International Scholars Journals

African Journal of Agricultural Economics and Rural Development ISSN 2375-0693 Vol. 7 (1), pp. 659-664, January, 2019. Available online at www.internationalscholarsjournals.org © International Scholars Journals

Full Length Research Paper

Effects of socio-economic factors on the adoption of Ginger production in Nigeria

Ahmed Yusuf[1], Lukman Galadima[2] and Ibrahim Saleh[3]

[1]Faculty of Agriculture, Kaduna State University, Kaduna
[2]Faculty of Agriculture, Abubakar Tafawa Balewa University, Bauchi
[3]Faculty of Agriculture, Bayero University, Kano

Accepted 11 December, 2018

The study examined the effect of socio-economic factors on the adoption of ginger (*Zingiber officinal*) production technologies in Southern Kaduna State of Nigeria. 200 respondents were randomly selected for this study. Data were collected by means of questionnaires and analyzed using descriptive and inferential statistics. The result revealed that the average age of the respondents was 35.5 years, household size was 10 persons, farm size was 2.55 ha and years of farming experience constituted 15.5 years. The result also revealed that 62.70% of the respondents were married and 84.00% attained one form of education or the other. The result also revealed that educational level and scale of farming influenced the adoption of ginger farming innovations at P ≤ 0.05. It was concluded that the level of education attained by a farmer and his/her scale of farming ease the farmers' ability to adopt improved ginger farming innovation hence a higher productivity level. It was recommended that extension agents should gear their effort towards adequate technology transfer to farmers and adequate provision of agricultural credit facilities and farm inputs to farmers at low interest rates and prices to enhance the adoption of farming technologies to boost their production capacities.

Key words: Ginger, adoption, socio-economic, tafin giwa, yatsun biri

INTRODUCTION

It is an established fact that agricultural production as currently practice under traditional methods has not been able to sustain Nigeria. According to the National Population Commission (NPC, 2006), Nigeria has a population of 140,033,542 and a total land area of 92,400 Km^2. It is a pointer for an increased demand for food and industrial raw materials. This situation according to Banwo (1989) has generated a lot of prepositions each aimed at arresting these problems which border on transformation from the present small holder farming system to increase efficiency of input use and output performance in the farm sector. Others believe that the present farming is inadequate but only requires the introduction of modern farm inputs such as fertilizers, herbicides, insecticides, crop processing/storage measures and good farm management to introduce

*Corresponding author. E-mail: ahmedyusuf@yahoo.com.

dynamism into the system.

Ginger (*Zingiber officinale*) is a rhizome, which consist of numerous short finger-like structures or branches born horizontally near the surface of the soil. Two commercial varieties are commonly cultivated in Nigeria. The yellow ginger variety (UG 1) locally called “Tafin Giwa” with a bold yellow rhizome flesh is stout with short internodes. The black ginger variety (UG 2) locally called “Yatsun Biri” with a dull-grey colour rhizome. The yellow variety is more popular than the black variety apparently due to its high yielding capacity and pungency (Kure, 2007). Ginger is produced in several parts of Nigeria particularly in the Guinea Savanna Zone (southern part of Kaduna State) and to a little extent in Keffi and Akwanga Local Government Areas of Nasarawa State (Dauda and Waziri, 2006).

