



The Role of Agricultural Insurance Company in Enhancing Agricultural Productivity in Ekiti Central Senatorial District of Ekiti State, Nigeria

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ABSTRACT

This research looked at the function that agricultural insurance companies play in order to increase agricultural output in Ekiti Central Senatorial District of Ekiti State. The present study was to examine the degree of agricultural insurance participation, the level of agricultural productivity and the impact of agricultural insurance participation on agricultural production among farmers in the central region of Ekiti State. Data were gathered from one hundred purposefully selected farmers in Ekiti Central Senatorial district for the study's empirical analysis. Utilizing descriptive statistics, it was determined from the data that farmers in Ekiti Central Senatorial district had poor levels of agricultural production as well as low participation rates in agricultural insurance. Regression estimate was another approach used in the study, and the results showed that farmers in Ekiti Central Senatorial district who participated in agricultural insurance had a negligible beneficial impact on agricultural output. Thus, the study came to the conclusion that Ekiti Central's agricultural productivity is not much affected by the agricultural insurance firm. Therefore, this study suggested that agricultural insurance companies should increase farmer participation in insurance policies by raising awareness and sensitizing farmers to do so.

Keywords: Agriculture, Agricultural Insurance, Productivity, Ekiti Central

Introduction

Agricultural sector remains vital to socioeconomic growth, contributing a notable percent to the continent's GDP. However, the sector has persistently remained an "open roof" industry exposed to loss-triggering risks. Agricultural sector has always depended on weather condition and climate patterns for planting of crops and the growing of trees. Given the fact that every crop has a specific time and season that it can be planted in other to grow well and limit the effect of pest on it (Augeraud-Veron, Fabbri, & Schubert, 2019). These loss-triggering risks contribute to reduced food security in the nation. Therefore, finding appropriate risk mitigation and lasting solutions to raise production for sustainable food security in the continent remains a priority (Reyes, Eliasa & Haackerb, 2020).

Nevertheless, it is so obvious that beyond the time and season that every farmer needs to observe in the planting of crops, in other to have a robust farm output, there are unforeseen circumstance that can undermine the effort of the farmers in which they have no ability to control (Zhichkin, Nosov & Zhichkina, 2023). This resulted in massive reported losses for several farmers, from which an average farmer could find it challenging to swiftly get back. Agricultural insurance, on the other hand, has been recognized as a crucial tool in helping governments, farmers and herders lessen the financial effects of unfavorable natural events on farm products. These events can include unanticipated weather, disease,

pest infestations, and market conditions, which can lead to significant fluctuations in commodity prices and yields (Ahmadiani, Ferreira, & Landry, 2019).

Crop, agricultural method, agro-ecological conditions, policy, and institutional contexts all influence the nature and severity of hazards. Insurance companies offer timely and adequate financial compensation for sourcing food resources, eliminating dependence on government or donor assistance. Insurance company can help reduce food security concerns in Ekiti. Farmers will get compensation for a portion of their initial seed and fertilizer costs when unfavorable weather affects their crops, which will relieve some of the immediate financial strain caused by a low crop yield (Ahmed, McIntosh, & Sarris, 2020). Insurance firms may boost resilience in other ways. Growers that invest in climate-adapted hybrid seeds consistently yield higher yields. However, if they are afraid of a poor crop year, it seems sense that many farmers would be wary of investing in premium seed.

It has been established that the majority of rural residents in Ekiti state are forced to work in agriculture due to the lack of economic options outside of metropolitan regions. Ekiti's economy continues to benefit greatly from agriculture (Janzen & Carter, 2019). In contrast, it seems that farmers are less experienced and more susceptible to different dangers associated with agricultural output. Notable risks to agricultural production include unanticipated weather, illness, insect infestations, and market circumstances, which can lead to significant fluctuations in commodity prices and yields. Crops, agricultural systems, and agro-ecological circumstances influence the kind and intensity of hazards (Hill, Kumar, Magnan, Makhija, de Nicola, & Ward, 2019).

