Advances In Multidisciplinary & Scientific Research
A Multidisciplinary & Interdisciplinary Journal
Volume 8, No 1, March 2022 Series

# Impact of Agricultural Insurance on the Productivity of the Agricultural Sector In Nigeria

**Banjo, K.A. (PhD), Oloyede, F.A., Olufawo, H.S. Ogunlami, K.O., Saka, T.S., Bamgbose, O.S. & Tairu , F.G.**
Department of Insurance and Actuarial Science
College of Applied Social Sciences
Lagos State University of Science and Technology
Km 4, Itoikin Road, Ikorodu, 104233, Lagos, Nigeria.
**Corresponding E-mail:** peaceadeolabanjo@gmail.com

## ABSTRACT

This study examines the impact of agricultural insurance on the productivity of agricultural sector in Nigeria. Agricultural Insurance is a valuable business risk management tool that provides farmers with financial protection against production losses caused by natural perils, such as drought, excessive moisture, hail, frost, wind and wildlife. The study used a survey research approach and simple random sampling to choose 100 farmers from Orelope Local Government, Oyo State. The findings revealed a positive significant correlation ($r = .381$, $p < .01$) between Agricultural insurance scheme and Agricultural sector productivity. Also, the level of awareness of Agricultural Insurance scheme among respondents is still low as several of them claimed that they are not aware of the Insurance scheme. It is recommended that more awareness and enlightenment of the Agricultural insurance scheme should be made to famers especially those in rural areas.

**Keywords:** Agriculture, Insurance, Agricultural Insurance, Crop Production

**Aims Research Journal Reference Format:**
Banjo, K.A., Oloyede, F.A., Olufawo, H.S. Ogunlami, K.O., Saka, T.S., Bamgbose, O.S. & Tairu , F.G. (2022) Impact of Agricultural Insurance on the Productivity of the Agricultural Sector In Nigeria. Advances in Multidisciplinary and Scientific Research. Vol. 8. No. 1, Pp 33–42. An ICT University USA Foundation Pan African Endowed Collaborative Research Publication Series
DOI: dx.doi.org/10.22624/AIMS/V8N1P3

## 1. INTRODUCTION

Agriculture is very essential for the survival of man. Agricultural research and development interventions focused on agricultural intensification and modernizing market channels for agricultural products can lead to agricultural productivity growth and thereby both reduce poverty and meet growing demands for food. There are multiple pathways through which increases in agricultural productivity can reduce poverty, including real income changes, employment generation, rural non-farm multiplier effects, and food price effects (Irz and Tiffin, 2006). Its impact on poverty is both direct, flowing immediately from growth in agriculture by raising real incomes of poor farm (and non-farm) households, and indirect by increasing agricultural outputs which induces job creation in upstream and downstream non-farm sectors as a response to higher domestic demand (Gollin et al., 2014).

Potentially lower food prices can increase the purchasing power of poor consumers. The poverty impact of agricultural productivity can be sizeable mainly because the majority of poor people in sub-Saharan Africa countries directly depend on agriculture for their livelihoods (Foster and Rosenzweig, 2005). In view of persistent and wide forms of risks facing their means of living farming households pursue several traditional means of overcoming these risks. For example, to reduce exposure to potential losses, farmers often spread their bets by growing a mix of crops and crop varieties, stagger crop planting dates, and spread crops amongst fields that have different risk exposures in the landscape. These techniques can help reduce the chance of a major crop loss in any one season. Many farm households also engage in off-farm employment, or have a non-farm business of their own, and these help to reduce their dependence on farm income. To cope with the losses that do occur, farmers carry stocks of food, livestock, savings and other assets that can be consumed or sold in times of need. They may also take credit and engage in temporary off farm employment. Communities provide another layer of protection against risk (Bhattamishra and Barrett, 2010).

Ogwo, Eche, Ibeabuchi, Nwite and Enwereuzo (2000) assert that any device aimed at reducing the chance of a risk occurring or when it happen reduces the extent of its damage and providing the affected person with compensation is a form of insurance. It has great potential to provide value to low-income farmers and their communities, both by protecting farmers when shocks occur and by encouraging greater investment in crops. Eze (2019) noted that the development of agriculture requires financial services that can support larger agriculture investments and agriculture-related infrastructure that require long-term funding (given that currently transportation and logistics costs are too high, especially for landlocked countries), a greater inclusion of youth and women in the sector, and advancements in technology (both in terms of mechanising the agricultural processes and leveraging mobile phones and electronic payment platforms to enhance access and reduce transaction costs).It further stated that agriculture finance and agricultural insurance are strategically important for eradicating extreme poverty and boosting shared prosperity.

