Journal of Agricultural Economics, Extension and Rural Development
Abbreviated Key Title: J. Agric. Econs. Extens. Rural Dev.
ISSN-2360-798X (Print) & Open Access
Vol 12: (3): Pp.: 30-37
Volume-12 |Issue 3| March, 2024| DOI:10.54978 *Full Length Research*

The Influence of illness on Agricultural Productivity in Kebbi State, Nigeria

***[1]Manga T.A., [2]Alhassan Y.J., and [1]Sanchi, I. D.**

[1]Department of Agricultural Economics and Extension, Federal University of Agriculture Zuru, Kebbi State, Nigeria
[2]Department of Agricultural Economics and Extension, Federal University Wukari, Taraba State, Nigeria.

***Corresponding author: Manga T.A.**
Accepted: 28/3/.2024 **Published:** 4/4/2024

Abstract: The influence of illness on agricultural productivity in Nigeria's rural districts of Kebbi state was examined in this study. The reason for this is that rural areas, which are strategically significant for the country's food security, are more vulnerable to health risks due to the subpar quality of health care, which is partially due to government neglect. The goals were to outline the socioeconomic traits of the rural farm households and pinpoint the region's current relationship between agricultural production and health. In order to obtain pertinent information about 263 rural households' farming operations and health concerns, a multistage random sample approach was used to choose them for questionnaire delivery. Production function analysis and descriptive statistics were used. According to the survey, there were an average of 6.5 people living in each family, and the heads of those households were 46.4 years old on average. Additionally, it was discovered that the average farm size was 1.43 hectares and the average number of years of formal schooling was 7.4. Additionally, the study found that diarrhea, typhoid fever, and malaria were the most common illnesses impacting farm families. As a result, there was an average 8.2-day decrease in the amount of time that could be spent working on the farm during an agricultural season. The production function analysis result showed that the number of days of farm work missed due to illness was negatively signed (0.09) and significant at 5%, while the elasticities of farm size (0.419), family size (0.099), labor (0.012), number of contacts with extension agents (0.018), and labor (0.012) and naira amount of credit accessed (0.25) were positively signed and significant at 1%, 10%, 1%, and 1%, respectively. The number of days that a household's farming activities are missed due to illness, according to the findings, may provide a clearer picture of how illness affects food security and agricultural output. To lower the frequency of disease infestation, more research and development efforts should be made in the areas of health care accessibility and provision in rural areas. Since the majority of illnesses found in the research area are actually related to hygiene and the environment, such initiatives should also entail providing the rural people with appropriate health and environmental education.

Keywords: Kebbi State, agricultural productivity, impact, and sickness

Quick Response Code

Journal Name
https://www.springjournals.net/jaeerd

Citation: Manga TA., Alhassan YJ., and Sanchi ID. Or Manga et al.: The Influence of illness on Agricultural Productivity in Kebbi State, Nigeria. *Agric. Econs. Extens. Rural Dev* 12(3) Pp 30-37, 2024

OVERVIEW

Nigerian governments have consistently given attention to rural areas since they are strategically significant as the country's agricultural foundation. Smallholder farmers, or those with less than three hectares of land, provide almost 90% of Nigeria's food supply, and the majority of the country's industries are

dependent on agriculture. It has also been reported that the agriculture sector, which generates 70% of Olayemi's non-oil exports, contributes roughly 40% of the nation's GDP [Agwu and Anyanwu, 2019]. The majority of the agricultural items listed above come from rural areas. But there are a lot of welfare and infrastructure issues that can arise in these places. They are vulnerable to health risks, which is one of these issues. Health issues include HIV/AIDS, guinea worm infection, and malaria are frequently more common in rural areas [Ahmed et al., 2015]. Because health is a significant kind of human capital, it matters both as a direct indication of welfare and as a factor that affects productivity. Since health is correlated with capability, there is a great deal of consensus in the research regarding the relationship between economic development and health [Ajani and Ashigidigbi, 2018]. In addition to having a negative impact on the welfare of the affected households, health issues have a negative impact on agriculture and economic development because they reduce the number of hours that can be worked for economic purposes, cause the early loss of human resources, and increase the financial burden of poor rural households. Development economists generally agree that a country's health is a key factor in its development. According to Gallup and Sachs [Alaba and Alaba, 2009], nations with high malaria incidence only possessed 33% of the income levels of those without malaria in 1995, and their annual growth rate was 1.3% lower between 1965 and 1995. McCarthy, Wolf, and Wu's estimates [Audibert, 2000] also show that malaria lowers economic growth by 0.55%.