Agricultural producers, the government, and insurance firms are among the stakeholders that must participate in addressing the issue of lowering the risks associated with agriculture (Carter, de Janvry, Sadoule & Sarris, 2017). In order to effectively safeguard agricultural producers' property interests from a variety of hazards and to support the growth of agribusiness, insurance is a vital instrument in the industry. State-sponsored agriculture insurance plays a significant part in the agricultural insurance market. One of the key components of a strategic response for Ekiti agricultural production is the research of crop insurance, the identification of issues in this field, and the creation of proposals for ways to improve agricultural insurance (Bulte & Lensink, 2022).

Ekiti is known for different types of agriculture that help to increase their level of income and as well boost the economic growth of the state (Ahmadiani, *et al.*, 2019). Given the activity of the agricultural insurance company, Crop insurance, which protects all crop farming operations against crop loss or damage due to the following listed events: invasion by wild animals, pest, excessive rainfall, fire, flood, impact by vehicles, drought, windstorm, damage and lightning by straying livestock that does not belong to the farmer, is one of the many agricultural insurance areas in Ekiti that require coverage. Animal insurance, for example, covers loss or death to animals due to accident (including riot, strike, lightning, fire, storm, hunger, and flood), illness, or disease. Another example would be cows grazing on farm products. Insurance for fish farming operations involved in aquaculture protects against fish farming-related mortality or stock loss from the following risks: pollution, malicious activities, theft, predation, flood, tidal waves, storm damage, subsidence, landslip, structural failure, breakage, or obstruction of any water supply system component. Farmers would perceive the need of insuring their produce against abrupt grazing, bush burning pests, and other natural disasters on agriculture due to the insurance company's sensitivity and understanding of the Ekiti agricultural system. Thus, the purpose of this study is to investigate how agricultural insurance contributes to increased agricultural output. Specifically, the objectives are to:

- i. investigate the level of agricultural insurance participation among farmers in Ekiti Central Senatorial district
- ii. Evaluate how the agricultural productivity of farmers in Ekiti Central Senatorial District is affected by participation in agricultural insurance.

Literature Review

In order to be guaranteed against loss due to any of the perils covered for a specific period of time, usually not more than one-year, agricultural insurance requires the insured (farmer) to pay premium to an insurance company (insurer). The insurer also promises to indemnify the insured and repay the value of the loss, should such an event occur (Zhichkin, Nosov & Zhichkina, 2023). Agricultural insurance offers compensation for financial losses incurred from crop and animal damage or loss in the case of unfavorable natural and other occurrences. Ministers of finance and production need to take immediate action on this matter. According to Ahmadiani *et al.*, (2019), it is a fair transfer of risk from agricultural output to an agricultural insurance company in exchange for a premium.

As such, an agricultural insurance company is an organization or business that manages operations in the form of a policy in which the insured (farmer) pays a small premium, typically in percentage, to an insurance company (insurer) to guarantee against loss due to any of the perils covered for a specific amount of time, usually not more than a year, with a promise to indemnify pay back the value of loss, should such an occurrence occur. After the farmer accepts payment of a premium amount set by the insurance business, the Agricultural Insurance business takes on the obligation (Ahmadiani, *et al.*, 2019). The business thoroughly assesses the farm hazards before deciding on appropriate premiums to pay for anticipated loss payments, overhead, and a profit margin. The buyer of the insurance on agricultural production is the farmer who transfers risk (Ahmed *et al.*, 2020).

The amount of output generated with a specific amount of input is measured as productivity. The entire harvest from the farm is determined by the amount of produce grown within a specific time frame. Farmers' increased production efficiency and technical advancements are reflected in productivity. Enhancing agricultural productivity lets farmers generate more with less input, which boosts profitability and competitiveness (Machiavello & Morjaria 2021). Productivity refers to the degree of efficiency with which farmers generate outputs (like wool, animals, and crops) from inputs (like land, labor, capital, materials, and services). Because productivity increased production from each unit of input used, farmers were able to retain earnings. The ratio of output to inputs used throughout time, or farm productivity, represents the advancements in the efficiency with which inputs are utilized to create output (Bulte & Lensink, 2022).

