



GENDER PARTICIPATION IN SOYBEAN PRODUCTION IN OYO STATE, NIGERIA

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ABSTRACT

Participation in soybean production is expected to be high amongst both gender considering the nutrition benefit and economic importance of the crop. This study investigated the gender participation in major activities of soybean production process. Multistage sampling procedure was used to select 111 male and 40 female soybean farmers from 10 Local Government Areas (LGAs) in the state. Data were collected on participation in soybean production, respondents' perception and socioeconomics characteristics with the use of structured questionnaire and data were described and analysed using percentages, means, chi square, and independent sample t-test. Result shows that the average age of the respondents was 50 ± 9.3 years for male and 44 ± 7.8 years for female. Majority (89.4%) were married and 75.5% of the total respondents were farmers cultivating soybean. Mean participation was 19.9 ± 2.6 , majority (70.0%) of the female famers had high participation while only 38.7% of the total male respondents showed high participation in soybean production. There was a significant difference ($t = 2.29$, $p = 0.02$) in the participation of male and female in soybean production, while a non-significant relationship existed between the marital status of female ($X^2 = 1.39$; $p = 0.54$) respondents and participation in soybean production. The study concludes that both gender participate in soybean production process at different stages of production. Female were more active in the processing and marketing of the produce. The study recommends that gender needs be identified in providing intervention for soybean production

Keywords: Gender, Soybean production, Participation, Marital status

INTRODUCTION

Soybean (*Glycine max*) is a legume that grows in tropical, subtropical and temperate climates. It has 40 chromosomes and is self-fertile species with less than one percent out crossing. Soybean was introduced to Africa in the 19th century by Chinese traders along the east coast of Africa (Khojely *et al*, 2018). Soybean is an important source of high quality but inexpensive protein and oil. According to Soybean Africa (2016), soybean yields 5 – 10 times more protein than any other crop. The oil produced from soybean is highly digestible and contains no cholesterol. A "by-product" from the oil production (soybean cake) is used as a high protein animal feed in many countries. Soybean has the capacity to ameliorate the nutritional situation, enhance productivity of other crops and also protects the environment from tendencies of agricultural chemicals (FAO, 1998; Shala and Stacey, 2001) in Jaybhay *et al*, 2018) Soybean also improves soil fertility by adding nitrogen from the atmosphere. This is a major benefit in African farming systems, where soils have become exhausted by the need to produce more food for increasing populations and where fertilisers are hardly available and are expensive for farmers. Gender emphasizes the difference in social position of male and female in terms of resource allocation, opportunities and rights (Aguilar, *et al*, 2014). It is a concept used in social science analysis to look at roles, differences between men and women, their experiences as members of a society (Galie *et al*, 2015). According to Olakojo (2017), despite the high number of women in agriculture, the productive capacity remains lower than their male counterpart, which is evident in some rural communities in

Nigeria, where women have practically taken over the production and processing of arable crops.

Gender differences in rural farming households vary widely across cultures but certain features are common. Women tend to concentrate their agricultural activities around the homestead primarily because of their domestic and reproductive roles. They play a critical role in food production, post-harvest activities and livestock care (Daudu *et al*, 2015). Certain activities are regarded as "male" or "female"; in some setting a rigid division of labour exists between men and women, household members have separate income and expenditure while in another area, division of labour and specification of tasks is less rigid and not skewed (Solomon, 2007). Galie *et al* (2015) observed that the roles of men and women could be quite different in most societies in soybean production. Agricultural sector in many developing countries is underperforming, in part because women, who represent a crucial resource in agriculture and the rural economy through their roles as farmers, laborers and entrepreneurs, almost everywhere face more severe constraints than men in access to productive resources (Doss, 2018).

