GENDER ANALYSIS OF INVOLVEMENT IN GINGER PRODUCTION AMONG FARMERS IN ABIA AND IMO STATES, NIGERIA

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ABSTRACT

This study investigated the level of involvement of male and female farmers in ginger production in Abia and Imo States, Nigeria. Multi-stage sampling technique was used to select 60 ginger farmers for the study. Interview schedule with structured questionnaire were used to elicit information on involvement of male and female farmers in ginger production from the respondents. Data obtained were analysed with descriptive and inferential statistical tools such as frequency counts and percentages while Pearson Chi-square and logit regression model were used to test involvement and factors influencing ginger production in the area respectively. The result indicated that majority (65%) of the respondents were male while 35% were female. The result also revealed that area of ginger cultivated is significant at (P=0.10). Decision on use of labour, inputs and participation in farm operations were significant at (P=0.01) level of probability each. This infers also that there is significant difference between men involvement in ginger production than women. It was also discovered that farming experience and farm operations were significant at (P=0.05) and (P=0.025) levels respectively. The study therefore recommended that research institutes and other input agencies should advance their training on the best agronomic practices in ginger production for increased yield in the study area..

Keywords : Gender, Involvement and Ginger Production

Introduction

Ginger (*Zingiber officinale*)) is an important and widely grown spice of over 90 species of perennial rhizomatous herbs. It is a root crop and a typical herb extensively grown across the world for its pungent aromatic under-ground stem or rhizome which makes it an important export commodity in world trade (NEPC1999; Erinle 1989; Ajibade & Dauda 2005). It is a spice grown across many climates in the world. In the world market, the current major five exporting countries have been China, Nigeria, India, Jamaica, and Brazil Asumugha (2003) 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). In recent times, ginger cultivation

has been introduced into south eastern and south western agricultural zones of Nigeria. Ginger is produced now in Abia, Anambra, Cross River, Ebonyi and Imo. Nigeria produces an average of 50,000 metric tonnes of fresh weight ginger per annum (Ezeagu, 2006). About 10% of the produce is consumed locally as fresh ginger while the remaining 90% is dried for both local consumption and export. According to Ezeagu (2006) 20% of the dried ginger is consumed locally for various uses and 80% is exported. Traditionally, ginger is used in Nigeria for both medicinal and culinary (kitchen) purposes as well as in confectionery industry. Ginger throughout the world is used as a spice or fresh herb in cooking and a range of other value added products including flavoring in candies, beverages (Bala,2006). In both modern and

traditional medicine, Ginger has been used in treating health problems such as Nausea in pregnancy, Motion sickness, prevention of Diabetes, cold/flu prevention and treatment, menstrual cramp relief, digestive problems, fights ovarian cancer, Migraine relief. It also serves as Antibiotics. The oil property in Ginger can help relief arthritis due to its Anti-inflammatory properties. The plant has fibrous roots that emerge from the branches rhizomes. It takes about 6 weeks for shoots to emerge after ginger has been planted (Bala,2006). Vegetative growth is maximized until flowering begins in September – October flowering marks the beginning of rhizomes maturity and increasing fibrous tissue development (Valenzuela *et al.,* 2005). According to the United Nations Food and Agriculture Organization (FAO, 2004), there are two major varieties of ginger grown in Nigeria which differ in the colour of their rhizomes namely, the reddish and yellow varieties. The yellow variety appears to be widely planted than the reddish variety. According to Chukwu and Emehuite (2003), the various cultivars available include UG1, UG2 and Maran. The UG1 (locally called Tafingiwa meaning elephant's foot type) yield higher than UG2 (Yatsunbiri meaning monkey's finger type) which was reported to be more pungent. Ginger is usually cultivated vegetative through its rhizome. In southern Kaduna where ginger is extensively grown in Nigeria, beds are preferred for rain fed ginger production while planting on ridges is recommended for irrigated ginger. (NAERLS, 2004) recommended that rhizome for planting be cut into small pieces, each having at least 2 good buds or growing points and weigh 5 - 10 g. The recommended planting depth is 4 - 5 cm and distance of 20 by 20 cm to give a plant population of 250,000/ ha. It is expected that ginger should be planted early, March/April in the rainforest zone and April/May in the savannah zone of Nigeria to have enough rain for its 7 - 8 months of field life (NAERLS, 2004).

In most societies, men and women have distinct roles within the farming system. Men perform major role in physical activities like land clearing and tilling, while women major roles were in planting and marketing with almost equal task in weeding operations. In ginger production, men and women play different roles, have different needs and face different challenges in Abia and Imo states. According to Mohammed and Abdulquadri (2012) activities such as bush clearing, land preparation, felling of trees, planting of certain crops, hunting, fishing, tending of pasture and care of domestic animals traditionally are often performed by men; whereas, women grow certain crops traditionally, they are also responsible for hoeing, weeding, harvesting, transportation of harvest from farms to their homes, processing, preservation and marketing of crops. They also participate in the care of domestic animals. Review of literatures indicated increase information on ginger production but there seems to be an information gap on the level of involvement of gender in the production of the crop, that is what necessitated this study. The objectives of this study are to assess the levels of involvement of male and female respondents in ginger production in Abia and Imo states and to examine factors influencing production of ginger on gender basis.