In global agricultural output, agricultural insurance companies have been crucial in mitigating risk (Hou & Wang, 2022). Farmer earnings are stabilized throughout time and risk-bearing costs are decreased by agricultural insurance companies (Niu, Yi & Chen, 2022). And in developing states like Ekiti, where small-scale farmers still make up a sizable section of the farming population and the agricultural industry often contributes significantly to GDP, agricultural insurance companies may even be more crucial. Compared to developed states in Nigeria, crop failures in this setting have significant and disruptive effects on the rural and state economies of emerging states (Salazar, Jaime, Pinto & Acuna, 2019). This is among the explanations for the current emphasis placed by many developing countries on creating, advancing, and sustaining a robust agricultural insurance policy. These insurance plans cover the risks that are covered by traditional insurance, which pays out according to farm-specific realizations, and index-based insurance, which bases payments on an index like the average yield in the area or the amount of rainfall in the area (Reyesf, Elias, Haacker, Kremen, Parker & Rottler, 2020). Payments under the conventional method are closely linked to farm-specific losses, but there is a significant risk of moral hazard and adverse selection, and verifying losses is expensive. Although there is foundation risk, the index-based strategy is free of moral hazard and adverse selection (Pilo, 2019).

Theoretical Review

a. *Dynamic Theory*

In his evaluation of the Essay in Dynamic Theory, Harrod (1939) determined the fixed mutual fraction of inputs required to generate various output levels. with reference to the Harrod-Domar model, which was concerned with total production and capital accumulation. The following is how the model's function is expressed: $Y = v(K)$ where v , also known as the capital ratio, is a constant, K is the input resource, and Y is the production level. In fact, v is the ratio that assesses the agricultural input's "productivity" (or investment). In order to distinguish the degree of agricultural production in respect

to the input resources which is different from the yield of individual farmers this theory is pertinent to the current investigation. There are two primary reasons why this ratio might differ amongst agricultural systems: the first is that diverse production procedures can result in the same output, and the second is that different farmers produce quite varied combinations. Nevertheless, the economy is in an unstable equilibrium if labor and input resource exploitation is insufficient and the input growth rate is not precisely equal to the labor force growth rate. Furthermore, changing inputs throughout the manufacturing process is not feasible with the fixed coefficient production function. based on agricultural production and the historical progress that some nations have experienced.

Solow presents a new technological advancement to explain how farmers might raise their overall yield without altering labor or input levels. Whereas technological advancements reflected in labor force productivity allow factors to be more productive, ensuring increase in global output. In a similar vein, technological advancements that are reflected in inputs raise aggregate output while also improving input productivity. Additionally, the labor and input variables' productivity is raised by technological advancements, which enhances the total production that is produced. Therefore, advancements in human capital or scientifically defined technical advancements (new discoveries and procedures) can lead to technological growth.

b. Theory Economic system and Economic structure

Tjalling and John (1971) shown in their book that the environment, system, and policy all influence economic outcomes by presenting a mathematical connection function of the economic system and economic structure. Here is the formula in mathematics.