Women are considered to be key players in the agricultural sector of most developing countries of the world today as they are seen engaged in a range of productive activities essential to household welfare, agricultural productivity and economic growth (Coker *et al*, 2017). Millions of women work as farmers and farm workers (Doss, 2018), thereby contributing to national agricultural output and family food security (Brown *et al.*, 2001). Empirical studies highlighted on gender and agricultural production in Africa demonstrate that women do not participate equally with men as opportunities provided by increased agricultural

commercialization are usually within the reach of their male counterparts (Fisher and Qaim, 2012). The less involvement of women in farming activities has also been attributed to the fact that they are less likely to command the resources required (such as land, credit, or information) required for effective production (Ogunlela and Muktar, 2009). Ajani (2008) reported that women are marginalized in their access to economic, political, and social resources compared to men, rendering them relatively poorer than their male counterparts. He further identified an unbalanced analysis of women's roles, responsibilities, constraints and opportunities in different activities in relation to those of men. In Nigeria, the involvement of women in agriculture has attracted greater attention in recent years. A key premise of this study is that male farmers have monopolized agricultural activities especially in the area of crop production and management; hence their female counterparts are following several miles behind (Adisa and Adekunle, 2010).

The promotion of soybean is valuable in countries such as Nigeria where other sources of high quality protein are too expensive and the purchasing power of a large percentage of the population is low. Two major importance of soybean are in providing nitrogen to the soil thereby keeping the soil fertile and also supplementing household diet with balanced protein and essential amino acids. The protein content in soybean is valid enough to dare any one concern to participate in its production. Despite these benefits, soybean production faces several constraints at different stages of production (Agada, 2015) which are more influenced by perception of the benefits. It is of importance to note that production of soybean requires the participation of both men and women farmers at various degrees for efficient and sufficient production. This study is premised on the fact that women play very important role in agricultural growth, and that, men and women small holder farmers have different perspective to participating in soybean production (Keane, 2018), and this influences the decision to continue participating. It is therefore necessary to identify areas of participation in soybean production by gender and further determine influence of perception to such level of participation by gender. This will give insight into future allocation of resources in interventions that aim to develop soybean production in Oyo State. Thus, this study was carried out to determine the gender participation in soybean production in Oyo State, Nigeria.

The main objective of this study is to determine the gender participation in soy beans production in the study area. The specific objectives of the study were to:

- i. describe the socio economic characteristics of the male and female soybean farmers in the study area,
- ii. determine the level of gender participation in soybean production in the study area; and
- iii. determine the gender perceptions to soybean production in the study area.

This study validated the following null hypotheses:

- There is no significant relationship between gender perception and participation in soybean production
- There is no significant difference between the male and female farmers in their participation in soybean production

METHODOLOGY

The study was carried out in Oyo State in Southwestern part of Nigeria. Oyo state has been identified as one of the major producers of soybean in Nigeria (AMREC, 2007). The population of the study comprised all the soybean farmers in Oyo state.

Multi-stage sampling technique was used for this study. In the first stage 30% of the Local Government Areas in Oyo state was randomly selected to give 10 out of the 33 local governments they are: Afijio, Lagelu, Ido, Akinyele, Ibarapa East, Kajola, Saki east, Saki West and OgoOluwa Local government Areas. In the second stage, a purposive selection of communities that have more farmers producing soybean was done in each of the Local Government Areas with the help of Agricultural Development Programme information and data set. Using snowball technique, a list of soybean farmers and processors were compiled for both men and women in each communities. Thereafter, 50% of the list generated was randomly selected for both men and women. A total of 111 men and 40 women were sampled in all.

Primary Data with the use of questionnaire was employed to gather information on personal characteristics, level of participation and gender perception to soybean production. Respondents indicated their participation in different stages of soybean production on a three scale of always, rarely and not at all, and scores of 3, 2 and 1 were awarded to each response, respectively. A mean score of 17.9 ± 2.6 was calculated and was used to Categorise the respondents to either high or low participation level.

Data collected were described using means, percentages and standard deviation and were analysed using Chi-Square and t-test.