Methodology
Multi stage sampling techniques was used for the study. In the first stage, one local government area each was selected from two ginger producing states, Abia and Imo states namely Isialangwa south from Abia and Ngor-okpala from Imo state because of the prevalence of more ginger farmers in the areas. In the second stage, four communities from Abia state that are noted for ginger production were purposively selected. They are isieketa, Uvokwu, Ngwobi and Umuojima efere. Two communities in Imo namely Nnorie and Logara were also purposively selected. Four communities were purposively selected in Abia state unlike two in Imo state because of the predominance of more ginger farmers in Abia state. In the third stage, 10 ginger farmers were randomly selected from the six communities, of the two states, making a total of sixty ginger farmers selected for the study. Data were collected with the use of structured questionnaire and interview schedule. Analysis of data was done using descriptive and inferential statistics.

Data Collection and Analysis
Data were collected on socio-economics characteristics of farmers, factors influencing ginger production through the use of structured questionnaire and interview schedule. Analysis of data was done using descriptive, Pearson chi-

square test and logit regression model analysis from the SPSS

Pearson Chi-square is expressed as

$$X^2 = \sum \frac{(O\text{-}E)^2}{E}$$

$\sum$ = Summation
O = Observed frequency
E = Expected frequency

Contingency coefficient C is given as

$$C = \sqrt{X2/(N + X2)}$$

Where C = Contingency coefficient
X^2 = Chi-square
N = Ground total of Cases.

Logit Regression Model
The logit of a number p between 0 and 1 is given by the formula

$$P = \frac{p_i}{1-p_i} = \log\left(\frac{p_i}{1-p_i}\right) = \log(p_i) - \log(1-p).$$

The model is expressed implicitly as

$Y=F(X_1,X_2,X_3,X_4,X_5,X_6,X_7,X_8,X_9,X_{10},X_{11})$

Explicitly the model is specified as

$Y(Involvement)=b0+b_1X_1+b_2X_2+b_3X_3+b_4X_4+b_5X_5+b_6X_6+b_7X_7+b_8X_8+b_9X_9+b_{10}X_{10}+b_{11}X_{11}+U$

Where,
Y (Involvement) = (1 for involve, 0 otherwise)
X_1: Household size (Number of people feeding from the same pot)
X_2: Level of Education (years of formal schooling)
X_3: Farming experience (years)
X_4: Area cultivated (hectares)
X_5: Women ownership of land
X_6: Decision on input use
X_7: Contact with Organisations
X_8: Access to loan
X_9: Farm Operations
X_{10}: Gender Factors
X_{11}: Decision on Labour
Nagalkelke R^2
-2loglikelihood
Where:
Y & X_1−X_{11} as defined above.
b_0 = constant
b_1 −b_{11} = coefficient to be estimated.
U: Error term.

Results and Discussion
The result in Table 1 revealed that majority (60%) of the farmers were still in their productive age between the ages of 31-50 years with mean age of 35.5 years. This implies that ginger farming in Abia state and Imo state were mostly carried out by young people. This agrees with (Adesina, 2003) who reported that to enhance agricultural productivity, farming in Nigeria should comprise mostly youths. The result further indicated that majority (65%) of the respondents were male while 35% were females. This implies that ginger farming in the study area is dominated by men. This agrees with the findings of Shehu, Ayuba, Mohammed and Anna (2013) who opined that most of the ginger farm works 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. The findings also showed that most of the respondents were educated up to secondary level. They constituted 46.7%. About 26% had primary education while 25% had tertiary education. This implies that farmers in the study area were educated. With more education, they are expected to access information on innovations that will enhance productivity. About 45% of the respondents had farming experience of 1-10 years, 31.7% had between 16 -20 years of experience while 18.3% had 11- 15years of farming experience. The mean years of farming experience was 10.5 years. The level of farming experience among farmers in Abia and Imo states are expected to have a positive influence on the farm. Result of the analysis indicated that 48.3% of the respondents had household size of between 1-5 persons, 45% had 6-10 persons. The average household size was 8 persons. Large household size is expected to have positive effect on supply of cheap labour. Efiong (2005) reported that relatively large household size enhances the availability of labour. The study also found out that majority (85%) of the respondents was married while 15% were single. This implies that ginger production in the study area was dominated by married people.

Table 2 showed Pearson chi-square test of Involvement of male and female respondents in ginger production in the study area. The result revealed that Area of ginger cultivated by male and female farmer is significantly different at 10% level of probability which implies that there is significant difference between men involvement in ginger production than women. Men involvement in ginger farming is higher than female. Also decision on use of labour, and other input and participation in farm operation were significantly different at 1% level of probability

each in favour of male farmers. This infers also that there is significant difference between men involvement in ginger production than women. This finding may be explained with the reasoning, that probably the cost of rhizome seed and other inputs for ginger production per hectare is higher than other crops cultivated in the areas, thereby making it difficult for women to acquire sufficient quantities for production due to lack of funding.

