Journal of Agricultural Extension
Vol. 29 (1) January 2025
ISSN(e): 24086851; ISSN(Print): 1119944X
Website: https://www.journal.aesonnigeria.org; https://www.ajol.info/index.php/jae
Email: editorinchief@aesonnigeria.org; agricultural.extension.nigeria@gmail.com

Socioeconomic Determinants of Agricultural Extension Needs among Yam Farmers in Nasarawa State, Nigeria

https://dx.doi.org/10.4314/jae.v29i1.12

Yakubu, Danlami Haruna
Corresponding author
Department of Agricultural
Extension and Rural Development,
Usmanu Danfodiyo University, Sokoto, Nigeria
Email: danlami_y@yahoo.com Phone:

Douseifa, Gumugumu Godknows Brakiebou
Department of Agricultural
Extension and Rural Development,
Usmanu Danfodiyo University, Sokoto, Nigeria
douseifagumugumu@gmail.com +234 705 347 3481

Ango, Adamu Kamba
Department of Agricultural
Extension and Rural Development,
Usmanu Danfodiyo University, Sokoto, Nigeria
aakamba2@gmail.com +234 703 460 9855

Alhassan, Jazuli
Department of Crop Science,
Usmanu Danfodiyo University Sokoto, Sokoto State, Nigeria
jazulina@yahoo.com +234 806 581 8939

Submitted: 29th May, 2024
First Request for Revision: 30th May, 2024
Revisions: 29th June, 2024 & 1st September, 2024
Accepted: 22nd January, 2025
Published: 30 January 2025
Cite as: Yakubu D.H., Douseifa G.G.B., Ango A.K., and Alhassan J. (2025). Socioeconomic determinants of agricultural extension needs among yam farmers in Nasarawa State, Nigeria. *Journal of Agricultural Extension 29*(1) 126-132
Keywords: Socio-economic, determinants, information needs, yam farmers in Nigeria.
Conflict of interest: The authors hereby declare that there is no conflict of interest
Acknowledgments: The authors wish to appreciate the assistance of the enumerators used for the data collection.
Funding: This research received no specific grant from public, commercial, or not-for-profit funding agencies.
Authors' contributions:
YDH: Conception/design, development of data collection instrument, analysis, interpretation of data, revised manuscript (35%)
DGGB: Conception/design, data collection, interpretation of data, and first draft (25%)
AAK: Interpretation of data and first draft (20%)
AJ: Interpretation of data, revised manuscript and first draft (20%)

Abstract

This study assessed the socioeconomic determinants of agricultural extension needs among yam farmers in Nasarawa State, Nigeria. A multistage sampling procedure was used to select 295 farmers. Data were obtained with a questionnaire and analyzed using percentages and Multiple Linear Regression Model. Findings of the study revealed that the major extension needs of the farmers included information on time of planting (90.17%), spacing of tubers (98.64%), pests and diseases control (94.58%), how to source for credit (96.95%) and method of weed control (95.25%). The study also found that sex (co-efficient = 0.128), education (co-efficient = 0.203), extension contact (co-efficient = 0.315), and access to credit (co-efficient = 1.381) were significantly and positively related to the information needs of the yam farmers. Additionally, age (co-efficient = 0.017), farm size (co-efficient = 0.197), and annual income (co-efficient = 1.184; $p < 0.10$) were all significantly related to the information needs of the farmers. Socioeconomic variables are significant determinants of agricultural extension needs. Targeting extension services to specific groups of yam farmers

based on their socioeconomic characteristics, providing training and education on recommended yam production practices, and improving access to credit facilities.

Introduction

Agricultural development is one of the powerful tools capable of ending extreme poverty, boosting shared prosperity and feeding a projected 9.7 billion people by 2050 (World Bank, 2020). Agricultural extension is a common denominator for agricultural development, agribusiness development, functional value-chain and food security such that agricultural development outcomes are closely linked to the agricultural advice provided by the extension services (Oladele, 2021).

Agricultural extension services play a crucial role in improving the productivity and efficiency of smallholder farmers, including yam farmers in Nasarawa State, Nigeria. Smallholder farmers in Nigeria play an important role in the country's food security and economy, accounting for over 70% of the country's agricultural output (Adebayo et al., 2022). Extension services are essential for improving the productivity and efficiency of smallholder farmers, enabling them to adapt to changing agricultural conditions and technologies (Marenya et al., 2020).