Agriculture-related research has demonstrated the detrimental effects of illness, particularly on the well-being of farming households, which in turn have an impact on the growth of the economy as a whole. For example, Asenso-Okyere, Chiang, Thangata, and Andam [Bamire et al., 2012] reported that the effects of poor health on farm households are threefold: the loss of savings and assets in the process of dealing with diseases and their consequences; the absence from work due to morbidity (and eventual death); and the diversion of family time to care for the sick. They also stated that fewer cattle are raised, less acreage is farmed, less labor-intensive crops are planted, fewer varieties of crops are cultivated, and farming expertise is lost as a result of poor health. According to their findings, food insecurity and a reduction in home income—that is, a sharp fall in household livelihood—are the final effects of illness. A study conducted on 21,000 homes in Ghana revealed that over half of the households reported a reduction in family income, one third saw a decline in food production, and 41% saw a decline in food intake as a result of illness [ESRF, 2010]. While other research, such as those by Mock, Gloyd, Adjei, Acheampong, and Gish, focused on the overall effects of illness on agricultural households, the relationship between illness and agricultural production was only suggested and not quantified. The impact of one or two specific diseases on a single crop has typically been the focus of studies measuring the direct effect of poor health on agricultural productivity; these studies have relied on the incidence of the disease in a given area without accounting for the hours or days lost from agricultural activities due to illness; for example [Egbetekun et al., 2014]. The effect was split into direct and indirect dimensions when hours/day of labor loss was used as an explanatory variable in the production function, as in Larochelle and Dalton [Ibekwe et al., 2010]. The direct impact relates to a scenario in which the sick person was directly involved with agricultural production, while the indirect dimension relates to a scenario in which the sick household member was not involved with farm work. It is a given that even the illness of a person who is not directly involved in farming labor could result in lost agricultural work hours if a member of the farming team needs to care for them. In this scenario, there may still be a direct correlation between poor health and output. The purpose of the study was to evaluate the overall effects of ill health on agricultural Productivity. The number of days lost to illness as a result of the common temporary (non-terminal, temporal) sickness conditions during the most recent farming season—which begins with the onset of the rainy season in April and lasts until October—was taken into account in this process. This is on top of the dearth of empirical data regarding the production-health relationship in the research region. Because local governments have not made a strong commitment to providing primary health care, the study area is predominantly agricultural and extremely sensitive to health risks [Idrisa et al., 2008]. The state under study happens to be the second poorest in the federation [ESRF, 2010]. The Kebbi state's predicament may have been caused by decades of marginalization from mainstream national politics and resources (the indigenous people are minority tribes, some of which are Igala, Ebira, and Bassa). Its dominant industry, agriculture, is also subsistence-based and primitive.

In order to fulfill the goal of this investigation, the subsequent research inquiries were posed:

1. What socioeconomic traits do farmers possess?
2. Which are the main medical issues that are common in the area?
3. How many days of farming did you miss during the most recent farming session because of illness?
4. What effect do these health issues have on the agricultural productivity?

Objectives of the study

The broad objective of the study is to analyze the effect of ill-health on agricultural productivity in Kebbi State, Nigeria. The specific goals were to:
(a) Describe the socioeconomic characteristics of farmers;
(b) Identify the most common health conditions influencing agricultural productivity;
(c) Find out the number of days a household missed from farming due to illness; and
(d) Determine the effect of ill-health on agricultural productivity and food security.

