



## **EFFECTS OF SOCIO-ECONOMICS FACTORS ON THE ADOPTION OF IMPROVED MAIZE VARIETY IN KASHERE, GOMBE STATE, NIGERIA**

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### **ABSTRACT**

The study examined the effect of socio-economics factors on the adoption of improved maize variety in Kashere, Gombe State, Nigeria. A multistage sampling technique was used to obtain a sample size of 117 respondents for the study. Descriptive statistic was used for the analysis. The study made use of primary information sources from the respondents. The study found that majority of the respondents were in their active and productive years, 81.2% were male, while married respondents constitute 64.1% of the sample, with 48.7% of the respondents with secondary education. Majority (51%) of the sample population had farm size of less than 3 hectares. It was recommended that farmers in the study area should increase their farm size since larger farm holdings have the possibility of adopting improve technologies more.

**Keywords:** Adoption, Gombe State, Improved technology, Maize, Socio-economics.

### **INTRODUCTION**

Maize is one of the cereal crop grown and consumed across all agro ecological zones of Nigeria. It currently account for approximately 20% of domestic food production in west and central Africa. It has also achieved the highest growth rate of the major crops since the 1970's (Kamara, 2006). Despite the high yield potential of maize, its production is faced with numerous constraints. Studies (Babatunde *et al.*, 2008; and Kudi and Dewi, 2011) have shown that maize average yield is still low compared to its potential yield. Thus, enough maize has not been produced in Nigeria to meet the food and industrial need of Nigeria. The international institutes of tropical agriculture (IITA) have developed extra early maturing decreasing susceptibility to drought, disease tolerant and high yielding maize variety that has adapted for growth in West Africa. This entire positive attributes of improved maize varieties to end the long-lasting food shortage; stabilize rural income and lessening the risk of farming. The importance of maize cannot be overemphasized, with Nigeria producing 43% of maize grown in West Africa. Maize is the most important staple food in Nigeria. It account for about 43% of calorie intake (Nwake, 2007).

The importance of farmers of new agricultural technology has long been of interest to agricultural economist, extortionist and rural sociology. It is believed that an effective way to increase productivity is broad based on adoption of new farming technology (Inten and Barret, 2008). The adoption decision is divided into three: acceptance, actual adoption, and continued use. it is generally a multistage process undertaken most often sequentially and being influenced by a wide range of economic, social, physical, and technical aspect of farming (Paudel and Thapa, 2004).

The development of high yield maize seed varieties, their production, distribution, diffusion and adoption are of immense importance there is the need to explore more effective promotion strategies for maize seed technologies so that their adoption can be increased to meet the food security needs of the study area.



The major problem facing Kashere farmers is over dependent on locally sourced seed which is characterized by poor yield and inefficiency. Transformation of traditional farming system for increased food production calls for adoption of improved practices. Increasing agricultural productivity (maize) is critical to meet expected rising demand and, as such, it is instructive to examine recent performance in cases of modern agricultural technologies (Challa, 2013). Despite the availability of various improved maize seeds, it is noticed that some farmers refused to adopt this new technology in Kashere locality.

The conception of this study of the adoption of improved maize varieties is the dependent variable while the socio-economic characteristics (age, sex, marital status and education level), and farm size are the independent variables. The concept is that all things been equal, the men will adopt the improve varieties of maize more than the women; this is so because men have access to other farming resources than the women. Another reason why the men will adopt the improved maize varieties more than the women is in order for the to improve their production and in turn have more income to enable them take care of the responsibilities as bread winners of their families (Lavison, 2013). Maize farmers in the prime of their age tends to adopt new technology more compare to farmers that are too young or those that are too old, reason being that younger farmers have nothing at stake and no driving force to push them into adopting any new technology while the older farmers feels too old to take risk or gamble with the little resources they have.

It is believed that the higher the level of education of the maize farmers, the higher the possibility of the farmers adopting the new varieties of maize, this is so because it is believed that education increases farmers awareness and prepares them to adopt new technology compare to farmers with lower educational level. The research objectives were to: describe the socio economic characteristics of the respondents; and determine how the socio-economics characteristics of the respondent influence the adoption of improved maize varieties among farmers in Kashere.