In many countries, insurance sector contributes to economic growth both sectorally and geographically. Since insurance sector has links to other economic sectors such as industrial, transportation, agriculture, trade and others, both locally and internationally, its relevance to general human activities has continued to grow for all ages as all categories of risks increase (Zyka and Tomori, 2014). However, the ability of the insurance industry to contribute to the growth of an economy is dependent on its capacity. This is usually indicated by the level of development the industry has. Agriculture insurance in Nigeria has not received much patronage.

It is growing at slower rate than provision of credit to the agriculture sector. This suggests that lending to the agriculture community in Nigeria does not build on the stability that available agriculture insurance in the economy provides. There are a number of factors necessitating this poor situation. Yet the situation can be seen differently. The non reliance on insurance paints a picture of many prospects of untapped market for agriculture insurance in Nigeria. Despite the existence of insurance services from Nigeria Agricultural Insurance Corporation and other private firms in Nigeria, there has been low level of participation in insurance activities by farmers.

### 1.1 Statement of the Problem

A country which relies on agricultural exports can be adversely affected by global economic shocks. A sudden decrease in the prices of agricultural outputs can quickly push small net sellers into losses and poverty. Moreover, poor smallholders face a number of constraints that limit their productivity. Lack of information about production methods and market opportunities, particularly for new crops and varieties prohibit households from intensifying agriculture and producing high-value commodities whose market demand is growing rapidly. Poor access to credit and/or insurance can also limit uptake of new technologies. Smallholder producers are now also facing the growing challenges of recent technological changes and the stringent quality standards for many food products, both of which are associated with the globalization of commodity chains. In addition, high initial inequality in the distribution of assets and especially of land can also be a plausible candidate explanation of why some agricultural productivity change might be less effective in up lifting poor families from poverty. Therefore, study examines the impact of agricultural insurance on the productivity of agricultural sector in Nigeria using Orelope Local Government, Oyo State as a case study.

### 1.2 Research Question

i. What is the level of awareness of Agricultural Insurance scheme among farmers?
ii. What is the significant impact of Agricultural Insurance scheme on productivity of Agricultural sector?

### Hypothesis

**$H_{01}$:** There is no significant impact of Agricultural Insurance scheme on productivity of Agricultural sector

## 2. LITERATURE REVIEW

### 2.1 Concept of Agricultural Insurance

Agricultural Insurance is a valuable business risk management tool that provides farmers with financial protection against production losses caused by natural perils, such as drought, excessive moisture, hail, frost, wind and wildlife (Governments of New Brunswick, 2019). Agricultural insurance is the stabilization of income, employment, price and supplies of agricultural products by means of regular and deliberate saving and accumulation of fund in small installment by many in favorable time period to defend the participation in bad time (Mordi, 1995). There are three types of agents that are active in providing agricultural insurance: the private for profit sector, governments (public), and other, mostly nonprofits (mutual groups, NGOs, etc.).

Other agencies help finance and initiate insurance programs, including bilateral donors, United Nations (UN) organizations, multinational development banks, private foundations, and international reinsurers, but they do not deliver insurance on the ground. Few economic groups have a greater need of insurance than do the farmers. This need embraces nearly all the forms of protection offered by fire, life, and casualty insurance companies. Insurance against fire and lightning is quite as necessary to the farmer as to the city man, while such coverage against windstorm is even more generally needed in the country than in the city. Farm property is more exposed to wind, as well as to lightning, and, in the case of severe storms; the farm building is more subject to destruction.

Farmers need accident insurance, the employer of labor on the farm needs liability insurance, as well as coverage for accidents occurring to him. Farmers needs live-stock and crop insurance.