RESEARCH STUDY DESIGN

The Area of Study

The state of Kebbi hosted the study. The state of Kebbi is located in northwest Nigeria, and Birnin Kebbi serves as its capital. In 1991, the state was formed by separating a portion of Sokoto State. Sokoto State, Niger State, Zamfara State, the Dosso Region in the Republic of Niger, and the country of Benin border Kebbi State. It is 36,800 km³ in total size (14,200 sq mi). Kebbi State is made up of 35 districts, four emirate councils (Yau, Zuru, Gwandu, and Argungu), and twenty-one Local Government Areas (LGAs). And as of the 2016 population census, there are 4,440,050 people living there (NPC, 2006). Kebbi State was selected for this study because it is home to a sizable number of operational academic libraries.

Data Sources

This study made use of primary data. The structured questionnaire was used to get the data. With the aid of research assistants from the twelve Local Government Areas (LGAs) that were chosen, the researchers distributed and collected the questionnaire. Two specialists in the Faculty of Agriculture approved the questionnaire. The completed questionnaire included all of the corrections that were made. A pilot study was used to conduct a reliability test utilizing the test-retest methodology.

Procedure for Sampling and Data Gathering

To choose the sample for this investigation, a three-staged random sampling procedure was employed. Three LGAs were chosen at random from each of the four ADP Agricultural zones for the first stage. This provides the study with a total of twelve LGAs. In order to have a total of 36 communities for the sample in stage two, three communities were randomly chosen from each LGA. In order to provide 360 respondents for the study, 10 farmers were randomly chosen from each of the 36 communities in the third stage.

The methodology for analyzing data and specifying models.

Analyses of the data were conducted using both inferential and descriptive methods. Utilizing descriptive statistics allowed the study to accomplish its goal 1. The research goal 2 was accomplished by the use of multiple regression analysis.

Model specification explaining the Relationship between ill Health and Agricultural Productivity

The production function is specified as follows:
$Y=f(X)$…… *1*

The linear, semi log, double log and reciprocal functional forms were experimented with. Based on theoretical, statistical and econometric considerations, the double log functional form was chosen as the lead equation. It is specified as:

$Y= \beta_0 X^{\beta s}{}_i e^{Ui}$…… …….. *2*

This may be alternatively stated as:
$lnY=ln\beta_0 + ln\beta_1 X_1 + ln\beta_2 X_2 + ln\beta_3 X_3 + ln\beta_4 X_4 + ln\beta_5 X_5 + ln\beta_6 X_6 + ln\beta_7 X_7 + ln\beta_8 X_8 + ln\beta_9 X_9 + u_i$ …….. *3*

Where ln = natural log.

For the purpose of estimation, we may, letting $\alpha = ln\beta_0$, re state equation 3 as:

$lnY= \alpha + ln\beta_1 X_1 + ln\beta_2 X_2 + ln\beta_3 X_3 + ln\beta_4 X_4 + ln\beta_5 X_5 + ln\beta_6 X_6 + ln\beta_7 X_7 + ln\beta_8 X_8 + ln\beta_9 X_9 + u_i$ ……..*4*

Where:
Y = Naira value of farm outputs (note: 1 US dollar = 137 naira at the time of survey)
X_1 = Years of schooling,
X_2 = Days lost to sickness by household members
X_3 = Farm size (ha)
X_4 = Family size

X_5 = Extension contacts (number of extension contacts in the last farming season)
X_6 = Labour (in man days)
X_7 = Credit accessed (Naira amount of credit accessed in the last farming season)
X_8 = Age of household head (years)
X_9= Naira value of chemical used (fertilizer, herbicides etc)
u_i = error term
α = intercept and the β_is represent the coefficients of the explanatory variables

