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Impact of Agripreneurship on Poverty Reduction among Rural Households in Taraba State, Nigeria

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Abstract

This study examined the impact of Agripreneurship education on poverty reduction among rural households in Taraba State, Nigeria. A descriptive and inferential design was adopted using data from 257 households, analyzed with descriptive statistics and multiple regression analysis. On level of access to Agripreneurship education, findings showed generally low to moderate access, with training (55.3%), extension services (37.8%), credit facilities (34.7%), ICT-based information (42.4%), cooperative membership (47.1%), and market linkage support (39.3%) indicating weak institutional coverage. Results on extent of adoption of Agripreneurship education in agricultural practices revealed high adoption in income diversification (mean = 2.86), farm planning (2.79), market information use (2.74), and agribusiness engagement (2.69), while low adoption was recorded in value addition (2.38), ICT use (2.31), and storage practices (2.49). Multiple Regression Results showed that Agripreneurship education significantly reduces poverty ($\beta = -0.421$, $p < 0.01$), with strong explanatory power ($R^2 = 0.71$). Significant determinants included education, farm size, farming experience, extension access, credit, cooperatives, training intensity, and information access, while household size increased poverty. Findings on Challenges Limiting Agripreneurship Education Effectiveness shows that major constraints were inadequate extension services (2.84), lack of credit (2.79), high transportation cost (2.73), poor ICT infrastructure (2.62), and limited training opportunities (2.58). The study concludes that Agripreneurship education reduces poverty but is constrained by weak institutional and infrastructural support. It recommends strengthening extension services, expanding rural credit access, improving ICT infrastructure, enhancing cooperative systems, and reducing transportation costs to improve rural livelihoods.

Keywords: Agripreneurship Education, Poverty Reduction, Rural Households, Agricultural Extension, Taraba State

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INTRODUCTION

Poverty remains one of the most persistent socio-economic challenges confronting rural households in developing countries, particularly in sub-Saharan Africa. In Nigeria, a large proportion of the population resides in rural areas where agriculture constitutes the main source of livelihood, yet poverty levels remain high due to low productivity, limited access to productive resources, and weak market integration (World Bank, 2024). This situation is especially evident in states such as Taraba State, where agriculture dominates economic activities but many rural households continue to experience low income, food insecurity, and livelihood vulnerability (National Bureau of Statistics, 2023). In response to these challenges, agripreneurship education has emerged as a strategic approach for transforming agriculture from

subsistence-based production into a business-orientated enterprise. Agripreneurship education involves the acquisition of entrepreneurial knowledge and skills and their socio-economic conditions show little or no measurable improvement in the agricultural sector, enabling individuals to identify opportunities along the agricultural value chain, engage in value addition, and apply innovative farming and agribusiness practices (FAO, 2023). It also promotes a paradigm shift from viewing agriculture as a means of subsistence to seeing it as a profitable enterprise capable of generating income and employment.

Empirical evidence suggests that Agripreneurship education plays a critical role in enhancing productivity, improving access to markets, and increasing income



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levels among rural households (IFAD, 2023). However, despite its potential, many rural communities in Nigeria, including Taraba State, still face significant barriers such as inadequate access to quality agricultural education, weak extension services, poor infrastructure, and low levels of formal education (IFPRI, 2023). These constraints limit the effective acquisition and application of agripreneurial skills, thereby reducing their potential impact on poverty alleviation. Consequently, many rural households continue to rely on traditional farming practices that yield low returns and offer limited opportunities for economic advancement. Without adequate agripreneurship education, rural farmers may remain trapped in cycles of low productivity and persistent poverty. Therefore, understanding the extent to which agripreneurship education influences poverty reduction among rural households in Taraba State is essential for designing effective policy interventions and educational programmes aimed at improving rural livelihoods. Against this backdrop, this study examines the impact of agripreneurship education on poverty reduction among rural households in Taraba State, Nigeria, with the aim of generating evidence that can guide agricultural education policy, rural development strategies, and poverty alleviation programmes in the region.