$$O = f(E, S, Ps)$$

The letters O, E, S, and Ps stand for the economic system, economic policy, and economic outcome, respectively, and the environment for economic development. Comparing economies that are similar in most aspects and significantly different in just one or two of their essential characteristics or dimensions is made possible by the theory. This kind of comparison made it possible to track the effects of particular characteristics on outcomes that have a higher chance of success. As an example, comparing the functions of market pricing and government regulations could be simpler. The present study's comparison of the contribution of agricultural insurance to increased agricultural output is supported by this idea, as the policy serves to balance farmers' income, transfer and distribute agricultural risks, and replenish disaster losses. It's a crucial tool for managing agricultural risk. The government has a significant role in the development of crop insurance and the provision of subsidies for agricultural production because of the quasi-public goods characteristics of agricultural insurance. Governments promote the growth of agricultural insurance through tax breaks, premium subsidies, disclosures from the government, and other means based on the practice of agricultural insurance in various nations. Public assistance and subsidies for agricultural insurance, however, may have the opposite consequence of crowding out agricultural output. The expected income from agricultural production is impacted by agricultural insurance, which then has an impact on the decision-making process regarding planting and breeding (including scale, varieties, and other factors), production investment (including chemical and disaster relief funds), and technology selection (including farming and the adoption of new technologies), all of which have an additional impact on agricultural productivity. Consequently, the effect of agricultural insurance on productivity needs to go through a specific channel, i.e., the influence of agricultural production subjects' production behavior, before it can alter the overall level of productivity.

This article examines the effect of agricultural insurance on agricultural productivity using the previously discussed analysis as an indication. By maintaining other variables and expressing agriculture insurance policy and agricultural productivity level as the economic system in connection to economic policy and economic output in the original formula.

$$P = f(E, R, Pr)$$

P is the level of agricultural productivity, E is the factors influencing it, such as the environment for economic development, R is the farmers' production behavior, and Pr is the agricultural insurance policy.

Empirical Review

Salazar *et al.*, (2019) investigated the connections between Chilean wheat producers' decisions on input technology and crop insurance. The study specifically looked at how much farmers' involvement in the insurance program is correlated with the use of production input technology. Relationships between insurance and technological decisions are robust and significant among family farmers, but not among large-scale farmers, according to research done using bivariate probit model and countrywide farm-level data. Furthermore, certified seed and biological control adoption are more likely to be independent of insurance decisions, according to estimations of the bivariate probit model used in the study, whereas decisions about contemporary irrigation are linked to insurance participation.

Reyesf, *et al.*, (2020) evaluated agricultural risk management over the Ogallala Aquifer using historical crop insurance loss data. The U.S. Department of Agriculture Risk Management Agency's crop insurance loss data patterns and trends were carefully assessed in this study. According to the research, insurance payments, or indemnities, for the 161 counties that sit above the Ogallala Aquifer came to a total of \$22 billion between 1989 and 2017. The study concentrated on the top 10 weather events and climate-related crop loss causes for the Ogallala, which accounted for at least 92% of all crop losses. According to the study, the main factors causing crop loss in the area were heat, hail, and drought, and these factors changed across time and location.

By developing a conditional convergence growth model, Garrone, Emmers, Lee, Olper, and Swinnen (2019) examined the connection between the increase of agricultural worker productivity and EU agricultural subsidies. The research employed a broader coverage (panel data from 213 EU areas from 2004 to 2014) and more representative subsidy indicators. The study found that while agricultural worker productivity growth is generally increased by EU subsidies under the Common Agricultural Policy (CAP), there is significant variation in the impact of the various forms of subsidies. Decoupled subsidies, or partially decoupled Pillar II payments and Pillar I decoupled payments, have a favorable impact on productivity. The converse is true for coupled Pillar I subsidies, which impede the rise in productivity.

The possible impacts of farm insurance for disaster risk reduction (DRR) in Malaysia were examined by Alam, Begum, Masud, Al-Amin, and Filho (2020). The study made use of both primary and secondary data. The primary data source employed a questionnaire survey as its primary instrument, whereas the secondary sources drew their information from an extensive literature study. The research highlights many obstacles to Malaysian farm insurance, including insufficient exposure to global agricultural techniques, restricted product offerings, inadequate data availability, restricted financial resources, and elevated operating expenses related to administration. But the research did offer helpful suggestions that intend to advance agricultural insurance and lower the danger of disaster in agro-production. Proper government measures and insurance firms' public-private partnerships were highlighted in these proposals in order to support the market and build appropriate insurance products.