RESULTS AND DISCUSSIONS

Result in Table 1 shows that 73.5% were male farmers while only 26.5% were female. Respondents mean age was 48 years and majority



were married (89.4%) though more (92.5%) women were in the married category than men. Most (77.5% and 70.0%) of the male and female respondents, respectively were into soybean farming, while only few (23.4%) of male and 27.5% of female processed soybean into other products. This result suggests that soybean cultivation is carried out by both male and female farmers though not in equal distribution as the result shows that more male are into the soybean production process than female. Most of the farmers were in their active years which might mean that soybean production requires some level of strength which could only be supplied by able

men and women. Average annual income for the respondents was ₦323, 000.00 with more female (80.0%) having between ₦201, 000.00 and ₦400, 000.00 and 2.5% of female earned above ₦600, 000.00 per annum. Inferring from this, more women market the soybean produce than men. According to Amusat and Ademola (2013) and Nbanya (2011), soybean has more usefulness to women than the mere cultivating it and selling the produce, the highly nutritious benefit of soybean compel women to convert the produce into different products such as soygari, soymilk, soyakara to improve the diets of their family.

Table 1: Distribution of respondents according to their personal characteristics

Variable	Male	Female	Total
Age (Mean)	49.7 years	44.4 years	48.2 years
<30	0.9	2.5	1.3
31-40	12.6	32.5	17.9
41-50	39.6	40.0	39.7
51-60	38.7	25.0	35.1
>60	8.1	0.0	6.0
Sex			
Male	111	73.5	
Female	40	26.5	
Marital status			
Single	10.8	7.5	9.9
Married	88.3	92.5	89.4
Divorced	0.9	0.0	0.7
Household size			
<4	22.5	35.0	25.8
Between 5 and 8	76.6	62.5	72.8
>8	0.9	2.5	1.3
Educational status			
No formal education	20.8	40.0	32.4
Primary education	14.8	50.0	27.8
Secondary education	30.2	0.0	29.8
Tertiary education	8.7	1.3	10.1
Occupation			
Farming	77.5	70.0	75.5
Processing	23.4	27.5	24.5
Marketing	24.32	30.0	25.8
Annual income (\bar{x}= 323000)			
Less or equal ₦200,000.00	26.1	10.0	21.9
201,000 – 400,000	39.6	80.0	50.3
401,000 – 600,000	34.2	7.5	27.2
601,000 – 800,000	0.0	2.5	0.7

Perception to participation in soybean production

Table 2 shows the distribution of respondents according to their perception to participating in soybean production. The result shows that the respondents agreed strongly that soybean is the most profitable crop grown in the communities (94.7%), and it is processed into different products (98.7%) and they found marketing of soybean easier than every other aspect

of the production. In like manner, majority (87.4%) of the respondents disagree that soybean processing is tedious and time consuming (87.4%) and also that it is mostly appreciated when processed. The result suggests that soybean is still well known and popular in Oyo state, and that it is preferred to other crops at all stages of production. This finding is in tandem with the assertions of Ezihe *et al* (2014) that rural farmers are fully aware of the need to cultivate soybean despite all constraints.

The Categorisation of respondents shows that more female (65.0%) had unfavorable perception than male (47.7%). The unfavourable perception expressed by the women could be as a result of constraints they encounter in the process

of production which may not be applicable to men. This is consistent with the findings of Njanya (2011) that rural women cultivating soybean go on working all day but with less profit due to major constraints in the production process.