### 2.2 Challenges facing agriculture insurance in Nigeria

Eze (2019) points out that the growth and deepening of agriculture finance markets is constrained by a variety of factors which include: inadequate or ineffective policies; high transaction costs to reach remote rural populations, covariance of production, market, and price risks; and absence of adequate instruments to manage risks; low levels of demand due to fragmentation and incipient development of value chains; and lack of expertise of financial institutions in managing agricultural loan portfolios." Climate change poses significant risks to agricultural development and by extension, food security, poverty reduction and political stability, thereby threatening sustained economic growth, especially in Nigeria, where agriculture contributes over 40% of the GDP, over 70% of the workforce is engaged in agriculture related activities and millions residing in rural areas depend on agriculture for their livelihood (Hellin and Hansen, 2017). Climate risks, such as the drought that affected the north of Nigeria in 2013, often lead to farmers being reluctant to invest in their farms. Farmers also have limited access to credit and remain trapped in a low income low productivity cycle. The Bank of Agriculture (BOA) said on that it was on a recovery mission of disbursed funds to farmers, totalling over N60 billion. Kabirgave the figure at a workshop organised by the Agege Branch of the bank entitled "Enhancing Wealth Creation across the Agricultural Value Chains''.

### 3.2 Prospects of developing Agriculture insurance market in Nigeria

Since September 2014, Federal Ministry of Agriculture and Rural Development (FMARD) and the Climate Change, Agriculture and Food Security research program (CCAFS) of the Consultative Group on International Agricultural Research (CGIAR) have been working together to design a roadmap for evidence-based insurance development for Nigeria's farmers. CCAFS organized an initial knowledge sharing workshop in London in January 2015. This was followed by a planning meeting in Zurich in May 2015, hosted by Swiss Re. Participants in the workshops included FMARD, the heads of the Nigerian and Indian Agricultural Insurance Corporations, CCAFS, Swiss Re, German Corporation for International Cooperation (GIZ), Nigerian Meteorological Agency (NIMET), Nigerian Agricultural Insurance Corporation (NAIC) and Nigerian Insurers' Association (NIA).

Experiences from index insurance initiatives in India, Kenya, Rwanda, Ethiopia and Senegal suggest that there is demand for index insurance, and that bundling insurance with production inputs and finance can make insurance more attractive to farmers. Well-designed index insurance can achieve specific risk objectives such as protecting farmers' livelihoods in the face of major climate shocks, and promoting farmers' livelihoods by overcoming barriers to adoption of improved agricultural technologies and practices, and access to market opportunities.

### 2.4 Agricultural Production and Productivity in Nigeria

Nigeria is the largest country in Africa in terms of population (177 million) and among the largest in terms of land area (910,770 km2). Nigeria has the 27th biggest economy in the world, with a gross domestic product (GDP) of US$523 billion; its per capita GDP was US$3,010 in 2013 (World Bank 2014). The agricultural sector employs 60 % of Nigeria's working population and accounts for over 40 % of its GDP, although a higher level of poverty is observed among households whose primary source of income is agriculture (World Bank, 2014).

As for subsectors, crop production captures the largest share — estimated at 88 % of the total GDP from agriculture (Mogues et al., 2014). The agricultural sector in Nigeria grew by about 5.9 % annually from 2002 to 2012, but it is argued that the growth in the agricultural sector is mainly attributed to population growth and the farming of larger expanses of land, most likely by commercial farmers (Oseni et al., 2014). Nigerian agriculture is primarily rain-fed, which is characterized by low productivity, low technology, and high labor intensity.

Moreover, the Federal Ministry of Agriculture and Rural Development estimated fertilizer application at 10-15 kg/ha in 2009, far lower than the 200 kg/ha recommended by the United Nations Food and Agriculture Organization (FAO). The huge gap in fertilizer use compared to recommended fertilizer levels is often given as one of the main reasons for low agricultural productivity in Nigeria.

It has long been argued that limited access of framer to extension service, an outdated land tenure system, climatic factors, imperfect credit and capital market, spatial inequality distribution of fertilizer, the high prices of other non-fertilizer inputs and an inadequate fertilizer supply are among other constraints to improve fertilizer use in Nigeria (Oseni et al., 2014).

Fig: Agricultural Setting
**Source:** https://www.theafricareport.com/107469/four-ideas-for-boosting-agricultural-productivity-in-africa/

This low agricultural productivity has been attributed to the low use of fertilizer, the loss of soil fertility, and traditional, low technology, rain-fed farming systems. The literature has documented that Nigerian farmers across all regions are below their production frontiers, indicating there is room to increase agricultural productivity above existing levels, even without a change in their current levels of input use. Low input use and farm technology, such as improved seed and fertilizer, are among the many reasons for low agricultural productivity in Nigeria.