## **MATERIALS AND METHODS**

### **The Study Area**

Kashere is located in Akko Local Government Area (LGA) of Gombe State. It lies between Latitude 10°17 N and longitude 11°and 09°E. The LGA is situated in the western part of the state (Gombe State Government, 2012). Kashere has a land form of three categories such as valley, plain land and hill. It also has a tropical climate which is marked by distinct rainy and dry season. The rainy season usually begin around April and ends in October with average annual rainfall of 850mm-1200mm, while the dry season starts from October to April. The rainfall is well distributed which favours a wide range of agricultural production. The maximum temperature ranges from 27°C to above 40°C with minimum temperature 12°C to 24°C. The harmattan period mostly lies around December and January when the north east trade from the Sahara desert moves southward. It is always windy and dusty as well as cold at night. Soil type ranges from clay loam to sandy loam. The major crops cultivated in the area are maize, millet, cowpea and rice.

### **Sampling Techniques**

A multistage sampling technique was used for this research. The first stage was random sampling to select 5 wards out of 20 wards within the study area, followed by purposive sampling to choose 10 units from the wards based on the population sizes, and the last stage was random sampling to select 125 farmers at 10% of the total population of maize farmers in



each ward as the sample size. A multistage sampling technique was used to obtain a sample size of 117 respondents for the study. Descriptive statistic was used for the analysis.

### **Analytical Techniques**

This study used quantitative method of data analysis. The Quantitative analysis was applied using descriptive statistics. The descriptive statistics such as frequency distribution, percentages, was used to analyses the socio-economic characteristics of the respondents.

## **RESULTS AND DISCUSSION**

The results in Table 1 reveals that 6% of the respondents were less than 20 years of age, 30.8% were between 21-30 years of age, 23.1% were between 31-40 years of age, 12.8% between 41-50 and 27.4% above 50 years of age. This shows that majority of the respondent are in there active and productivity years. Yahaya (2007) reported that farmers in the age range of 20-50 are the most active group in agricultural activities in Nigeria. The implication of this is greater involvement of the farmers in farming activities and the farmers are more likely to adopt improved maize varieties compared to the older people which are mostly laggard in adoption of innovation. The variation in the age of the respondents is an indication that the respondents have different views on the factors influencing the adoption of improved maize varieties in the study area. Previous studies have suggested that farmers in their active age are more receptive to new technology than the older Farmers (Nsabimana and Masabo, 2005).

The finding in Table 1 further shows that 18.8% of the respondents were female while 81.2% of the respondents were male. The results illustrated that there was a significant variation in the sex distribution among the respondents. This indicates that majority of the respondents are male, they will strive hard to increase their earning to care for their families hence they are prone to adopt improved maize varieties. This is also in line with the conclusions of (Mesfin, 2005; Omonona *et al.*, 2005; and Mignouna *et al.*, 2011) which said that sex affects technology adoption, since the head of the household is the primary decision maker and men have more access and control over vital production resources than women due to socio-cultural values and norms.

The research reveals that 64.1% of respondents were married, 18.8% were single, and 9.4% were widow/widower while 7.7% of the respondents were divorced. The study shows that married people constitute bulk of the respondents in the study area. This reveals that many are independent hence; the farmers are bound to adopt new innovation that will improve their yield, income and livelihood, to enable them to cater for their responsibilities.

The result in Table 1 also indicates that 32.5% of the respondents had primary education, 48.7% had secondary education while 17.1% of the respondents had tertiary education. Meanwhile 1.7% of the respondents had non-formal education. This indicates that majority of the respondents had secondary education therefore they should be able to read, write, understand and interpret information compared to the non- educated farmers. This is in agreement with Cotler (1990) who notes that education enables the individual to know how to seek for and apply information in day-to-day problem solving. Education is thought to reduce the amount of complexity perceived in a technology thereby increasing a technology's adoption. Also, 15.4% of the respondents had farm size less than 1hectare, 35.9% of the respondents had 1.1-3.0 hectare, 23.1% of respondents have 3.1-5.0 hectares, 12.8% have 5.1-10 hectares and 12.8% of the respondent had more than 10 hectare of land. This shows that majority of the farmers have moderately large farm size to make them adopt improved maize varieties compare to their counterpart who are small-scale farmers; this is because they are



commercial farmers and will always aim at improving their output in order to maximize profit. Farm size plays a critical role in adoption process of a new technology.

