-off mean was 2.00 which means any variable with the mean of 2.00 and above is an effect and any variable below 2.00 is not an effect. The female farmers were asked to indicate the output of their Cassava and Maize before and after the COVID-19 pandemic. It was measured in Tons and Kilogram respectively. To identify if there was a difference in the output before and after the pandemic, Paired sample T-Test was used for its analysis. To test for the difference in income, Paired sample T-test was used for its analysis. The level of significance that was used for the hypotheses at 95% interval.

Results and Discussion

Effect of COVID-19 on Farming Activities

The outbreak of the coronavirus in 2020 in Nigeria led not only to a national lockdown but also to a likely permanent disruption of our farming system. Data in Table 1 show that the major effects of COVID-19 pandemic on women's farming activities and include a reduction in quantity of crop produced and sold ($\bar{x}=2.51$), high cost of farm input ($\bar{x}=2.41$), low profit from farm produce sold ($\bar{x}=2.39$) and increased postharvest loss as a result of lack of storage ($\bar{x}=2.37$). Due to the lockdown initiated at the onset of the pandemic, the women could not go to their farms to work and this led to reduction in the quantity of crop produced by the farmers. Also, another reason for reduction in the quantity of crops produced stems from the high cost of farm input. The aftermath of the COVID-19 pandemic on the economy was disastrous. The outbreak resulted in recession, especially on the Nigeria economy. Ever since, the pandemic, the dollar rate in Nigeria continued to rise and this resulted in inflation in the price of commodities, farm input not excluded. The amount of money used in purchasing needed farm inputs before the pandemic was no longer enough to get it. Lawal *et al* (2021) confirmed this and stated that the inflation rate in Nigeria has maintained an upward trend since the outbreak of COVID-19. Pre-COVID-19, the inflation rate was at 12% however following the outbreak of the pandemic inflation rate rose to 14.5% and since then inflation has steadily been on the rise and currently is at 22.04% almost double what was attainable in the past.

Low profit from farm produce sold was identified as an effect and this is because of the naira depreciation the country is experiencing which led to price inflation. The farmers using the same budget they used before the pandemic for their farm production resulted in low profit and sometimes, no profits at all as a result of an increase in prices, not only in input but also in the processing, transportation, labour cost and a lot more. This result was supported by Ogundele *et al* (2021) who carried out a study on the impact of COVID-19 on food security in Nigeria. Their results were in line with the above-stated data as it was concluded that COVID-19 caused an increase in the cost of production and an abrupt increase in food prices. Also, PWC (2020) analysed the effect of COVID-19 on the global food supply chain, their findings concluded that COVID-19 disrupted farming activities, transportation and logistics leading to decreased agricultural production, food waste, and increased food prices and food insecurity in some regions in Africa.

Another effect identified was an increase in postharvest loss as a result of lack of storage. Most farmers, already have a buyer down to buy their produce. So, most of the time, the harvested produce moves directly from the farm to the factory or market for those that don't have buyers on the ground but with the initiation of the

lockdown, the market was closed down and it became difficult for the farmers to save their farm produce because they have no storage and even for those that employed the traditional storage, it was not built to preserve crops for a long time. This finding agrees with FAO (2020) which clearly stated that the outbreak of COVID-19 negatively affected the food security of more than a million producer households across Nigeria, resulting in deterioration of food security and household income as they were unable to transport their farm produce to cities.