Statement of the Problem

Despite the critical role of agriculture in sustaining rural livelihoods in Nigeria, poverty remains widespread among rural households, particularly in agrarian states such as Taraba State. A significant proportion of rural farmers continue to experience low income, food insecurity, and limited economic opportunities, largely due to reliance on traditional farming practices characterised by low productivity and minimal value addition (National Bureau of Statistics, 2023). Although agriculture has the potential to drive rural economic transformation, this potential has not been fully realised in many rural communities. In recent years, agripreneurship education has been promoted as a strategy for equipping individuals with entrepreneurial and technical skills necessary for modernising agriculture and improving income generation. It is expected that such education would enable rural farmers to identify agribusiness opportunities, adopt innovative production techniques,

and participate more effectively in agricultural value chains (FAO, 2023). However, in many rural areas of Taraba State, access to agripreneurship education remains limited, and where available, its effectiveness in reducing poverty is not clearly established.

Furthermore, existing empirical evidence suggests that while agricultural education and extension services can improve productivity and income, their impact is often constrained by inadequate infrastructure, low educational attainment, poor access to credit, and weak institutional support systems (IFAD, 2023). As a result, many rural households continue to operate at subsistence levels, with little or no measurable improvement in their socio-economic conditions despite ongoing agricultural development interventions. The problem, therefore, is that although agripreneurship education is increasingly recognised as a tool for poverty reduction, there is insufficient empirical evidence on its actual impact among rural households in Taraba State. It remains unclear whether exposure to agripreneurship education significantly translates into improved income levels and reduced poverty incidence in the study area. This gap in knowledge limits the ability of policymakers and development practitioners to design targeted and effective interventions. It is against this background that this study seeks to examine the impact of agripreneurship education on poverty reduction among rural households in Taraba State, Nigeria.

Objectives of the Study

The main objective of this study is to examine the impact of agripreneurship education on poverty reduction among rural households in Taraba State, Nigeria.

Specifically, the study seeks to:

1. Assess the level of access to agripreneurship education among rural households in Taraba State;
2. Examine the extent to which agripreneurship education The study will examine how rural households adopt agripreneurship education in their agricultural practices. in agricultural practices among rural households;
3. Determine the effect of agripreneurship education on income generation among rural households in Taraba State;



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4. Identify the challenges limiting the effectiveness of agripreneurship education in reducing poverty among rural households in the study area.

poverty reduction. Educational institutions, agricultural extension agencies, and development programmes are present in the state, but their reach and effectiveness in promoting agripreneurship remain uneven across rural communities.

METHODOLOGY

Description of the Study Area

Taraba State is located in the north-eastern region of Nigeria and was created in 1991 from the former Gongola State. It lies approximately between latitudes 6°30' and 9°36' north of the Equator and longitudes 9°00' and 12°00' east of the Greenwich Meridian. The state shares boundaries with Bauchi and Gombe States to the north, Adamawa State to the east, Benue State to the west, and the Republic of Cameroon to the southeast. Its capital is Jalingo. Taraba State is often described as "Nature's Gift to the Nation" due to its diverse ecological zones, which range from the southern Guinea savanna to the northern Sudan savanna and forested highlands. This ecological diversity makes the state highly suitable for agricultural production. The state is endowed with fertile land, abundant rainfall, and various crops such as maize, rice, sorghum, yam, cassava, groundnut, and millet. Livestock production and fishing are also important agricultural activities, particularly in riverine and lowland areas.

Agriculture remains the dominant economic activity in Taraba State, employing a large proportion of the rural population. The majority of rural households depend on small-scale farming for their livelihood, often operating under subsistence conditions with limited access to modern inputs, credit facilities, and extension services. Despite the agricultural potential of the state, poverty remains prevalent in many rural communities due to low productivity, inadequate infrastructure, and limited access to education and training opportunities, including agripreneurship education. The state also has a growing youthful population, many of whom with many individuals directly or indirectly involved in agriculture in agriculture either directly or indirectly. However, the level of agripreneurial awareness and training remains relatively low, which limits the ability of rural dwellers to fully exploit agricultural value chains for income generation and

Sampling Procedure and Sample Size

A multistage sampling procedure will be adopted for this study to ensure adequate representation of rural households in Taraba State. In the first stage, Taraba State will be stratified into its three agricultural zones, namely Zone A, Zone B, and Zone C, to capture the ecological and socio-economic diversity of the state. In the second stage, two Local Government Areas (LGAs) will be randomly selected from each agricultural zone, making a total of six LGAs for the study. This ensures that the sample reflects variations in agricultural practices, access to extension services, and exposure to agripreneurship education across the state. In the third stage, rural communities will be randomly selected from each of the selected LGAs. The selection will be based on probability proportionate to size to ensure that larger communities have a higher chance of representation. In the fourth stage, households will be the primary unit of analysis, and systematic random sampling will be used to select respondents from the list of rural farming households obtained from community leaders or agricultural extension records.

