



Effects of Covid-19 Pandemic on Rice Production Levels in South West, Nigeria

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ABSTRACT

The study evaluated the effect of Covid-19 pandemic on rice production in South west, Nigeria. Specifically, the study described the socio-economic characteristics of the respondents, production levels of rice before and during covid-19 pandemic and effects of Covid-19 pandemic on rice production. Data were collected from 240 registered rice farmers in the study area with the aid of well-structured interview schedule. The data collected were described using descriptive statistical tools (frequency distribution, percentages and weighted mean score (WMS) and inferential tools (T-test analysis) were used to present the results of the findings. The mean age was 42.94 years, mean year spent in school was 10.29 years, mean household size was 7persons, mean annual income was ₦1,308,750.00 and mean rice farm size was 4.60 hectares. It was revealed that low income with weighted mean score (WMS= 2.75) was ranked first as the effect of covid-19 pandemic on rice production. Spoilage of harvested rice with (WMS) of 2.72 was ranked second while poor/loss of quality of produce with (WMS) of 2.37 was ranked least. The result of Paired T-test analysis showed that there was significant difference in the production level of rice before and during covid-19 pandemic ($t=13.285$, $p= 0.001$). The study concluded that covid-19 has greatly affected rice production level in the study area by reducing their production output. Therefore, the study recommends that incentive in form of farm inputs such as fertilizers and seeds should be given to rice farmers during pandemic. Also strict regulation to exempt farmers from restricted movement during lockdown like medical personnel should be enforced by relevant security agencies.

INTRODUCTION

The novel Coronavirus (COVID-19) is a global pandemic with an increasing public health concern. According to Nigeria Center for Disease Control NCDC (2020), Coronaviruses are zoonotic, meaning they are normally transmitted between animals and people. The coronavirus disease (COVID-19) is caused by a new strain of coronavirus (SARS-CoV-2) that has not been previously identified in humans. It was first reported to World Health organization (WHO) on the 31st of December, 2019 in Wuhan, China.

The Federal Ministry of Health confirmed the first coronavirus disease (COVID-19) case on the 27th of February 2020 in Lagos State, Nigeria. The case was an Italian citizen, who works in Nigeria and returned from Milan, Italy to Lagos, Nigeria on the 25th of February, 2020. He was confirmed by the Virology Laboratory of the Lagos University Teaching Hospital, part of the Laboratory Network of the Nigeria Centre for Disease Control (Federal Ministry of Health, 2020). Symptoms of Covid 19 infection include: Cough; Fever; Shivering /shaking (chills); Body pain; Headache; Sore throat; Recent loss of taste or smell and Difficulty in breathing/shortness of breath (NCDC, 2020). WHO (2020) reported that COVID-19 pandemic is an ongoing infection that has spread to over 188 countries globally with over 245, 984 new cases, 25,602,665 confirmed, and 852,758 deaths as at 2nd September 2020. However, NCDC (2022) reported that Nigeria recorded 256,711 confirmed cases; 250,158 discharged cases; 3,144 deaths and 3,409 active cases as at 21 June, 2022.

The Coronavirus disease (COVID-19) pandemic has wrecked great havoc in many spheres of life, including the educational, health, economic, and agricultural sectors. To break the transmission chain of SARS-CoV-2, public health safety measures such as social distancing, regular hand hygiene, border closure, restrictions on internal movement, and lockdown were implemented. Some of these measures have however contributed to reduced economic power, shortage of labor for agricultural production, and huge losses in the agricultural sector (Ilesanmi *et al*, 2021). The effect of COVID-19 on agriculture in Nigeria has been enormous due to the limited mechanization and high labour intensity in agriculture in the country. Over one-third (35%) of the country's total labour force is employed in the agricultural sector (World Bank, 2020). Idu and Onyenekwe (2021) suggested that commissioners of agriculture have important roles to play to help mitigate these negative impacts on agricultural livelihoods and food systems. These include a push for a bill to integrate social protection mechanisms into the Nigerian legal framework, lobby for increased budgetary allocation to the agricultural sector, formulation of good agricultural policies and provision of adequate infrastructures, organization of these farmers into farming clusters to help stimulate agglomeration

economies by integrating agricultural value chains and development strategies, and frameworks and initiatives that will ensure a seamless transition from emergency response to resilience building.