More than 80% of the households in Nigeria relate their poverty status to problems in agriculture, of which lack of agricultural inputs and not being able to afford inputs (such as fertilizers and seeds) accounts for 44 %. Nigeria, along with some other Sub-Saharan African countries (e.g., Malawi, Kenya, Tanzania, Zambia, and Zimbabwe), implemented fertilizer subsidy programs in the 1970s where both Federal and State governments directly procured fertilizer from importers and distributed subsidized fertilizer to farmers. The fertilizer subsidy has been central to the policy tool of Nigeria to encourage growth in the agriculture sector and may be justified on many grounds, including market failures (Mogues et al., 2012).

Although fertilizer subsidies assisted Nigerian farmers to expand fertilizer use to some extent, findings show that the heavy emphasis on price subsidization to the detriment of other approaches — including complementary actions to improve farmers' fertilizer-use techniques, seeking lower transactions costs, or reducing agricultural risk — has hampered market development in Nigeria. To address the issues and improve the usage of fertilizer as a means to achieving the region's green revolution objectives, the Federal Government of Nigeria (FGN) decided to disengage from direct procurement of fertilizer in favor of promoting private sector participation and piloted a fertilizer voucher system in selected Nigerian states as an alternative way of administering the fertilizer subsidy. However, the impact of the experimental voucher program on improving fertilizer and other input use, as well as on agricultural productivity are still inclusive.

## 3. METHODOLOGY

The researcher made used of an survey research design. The study population is famers at Orelope Local Government, Oyo State. A research questionnaire was utilized as an instrument for collection of data. The instrument was adequately subjected to reliability and validity test.

The simple random sampling was used as sampling technique for this study which is targeted towards giving every respondents an equal opportunity of being selected. A total number of 100 farmers were selected using simple random sampling method. Data was analyzed using SPSS package. The analysis was done by applying descriptive and inferential statistics, the socio-demographic characteristics of the respondents was analyzed using descriptive statistics while hypothesis was analyzed using Maximum Likelihood Method.

## 4. DATA ANALYSIS

Table 1: Socio-Demographic Characteristics of Respondents

| Variables | Frequency | Percentage |
|---|---|---|
| **Gender** | | |
| Male | 87 | 87 |
| Female | 13 | 13 |
| **Total** | 100 | 100 |
| **Age** | | |
| 18-30 years | 23 | 23 |
| 31-45 years | 57 | 57 |
| Above 45 years | 20 | 20 |
| **Total** | 100 | 100 |
| Educational Qualification | | |
| No Formal | 23 | 23 |
| Primary | 28 | 28 |
| Secondary | 36 | 36 |
| Tertiary | 13 | 13 |
| **Total** | 100 | 100 |
| **Marital status** | | |
| Single | 22 | 22 |
| Married | 68 | 68 |
| Separated | 10 | 10 |
| Total | 100 | 100 |
| **Family size** | | |
| 1-2 | 12 | 12 |
| 3-5 | 38 | 38 |
| 6-10 | 34 | 34 |
| Above 10 | 16 | 16 |
| **Total** | 100 | 100 |
| Years in Framing | | |
| Less than 5 years | 26 | 26 |
| 6-10 years | 43 | 43 |
| 11-15 years | 22 | 22 |
| More than 15 years | 9 | 9 |
| **Total** | 100 | 100 |

Table 1 shows that 87% of the respondents are male while 13% are female. Almost most of the respondents (57%) are within the age of 31-45 years. Also, most of the respondents are secondary school and Primary school certificate holders with few graduates and many of them have 6-10 years farming experience.

Table 2: Awareness of Agricultural Insurance Scheme

| Statement | Frequency | Percentage |
|---|---|---|
| **Are you aware of agricultural insurance scheme** | | |
| Yes | 38 | 38 |
| No | 62 | 62 |
| **Total** | 100 | 100 |
| **Do you engage any agricultural Insurance scheme** | | |
| Yes | 27 | 27 |
| No | 73 | 73 |
| **Total** | 100 | 100 |

From table 2, only 38% of the respondents are aware of Agricultural Insurance scheme while 27% engage in the insurance scheme. This implies that majority of the respondents are not aware of Agricultural Insurance scheme.