Using a two-level randomized field experiment and incentive-based preference elicitation, Gunnsteinsson (2020) investigated asymmetric information in crop insurance in the Philippines. The study's conclusions showed that while working with the crop insurance provider, farmers may take use of a lot of private information. Strong evidence of adverse selection was discovered by the study in both the insurance against pests and crop diseases and the insurance against typhoons and floods. According to the study, moral hazard is caused by crop and pest disease coverage, especially for farmers who have a high level of trust in the insurance provider. For this reason, the study may have observed a slight decrease in investment rather than an increase in insured plot investment.

In addition to talking about the problem of regional variability, Hou and Wang (2022) also examined the effect of agricultural insurance on agricultural green growth. Once more, the research looked at how agricultural insurance affects agricultural green development, computed an index of agricultural green development, and conducted an empirical analysis of that influence. The study's conclusions showed that agricultural insurance has a varied influence on agricultural green development throughout the three functional domains and that it inhibits this movement. The study proposes countermeasures and recommendations based on its findings in order to develop a low-carbon

agricultural insurance subsidy mechanism, enhance agricultural insurance products, expand the scope of agricultural insurance, and establish an internal planting and breeding system with recycling through policy incentives as a means of agricultural production.

Li and Wang (2022) examined how policy-based agricultural insurance was affected by farmer income. In particular, the study provided theoretical clarification on how policy-oriented agricultural insurance operates and how it affects farmers' income. Using data from China from 2007 to 2019, the study used panel quantile regression and fixed-effect models. The results showed that while policy-oriented agricultural insurance helps to raise farmers' incomes overall, it has a considerable heterogeneity effect on farmers in different income categories and gains clout as farmers' incomes rise. Based on the study's conclusions, the study suggested that China should prioritize the creation of a system of differentiated subsidies and maintain a demand-oriented approach in order to guard against the possibility that policy-based agricultural insurance will be the catalyst for a widening income gap in rural areas.

In a situation where formal contracting is prohibitively expensive and input markets are poor, Bulte and Lensink (2022) investigated how the introduction of insurance impacts farming's modernization. In particular, the study concentrated on institutional settings devoid of formal contract enforcement, in which smallholders lack market access to contemporary inputs. A two-tiered model was devised by the study, in which a portion of farmers engage in spot market operations, while the remaining farmers enter into relational contracts with merchants to get contemporary inputs. Farmers that operate on spot markets are vulnerable to danger, but those engaged in relational contracts are completely covered by traders, according to the study. Furthermore, the study argued that insurance also lowers the number of inputs dealers give farmers who continue to be in a partnership.

With a particular emphasis on Nigeria, Madaki, Kaechele, and Bavorova (2023) assessed crop insurance as a technique for adapting to climate change in poor nations. The study employed 1,080 agricultural households' data samples from October 2020 to February 2021. Logit regression was utilized to estimate the data. According to the study's findings, knowledge and uptake of agricultural insurance are favorably influenced by factors such as education, herd size, bank accessibility, meteorological information, and previous flood experiences. Therefore, in order for farmers to have access to efficient agricultural insurance, the research suggested that they be made more aware of certain issues.

In Delta State, Nigeria's Delta North Agricultural Zone, crop producers' patronage of agricultural insurance was examined by Gbigbi and Ndubuokwu (2022). The study used 120 data samples from respondents in the Delta North Agricultural Zone. The Logit model and descriptive statistics were used to estimate the data. The study's findings demonstrated that the logit model explained how factors such as farmers' age, educational attainment, and premium rate, as well as factors like awareness, farm size, gender, credit accessibility and land tenure, affected their decision to purchase crop insurance. Therefore, the research suggested that insurance companies develop a plan to promote insurance use. Epetimehin (2022) examined the nexus between agricultural insurance scheme and performance of agribusiness in Nigeria. The study adopted data samples of 100 mechanize farmers, to access the performance of farmers agricultural productivity and the nature of risk they are expose to, and the data was estimated with the use of regression and correlation analysis. A substantial degree of association was found between the dependent and explanatory factors, according to the study's findings. In light of this, the research suggested that government oversight be exercised over insurance companies' awareness-raising efforts to promote farmer clients.