With COVID-19, the challenges hampering the attainment of food security in Nigeria could deepen. The impact is already being felt in the form of rising food prices. As at April 2020, food inflation rose to 15% compared to 14.7% in December 2019 (PwC Nigeria, 2020). When we talk about food inflation, rice play a key role in Nigeria staple food. Rice is one of the most consumed staples in Nigeria, with a consumption per capita of 32kg. Significant progress has been recorded in rice production; rice production in Nigeria reached a peak of 3.7 million tonnes in 2017. Despite this improvement, comparatively, Nigeria's rice statistics suggest there is an enormous potential to raise productivity and increase production. Yields have remained at 2 tonnes per hectare, which is about half of the average achieved in Asia. In addition, as population increases, along with rural to urban migration, ensuring food security in key staples becomes critical.

Nnodim (2020) stated that the effect of the pandemic on agriculture in Nigeria was very severe because the timing of the lockdown of the economy due to the outbreak coincided with the planting and harvesting seasons (March and July) of many crops such as maize, cucumber, tomatoes, millet, sorghum and rice. Therefore, the shortage of hired labour for harvesting, resulted in high post-harvest losses by farmers, food shortages in the market and increased cost of food items. Hence this study is necessitated to evaluate the effects of covid-19 pandemic on rice production level in South West, Nigeria. Specifically, the study describes the socio-economic characteristics of the respondents; production levels of rice paddy before and during covid-19 pandemic.

MATERIALS AND METHODS

The study was carried out in South West, Nigeria. The zone is made up of six States which are; Ekiti, Ondo, Osun, Ogun, Oyo and Lagos. The area lies between longitude 20° 31' and 60° 001' East and latitude 60° 21' and 80° 371' North with a total land area of 77,818 km (Oluwatosin and Ojo, 2017). It is majorly a Yoruba speaking area, although there are different dialects even within the same state. The weather conditions vary between the two distinct seasons in Nigeria; the rainy season (March - November) and the dry season (November - February). The dry season is characterized by Harmattan dust; cold dry winds from the northern deserts which blow into the southern regions around this time. The study purposely selected Oyo and Ekiti States. Oyo State covers a total of 28,454 square kilometres of land mass and it is bounded in the south by Ogun State, in the north by Kwara State, in the west it is partly bounded by

Ogun State and partly by the Republic of Benin, while in the East by Osun State. The landscape consists of old hard rocks and dome shaped hills, which rise gently from about 500 meters in the southern part and reaching a height of about 1,219 metres above sea level in the northern part. It has 33 local government areas. The climate in the State favours the cultivation of crops like Maize, Yam, Cassava, Millet, Rice, Plantain, Cocoa tree, Palm tree and Cashew (Oyo State Investment Public Private Partnership Agency OYSIPA, 2020).

Ekiti State is situated entirely within the tropics. It is located between longitudes 40°51' and 50°451' East of the Greenwich meridian and latitudes 70°151' and 80°51' north of the Equator. It lies south of Kwara and Kogi State, East of Osun State and bounded by Ondo State in the East and in the south, with a total land Area of 5887.890sq km. Ekiti State has 16 Local Government Councils. The capital is located at Ado-Ekiti. Agriculture is the main occupation of the people of Ekiti, and it is the major source of income for many in the state. Agriculture provides income and employment for more than 75% of the population of Ekiti State. Some of Ekiti's agricultural produce are: Cash crops such as Cocoa, Oil Palm, Kolanut, Plantain, Bananas, Cashew, Citrus and Timber; Arable /Food Crops such as Rice, Yam, Cassava, Maize and cowpea (Ekiti State Government, 2021).