Table 3: Awareness level of farmers on Agricultural insurance scheme based on Maximum likelihood Estimation

| Variables | Coefficient | Standard Error | P-value |
|---|---|---|---|
| Constant | 2.043 | 1.049 | 0.004 |
| Age | 0.094 | 0.048 | 0.032 |
| Education | 0.169 | 0.840 | 0.043 |
| Farm experience | 0.461 | 0.194 | 0.385 |
| Family size | -0.063 | 0.136 | 0.841 |
| Agricultural Cooperative Scheme | 0.325 | 0.070 | 0.002 |

The likelihood of age, education and Agricultural cooperative scheme were all statistically significant respectively with membership of Agricultural cooperative scheme having the highest magnitude of 0.325 followed by education with coefficient of 0.169. This shows that belonging to an Agricultural cooperative scheme and exposure through education can create level of awareness on Agricultural insurance scheme.

Table 4: Pearson Correlation of the relationship between Agricultural Insurance scheme and Agricultural sector productivity

| | | Productivity | Agric Insurance |
|---|---|---|---|
| Productivity | Pearson Correlation | 1 | .381** |
| | Sig. (2-tailed) | | .000 |
| | N | 100 | 100 |
| Agric Insurance | Pearson Correlation | .381** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 100 | 100 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | |

From table 4, the Pearson correlation shows a positive significant correlation ($r = .381$, $p < .01$) between Agricultural insurance scheme and Agricultural sector productivity. This implies that effective Agricultural insurance scheme significantly influences the sector's productivity.

## 5. CONCLUSION

This study examines the impact of agricultural insurance on the productivity of agricultural sector in Nigeria. The findings of this study showed a significant impact of Agricultural insurance scheme on Agricultural sector productivity. Also, the level of awareness of Agricultural Insurance scheme among respondents is still low as several of them claimed that they are not aware of the Insurance scheme. It was also discovered that through education and by joining Agric cooperative society, the level of awareness of the Insurance scheme among the respondents can improve. Agriculture insurance still has a long way to go to become relevant in the economy. In relation to its prospects, agriculture insurance low patronage also equates to an untapped market in the economy.

## 6. RECOMMENDATION

The following recommendations are made:

i. The capacity of the private sector to participate in agriculture insurance should be built up by developing a public-private partnership that incentivizes and supports companies to develop innovative products and services for agriculture.
ii. More awareness and enlightenment of the Agricultural insurance scheme should be made to famers especially those in rural areas.

## REFERENCES

1. Bhattamishra, R. & Barrett, C. (2010). Community-Based Risk Management Arrangements: A Review. World Development. 38. 923-932. 10.2139/ssrn.1845535.
2. Eze, J. (2019). Enhancing Agricultural Value Chain. Retrieved from www.thisdaylive.com on March 25, 2019
3. Foster, Andrew D. and Mark R. Rosenzweig (2005).“Learning by Doing and Learning from Others: Human Capital and Technical Change in Agriculture," Journal of Political Economy, 103(6), 1176-1209.
4. Gollin, D., Lagakos, D. & Waugh, M. (2013). The Agricultural Productivity Gap. The Quarterly Journal of Economics. 129. 939-993. 10.1093/qje/qjt056.
5. Governments of New Brunswick (2019). Agricultural Insurance. Retrieved from www2.gnb.ca on March 25, 2019
6. Hellin, J. & Hansen, J. (2017). Building Agricultural Resilience through Insurance in Nigeria. Retrieved from www.reliefweb.int on March 25, 2017
7. Irz, X. & Tiffin, R. (2006). Is agriculture the engine of growth?. Agricultural Economics. 35. 79-89. 10.1111/j.1574-0862.2006.00141.x.
8. Mogues, T., Yu, B., Fan, S., McBride, L. (2012). The Impacts of Public Investment in and for Agriculture: Synthesis of the Existing Evidence. IFPRI Discussion Paper 1217. Washington, DC: International Food Policy Research Institute
9. Ogwo, Eche, Ibeabuchi, Nwite & Enwereuzo (2000). Introduction to Insurance. Enugu, Immaculate Publication Nigeria Ltd.
10. Oseni, G., McGee, K., Dabalen, A. (2014). Can Agricultural Households Farm Their Way out of Poverty Development Research Group Poverty and Inequality Team WPS7093
11. World Bank (2014). World Development Indicators 2014. Washington, DC. http://data.worldbank.org/data-catalog/world-development-indicators.
12. Zyka, E. & Tomori, E. M (2014). Factors affecting the Insurance Sector Development: Evidence from Albania. The Romanian Journal, 51, 171 -188.