**Table 1:** Socio-economic Characteristics of the Respondents

Characteristics	Frequency	Percentage
<b>Age (years)</b>		
Less than 20	7	6.0
21 - 30	36	30.8
31- 40	27	23.1
41-50	15	12.8
Above 50	32	27.4
<b>Educational attainment (years)</b>		
Non formal education	46	30.7
Primary	73	48.7
Secondary school	22	14.6
Tertiary	9	6.0
<b>Sex</b>		
Male	95	81.2
female	22	18.2
<b>Marital Status</b>		
Married	75	64.1
Widow/Widower	11	9.4
Single	22	18.8
Divorced	9	7.7
<b>Farm size (hectare)</b>		
Less than 1	18	15.4
1.1-3.0	42	35.9
3.1-5.0	27	23.1
5.1-10	15	12.8
Above 10	15	12.8
<b>Total</b>	<b>117</b>	<b>100</b>

Source: Field survey, 2018

**Adoption of Improved Maize Varieties**

The results of Table 2 reveals that 34.2.8% of the respondent had not adopted improved maize varieties, while 65.8% adopted improved maize varieties. This implies that there is relatively high rate of adoption of improved maize varieties in the study area. This could be due to the fact that majority of the farmers are married men in their active age, hence the drive to adopt the improved maize varieties in order to improve the production and maximize profit.

**Table 2:** Distribution of the Respondents by Adoption of Improved Maize Varieties

Adoption	Frequency	Percentage
Yes	78.8	65.8
No	40.2	34.2
<b>Total</b>	<b>119</b>	<b>100</b>

Source: Field survey, 2018



## CONCLUSION AND RECOMMENDATIONS

It was found out that majority of the respondents were in their active and productivity years, 81.2% were male, while married respondents constitute 64.1% of the sample. Since majority of the respondents are male and are married they will strive hard to increase their earning to care for their families therefore they easily adopt improved maize varieties than the female. About 49% of the respondents had secondary education. Majority (51%) had farm size of less than 3 hectares. It was recommended that farmers in the study area should increase their farm size since farmers with larger farm holdings have the possibility of adopting improved technologies more.

## REFERENCES

- Babatunde, T., Adesina, A. A. and Baidu-Forson, J. (2008). Farmers' perceptions and adoption of new agricultural technology: Evidence from analysis in Burkina Faso and Guinea, West Africa, *Agricultural Economics*, **13**: 1-9.
- Challa, M. (2013). *Determining Factors and impacts of Modern Agriculture Technology Adoption in West Wollega*, Munich, GRIN Publishing GmbH.
- Cotler, D. (1990). The effects of education on far productivity, in Kieth Griffin and John Knight, eds., *Human Development and the international Development Strategy for the 1990s*. London: MacMillan from analysis in Burkina Faso and Guinea, West Africa. *Agricultural Economics*, **13**: 1-9.
- Gombe State Government History [GSGH] (2012). www.gombestategov.ng
- Kamara, S. (2006) —Exports and Growth: Critical minimum effort and diminishing returns. *Journal of Development Economics*, **3**: 391-400.
- Kudi, K. and Dewi, A. (2011). Analysis of Factors Affecting Adoption of Integrated Crop Management Farmer Field School (Icm-Ffs) in Swampy Areas. *International Journal of Food and Agricultural Economics*, **1**(2): 29-38.
- Lavison, R. (2013). *Factors Influencing the Adoption of Organic Fertilizers in Vegetable production in Accra*. M.Sc. Thesis, Accra Ghana.
- Mesfin, A. (2005). *Analysis of factors Influencing Adoption of Triticale and its Impact. The Case Far*. Unpublished Presented to School of Graduate Studies of Alemaya University.
- Mignouna, B., Manyong, M., Rusike, J., Mutabazi, S. and Senkondo, M. (2011). Determinants of Adopting Imazapyr-Resistant Maize Technology and its Impact on Household Income in Western Kenya: *AgBioforum*, **14**(3): 158-163.
- Hall, B. and Khan, B. (2002) Adoption of new technology. *New Economy Handbook*.
- Nsabimana, J. D. and Masabo, F. (2005). *Factors influencing Adoption of Agricultural Technologies in Kiruhura district of Rwanda*. African Crop Science Conference Proceedings, Pp. 759-760.
- Nwake, E. L. (2007). *The adoption and impact of improved maize and land management Technologies in Uganda*.
- Omonona, B., Oni, O. and Uwagboe, O. (2005). Adoption of improved Cassava varieties and its impact on Rural Farming Households in Edo State, Nigerian. *Journal of Agriculture and Food Information*, **7**(1): 40-45
- Paudel, L. and Thapa, J. (2004). Justification for Participator Assistance. *Journal of Extension*, **37**(4): 51-56. ISSN 1077-5315.
- Yahaya, J. O. A. (2007). *Commercialisation of public sector irrigation as it affects River Basin Development*. A paper presented at National seminar on sustainable irrigation development in Nigeria in the 21st Century held on the 2-6 July, at Giginya Hotel, Sokoto.