Taraba State insured farmers' income was examined by John (2023) in relation to Nigerian Agricultural Insurance Corporations. For the purpose of estimating the losses incurred due to natural disasters, the study examined 356 data samples of insured farmers in Taraba state. Descriptive and bar charts were used to visualize the data. Based on the study's findings, farmers' earnings are significantly protected by the Agricultural Insurance Corporation, which provides compensation that allows farmers to operate their farms the next year, even in the event of losses. For additional farmers to be able to join, the research suggested more reasonably priced insurance premiums.

From the collection of literature reviewed in this study, it is therefore identified that studies in Nigeria targeting senatorial district is very rare, as most are state based, with many heterogeneous communities to be considered. Also, most of the available and accessible studies in Nigeria were not in Nigeria, and in addition this study recognized that most studies had mainly focused on crop farming while other agricultural related aspect such as fishery, poultry and animal farm had not been explored in a single study.

Methodology

A survey design was employed in this investigation. The survey research strategy makes use of a questionnaire to gather from the farmers in the Ekiti Central Senatorial District the pertinent data required for this investigation. With the use of this technique, the researcher was able to choose a certain number of farmers to represent the population sample in our study. The study looked at how agricultural insurance companies contribute to increased agricultural production in the central senatorial district of Ekiti.

Farmers in the Ekiti Central Senatorial District of Ekiti State, Nigeria makes up the study's population, which includes Ado-Ekiti, Efon, Ekiti west Ijero and Irepodun/Ifelodun. Hence this population of the study entails farm owners of subsistence and commercial in the selected local government.

The sample for the study comprised of one hundred farmers (100) in Ekiti central Senatorial district of Ekiti State using a random sampling technique. The selection procedure involved different categories of farmers as required their types of farming in Ekiti Central Senatorial district, randomly selected from the entire population of farmers in Ekiti Central Senatorial district. On this note, one hundred farmers were considered as the respondents sampled for the study.

This study adopts primary source of data, in covering useful information adequate for the selected population to validate the objectives of the study. With the help of a well structure questionnaire and interviews, the study is divided into two section. (A) Solicited for personal information of the participants while Section. (B) Comprised close ended questions phrased with a possible response continuum based on a Likert like type rating scale ranging from "strongly agree", "agree", "neutral", "disagree" and "strongly disagree".

This study employs descriptive analysis and inferential statistics. The descriptive analysis includes frequency and percentages for objectives one and two, while inferential analysis method such as analysis of variance employed to achieve objective three of the study.

4. Result and Discussion

The result based on frequency, percentage and regression estimation as applicable to each research question of this study are presented, interpreted and discussed as thus:

Analysis of Research Question One: *To what extent do farmers in Ekiti Central Senatorial district participate in agricultural insurance?*

Table 1: Level of agricultural insurance participation among farmers in Ekiti Central

S/N	ITEMS	SA	A	UD	D	SD
1	I participate in the insurance policy that belong to my area of farming	8(8)%	10(10)%	0(0)%	44(44)%	38(38)%
2	I have applied for necessary agricultural insurance policy that applicable to my line of agricultural practice	10(10)%	8(8)%	0(0)%	32(32)%	50(50)%
3	I engaged the service of agricultural insurance companies to help when there is damage to farm due to unpredictable circumstances like drought, pest and disease	10(10)%	8(8)%	0(0)%	32(32)%	50(50)%

4	I ensure to pay premium on agricultural insurance immediately it is due	8(8)%	16(16)%	2(2)%	32(32)%	42(42)%
5	Agricultural insurance company always bear the risk immediately it occurs	30(30)%	0(0)%	0(0)%	28(28)%	42(42)%
6	I engaged agricultural insurance company services through the lending requirement of agricultural financing banks	22(22)%	25(25)%	9(9)%	2(2)%	42(42)%
7	Agricultural insurance companies oftentimes educate we the farmer clients on how to minimize loss in farming	38(38)%	0(0)%	11(11)%	11(11)%	40(40)%