Ginger is an important and widely grown spice of the over 90 species of perennial rhizomatous herbs. The dried rhizomes which may be scrapped or peeled before drying constitute the spice that is esteemed for its flower, pungency and aroma. It is a strengthening food that has long been used to maintain health with a long history of both culinary and medicinal use in Chinese, Japanese and Indian medicines. In ancient China, ginger was regarded as a healing gift from God as was commonly used to cleanse and warmed the body (Lawal, 2007). Ginger offers a substantial protection from stroke and heart attack because of its ability to prevent blood clotting and also a multifaceted herb, crucial in the battle against cardiovascular diseases such as bowels and kidney diseases, respiratory system, colds and flue, headache, pains, stomach upsets and as well helps to clear sore throats. It is a plant rich in many phonetic compounds hence the spicy aroma, taste, fragrance and therapeutic effects as all the roots, rhizomes and barks are naturally high plant based chemicals believed to posses anti-bacterial, anti viral and anti- fungal agents that protects the plant from natural flora in the land, and from the ancient times, ginger has been an important article in the middle East. Ginger is an aromatic spicy-swollen rhizome often dried and grounded to a yellow powder and widely used as a flavor in biscuits, cake, cookies or preserved in syrups. Other uses according to her include (1) culinary uses such as stems pepper soups etc. (2) Medicinal/Therapeutic uses such as ginger/lime/honey anti-material and anti-typhoid fever potion, ginger/garlic anti-hypertension tea etc (Mefoh, 2006). Ginger is used in the control of atherosclerosis in rabbits and nausea and vomiting and has confectionary and beverages uses as well used as ginger ale, ginger beer, meat flavouring and tendering, Diary product and Livestock feeds. Ginger waste meal has also shown promise of being an alternative energy substitute for maize in the diet of growing rabbits, therefore ginger is an economic crop yet to be exploited (Verma et al., 2004). It has been confirmed that ginger has a long standing potent tendencies that carry medicinal or therapeutic remedies as a result of its biological active components which includes: aids digestion and absorption of food components into our bodies, boost the immune system, reduce cholesterol, warms the body and liberates stagnant body fluids, reduce blood pressure, ensures easy and normal menstrual flow, helps in the control of flue and influenza, re-awakens the body system and takes away stress (Yakubu, 2007).

In Nigeria, farmers operate in a subsistence economy with use of local technology. As a result, there is little or no surpluses for export market. This entails a little change of the economic behavior of the farmer, his social relationships and local knowledge with little commercialization. Therefore improving ginger production by farmers from subsistence to commercial production is long overdue as these resource poor farmers are faced with production and post production challenges ranging from non use of improved varieties, manual land preparation, inadequate inputs, local processing techniques, inadequate credit/capital, etc which often results in low production/ha and poor ginger quality.

It is against this background that, this study sought to provide answers to the following research questions:

1. What are the socio-economic characteristics of the ginger farmers?
2. What is the level of awareness of the production technologies?
3. What are the effects of socio-economic factors on the adoption of Ginger production?
4. What are the constraints of farmers to adoption of Ginger production?

METHODOLOGY

The study area was Southern Kaduna State of Nigeria located in the Guinea savannah region of Nigeria. The southern Kaduna is made up of eleven (11) Local Government Areas, Chikun, Jaba, Jema’a, Kachia, Kagarko, Kajuru, Kaura, Kauru, Lere, Sanga and Zangon Kataf Local Government Areas with a population of 2,587,898 people representing 42.66% of the state population (NPC 2006).

The climate is predominantly tropical with two distinct seasons (dry and wet seasons). The rainy season starts from April to October with August and September as the wettest months having an annual average temperature of 23-28°C. The Southern Kaduna State is predominantly agricultural with over 75 percent of the active population engaged in farming as their primary occupation (Shamah, 2009). The major cash crop is ginger where commercial quantities (1,728.930 Metric tons) are produced annually with Jaba, Jema’a, Kachia, Kagarko and Zangon Kataf Local Government Areas as the major areas of production (Kaduna State Perspective, 2009).

Sampling technique and sample size

A simple random sampling technique was employed to select five Local Government Areas out of the eleven Local Government Areas due to their intensity of ginger cultivation. Fourty (40) ginger farmers were purposively selected from each of the selected Local Government Areas with the help of trained field enumerators which brought the total sample size to two hundred (200) respondents.

Source of data

Primary and secondary data were used for the study. The primary data were collected from selected ginger farmers with the aid of structured questionnaires. The questionnaires were designed to capture variables such as age, sex, marital status, occupation, household size, educational attainment, scale of farming, land ownership, extension contact, membership of association, etc.

The secondary data were collected from records kept by field extension workers of the Kaduna State Agricultural Development Programme (ADP) Samaru zone serving in these local Government Areas and other sources such as textbooks, journals, bulletins, magazines and other documentation.