RESULTS AND DISCUSSION

RESULTS

Table 1: Respondents Data

Age of Respondents			
Age group	**Frequency**	**%**	**Cumulative %**
20 – 30	56	21.3	21.3
31 – 40	46	17.5	38.8
41 – 50	98	37.3	76.1
51 – 60	68	22.0	98.1
□ 60	5	1.9	100.0
Total	263	100.0	
Sex	Frequency	%	Cumulative %
Male	254	94.7	94.7
Female	14	5.3	100.0
Total	263	100.0	
Years of education	Frequency	%	Cumulative %
0	72	27.3	27.3
1-6	105	39.9	67.2
7-12	61	23.3	90.5
>12	25	9.5	100.0
Total	263	100.0	
Farm size (Ha)	Frequency	%	Cumulative %
<1	70	26.7	26.7
1-1.49	60	22.8	49.5
1.5-2	110	41.8	91.3
2.1-2.49	16	6.1	97.4
2.5-3	7 263	2.6	100.0
Total		100.0	
Output (₦)	Frequency	%	Cumulative %
< 21,000	65	24.7	24.7
21,000 – 40,000	68	25.8	50.5
41,000 – 60,000	91	34.7	85.2
>60,000	39	14.8	100.0
Total	263	100.0	

Source: Field Survey, 2024

Table 2: Summary of selected variables

Variable	Mean	SD	Maximum	Minimum
Age	46.4	11.64	61	22
Years of schooling	7.42	5.82	15	0
Family size	6.53	3.21	17	3
Farm size	1.4	0.75	3	0.5
Days lost to ill health	8.2	6.25	24	2
Naira value of output	41,206.7	19778.51	101,000	12,000

Source: Field survey, 2024

Table 3: Prevailing Ailments Types and Days lost to ill health

Type of ailment	Frequency	%	Cumulative%
Malaria	100	38.0	38
Typhoid	86	32.7	70.7
Diarrhea	40	15.3	
Others	37	14.0	85.0
Total	263	100.0	100.0
Days lost to illness			
1 – 5	70	46.7	46.7
6 – 10	42	28	74.7
11 – 15	28	18.6	93.3
>15	10	6.7	100
Total	150	100.0	

Table 4: Multiple Regression Results of the Effect of ill-Health on Agricultural Productivity and Food Security

Variables	**Beta**	**t- value**
Years of schooling	0.056	1.22
Days lost to sickness	-0.09	-2.25**
Farm size (Ha)	0.419	5.68***
Family size	0.099	1.67*
Chemical used (~~N~~)	0.018	2.75***
Labour	0.012	2.01**
Age of household head	- .248	-1.63
Credit accessed	0.25	3.70***
Extension contacts	0.06	1.3
Constant	6.6	18.38***

R^2 = 0.773, Adjusted R^2 = 0.760. * sig @10%, ** sig. @ 5%, *** sig. @ 1%.

Farming households' socioeconomic features

The socioeconomic traits of the local farm households are displayed in Tables 1 and 2. The average age (46.4) is quite similar to the 47-year-old national average. The life expectancy in Nigeria is 47–50 years, which indicates an aging population even though this suggests an economically viable population (76 percent of the farmers were under 51 years old) [Ibitoye et al., 2018]. The majority of farm households were led by men. There were 7.2 years on average that people spent in formal education. At most, half of the heads of households had completed elementary school. Given that the state is the second poorest in the federation and one of the least developed states in terms of education, the low level of education in the study region is not surprising. Scholars have determined that education is a necessary economic tool that farmers can use to improve their technical resource management. Innovation adoption and application are also improved by education. The mean family size (6.5) is in proximity to the 7-member national average. The impact of family size on labor and expenses varies based on the dependence ratio. The mean farm size (1.43 hectares) is little greater than the 1.3 national average. Despite the study's focus on smallholder farmers, the area's average farm size's proximity to the national average illustrates the fact that smallholder farmers make up the majority of all farmers in the nation. The output per head/month for the most recent agricultural season, expressed in naira, was determined to be N553.8. This indicates that, in terms of agricultural production, farmers in the region are becoming more and more impoverished [Iheke and Ikaegbu, 2015] because it is much less than the national average of N834.02 and the average of N814.24 observed for agricultural workers in the same research area.

The information pertaining to bad health is shown in Table 3. It shows that environmental and hygiene-related illnesses including malaria, typhoid, and diarrhea (which together account for 85.9% of all disease conditions) are the most common in the area. The number of farming days lost due to illness was calculated by counting the days a household member was ill, including days spent receiving treatment and days spent recovering from the illness if the member worked on the farm, as well as the days the household member missed because another household member was ill. According to data in Table 3, 46.7 percent of the families experienced a loss of one to five farming days as a result of a member's illness, while 6.7% of them experienced a loss of more than 20 farming days as a result of a member's illness. According to Table 2's summary of this variable, the lowest number of days missed due to illness was two, the highest was 24, and the mean was eight days missed due to illness.