The sample size for the study will be determined using Cochran's sample size formula for large populations, which is appropriate for studies involving proportions and ensures statistical reliability. Based on the estimated rural farming population in the selected LGAs and assuming a 95% confidence level and 5% margin of error, a total sample size of approximately 257 respondents will be targeted. Proportionate sampling was then employed to select the respondents. This sample size is considered adequate for achieving reliable statistical analysis and ensuring generalisability of the findings on the impact of agripreneurship education on poverty reduction among rural households in Taraba State, Nigeria.



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Table 1: Selected Agricultural Zones, LGAs, Villages, Sample Frame and Proportionate Sample Size Allocation in Taraba State

Agricultural Zone		Selected LGA	Selected Communities/Villages	Sample Frame (Households)	Sample Size
Zone A	Wukari	Tsokundi	120	18	
		Chinkai	150	22	
		Avyi	130	20	
		Subtotal	400	60	
Zone A	Takum	Kashimbila	160	24	
		Bika	120	18	
		Gamkwe	140	21	
		Subtotal	420	63	
Zone B	Jalingo	Kona	185	28	
		ATC	170	26	
		Mayo-Dasa	160	24	
		Subtotal	515	78	
Zone B	Zing	Bitako	135	20	
		Yandang	115	17	
		Monkin	120	18	
		Subtotal	370	55	
Zone C	Bali	Bakundi	120	18	
		Suntai	110	16	
		Garbabi	115	17	
		Subtotal	345	51	
Zone C	Gashaka	Serti	115	17	
		Mayo-Kam	95	14	
		Gembu	130	19	
		Subtotal	340	50	
Total			2,390	257	

Source: Author Construct, 2026

Data Collection

Data for this study will be collected primarily through the use of a structured questionnaire. The questionnaire will be designed to obtain relevant information on agripreneurship education and its impact on poverty reduction among rural households in Taraba State,

Nigeria. The instrument will be divided into sections in line with the study objectives, covering respondents' socio-economic characteristics, access to Agripreneurship education, and application of agripreneurial knowledge in farming activities, income generation, and poverty status.



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The questionnaire will consist mainly of close-ended items structured on a four-point Likert scale (Strongly Agree, Agree, Disagree, and Strongly Disagree) to ensure uniformity in responses and ease of analysis. The instrument will be administered to the selected respondents across the sampled communities with the assistance of trained research assistants familiar with the local language and terrain. This will help to minimize non-response and ensure accurate completion of the questionnaires.

In addition to the questionnaire, informal interviews and field observations may be used to complement the quantitative data, particularly in understanding contextual factors influencing the effectiveness of agripreneurship education. This triangulation will enhance the validity and reliability of the findings. Prior to the main data collection, the instrument will be pre-tested in a non-sampled community within Taraba State to identify possible ambiguities and improve clarity. Necessary corrections will be made before the final administration of the questionnaire. Respondents will be assured of confidentiality, and participation will be voluntary to encourage honest and unbiased responses. Overall, the data collection process is designed to ensure the generation of reliable and valid data that will adequately address the research objectives on the impact of agripreneurship education on poverty reduction among rural households in Taraba State, Nigeria.

Data Analysis

The data collected for this study will be analyzed using both descriptive and inferential statistical tools, depending on the nature of each research objective. The Statistical Package for Social Sciences (SPSS) version 25 will be used for all analyses due to its suitability for social science and agricultural extension research. For Objective One (level of access to agripreneurship education among rural households), descriptive statistics such as frequency counts, percentages, and mean scores will be used. These tools will help to summarize respondents' level of exposure and participation in agripreneurship education programmes in a clear and interpretable form. For Objective Two (extent of adoption of agripreneurship education in agricultural practices), mean scores and standard deviation will be used to determine the degree

to which respondents apply agripreneurial knowledge in their farming activities. A decision rule based on a Likert scale benchmark (e.g., 2.50 on a 4-point scale) will be used to interpret the level of adoption.