Agricultural extension services are important for improving yam production by providing farmers with knowledge, skills, and technologies to enhance their productivity and efficiency (Kassie et al., 2020). In Nigeria, they serve in supporting the country's agricultural development goals, including increasing food security and promoting economic growth (Adebayo et al., 2022). Extension services are essential for improving the productivity and efficiency of smallholder farmers, including yam farmers (Kassie et al., 2020). Effective extension services can help yam farmers adopt improved farming practices, increase their yields, and improve their livelihoods (Marenya et al., 2020). However, the availability and effectiveness of extension services for yam farmers in Nigeria remain a concern (Ogunniyi et al., 2022).

Yam is a vital crop in Nigeria, contributing significantly to the country's food security and economy (Oyedeji et al., 2022). Nigeria accounts for over 70% of total yam production in West Africa (FAO, 2020). Despite its importance, yam farmers in Nigeria and Nasarawa State in particular face numerous challenges, including limited access to extension services, which hinders their ability to adopt improved farming practices and increase their productivity (Adebayo et al., 2022).
Understanding the socioeconomic determinants of yam farmers is crucial for developing targeted and effective extension programs that address the specific needs of yam farmers, ultimately improving their productivity and livelihoods. Hence, this study is designed to assess the socioeconomic determinants of information needs among yam farmers in Nasarawa State, Nigeria. The specific objectives were to:

- Identify the extension services delivered to yam farmers in the area; and
- Determine the effects of agricultural extension service needs on yield of yam.

Methodology

The study was carried out in Nasarawa State, Nigeria. Nasarawa State lies within latitude 8^0 32 -8^0 42' N and longitude 8^0 18- 8^0 25' E and occupies a land area of about 27,117 Km^2 with projected population of 2,761,013 (NBS, 2020). It is made up of thirteen Local Government Areas (LGAs).

Agriculture is the mainstay of its economy, with the production of various food and cash crops throughout the year. The state's agricultural sector is crucial to its economy, with crops like sesame, soybeans, groundnuts, millet, maize, and yam being major products (Nassarawa State Government, 2023).

Primary data for the study were obtained with the use of structured questionnaire. Multi–stage sampling procedure was employed in the selection of the respondents for the study. In the first stage, two (2) out of three (3) agricultural zones namely: Southern and Central Zones were purposively selected due to larger yam production activities in the zones. The second stage involved a purposive selection of 2 out of 4 LGAs in Central Zone. The LGAs are Akwanga and Nasarawa-Eggon. Similarly, 2 out of 5 LGAs were purposively selected in the Southern Zone. They are Doma and Keana. The Four LGAs were purposively selected because they are predominantly yam producing areas. In the third stage, 2 districts (Akwanga and Andaha)one district (Agwanshi) out of 5 from Doma LGA and one district (Aloshi) out of 4 from Keana LGA. This gives 5 districts for the study. At the fourth stage, there was a simple random selection of 10 villages from the selected districts. The fifth stage involved a simple random selection of 5% of the total number (5,890) yam farmers in the selected villages, given a sample size of 295 yam farmers.

Data obtained were analyzed using frequencies, percentages and Multiple Linear Regression Model. The Multiple Linear Regression Model was use to establish relationship between the socioeconomic determinants and extension service needs of the yam farmers. The model is specified as:

$Y= f(X_1\ X_2\ X_3\ X_4\ X_5\ X_6\ X_7\ X_8\ X_9\ X_{10}\ X_{11} +e)$;

Empirically specified as:

$$Y_i = B_0+B_1\ X_1+B_2\ X_2 + B_3\ X_3 + B_4\ X_4 \ldots\ldots\ldots B_{11}\ X_{11}+e$$