Table 2: Distribution of respondents according to perception to participating in soybean production

Statements	SA	A	U	D	SD
Soya seeds are usually too expensive and scarce making it difficult to assess	0.0	0.0	78.8	0.7	20.5
The seeds do not grow easily on our lands	3.3	0.0	2.6	94.0	0.0
Soya beans is the most profitable crop grown in the community	94.7	0.0	4.0	0.7	0.7
Soy bean processing is tedious and too time consuming	0.0	0.0	8.6	4.0	87.4
Soy bean is only appreciated in this community when it is processed	0.0	0.0	0.7	0.7	98.7
We process soy bean into different product in this community	98.7	0.7	0.7	0.0	0.0
Marketing of soy beans is easier than other aspect of its production therefore I market	99.3	0.7	0.0	0.0	0.0
We engage more in processing of soy bean than in any of the other production process	0.7	0.7	98.7	0.0	0.0
We don't produce and process soy bean in large quantity in this community	40.4	7.9	0.7	0.0	51.0
It is easier to get the seeds than any other crop seeds that we produce	1.3	0.7	51.0	0.0	48.0
Most women cultivate/plant soy bean in this community	7.9	0.0	51.0	8.6	73.9
Scarcity of hindered the processing of soy beans	55.0	1.3	0.0	7.3	36.4
Score	Male	Female	Total		
35.0 – 41.1	47.7	65.0	52.3		
41.2 – 46.0	52.3	35.0	47.7		

Mean ± SD = 41.2 ± 1.9

Distribution of respondents according to their participation in soybean production

Table 3 shows the distribution of respondents according to their participation in soybean production. The table shows the responses indicating most frequent participation in the different stages of soybean production process. Figures from the table reveals that both gender were always involved in the planting (100%), field weeding (99.1%; 97.5%) harvesting (99.1%; 100%) and storage (99.1%; 100.0%) of soybean for both male and female respectively. Only very few (9.3% and 30.5%) of the total respondents participated in seed breeding and seed marketing respectively. The table further shows that all (100%) the female respondents participated in processing and marketing of the produce, while the same aspect of production engaged 63.1% and 64.4% of male respondents. This finding shows

that respondents have overcome the major constraints in soybean production as identified by Ezihe *et al* (2014) which include constraints during processing and storage. The figures also affirms that women not only play vital roles in food production, they also carry out field agricultural activities (Ezihe *et al*, 2014), performing tasks that were previously exclusive to men (Balogun *et al*, 2015). The table further shows that a little above average (53%) of the total respondents had low participation in soybean production. Njanya (2011) mentioned constrains associated with stages of soybean production as a major factor that could dissuade farmers from involving in the production process for both male and female. Inferring from this position, low participation recorded among respondents could have been as a result of constraints faced at every level of production.

**Table 3 - Distribution of respondents that participated most frequently in soybean production process**

S/No	Areas of participation	Male	Female	Total
1)	Seed breeding/sorting	1.8	30.0	9.3
2)	Seed marketing	29.7	32.5	30.5
3)	Land preparation/cultivation	98.2	100.0	98.7
4)	Soybean Planting	100.0	100.0	100.0
5)	Field Weeding	99.1	97.5	98.7
6)	Harvesting	99.1	100.0	99.3
7)	Processing	63.1	100.0	72.8
8)	Storage (produce or product)	99.1	100.0	100.0
9)	Marketing	60.4	100.0	70.9
10)	Packaging	29.7	40.0	32.5
Level of participation	Score	Male	Female	Total
Low	9.0 – 17.8	61.3%	30.0%	53.0%
High	17.9 – 22.0	38.7%	70.0%	47.0%

Mean \pm SD – 17.9 \pm 2.6

Difference in the perception and in the participation of the respondents along gender

Table 4 shows a significant difference in the participation of respondents along the gender roles. However, there was no difference significant in the perception of male and female to participating in soybean production. The table further shows a higher mean for female level of participation than for male. This suggests that female participates better than male in the soybean production process. In line with this, the high dominance of male in crop production as reported

by Fafimisebi *et al.*, (2015) and Balogun *et al.*, (2014) may not exceed field cultivation and harvesting thus not translating to high participation in the production processes. According to Balogun *et al.*, (2015) and Uzokwe *et al.* (2017), women participation in soybean is beyond the ability to cultivate large acres of soybean farms, it involves passion to ensure food security and to improve the quality of food consumed by the family. And this could be a justifiable reason that spurred their participation above the male counterpart.