Source: Author's Computation (2023)

Table 1 revealed the level of agricultural insurance participation among farmers in Ekiti central, as 8% strongly agreed by indicating that they participated in the insurance policy in the area of their farming while other 10% agreed, 44% disagreed and 38% strongly disagreed with the assertions. 10% strongly agreed to have applied for necessary Agricultural insurance policy, as 8% just agreed 32% disagreed and other 50% strongly disagreed. The table further showed that 10% strongly agreed to have use insurance policy to brace up where there was damage to farm product, while 8% also agreed, 32% disagreed and other 50% strongly disagreed. 8% strongly agreed to have paid insurance premium at it due time, 16% agreed further, while 2% were indecisive, 32% disagreed and 42% strongly disagreed. 30% strongly agreed that insurance company always bear the risk, as non-agreed or neutral 28% disagreed and 42% strongly disagreed. The table shows 22% strongly agreed to have lend from agricultural financial bank as a means to engage in agricultural insurance policy, as 25% others agreed 9% were neutral, but 28% disagreed and 42% others strongly disagreed. The table concluded by showing that 38% strongly agreed that agricultural insurance companies often time educate the farmers on how to minimize loss in their farming, 11% were neutral, just as 11% disagreed 40% strongly disagreed. According to the table's interpretation, this indicates that farmers do not participate in agricultural insurance to a high extent.

Research Question Two: *What is the level of agricultural productivity among farmers in Ekiti central?*

Table 2: Level of agricultural productivity among farmers in Ekiti Central Senatorial district

S/N	ITEMS	SA	A	UD	D	SD
1.	I often experience agricultural output that exceed my expectation	38(38)%	9(9)%	0(0)%	23(23)%	30(30)%
2.	There are oftentimes the instances in which harvest farm product per hectare of land increases	31(31)%	25(25)%	0(0)%	26(26)%	18(18)%
3.	Farm produce usually exceed the potential amount expected from input utilized in farming process	19(19)%	37(37)%	0(0)%	26(26)%	(18)18%
4.	The produce realized from farming per number of labour engaged usually increases per harvest	8(8)%	46(46)%	2(2)%	36(36)%	8(8)%
5.	There is little or no instance of decline in my farm productivity	8(8)%	9(9)%	14(14)%	59(59)%	10(10)%
6.	The rate of loss to pest and disease in my farm has reduced	0(0)%	9(9)%	2(2)%	79(79)%	10(10)%
7.	The rate of waste and bad produce during harvesting has reduced in my farm	0(0)%	9(9)%	2(2)%	50(50)%	39(39)%

Source: Author's Computation (2023)

Table 2 presents the level of agricultural productivity among farmers in Ekiti Central Senatorial district as it showed that 38% strongly agreed to have experience agricultural output that exceed expectation, with 9% further agreed, but 23% disagreed and others 30% strongly disagreed. The table show that 31% strongly agreed that harvest per product often increase, while 25% agreed, 26% of the farmers disagreed and 18% strongly disagreed. 19% strongly agreed that that farm product usually exceeded the amount expected, following the agreement of 37% respondent, 26% disagreed with the affirmation and 18% strongly disagreed. 8% strongly agreed that product realize per labour usually increase, as 46% also agreed with the affirmation, nevertheless 2% were neutral about it while 36% disagreed, 8% strongly disagreed. 8% that there was little, no instance of decline in the farm productivity, as 9% also agreed 14% were neutral about it , while 59% dis agreed, 10% strongly disagreed. The table further showed that 9% agreed that the rate of lost to pest and disease in farm has reduced, 2% were neutral, and while 79% disagreed 10% strongly disagreed. 9% agreed that the rate of waste and bad product during harvest has reduced in the farm, 2% were indecisive, while 50% disagreed, and 39% strongly disagreed. Hence the table show that the level of product in low.