Where Y = Agricultural extension needs of yam farmers, measured based on the farmers' responses to the questions on 15 major recommended yam production practices involving land clearing, mound preparation, time of planting, spacing, fertilizer application, use of improved varieties, yam staking, pest and disease control, how to source for credit, processing of yam tubers, sorting of yam tubers, grading of yam tubers, transportation of yam tubers, method of storage and marketing. The responses to the questions were graded with 0 as the minimal and 15 as the maximum scores. Low scores of 0-4 (27% of the range) indicates high extension need = 1, medium score of 5-10 (33% of the range) indicates moderate extension need =2 and high score of 11-15 (40% of the range) indicates low extension need.; X_1= Sex,

measured as male = 1 or female = 2; X_2= Age measured in years; X_3= Marital status, measured as married =1, single = 2 divorced = 3, widow/widower = 4; X_4= Education, measured in the number of years of formal education; X_5= Major occupation, measured as farm =1, non-farm =2; X_6= Farm size, measured in hectares; X_7= Household size, measured in number of individuals in the household; X_8= Income, measured in Naira; X_9= Farming experience, measured in years; X_{10}= Extension contact, measured in the number of contacts with extension service providers the previous (2020) farming season; X_{11}= Access to credit, measured as the amount accessed as credit in Naira; and e = error term.

Results and Discussion

Agricultural Extension Needs of Yam Farmers

The major agricultural extension needs of the respondents included, spacing during planting (98.64%) and how to source for credit (96.95%) and control of pests and diseases (94.58%). Others were the time of planting (90.17%) and use of improved yam varieties (83.39%) (Table 1).

Table 1: Distribution of respondents according to agricultural extension needs

Variables	Percentage
Agricultural Extension Needs	
Land clearing	21.69
Mound preparation	34.23
Time of planting	90.17
Spacing	98.64
Fertilizer Application	45.42
Use of improved yam varieties	83.39
Staking	17.97
Pest and disease control	94.58
How to source for credit	96.95
Processing of yam tubers	20.68
Sorting of yam tubers	42.71
Grading of yam tubers	34.91
Transportation of yam tubers	31.19
Method of storage	37.97
Marketing of yam tubers	27.46

Source: Field Survey, 2021

This finding implies that though certain agricultural extension services have been delivered, yam farmers need full information on recommended yam production practices. For instance, knowledge of the time of planting tubers is essential for ensuring proper germination, growth, and yield (Akande et al., 2020; Oyedeji et al., 2022). Proper spacing is crucial for preventing overcrowding, reducing disease transmission, and promoting healthy growth (Adebayo et al., 2020; Ogunniyi et al.,

2022). Weeds if uncontrolled can compete with yams for water, nutrients, and light, leading to reduced yields and decreased quality (Kassie et al., 2020).
The farmers require information on improved yam varieties that are more resilient, productive, and adaptable to changing environmental conditions (Oyedeji et al., 2022). They also need assistance in managing pests and diseases that can significantly impact yam yields and quality (Kassie et al., 2020). The yam farmers require knowledge on how to access credit facilities to support their yam farming activities, such as purchasing inputs, equipment, and labour (Oyedeji et al., 2022).

Socioeconomic Determinants of Agricultural Extension Needs of Yam Farmers
The linear regression analysis reveals the socioeconomic determinants of agricultural extension needs among yam farmers in Nassarawa State, Nigeria. The adjusted R-squared value of 0.794 indicates that the model explains approximately 79.4% of the variation in agricultural extension needs among yam farmers. The results show that sex (t = 2.667), education (t = 4.229), extension contact (t =4.375), farm size (t = 2.402), annual income (t = 1.937), and access to credit (t = 6.026) were all significantly and positively related to agricultural extension needs among the yam farmers (Table 2). It implies that male yam farmers have a higher need for agricultural extension services compared to female yam farmers; yam farmers with higher levels of education have higher needs for agricultural extension services compared to those with lower levels of education; yam farmers who have had contact with extension agents have higher extension services needs compared to those who have not had contact and those who have access to credit facilities have higher needs compared to those who do not have access to credit.

Older yam farmers have higher needs for agricultural extension services compared to younger farmers; yam farmers with larger farm sizes have higher extension needs and those with higher annual incomes have higher needs for agricultural extension services compared to those with lower annual incomes.