Table1: Effects of COVID-19 on farming activities

Effects of COVID-19 on farming activities	Mean	SD
High Cost of labour	1.49	0.69
High cost of transportation	1.24	0.57
High cost of storage materials	1.73	0.83
High cost of farming tools	1.76	0.85
Increased post-harvest loss due to lack of storage	2.37	0.82
Price of produce	1.75	0.84
High Cost of farm input	2.41	0.66
Reduction in quantity of crop produced	2.51	1.07
Low profit from farm produce sold	2.39	1.95

Cut-off mean = 2.00

Output of the Respondents before and after COVID-19 Outbreak

Table 2 reveals the output of both cassava and maize farmers before and after the COVID-19 outbreak. Results show that there was a -27.59% decrease in the average output of the cassava farmers from 13.50 tons to 10.58 tons and for the maize farmers, there was also a decrease of -17.64% from an average of 20 bags of maize to 17 bags of maize. This decrease in production can be associated the price inflation which resulted in high prices in farm input, labour wages, cost of transportation etc. The cost of production that was used to produce 13 tons of cassava and 20 bags of maize was no longer sufficient to produce it, hence the decrease.

Table 2: Quantity of some Selected Crops produced before and after COVID-19

Selected Crops	Quantity of crops before COVID-19	Quantity of crops after COVID-19	% Decrease
Cassava	13.5	10.58	-27.59
Maize	20.0	17.0	-17.64

Income of the Respondents before and after COVID-19 Outbreak

Table 3 reveals that there was a 28.7% increment in the income of the cassava farmers as their income increased from 234,980 Naira to 302,310 Naira. The maize farmers had a 28.5% increment in their income as it grew from 177,750 to 248,616 Naira. Though their output decreased, they attributed the increment to be a result of the economic challenges the country is going through i.e., the depreciation in the Nigerian currency had led to an increase in prices of farm input (fertilizer, pesticides etc.) and this increase has led to an increase in the prices of a ton of cassava and a bag of maize. In support of these findings was Lai (2020) who asserted that one of the challenges brought by the COVID-19 pandemic was price increases in fresh food in large and developing densely-populated cities and disruptions in accessing to staple food.

Table 3: Income generated from some selected crops produced before and after COVID-19

Selected Crops	Average income before COVID-19	Average income after COVID-19	% Increase
Cassava	234,980	302,310	28.7%
Maize	177,750	248,616	28.5%

Difference between the Income of the Respondents before and after the COVID-19 Pandemic

Table 3 shows that there was a significant difference in the income generated from cassava production ($t=-3.54$, $p=0.00$) and maize production ($t=-2.83$, $p=0.01$). These findings show that there was a significant difference in the income of the farmers and this was not because the outbreak of COVID-19 was favourable to them but because the rise in the income was a result of the economy experiencing a depreciation in naira which led to price inflation in the cost of farm inputs like fertilizer, pesticides, herbicides, high cost in transportation of the farm produce from the farm to the markets etc. and this lead to an increased in the prices of farm produce which resulted in the increased income. There was also an increase in the demand for cassava and maize produce as indicated by the respondents due to the COVID-19 outbreak. This showed the importance of cassava products as the virus has not just negatively affected its production but also increased its demand. This is in alignment with FAO (2018) which asserted that cassava is one of the fastest expanding staple food crops in cassava-consuming countries and has continued to gain prominence among farmers while the industrial demand is also rising consistently.

Table 3: Difference between the Income of the Respondents before and after receiving the loan

Variable	t-value	Df	Sig.	Mean Difference	Standard Error	Decision
Cassava	-3.54	119	0.00	-67329	19032	S
Maize	-2.83	119	0.01	-70866	25053	S

Conclusion and Recommendations

The effects of COVID-19 on farming activities were decrease in the quantity of crop produced and sold, huge cost of farm input, low profit from crops sold, increase in post-harvest loss due to lack of storage, high standard of living, high cost in labour, cost of production and farm input. There was a decrease in the output of cassava and maize respectively as the cost of production used before COVID-19 outbreak was no longer sufficient for production after the pandemic due to price inflation. Though there was a decrease in the output of the farmers, their income increased as the cassava farmers incurred an increment in their income while the maize farmers had

Subsidy should be put on farm inputs like fertilizer, seedlings, pesticides and herbicides to reduce the cost of farm production for farmers and provide an avenue for the farmers to be able to make a profit from their farm

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