Analytical tools

Descriptive statistics such as frequency, percentage, mean and ranking were used to analyze the socio-economic and constraints of respondents while Chi-square analysis of test of relationship was used to determine the relationship between farmers' socio-economic factors and adoption of ginger production technologies.

RESULTS AND DISCUSSION

The socio-economic variables examined were age, gender, marital status, level of education, occupation, household size, farm size and farming experience while the institutional variables were sources of money for ginger farming, membership of ginger farmers association, extension awareness, extension agents' visit and sources of information.

Table 1 show that the mean age of the respondent was 35.5 years. 45.00% 0f the respondents were within the age bracket of between 31 and 40 years with ginger production years of experience (1 to 20 years) constituting 59.50%. These categories of farmers could be considered to be the economically active population as the age and experience of a farmer dictates and affects the type of farming he/she could positively engaged as reported by Food and Agricultural Organization (FAO,1992). This implies that farmers within this age bracket and years of experience are less caution of undertaking new risk, thus implore and adopt new method in order to enhance their willingness and eagerness to economic position.

The result also indicates that more than half (63.00%) of the respondents were males. This suggest that most of the ginger farm work are undertaken by men in the study area, as ginger production is labour demanding more so that most of the operations are manually done at this level. This agrees with the claims of Ojo and Jibowo (2008) who in their study revealed that leadership roles visa- vise decision making are dominated by the men folk.

The result further shows that 57.00% of the respondents were married, 22.50% widowed and 13.00% and 7.50% were single and divorced respectively. The result agrees with Ojo and Jibowo (2008) who reported that married people being responsible, their views are likely to be respected within rural communities as they take decision on the use of agricultural inputs.

Table 1 revealed that about 83.00% of the respondents acquired one form of education or the other. This findings share a common view with Abdullahi and Abdullahi (2011) work who reported that western education facilitates the adoption of modern technologies and improved farm practices. The implication of the result is that the more educated a farmer is, the greater his/her chances of accessing the readily available modern farming technologies and improved practices. Majority (62.50%)of the respondents were fully engaged in farming as their primary occupation while 44.00% of the respondents had a household size ranging from 6 to 10 people with a mean household size of 13 persons. The result find relevance with Orojobi and Damisa (2007), who in their study asserted that household size is crucial to traditional agriculture where the main source of labour is the family in developing countries particularly Nigeria.

Table 1 further revealed that majority (46.50%) of the respondents had farm size ranging from 0.1 to 1.0 ha. This finding agrees with the findings of Sanders (1995) who reported that adoption of innovation is a function of appropriate farm size.

On the level of awareness as presented on Table 2, use of improved variety, use of organic manure and use of herbicide to control weeds were highest (100.00%) and ranked 1^{st} while the use of improved ginger variety recorded the highest (98.00% 1^{st}) rate of adoption followed by use of organic manure and use of broadleaves for mulching (89.00% 2^{nd} and 88.00% 3^{rd} respectively). The findings implies that not all farmers are aware of the of the entire innovations hence low adoption rate.

Results of Chi-square analysis on the relationship between the socio-economic characteristics of ginger farmers and adoption of ginger production technologies

Table 1. Distribution of respondents according to their socio-economic characteristics (N=200).

Variables	Frequency	Percentage	Mean ($\overline{X}$)
Age (years)			
Below 20	16	8.00	
21-30	48	24.00	
31-40	90	45.00	35.50
41-50	24	12.00	
51 and above	22	11.00	
Gender (male/female)			
Male	126	63.00	
Female	74	37.00	
Marital Status			
Married	114	57.00	
Single	26	13.00	
Widowed	45	22.50	
Divorced	15	7.50	
Educational Level			
Never been to school	34	17.00	
Qurrannic/Adult Education	25	12.50	
Primary Education	18	9.00	
Secondary Education	65	32.50	
Tertiary Education	58	29.00	
Occupation			
Farming	125	62.50	
Civil Servant	45	22.50	
Others	30	15.00	
House Hold Size			
1-5	30	15.00	
6-10	88	44.00	
11-15	50	25.00	13
16-20	17	8.50	
21 and above	15	7.50	
Farm Size (Ha)			
0.1-1.0	93	46.50	
1.1-2.0	45	22.50	
2.1-3.0	25	12.50	2.55
3.1-4.0	20	10.00	
4.1 and above	17	8.50	
Farming Exp (years)			
1-10	48	24.00	
11-20	71	35.50	
21-30	39	19.50	25.50
31-40	22	11.00	
41 and above	20	10.00	
Total	200	100.00	

Source: Field survey (2012).