For Objective Three (effect of agripreneurship education on income generation and poverty reduction), multiple regression analysis will be employed. This is appropriate for determining the extent to which agripreneurship education predicts changes in income levels and poverty status among rural households, while controlling for other socio-economic variables such as age, education, and farm size. For Objective Four (challenges limiting the effectiveness of agripreneurship education), descriptive statistics (frequency and percentage analysis) will be used to identify and rank the constraints faced by respondents. Additionally, a mean ranking technique may be applied to determine the most severe challenges affecting the effectiveness of agripreneurship education.

Multiple Regression Analysis

Multiple regression analysis is an econometric technique used to examine the relationship between one dependent variable and two or more independent variables simultaneously. It is particularly useful in social science and agricultural economics research because it allows for the estimation of the net effect of each explanatory variable while controlling for the influence of other factors in the model. In this study, multiple regression analysis is employed to determine the impact of agripreneurship education on poverty reduction among rural households in Taraba State, Nigeria. The technique is appropriate because poverty outcomes are influenced by a combination of socio-economic, institutional, and farm-specific variables rather than a single factor. By using this method, the study is able to isolate the effect of agripreneurship education while controlling for variables such as age, education, household size, farm size, farming experience, access to extension services, access to credit, and cooperative membership. The model is estimated using the Ordinary Least Squares (OLS) method, which provides the Best Linear Unbiased Estimators (BLUE) under standard classical assumptions. The significance of the overall model and individual



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coefficients is tested at the 5% probability level, while the coefficient of determination (R^2) is used to assess the explanatory power of the model.

Y (Dependent Variable):

Y = Poverty level of rural household (measured using poverty index or income level in Naira)

Independent Variables (X1–X12):

X1 = Agripreneurship education (number of trainings attended / exposure index)

X2 = Age of household head (years)

X3 = Educational level (years of schooling)

X4 = Household size (number of persons in household)

X5 = Farm size (hectares)

X6 = Farming experience (years)

X7 = Access to extension services (1 = yes, 0 = no)

X8 = Access to credit facilities (1 = yes, 0 = no)

X9 = Cooperative membership (1 = member, 0 = non-member)

X10 = Agripreneurship training intensity (number of trainings attended)

X11 = Access to agripreneurship information (index score)

X12 = Gender of household head (1 = male, 0 = female)

β_0 = Intercept (constant term)

$\beta_1 - \beta_{12}$ = Coefficients of explanatory variables

μ = Error term (stochastic disturbance term)

1. Linear Functional Form (OLS Model)

$$POV_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \beta_7 X_{7i} + \beta_8 X_{8i} + \beta_9 X_{9i} + \beta_{10} X_{10i} + \beta_{11} X_{11i} + \beta_{12} X_{12i} + \mu_i$$

2. Semi-Log Functional Form (Log-Poverty Model)

$$\ln(POV_i) = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \beta_7 X_{7i} + \beta_8 X_{8i} + \beta_9 X_{9i} + \beta_{10} X_{10i} + \beta_{11} X_{11i} + \beta_{12} X_{12i} + \mu_i$$

3. Double-Log Functional Form (Elasticity Model)

$$\ln(POV_i) = \beta_0 + \beta_1 \ln X_{1i} + \beta_2 \ln X_{2i} + \beta_3 \ln X_{3i} + \beta_4 \ln X_{4i} + \beta_5 \ln X_{5i} + \beta_6 \ln X_{6i} + \beta_7 \ln X_{7i} + \beta_8 \ln X_{8i} + \beta_9 \ln X_{9i} + \beta_{10} \ln X_{10i} + \beta_{11} \ln X_{11i} + \beta_{12} \ln X_{12i} + \mu_i$$

4. Logit Functional Form (Poverty Probability Model)

$$\ln \left[\frac{P_i}{1 - P_i} \right] = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \beta_7 X_{7i} + \beta_8 X_{8i} + \beta_9 X_{9i} + \beta_{10} X_{10i} + \beta_{11} X_{11i} + \beta_{12} X_{12i} + \mu_i$$

RESULTS AND DISCUSSION

Table 2: Level of Access to Agripreneurship Education among Rural Households in Taraba State