The study focused on areas with rice production concentrations. In Oyo state, Atiba; Afijo and Oyo west local governments were purposely selected as major producers of rice while in Ekiti state, Gbonyin, Ijero and Ekiti West Local Government Areas were selected based on data provided by Olayinka and Alfred (2019) as major producers of rice. List of rice farmers from their respective associations in each of the selected local governments were obtained. In Oyo state, 20% of 510 respondents were selected while in Ekiti state, 20% of the 690 respondents were selected to give 102 and 138 respondents respectively. This gives a sample size of 240 rice farmers. The dependent variable is overall effect of covid-19 pandemic on rice production level. It was measured by asking the respondents the output of paddy rice in kilogramme harvested before and during the covid 19- pandemic. Paired T-test analysis was used to establish significant difference in the production level of rice.

RESULTS AND DISCUSSION

Socio-economic characteristics of respondents

Table 1 shows that the mean age of the respondents was 42.94 years, this is an indication that farmers in the area are vibrant, young and still within the active age. Rice farming is so strenuous. Young farmers are more likely to embark on strategies which may likely prevent COVID-19 pandemic. This result agreed with Esiobu *et al* (2020) that the farmers are vibrant, young and still within their active age. This table 1 also reveals that most (68.8%) of the farmers were males. The finding implies that both sexes are involved in rice farming but male are more in number in the area. This is true as male farmers have been found to be more effective in rigours of rice farming. The Result in Table 1 shows that majority (90.0%) were married, this implies that rice farming is an enterprise of married individual who are expected to be responsible according to society standard. Married farmers have chances of adapting to the effect of COVID-19 pandemic easily than their unmarried counterpart since they have access to labor.

During the period of COVID-19 pandemic, non-availability of labor has really affected and interrupted some harvesting and distribution activities of rice. There were disruptions in supply of farm inputs because of poor transportation and lockdown. Married farmers have increased chance of adapting easily to COVID-19 than others since they are likely to have access to family labour.

The table 1 also shows that mean years spent in formal schooling is 10.29 years. The finding implies that farmers were literate which is expected to increase and improve their knowledge on various approaches to practices in preventing new strains of coronavirus. It was revealed that majority (71.3%) of the respondents were Christians, few (23.8%) were Muslim while only few (5.0%) were Traditionalists. This implies that religion is not a barrier to rice production.

The table further shows that the mean household size was 7 persons; the result shows that farmers had medium household size. The lockdown created both a shortage of farm labor. The implication is that they could be useful for farm labor.

Table 1 also indicates the mean annual farm income from rice production was ₦1,308,750.00. The finding implies that the farmers had a relatively medium farm income. This is true as some indigenous and non-indigenous approaches to COVID-19 pandemic strategies are costly. The table further shows that majority (76.3%) makes use of both hired and family labor, which makes their work easier and faster. It also makes them monitor the activities going-on in the farm. This table further reveals the mean farm size of 4.60ha. This finding implies that the farmers in the area were mainly medium scale operators.

Table1: Distribution of respondents according to their socio-economic characteristics

Socio-economic characteristics	Frequency	Percentage (%)	Mean (n=240)
Age (years)			
<30	30	12.7	42.94
31-40	66	27.7	
41-50	87	36.4	
51-60	48	20.3	
61 and above	9	3.9	
Sex			
Male	165	68.8	
Female	75	31.2	
Marital Status			
Single	9	3.8	
Widow	6	2.5	
Separated	9	3.8	
Married	216	90.0	
Education (years spent in school)			
No formal education	3	1.3	10.29
1-6	90	37.6	
7-12	81	33.8	
13 and above	66	27.6	
Religion			
Christian	171	71.3	
Islam	57	23.8	
Traditional	12	5.0	
Household size (persons)			
< 5	90	37.6	7
6-10	129	53.9	
11 and above	21	8.8	
Annual income (₦)			
<500,000	39	16.4	1308750.00
501,000-1,000,000	57	24.0	
1,000,001-1,500,000	60	25.3	
1,500,001-2,000,000	60	25.1	
2,000,001-3,000,000	18	7.7	
3,000,001 above	6	2.5	
Source of labor			
Self	3s	1.3	
Family	15	6.3	
Hired	39	16.3	
Both hired and family	183	76.3	
Rice farm size (Ha)			
< 5	177	73.9	4.60
6-10	57	23.9	
11 and above	6	2.5	