Research Question Three: *What is the role of Agricultural insurance in Enhancing Agricultural productivity in Ekiti central?*

Table 3: Dependent Variable: level of agricultural insurance productivity (APR)

Variables	Coefficient	Standard error	t-stat	Probability
C	1.991	.288	6.910	.000
AIPT	.021	.158	.133	.894

R-square= .311 **Adjusted R-Square=**.217

Source: *Author's Computation (2023)*

Result presented in Table 3 shows regression result of the role of agricultural insurance in enhancing agricultural productivity in Ekiti central. Result showed coefficient and probability of .021 and .894 ($p > 0.05$) for LIPT which revealed that the level of insurance participation has insignificant positive effect on the level of productivity among farmers in Ekiti central. R-square statistics of .311 showed that about 31% variation in agricultural productivity can be explain by the level of insurance participation of farmers in Ekiti Central Senatorial District.

Discussion of Findings

This study identified that many of the farmers in Ekiti Central Senatorial district had very low level of participation in insurance policy, as some even refuse to apply for the necessary agricultural insurance policy. Some farmer do not see the importance in the engagement in insurance policy that will help them to bear the risk whenever there is an occurrence of unpredictable circumstance. This may be based on the fact that some find it difficult to pay their insurance premium. These challenges were as a result of lack of education concerning agricultural insurance as indicated by the respondents. Hence the study find that the level of agricultural insurance participation is low among the farmers in Ekiti Central Senatorial district as discuss by Reyesf, *et al.*, (2020), Salazar, *et al.*, (2019) and Augeraud-Veron, *et al.*, (2019).

In respect to the level of agricultural productivity among the farmers in Ekiti central, the study find that the agricultural output is lower than the expectation, even though there are some instances of increase in output base on product per hectare of land, but time when their product output exceeded potential among very low, including the product realize from farming per numbers of labours, as it was recorded that the rate of lost to pest and diseases was on the increase side, which also affect produce during harvest. Hence the study finds that the level of agricultural productivity very low as was discussed by Garrone, Emmers, Lee, Olper and Swinnen (2019), Alam, Begum, Masud, Al-Amin and Filho (2020) and Reyesf, Elias, Haacker, Kremen, Parker and Rottler (2020).

The impact of agricultural insurance companies on agricultural productivity was determined by regression analysis. The study's findings indicate that, given low insurance policy participation and

awareness, agricultural insurance has an insignificantly positive effect on productivity. Consequently, farm productivity was very low because farmers are unable to assume risk associated with their output, as suggested by Zhang, Yang, and Li (2023), Zhang, Yang, and Li (2023), Li, Liu, Chen, Wu and Li (2022), Hou and Wang (2022), and Li and Wang (2022).

5. Conclusion and Recommendations

The study concluded that the level of insurance participation among farmers in Ekiti Central Senatorial district was very low as majority of the farmer does not participates in any insurance policy. The study further concluded that the level of agricultural productivity was also very low due to lack of proper guidance on how to reduce loss caused by natural occurrence, pest and diseases. The study finally concluded that the effect of agricultural insurance participation was positive on agricultural productivity, which was seen based on their level of participation with the result of their farm output, although statistically negligible. Hence, this study established that agricultural insurance companies has no significant role in enhancing agricultural productivity in Ekiti central.

Based on the foregoing, the following recommendations were therefore made that:

- i. Agricultural insurance company should intensify in their sensitization and awareness for farmers to participate in insurance policy.
- ii. Insurance policy should be design to cover the interest of all the farmers so as to encourage their participation.
- iii. Farmers in Ekiti Central Senatorial district should put in investment and maintenance efforts to enhance agricultural productivity.
- iv. Government also needs to support agricultural activities in the district in order to enhance farmers productivity

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