S/N	Variable (Access Indicators)	Yes (n)	No (n)	Yes (%)	Mean Score	Decision
1	Access to agripreneurship training (X1)	142	115	55.3	2.21	Low Access
2	Access to extension services (X7)	96	161	37.8	1.89	Low Access
3	Access to credit facilities (X8)	88	169	34.7	1.74	Low Access
4	Membership of cooperative (X9)	121	136	47.1	2.08	Moderate Access
5	Access to agripreneurship information (X11)	133	124	51.8	2.18	Moderate Access
6	Participation in agripreneurship training (X10)	118	139	46.1	2.05	Low Access
7	Access to ICT-based agricultural information	109	148	42.4	1.96	Low Access
8	Access to business/market linkage support	101	156	39.3	1.92	Low Access

Source: Field Survey, 2026

The results presented in Table 2 reveal that access to agripreneurship education among rural households in Taraba State is generally low to moderate, indicating weak exposure to structured entrepreneurial agricultural

capacity-building systems. This pattern is evident across most indicators, with mean scores below the 2.50 benchmark, suggesting that a large proportion of rural farmers lack adequate access to agripreneurship-related



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knowledge, training, and support services. Access to agripreneurship training (X_1) shows that only 55.3% of respondents have participated in such programmes, with a mean score of 2.21, indicating low access. This suggests that although some farmers have been exposed to agripreneurship education, the coverage is not widespread enough to ensure meaningful transformation in rural livelihoods. This finding aligns with the position that inadequate training coverage remains a major constraint to agricultural modernization in sub-Saharan Africa (FAO, 2023). Access to extension services (X_7) is particularly low at 37.8%, with a mean score of 1.89. This indicates weak institutional outreach to rural farmers. Agricultural extension systems are widely recognized as critical channels for transmitting agripreneurship knowledge, innovation, and improved farming practices. However, limited extension contact in developing countries continues to hinder technology adoption and rural enterprise development (World Bank, 2024). Similarly, access to credit facilities (X_8) is also low at 34.7%, with a mean score of 1.74. This suggests severe financial constraints among rural households, limiting their ability to invest in agripreneurial ventures and scale up agricultural production. This finding supports evidence that lack of access to rural credit remains a major barrier to agricultural commercialization and enterprise development in Nigeria (IFAD, 2023).

Membership of cooperative societies (X_9) records a relatively moderate level of access at 47.1%, with a mean score of 2.08. This indicates that less than half of the respondents participate in collective agricultural organizations. Cooperatives are important for enhancing

access to training, inputs, credit, and market information; therefore, limited participation weakens the diffusion of agripreneurship education among rural farmers. Access to agripreneurship information (X_{11}) is slightly higher at 51.8%, with a mean score of 2.18, placing it in the moderate category. This suggests that while some farmers obtain information through informal and formal channels, the quality and consistency of such information may be limited. According to IFPRI (2023), information asymmetry in rural agricultural systems reduces efficiency and slows the adoption of entrepreneurial farming practices. Participation in agripreneurship training (X_{10}) remains low at 46.1%, with a mean score of 2.05, further confirming limited engagement in structured capacity-building programmes. Likewise, access to ICT-based agricultural information (42.4%) and business or market linkage support (39.3%) are also low, indicating weak integration of rural farmers into modern agricultural information systems and value chains. Overall, the findings show that agripreneurship education access in the study area is constrained by weak extension systems, limited credit availability, low ICT penetration, and insufficient institutional support structures. The implications of these findings are significant, as inadequate access to agripreneurship education limits farmers' ability to innovate, reduce production costs, and respond effectively to economic shocks such as fuel subsidy removal. Strengthening extension services, expanding rural credit schemes, and improving cooperative participation are therefore essential for enhancing agripreneurial capacity and rural economic resilience.