Health Issues' Effect on Agricultural Productivity and Food Security

The effects of different variables on the farmers' agricultural productivity and food security in the study area are displayed in Table 4. According to the coefficient of determination, the independent variables accounted for 77.3% of the variation in output. Agricultural output increases with years of schooling (0.056), farm size (0.419), family size (0.099), number of contacts with extension agents (0.018), man-days of labor (0.012), amount of credit accessed (0.25), and amount spent on agricultural chemicals (0.06), according to the estimated elasticities of the variables. However, there was no significant correlation found between the years of education and the amount spent on agricultural chemicals. At 5%, the predicted elasticities for the number of days missed due to illness (-0.09) were substantial and negatively signed. Although negligible, the age of the head of the family (-0.248) also had a negative sign.

DISCUSSION OF FINDINGS

The regression result provides evidence that the value of the outputs rises as the farmers' farms get larger. A larger farm will yield more than a smaller one, but it also reduces the risk of nutrient depletion because the farmers can leave some area fallow. All other things being equal, this is the case with larger farms. For a farmer with a lesser land, however, this is unlikely to be the case because they will need to start cultivating continuously. Farm size has an impact on innovation adoption as well. According to a study by Kwadwo et al., [2011], farmers who own larger farms are more likely to implement agricultural innovations.

It was also discovered that farm output, expressed in naira, rose with family size. There is a direct correlation between family size and labor availability; the larger a family, the more labor is available for farm work. Additionally, a strong correlation between labor as expressed in man-days and output was discovered by the study. In Nigerian agriculture, labor availability has a significant role in determining productivity levels, particularly in rural areas where mechanization is nonexistent. Farm output and loan availability had a favorable relationship as well. Additionally, there was a

strong positive correlation between the number of extension interactions and agricultural output. In line with the conclusions of Bamire et al., [2012], this contact attempts to introduce innovation to the farmers and assist them in the adoption process. It has been discovered that having access to financing can boost agricultural output in a number of ways, including input acquisition, adoption of new ideas, and scaled-up production.

The output of the regression analysis also demonstrated a decline with the number of days that farmers were unable to farm due to illness. The results of Idrisa et al., [2008] that poor health limits the amount of time available for farm work are somewhat supported by this. In addition to decreasing output and the number of resources available for farming activity, illness also shortens the number of labor days that farmers have available for farming, which in turn lowers output. Farmers who suffer from illness may miss workdays. The timing and season of the sickness determine how severe this detrimental effect of health shocks is. The area's agriculture is weather-dependent, and crop output is time-sensitive, thus the timing of health shocks matters. During a farming season, specific crops must be grown at specific times, and agricultural practices like planting, weeding, and fertilizing have a big impact on yield. Delays in any of these cultural behaviors will undoubtedly have a detrimental impact on output. Delays in weeding, for example, will undoubtedly lead to a lower yield.

By considering the number of farm days missed by family members due to illness, the study provides a clear picture of the effect of illness on agricultural production firms. It also highlights the idea that policy should focus on addressing all health issues rather than just one particular illness.

CONCLUSION

The purpose of this study was to determine the relationship between agricultural productivity and ill health. Research shows that there is a substantial association between agricultural productivity in Kebbi State and the number of days that member who worked on farms missed due to illness. The number of days available for field work is reduced by ill health, which has a detrimental effect on agricultural productivity, according to the study. A decrease in the prevalence of these illnesses can significantly boost agricultural productivity. To further understand the nature of the linkages between environmental and hygiene-linked illnesses like the ones discussed in this study and rural livelihoods, it is strongly advised that extensive research be directed toward these circumstances.