Table 2. Distribution of respondents according to level of Awareness and Rate of Adoption of Technologies.

Technologies	Awareness	Rank	Adoption	Rank
Site Selection	78	6th	18	10th
Land Preparation	56	8th	56	6th
Improved Variety	100	1st	98	1st
Timely Planting	18	10th	24	9th
Use of grass mulch	49	9th	74	5th
Use of broad leaves mulch	95	5th	88	3rd
Spacing	67	7th	38	8th
Use of organic manure	100	1st	89	2nd
Use of in-organic manure	98	4th	76	4th
Use of herbicide	100	1st	48	7th

Source: Field Survey (2012). Multiple responses.

Table 3. Relationship between socio-economic variables and adoption of ginger production technologies (N=200).

Variable	X^2cal	X^2tab	Df	Level of Sig.	Decision
Educational level	25.81	12.6	6	0.05	S
Farming experience	29.24	31.4	20	0.05	NS
Farm size	45.05	26.3	16	0.05	S
Income level	38.70	24.9	15	0.05	S
Family size	24.78	16.9	9	0.05	S
Age	18.47	24.9	15	0.05	NS
Membership of org.	42.36	21.0	12	0.05	S

S=Significant @ P≤ 0.05. NS=Not Significant @ P ≤ 0.05.

Table 4. Constraints to Adoption of Ginger production technologies (N=200).

Constraints	Frequency	Percentage (%)	Rank
Inadequate credit/capital	75	37.50	1st
Poor ginger prices	61	30.50	2nd
Farmers conservatism	45	22.50	3rd
Inadequate farm input	33	16.50	4th
Poor extension service	29	14.50	5th
Inadequate labour	25	12.50	6th
Inadequate information	23	11.50	7th
High level of illiteracy	18	9.00	8th
Farm size(ha)	13	6.50	9th
Others	11	5.50	10th

Source: Field Survey (2012). Multiple responses.

as shown on Table 3 revealed that age and years of farming reveal no significant relationship at 0.05 with the adoption of ginger farming techniques while educational level, farm size, income level, family size and membership of association indicated positive relationships. This finding relate with Voh (1984) findings, where a positive relationship between level of education and adoption of farming technologies was recorded. Table 4 shows respondents constraints to adoption of ginger production technologies as inadequate credit/capital (37.50% 1st), poor ginger prices (30.50% 2nd) and farmers conservatism (22.50% 3rd). This finding is supported by Ajakaiye (1998) and Onazi (1973) who observed that the Nigerian farmer needs credit especially

for their farm product due to the vicious circle of poverty, low productivity resulting to low farm income levels with virtually no savings for investment in the transformation of their production technology and farmers reluctance to let go their old ways and unfavorable product prices in the market.

CONCLUSION AND RECOMMENDATION

The findings revealed that some socio-economic factors such as level of education, farm size, income level, family size and membership of organization have significant influence on the farmers decision to adopt agricultural technologies. The males dominated ginger farming, mostly educated, well experience in ginger farming and at the productive age bracket of 31 to 40 years. The farmers operate small farm holdings mostly 0.5 to 1.0 ha. Despite the high degree of awareness of the ginger production package, farmers strict adherence to traditional ginger farming practices resulted in low output. It was recommended that Extension agents should gear more effort towards adequate technology transfer to farmers by setting more demonstration plots and adequate organization of farmers' field days with training for farmers. Extension visits should be intensify and timely.

Government to adequately provide of agricultural credits and farm inputs to farmers at low interest rates and prices to enhance the adoption of farming technologies to boost farmers' production capacities.