Effects of Covid-19 pandemic on rice production

Table 2 shows the effects of covid-19 pandemic on rice production by the respondents. It was indicated that low income with (WMS = 2.75) was ranked 1st. This means income is a crucial factor that influences rice production. Most of the rice farmers were unable to get necessary production input resources in during COVID-19 pandemic which was attributed to the sudden rise of rice input resources due to lockdown and food shortage. Poor extension contacts, high cost of labor, poor access to farm credit and no-COVID-19 pandemic palliative by the government were the complaints given by the rice farmers. The high cost of farm inputs can also be attributed to this, that is, the acquisition of necessary production equipment was difficult. They may not only be costly but may also appear scarce for poor farmers particularly during the period of the pandemic.

Spoilage of harvested rice with (WMS) of 2.72 was ranked second. Restrictions also caused post-harvest losses, unsold and rotting food. Similarly, planting and harvesting season was pending for rice farming, shortage of labor and poor access to farm credit led to production losses and shortages in the market.

Poor access to market with (WMS) of 2.60 was ranked third. This indicates that due to the restriction of movement, the farmers did not have access to market. COVID-19 pandemic was related to transportation restrictions, which makes it particularly difficult for sellers and buyers to have access to the market. Poor/loss of quality of produce with (WMS) of 2.37 was ranked least. Poor storage facilities and attitude of farmers to storage techniques could cause loss of quality of rice produce.

Table 2: Effects of Covid-19 pandemic on rice production

Effects *	High	Moderate	Low	WMS	Rank
Low production	174(72.5)	3(1.3)	63(26.3)	2.46	4 th
Spoilage due to late harvest	17(72.5)	3(1.3)	63(26.3)	2.46	4 th
Low income	180(75.0)	60(25.0)	-	2.75	1 st
Poor yield	99(41.3)	141(58.8)	-	2.41	6 th
Poor/loss of quality of produce	90(37.5)	150(62.5)	-	2.37	7 th
Poor access to market	144(60)	96(40)	-	2.60	3 rd
Spoilage of harvested rice	174(72.5)	66(27.5)	-	2.72	2 nd

Source: Computed from Field Survey Data, 2021

* Multiple response

Paired T-test analysis showing the significant difference between the production level (Kg) of rice before and during the pandemic

Table 3 revealed that there is significant difference in the production level of rice before and during the

pandemic ($t = 13.285$ $p = 0.001$). It implies that Covid-19 pandemic has negatively affected their production output, resulting in a change in their level of production.

Table 3: Paired T-test analysis showing the difference between production level (Kg) of rice production level before and after COVID-19 pandemic

Variable	Mean	T-value	Significance	Remarks
Production level before Covid-19	7409.3	13.285	0.001	Significant
Production level during Covid-19 pandemic	4154.38			

Source: Computed from Field Survey Data, 2021

CONCLUSION AND RECOMMENDATIONS

The study concluded based on the findings that Covid-19 pandemic has negatively affected rice production output, resulting in a change in their level of production in the study area and therefore recommended that

- Incentives in the form of farm inputs such as fertilizers and seeds should be given to rice farmers during pandemic.
- The regulation to strictly exempt farmers during lockdown like medical personnel should be enforced by relevant agencies.

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