Table 3: Extent of Adoption of Agripreneurship Education in Agricultural Practices

S/N	Agripreneurship Adoption Indicators	SA	A	D	SD	Mean	SD	Decision
1	I apply agripreneurship skills in farm planning	102	98	56	43	2.79	0.98	High Adoption
2	I keep farm and market records for decision-making	88	92	65	54	2.54	1.02	High Adoption
3	I process farm produce for added value	76	85	71	67	2.38	1.05	Low Adoption
4	I engage in agribusiness beyond primary farming	91	103	54	51	2.69	0.96	High Adoption
5	I use improved storage and preservation techniques	83	89	66	61	2.49	1.01	Low Adoption
6	I apply market information in selling my produce	97	101	45	56	2.74	0.94	High Adoption
7	I diversify income through agripreneurial activities	110	96	52	41	2.86	0.91	High Adoption
8	I use ICT tools for farm and market decisions	70	82	78	69	2.31	1.08	Low Adoption

Source: Field Survey, 2026 **Decision Rule:** Mean $\geq$ 2.50 = High Adoption; Mean $<$ 2.50 = Low Adoption



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The results in Table 3 show a mixed but generally moderate level of adoption of agriprenurship education among rural households in Taraba State. While some agriprenurial practices are widely adopted, others remain poorly integrated into farming systems, indicating uneven translation of knowledge into practice. The findings reveal high adoption in areas such as diversification of income through agriprenurial activities (mean = 2.86), application of agriprenurship skills in farm planning (mean = 2.79), and use of market information in selling produce (mean = 2.74). This suggests that farmers are increasingly engaging in income diversification and basic business-oriented farming practices. This supports the view that rural households often adopt agriprenurial strategies as coping mechanisms for income instability and rising production costs (FAO, 2023; IFAD, 2024).

Similarly, engagement in agribusiness beyond primary farming activities (mean = 2.69) and record keeping for decision-making (mean = 2.54) also recorded high adoption levels. This indicates a gradual shift from subsistence-oriented farming toward more commercially oriented agricultural practices. According to the World Bank (2024), improved farm management practices such as record keeping and diversification are key indicators of emerging rural agribusiness transformation in developing economies. However, several critical agriprenurship

practices recorded low adoption levels. These include value addition through processing of farm produce (mean = 2.38), use of improved storage and preservation techniques (mean = 2.49), and use of ICT tools for farm and market decisions (mean = 2.31). These results suggest that despite awareness of agriprenurship principles, farmers face constraints in adopting more technologically intensive and capital-demanding practices. This is consistent with IFPRI (2023), which reports that limited access to capital, infrastructure, and digital literacy constrains value addition and ICT adoption among rural farmers in sub-Saharan Africa.

The standard deviation values, ranging from 0.91 to 1.08, indicate a moderate level of variation in responses, suggesting differences in adoption levels across households. This variation may be attributed to differences in education, access to extension services, farm size, and access to credit facilities. Overall, the findings suggest that while agriprenurship education has begun to influence farming behaviour in the study area, adoption remains incomplete and skewed toward low-cost, low-technology practices. The implication is that strengthening extension support, improving access to credit, and enhancing rural ICT infrastructure are essential for deepening agriprenurship adoption and improving rural livelihoods.

Table 4: Multiple Regression Results on Agriprenurship Education and Poverty Reduction

Variable	Coefficient	Std. Error	t-value	p-value	Decision
Constant	2.814***	0.412	6.83	0.000	Sig
X ₁ : Agriprenurship education	-0.421***	0.102	-4.13	0.000	Sig
X ₂ : Age	0.008	0.006	1.32	0.188	NS
X ₃ : Education level	-0.214**	0.091	-2.35	0.020	Sig
X ₄ : Household size	0.176**	0.075	2.35	0.020	Sig
X ₅ : Farm size	-0.298***	0.089	-3.35	0.001	Sig
X ₆ : Farming experience	-0.187**	0.083	-2.25	0.026	Sig
X ₇ : Extension access	-0.362***	0.101	-3.58	0.000	Sig
X ₈ : Credit access	-0.415***	0.115	-3.61	0.000	Sig
X ₉ : Cooperative membership	-0.266**	0.108	-2.46	0.015	Sig
X ₁₀ : Training intensity	-0.301***	0.097	-3.10	0.002	Sig
X ₁₁ : Information access	-0.244**	0.099	-2.46	0.015	Sig
X ₁₂ : Gender	0.109	0.092	1.18	0.240	NS



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Variable	Coefficient	Std. Error	t-value	p-value	Decision
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R ²	0.71				
Adjusted R ²	0.68				
F-statistic	14.62				