Table 4 – Difference in perception and in participation between male and female soybean farmers

	Gender	Mean	Df	t	p
Perception	Male	45.44	109	1.11	0.26
	Female	44.55			
Participation	Male	17.67	74	2.29	0.02*
	Female	18.70			

Significance at 5%

Relationship between perception, educational status, marital status, income level of respondents and level of participation in soybean production

Table 5 shows a significant relationship between the level of perception ($\chi^2 = 4.72$, $p = 0.02$; $\chi^2 = 7.16$, $p = 0.01$) educational status ($\chi^2 = 45.94$, $p = 0.00$; $\chi^2 = 3.72$, $p = 0.00$) for both male and female, respectively and level of participation in soybean

production. However, marital status ($\chi^2 = 7.95$, $p = 0.01$) was only significant to participating in soybean production among male respondents but not significant to female participating in the production. The foregoing affirms that farmer's perception about involvement in soybean production and education exposure determines the commitment to participating.

Table 5 – Relationship between respondents' variables and level of participation in soybean production

Variable	Gender	χ^2	df	N	p
Level of Perception	Male	4.92*	1	111	0.02
	Female	7.16*	1	40	0.01
Educational status	Male	45.94*	3	111	0.00
	Female	3.72*	2	40	0.00
Marital Status	Male	7.95*	2	111	0.01
	Female	1.39	1	40	0.54

Significance at 5%

Furthermore, significant relationship that existed between the marital status among male respondents and participation could imply the influence of marital responsibilities on a man as men has been found to cultivate larger hectares of farmland (Coker et al, 2017) than women to satisfy many roles burdened on their shoulder.

Relationship between the age, annual income and participation level among male and female soybean farmers

Table 6 shows a significant relationship ($r = -0.281$; $p < 0.05$) between male participation in soybean production and income derived from the production. However, income was not significantly related to participation among female soybean farmers ($r = 0.281$; $p > 0.05$). The table further shows a significant relationship between age and participation of male ($r = -0.56$; $p < 0.05$) and female ($r = -0.332$; $p < 0.05$) respondents in soybean production respectively. Several studies (Nbanaya, 2011; Ezihe et al, 2014) have affirmed the positive relationship that exists between income accruing in

a business and the motivation to continue in that business. Such assertions can only apply to male soybean farmers in this regard because the result shows that income and marital status are not enough motivations for the participating in soybean production. Corroborating this fact, Barau and Oladeji, 2017 found that women are always strongly persuaded about any programme that aims at promoting the welfare of their household. Although, people's motivations for participating may change over time (Kiptot et al, 2016), there is every likelihood that women will continue to participate in production since major drivers of motivation such as income derived and marital status are not significant factors that influences their participation. The significance of age to participation in soybean production suggests an age bracket that could effectively produce, process or market soybean. This could be as a result of associated challenges which requires experience or a level of strength.

Table 6 - Correlation analysis between annual income and participation by male and female respondents

	Gender	N	r	P
Income	Male	111	-0.281	0.003*
	Female	40	-0.231	0.152
	Male	111	-0.056	0.00*
	Female	40	0.332	0.03*

Significance at 5%

CONCLUSION AND RECOMMENDATIONS

The study concludes that both gender participate in soybean production at different stages; from seed buying to marketing of the produce/product. Packaging of product was the least area of participation for both genders. Income level and marital status do not significantly relate to female participation in soybean production. The study recommends that

- Agricultural institutions and other relevant organisations should create more awareness to promote male participation in soybean production beyond the field cultivation stage. This is to ensure that male farmers also benefit in the income derived from other stages such as processing, packaging and marketing of soybean.
- Extension agents should train and empower farmers in different soybean product packaging methods to increase the income of farmers.

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