Table 3 shows the logit estimates of the factors influencing ginger production. The ratio of the coefficients to SE squared is called the Wald statistics and Exp (B) is the predicted change in odds of the choice of event. It was found that Ginger farming experience is significant at 5% probability level, implying that farming experience is a useful parameter in involvement in ginger production. The more experience a farmer has on a crop production the changes of higher productivity. The result is an indication that inexperienced farmers find it difficult to go into ginger production, moreover the crop is new in the area. The successful carrying out of farm operations is also significant at P= (0.025). A lot of agronomic practices are carried out in ginger production such as planting, weeding, fertilization, mulching and harvesting, there is a correlation between effective carrying out these operations and yield. This probably explains why farm operation is a significant factor in decision to get involved in ginger production. For predicted change in odd of the choice in changes in variables Household size, Area of land cultivated, women ownership of land, Decision on input to use, Access to loan, Farm operations, Decision of labour to use are greater than 1 signifying that they increased the likelihood of involvement in ginger production. The NagalkelkeR^2 is 0.783 imply that the variables used explained correctly involvement of gender in ginger production by 78.3%. The goodness of fit measured by -2loglikelihood is also significant at 1% probability level, implying the model chosen is good in the estimation of the parameters.

Table1: Socio-economic characteristics of the farmers in Abia and Imo States

Variables	Frequency	Percentages (%)	Mean
Age			
21-30	3	5.0	
31-40	15	25.0	
41-50	21	35.0	
51-60	21	35.0	
Total	**60**	**100**	35.5
Sex			
Male	39	65.0	
Female	21	35.0	
Total	**60**	**100**	
Marital Status			
Single	6	10.0	
Married	51	85.0	
Widow	3	5.0	
Total	**60**	**100**	
Household Size			
1-5	29	48.3	
6-10	27	45.0	
11-15	2	3.3	
21- 30	2	3.3	
Total	**60**	**100**	8
Level of Education		`	
Tertiary	15	25.0	
Primary	16	26.7	
Secondary	28	46.7	
Adult	1	1.7	
Total	**60**	**100**	
Farming Experience			
1-5	14	23.3	
6-10	13	21.7	
11-15	11	18.3	
16-20	19	31.7	
21- 30	3	5.0	
Total	**60**	**100**	10.5

Source: Field Survey, 2016

Table 2: Pearson chi-square test of Involvement of male and female respondents in ginger production in Abia and Imo States

Variables	Involvement		Total Response	Pearson Chi-square
	Male	**Female**		
Farming experience (yrs).				
1-10 yrs.	19	8	27	
11-20 yrs.	19	11	30	
> 20 yrs.	1	2	3	
Total	**39**	**21**	**60**	**7.319 ns**
Area of ginger cultivated (ha)				
< 1 ha	7	9	16	
1-2 ha	31	11	42	
>5 ha	1	1	2	
Total	**39**	**21**	**60**	**4.806 ***
Decision on use of labour for ginger production				
Husband	34	2	36	
Wife	1	19	20	
others	4	0	4	
Total	**39**	**21**	**60**	**47.521 *** **
Decision on use of inputs for ginger production				
Husband	35	3	38	
Wife	0	18	18	
Others	4	0	4	
Total	**39**	**21**	**60**	**47.854*** **
Access to contact organisation				
ADP	7	2	9	
Extension Agent	3	2	5	
Research	28	10	38	
Total	**38**	**14**	**52**	**0.543 ns**
Participation in farm Operation				
Land preparation	25	3	28	
Bed making	13	0	13	
Planting	1	16	17	
Mulching	0	1	1	
Weeding	0	1	1	
Total	**39**	**21**	**60**	**44.089*** **

Ns = Not significant * significant @ 10 percent probability level, ***significant @ 1percent probability level

Table 3: Logit estimates of the factors influencing production of ginger

Variables	Coefficient (B)	Standard Error	Wald	Exp(B)
Household size	.215	.855	.063	1.239
Level of Education	-1.322	1.102	1.440	.267
Farming Experience	-4.147	2.109	3.865**	.016
Area cultivated	2.203	1.431	2.370	9.049
Women ownership of land	20.765	19447.357	.000	1E+009
Decision on input use	-23.862	21875.734	.000	.000
Contact with organisations	-2.088	1.776	1.382	.124
Access to loan	26.051	18309.692	.000	2E+011
Farm Operations	3.430	1.529	5.032**	30.868
Gender Factors	1.849	1.195	2.382	6.351
Decision on Labour	26.016	21875.734	.000	2E+011
Constant	-99.184	53420.761	.000	.000
Nagalkelke R^2	0.783***			
-2loglikelihood	21.209***			

** Significant at 5% probability level *** Significant at 1% probability level;

Conclusion

It was obvious in the findings that the level of education attained by a farmer eases the ability to get involved in ginger farming innovation hence greater output. It was also observed that the level of involvement in ginger production in the study area was higher in men than women farmers. The area of land cultivated, decision on use of inputs and labour, farming experience as well as participation in farm operations are significant determinants of involvement in ginger production. It was therefore recommended that research institutes and other input agencies should advance their training on the best agronomic practices in ginger production for increased yield in the study area.

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