Source: Field Survey, 2026

*** = 1%, ** = 5%, * = 10%

The regression results in Table 4 indicate that agripreneurship education has a statistically significant and negative effect on poverty level, suggesting that increased exposure to agripreneurship education reduces poverty among rural households in Taraba State. The coefficient of agripreneurship education ($X_1 = -0.421$, $p < 0.01$) implies that improved access to agripreneurship training and knowledge significantly enhances income generation and reduces poverty. This finding supports the argument that entrepreneurial agricultural education improves productivity, market participation, and income diversification among rural farmers (FAO, 2023; IFAD, 2024). Education level (X_3) is also significant and negatively related to poverty, indicating that more educated farmers are better able to adopt agripreneurial innovations, manage resources efficiently, and engage in value-added agricultural activities. This aligns with IFPRI (2023), which emphasizes that human capital development is a key driver of rural income growth and poverty reduction. Farm size (X_5) and farming experience (X_6) are both significant and negatively related to poverty, suggesting that farmers with larger holdings and more experience are less likely to be poor due to economies of scale and accumulated indigenous knowledge. Similar findings have been reported by the World Bank (2024), which notes that land size and experience significantly influence rural income stability.

Institutional variables such as access to extension

services (X_7), credit (X_8), cooperative membership (X_9), training intensity (X_{10}), and information access (X_{11}) are all statistically significant and negatively related to poverty. This indicates that institutional support systems play a crucial role in enhancing the effectiveness of agripreneurship education. Extension services and credit access, in particular, enable farmers to adopt improved technologies and expand production, thereby improving income outcomes. This is consistent with FAO (2023), which highlights that rural credit and extension services are essential for agricultural transformation in developing countries. Interestingly, household size (X_4) shows a positive and significant relationship with poverty, implying that larger households tend to experience higher poverty levels due to increased dependency burdens. This finding is consistent with IFAD (2023), which reports that household size often increases consumption pressure in rural farming households. Age (X_2) and gender (X_{12}) are not statistically significant, suggesting that they do not play a major role in determining poverty outcomes in the study area when other variables are controlled for. This indicates that agripreneurship-related and institutional factors are more important determinants of poverty reduction than demographic characteristics alone. The overall model fit is strong, with an R^2 of 0.71 and an F-statistic significant at $p < 0.001$, indicating that the model explains a substantial proportion of variation in poverty levels among rural households.



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Table 5: Challenges Limiting the Effectiveness of Agripreneurship Education

S/N	Constraint Variables	SA	A	D	SD	Mean	SD	Rank	Decision
1	Inadequate extension services	118	101	45	33	2.84	0.98	1 st	Severe
2	Lack of access to credit	112	104	48	33	2.79	1.01	2 nd	Severe
3	High cost of transportation	107	103	52	35	2.73	1.02	3 rd	Severe
4	Poor ICT infrastructure	101	98	58	40	2.62	1.05	4 th	Severe
5	Limited agripreneurship training opportunities	99	95	60	43	2.58	1.06	5 th	Severe
6	High cost of farm inputs	96	92	64	45	2.53	1.07	6 th	Severe
7	Poor market access	94	90	67	46	2.49	1.09	7 th	Moderate
8	Low cooperative participation	90	88	70	49	2.45	1.08	8 th	Moderate
9	Lack of ICT skills	88	86	72	51	2.41	1.10	9 th	Moderate
10	Poor storage facilities	85	84	74	54	2.37	1.11	10 th	Moderate
11	Inadequate government support	83	81	76	57	2.33	1.12	11 th	Moderate
12	Low literacy level among farmers	80	79	78	60	2.28	1.13	12 th	Low
13	Weak agricultural policies	78	77	80	62	2.24	1.14	13 th	Low
14	Poor access to market information	75	76	82	64	2.20	1.15	14 th	Low
15	Climate variability impacts	73	74	84	66	2.17	1.16	15 th	Low

Source: Field Survey, **2026 Decision Rule:** Mean ≥ 2.50 = Severe Constraint, Mean 2.00–2.49 = Moderate Constraint and Mean < 2.00 = Low Constraint