REFERENCES

Abdullahi AN, Abdullahi I (2012). Cowpea Marketing in Isa Local Government Area of Sokoto State, Nigeria. Nig. J. Farm Manag (Formerly FAMAN Journal)..13(**1**)80

Ajakaiye, M. B. (1998) Financing Agricultural Programmes in Nigeria: Role of the Nigerian Agricultural Cooperative Bank Limited. **In**: Okorie, A. and Ijere, M. O. Readings in Agricultural Finance. Longman, Lagos, Nigerian Pp. 32.

Banwo PA (1989) Impact of Technical Training on Traditional Farmers Adoption of Appropriate Technology. J. Nig. Institute Soc. Econ. Res., **6** (1):99

Dauda GK, Waziri MS (2006). Processing ginger into drinks and spices. Gidan Waya J. Voc. Tech. Educ., 6 (1): 211-219.

Food and Agricultural Organization (FAO, 1992). Farm Management Research for Small Farmer Development. Food and Agricultural Organization of United Nations, Rome, pp. 10-18.

Kaduna State in Perspective, (2009) Estimated Annual crop Production in Kaduna State, 2009 updated: Haro Print Nigeria Ltd, Kaduna State. Pp. 92

Kure ST (2007). The Prospects of Ginger Production in Jaba Local Government Area Kaduna State, Nigeria. Unpublished HND Project, College of Agriculture, DAC/ABU Zaria.

Lawal AM (2007). Marketing Outlets and Strategies for Marketing the Nigerian Ginger: Proceeding of the National Workshop on Ginger Promotion, Processing, Utilization and Marketing in Nigeria. Held on the 12th - 17th November, 2007 at the Kaduna State Agricultural Development Programmer (KADP) Skill Development Centre, Kafanchan, Kaduna State. Pp. 11-15.

Mefoh NC (2006) Modern Methods of Ginger Production and Processing for Local Industries and Exports: *A* paper presented During a 3-days National Workshop on Massive Cassava and Ginger Production and processing for Local Industries and Exports. Pp. 1-4.

National Population Commission(NPC, 2006) Federal Republic of Nigeria. Official Gazette. No. 24, : 94.

Ojo MA, sJibowa AA (2008) Socio-economic Characteristics Influencing Role Performance of Rural Community Power Actors in Agricultural Extension Delivery System in Osun State, Nigeria: J. Agric. Rural Dev., 2: 27-40. Swaziland Printing and Publishing Company Limited Mbabane, H100 Swaziland.

Onazi OC (1973) Comparative Analysis of the Training Needs of Potential Agricultural Extension Workers and Principal Problems of Extension in the Northern States of Nigeria. An Unpublished Ph.D. Dissertation, Kansas State University, Manhattan, Kansas.

Orojobi JO, Damisa MA (2007). Assessment of Agrochemical Input Application on Smallholder Farms in Kaduna State Nigeria. Nig. J. Rural Econ. Soc., 456-61.

Sanders J, Shapiro B, Ramaswamy S. (1995). The Economics of Agricultural Technology in Semi-Arid Sub- Saharan Africa. Baltimore, Maryland. USA, Johns Hopkins University Press. Pp. 27-36

Shamah, J. L. (2009) Boosting Agriculture: A fresh Approach in Kaduna State. Newscope: A publication of Kaduna State Government.20, pp. 70.

Verman SKO, Sighn Jain, Borchia MP (2004) "Protective effect of Ginger (*Zingiber officinale Rose*) on Experimental Biology **4**; 736-738.

Voh JP (1984) Farm Technology Adoption Among Farmers in Gusau Agricultural Development Project Villages. J. Issues in Dev., 1:26-32

Yakubu Y (2007). Briefs on Ginger Processing: Proceeding of the National Workshop on Ginger Promotion, Processing, Utilization and Marketing in Nigeria. Held on the 12th -17th November, 2007 at the Kaduna State Agricultural Development Programme(KADP) Skill Development Center, Kafanchan, Kaduna State. pp. 30-32.