Table 2: Socioeconomic determinants of agricultural extension needs of yam farmers

Variable	Co-efficient	Standard error	t-values
Constant	15.696***	.973	16.136*
Sex	0.128**	0.048	2.667*
Age	0.017 ns	0.022	0.788
Marital status	-0.014 ns	0.192	-0.072
Major occupation	0.010	0.207	0.047
Level of education	0.203***	0.048	4.229*
Farm size	0.197**	0.082	2.402*
Household size	0.061 ns	0.042	1.457
Farming experience	0.134 ns	0.418	0.320
Extension contact	0.315***	0.072	4.375*
Annual income	1.184*	0.092	1.937*
Access to credit	1.381***	0.229	6.026*
F-value	34.213		
R^2	0.896		
Adjusted R^2	0.794		

*P≤0.05

These findings are consistent with previous research that identified socioeconomic factors as significant determinants of agricultural extension needs (Adebayo et al., 2022; Kassie et al., 2020). The results highlight the importance of targeting extension services to specific groups of yam farmers based on their socioeconomic characteristics.

The positive association between education and agricultural extension needs suggests that more educated yam farmers are more likely to seek out extension services to improve their productivity and efficiency (Marenya et al., 2020). Similarly, the positive association between farm size and agricultural extension needs suggests that larger-scale yam farmers require more extension services to manage their farms effectively (Oyedeji et al., 2022).

The significant association between extension contact, and agricultural extension needs highlights the importance of extension agents in providing support to yam farmers (Adebayo et al., 2022). The positive association between access to credit and agricultural extension needs suggests that yam farmers who have access to credit facilities are more likely to seek out extension services to improve their productivity and efficiency (Kassie et al., 2020).

Conclusion and Recommendations

Although agricultural extension services have been delivered but yam farmers in Nasarawa State are in need of full information on recommended yam production practices. Their socioeconomic variables are significant determinants of their agricultural extension needs**.** The major information needs of yam farmers include time of planting, spacing, weed control, introduction to improved varieties, pest and disease control, and access to credit. Socioeconomic factors such as sex, education, extension contact, and access to credit are significant determinants of information needs among yam farmers.

Extension services should be targeted at specific groups of yam farmers based on their socioeconomic characteristics, such as education level and farm size. Yam farmers should be provided with training and sensitization on recommended yam production practices, by extension agents and other relevant organizations, including time of planting, spacing, and weed control. Extension agents should be deployed to rural areas to provide support to yam farmers, including introduction to improved varieties and pest and disease control. Credit facilities should be made available by agriculture funding agencies to yam farmers to support their farming activities, including purchasing inputs and equipment.

References

Adebayo, K., Ogunniyi, L. T., & Oladele, O. I. (2022). Assessment of Extension Services Delivery to Smallholder Farmers in Nigeria. *Journal of Agricultural Extension,* 26(1), 1-12.

Akande, K. E., Ogunniyi, L. T., & Oyedeji, K. A. (2020). Effects of planting date on yam (Dioscorea spp.) yield and quality in Nigeria. Journal of Root Crops, 46(1), 1-9.

Kassie, M., Teklewold, H., & Marenya, P. (2020). The role of extension services in improving
agricultural productivity: A systematic review. *Agricultural Systems,* 184, 102944.
Marenya, P., Kassie, M., & Teklewold, H. (2020). Extension services and agricultural productivity in
Africa: A review. *Journal of Agricultural Economics*, 71(2), 341-364.
Nassarawa State Government (2023). Retrieved on
https://en.wikipedia.org/wiki/Nasarawa_State
National Bureau of Statistics.(2020). Projection of State and Local Government Totals of the
2006 Population Census of the Federal Republic of Nigeria. Available at:
www.Nigeriastat.gov.ng.
Ogunniyi, L. T., Adebayo, K., & Oyedeji, K. A. (2022). Optimizing yam spacing for improved yield and quality in Nigeria. Journal of Root Crops, 48(1), 1-12.
Oladele, I. (2021). Sasakawa Africa Fund for Extension Education: A Review of Demand-Driven
Agricultural Extension Education in Nigeria. *Journal of Agricultural Extension*, 25(1):12-17
Oyedeji, K. A., Adebayo, K., & Ogunniyi, L. T. (2022). Yam production and productivity among
smallholder farmers in Nigeria: A review. *Journal of Root Crops*, 48(1), 1-15.