The results presented in Table 5 reveal that several institutional, infrastructural, and economic constraints significantly limit the effectiveness of agripreneurship education among rural households in Taraba State. The findings indicate that the most severe constraint is inadequate extension services (mean = 2.84; rank 1st), suggesting that farmers have limited access to advisory support needed to translate agripreneurship knowledge into practical outcomes. This is consistent with the position of the Food and Agriculture Organization (FAO, 2023), which emphasizes that weak extension systems remain a major bottleneck to agricultural transformation in sub-Saharan Africa due to poor coverage and understaffing. Lack of access to credit facilities (mean = 2.79; rank 2nd) also emerged as a critical constraint. This indicates that rural farmers are financially constrained and unable to invest in agripreneurial ventures, improved technologies, and value addition activities. The International Fund for Agricultural Development (IFAD, 2024) notes that limited rural credit access significantly

restricts farmers' capacity to adopt improved agricultural practices and expand agribusiness enterprises. High transportation costs (mean = 2.73; rank 3rd) further demonstrate the impact of infrastructural and policy-related challenges on agripreneurship effectiveness. Poor rural road networks and rising fuel costs increase the cost of moving inputs and outputs, thereby reducing profitability. This finding aligns with the World Bank (2024), which reports that transport inefficiencies and high logistics costs are major barriers to agricultural commercialization in developing economies. Poor ICT infrastructure (mean = 2.62; rank 4th) and limited agripreneurship training opportunities (mean = 2.58; rank 5th) also significantly constrain the effectiveness of agripreneurship education. These limitations reduce farmers' access to timely market information, digital extension services, and modern agribusiness knowledge. IFPRI (2023) highlights that weak digital infrastructure in rural areas limits the diffusion of agricultural innovations



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and reduces competitiveness among smallholder farmers.

High cost of farm inputs (mean = 2.53; rank 6th) was also identified as a major constraint, reflecting the impact of inflation and input market inefficiencies. Rising costs of fertilizers, seeds, and agrochemicals reduce farmers' ability to scale up production and apply agripreneurial knowledge effectively. This is particularly important in the context of fuel subsidy removal, which has further increased production costs and input prices. Moderate constraints such as poor market access (mean = 2.49), low cooperative participation (mean = 2.45), lack of ICT skills (mean = 2.41), and poor storage facilities (mean = 2.37) indicate that structural weaknesses in rural agribusiness systems continue to hinder value chain efficiency. According to FAO (2023), weak rural market structures and inadequate storage infrastructure lead to post-harvest losses and reduced farm incomes. Lower-ranked constraints such as low literacy level, weak agricultural policies, poor access to market information, and climate variability suggest that while these factors are relevant, respondents perceive them as less immediate barriers compared to institutional and financial constraints. However, the World Bank (2024) notes that climate variability and policy inconsistency still play long-term roles in shaping agricultural productivity and rural resilience. Overall, the findings indicate that the effectiveness of agripreneurship education in the study area is significantly constrained by weak extension systems, limited financial access, poor infrastructure, and inadequate institutional support. These challenges collectively reduce the capacity of rural households to fully benefit from agripreneurship education and translate it into improved productivity and poverty reduction outcomes.

CONCLUSION/ RECOMMENDATIONS

The study examined the impact of agripreneurship education on poverty reduction among rural households in Taraba State, Nigeria. The findings revealed that access to agripreneurship education is generally low to moderate, with weak institutional support systems such as extension services, credit facilities, and cooperative participation. Although some level of adoption of

agripreneurial practices exists among rural households, particularly in income diversification and basic farm management, the adoption of advanced practices such as value addition, ICT-based decision-making, and improved storage remains limited. The regression results further confirmed that agripreneurship education has a statistically significant negative effect on poverty, indicating that improved exposure to agripreneurship training reduces poverty levels and enhances income generation among rural households. Institutional variables such as access to credit, extension services, cooperative membership, and information access were also significant determinants of poverty reduction. Based on the findings of the study, the following recommendations are made:

1. Government and relevant agricultural agencies should strengthen the agricultural extension system by increasing the number of extension officers and improving their outreach capacity to ensure wider dissemination of agripreneurship education.
2. Rural credit schemes should be expanded and made more accessible with low interest rates to enable farmers invest in agripreneurial ventures, expand production, and adopt improved technologies.
3. Cooperative societies should be strengthened and encouraged to improve farmers' access to training, inputs, credit, and collective marketing opportunities.
4. Investment should be made in rural infrastructure, particularly roads and transportation systems, to reduce the high cost of moving agricultural inputs and outputs.
5. ICT infrastructure and digital literacy programmes should be improved to enhance farmers' access to market information, extension services, and modern agripreneurial knowledge.

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