SUGGESTIONS

Access to healthcare should be improved for Nigerians living in rural areas, as health condition is a significant factor in agricultural productivity. The lack of treatment for typhoid, malaria, and diarrhea affects Kebbi state's agricultural productivity, which has an impact on rural development and food security. Therefore, it is advised that the government devote more resources to research and development in order to improve the availability of healthcare in Kebbi State's rural areas. Since the majority of illnesses found in the research area are actually related to hygiene and the environment, such initiatives should also entail providing the rural people with appropriate health and environmental education. It is imperative to offer subsidized access to high-quality health care services in agricultural communities to enable farmers to receive appropriate medical treatment, as this is known to boost household income and production. In order to provide farmers with the information and skills they need to ensure stable livelihoods and boost income, the government should also spend more in education and training in rural regions. Taking into account the impact of farm size on revenue, the government ought to provide farmers with inputs and finance facilities to support agricultural productivity.

REFERENCES:

Agwu, A. E. And Anyanwu, A. C. (2019). Sociocultural And Environmental Constraints In Implementing The NALDA Programme In South Eastern Nigeria: A Case Study Of Abia And Enugu States, Journal Of Agriculture, Technology And Education, 1(2), 68-72.

Ahmed, F. F., Mohammed, M. And Abah P.O. (2015). An Analysis of Socio-Economic Characteristics and Food Security Situation among Semi-Urban Households: A Case Study of Biu And Bama Local Government Areas in Borno State, Nigeria. Developing Country Studies 5(6), 201

Ajani, O.I.Y and W.M. Ashagidigbi. (2018). Effect of Malaria on Rural Households' Farm income in Oyo State, Nigeria. African Journal of Biomedical Research 11 (2008): 259 – 265.

Alaba, A. and O. Alaba. (2009). Malaria in Rural Nigeria: Implications for the Millennium Development Goal. African Development Review 21 (1): 73-85

Asenso, K, Aragon C, Thangata P, Andam K, Mekonnen DA (2010). HIV and AIDS and Farm Labour Productivity: A Review of Recent Evidence in Afri. J. Dev. Agric. Econ. 2(12): 406-415.

Audibert M And J F Etard (2000). Impact of Schistosomiasis on Rice Output and Farm Inputs in Mali J. Of Afr. Econ. 1998; 7 (2):185-207.

Bamire, A.S., Fabiyi, Y.L. And Manyong, V.M (2012). Adoption Pattern of Fertilizer Technology among Farmers in the Ecological Zones of South-Western Nigeria: A Tobit Analysis. Austr. J. Agric. Res. 53:901-910.

Egbetokun, OA, Omonona, B.T. And Oluyole, K.A. (2014). Economic Analysis of Sickness and Labour Productivity among Cocoa Farmers in Obafemi/Owode Local Government Area, Ogun State. Journal of Biology, Agriculture and Healthcare 2014; 4 (20)

Economic and Social Research Foundation. (2010). strengthening micro-enterprises in Developing countries: The case of small-scale vegetable farmers in Arusha. Dar es Salaam, Tanzania

Ibekwe, U.C., Eze, C.C., Onyemauwa, C.S., HenriUkoha, A., Korie, O.C. and Nwaiwu, I.U. (2010), Determinants of Farm and Off–Farm Income among Farm Households in Southeast Nigeria, Academia ARENA 2(2), 1 – 4.

Ibitoye, S.J., Shaibu, M.U. and Omole, B. (2018) Analysis of Resource Use Efficiency in Tomato (Solanum Lycopersicum) Production in Kogi State, Asian Journal of Agricultural Extension, Economics & Sociology 6(4): 220-229

Idrisa, Y.L., Gwary, M.M. and Ibrahim, A. (2008). Determinants of Adoption of Cassava Farming Technologies in Mubi North Local Government Area of Adamawa State, Nigeria. An International Journal of Agricultural Research. 2 (1): 26-36.

Iheke, O. R. And Ukaegbu, H. I.(2015). Effect of Poor Health and Farmers' Socioeconomic Variables on Total Factor Productivity of Arable Crop Farm Households in Abia State, Nigeria.

Kwadwo, A. S., Catherine, C., Paul, T. and Kwaw, S. A. (2011): Two-Way Links between Health and Farm Labor. IFPRI Food Policy Report, Interactions between Health and Farm–Labor Productivity (Washington, DC: