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Constraints Associated With Cultivation and Utilization of Soyabean by Farmers in Ogun State, Nigeria

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Abstract

This study identified the constraints associated with the cultivation and utilization of soyabeans by farmers in Ogun State, Nigeria. A multistage sampling procedure was used to select 120 respondents for the study. Primary data were obtained with interview guide. Pearson Product Moment Correlation and Chi-Square were used to analyze the data collected. Results showed that the mean age of the respondents was 54.8years and majority (75.0%) were male. Majority (64.2%) were married while 65.0% were literate. Thirty five percent (35.0%) had been in farming for about 20 years while majority (65.8%) cultivated between 1-3 hectares of land. Most (80.8%) of the farmers were aware of soyabean cultivation with 56.7% having extension agents as their source of information. Other sources of information include the media (radio and television), fellow farmers and friends. Lack of market for soyabean was the foremost constraint against farmers'cultivation of soyabeans while lack of knowledge of soyabean processing was ranked first among the constraints militating against farmers' utilization of soyabeans. More than half (59.2%) of the farmers utilize soyabean only in the form of soya milk. Chi-square analysis showed a significant relationship between farmers' cultivation of soyabean and sex ($\chi 2=8.34$, $p<0.05$) and educational status ($\chi 2=31.43$, $p<0.05$). Correlation analysis showed that farmers' cultivation of soyabean is significantly related to age ($r=0.96$, $p<0.05$), farm size ($r=0.78$, $p<0.05$) and years of farming ($r=0.68$, $p<0.05$) while age is significantly related to farmers' utilization of soyabean ($r=0.04$, $p<0.05$). It was concluded that age, sex, educational status, farm size and years of farming played significant roles in farmers' cultivation of soyabean while age determined the utilization of soyabean by the farmers. It was recommended that extension services targeted on soyabean cultivation and utilization should be more vigorously pursued.

Keywords: Soyabean, Cultivation, Utilization, Innovation, Constraints

1.0 Introduction

One of the major challenges of the world today is the provision of food for the rapid increasing population and impending threat of food insecurity. Food is a basic necessity of life. Its importance at the household level is indicated by the fact that it is a basic means of sustenance; the adequacy of which (in quantity and quality) is a key requirement for healthy and productive life. In many developing countries, agricultural production represents a high percentage of the total Gross Domestic Product (GDP), and rural household's income depends almost entirely on agriculture. (Camara, 2000).

Soyabean is a legume crop that originated from the East Asia and grown for its bean which has numerous uses. The beans contain more protein than any other leguminous crop. It is also an oil crop. Soyabean is grown in climate with hot summer with a mean temperature of 20^{o}c to 30^{o}c and can also grow well in a wide range of soil with optimum growth in moist soil having good organic matter content. Hahn (1987) described Soybean as a miracle crop as it provides 50% of the World production of high quality protein and 30.3% of edible oil. It also provides recipes for a number of food products including good quality flour. He affirmed that Soybean consumption has further led to positive results in nutritional status of the people. The importance of Soybean in improving the health of the people also led to the Canadian International Development Research Centre (IDRC) to carry out research on Soybean utilization, household and village level technology. Recently, different manufacturers both industrial and in the cottage industries now produce soymilk in form of beverages that are being hawked for sale on the street and in the market places.

The production of soyabean in 1988 as a result of the research carried out by the International Institute for Tropical Agriculture (IITA) and the Institute of Agricultural Research and Training (IAR&T) Moor Plantation Ibadan, Nigeria has given credence and almost acceptability to soyabean innovation. Soyabeans remain a major raw material used by NESTLE PLC to produce baby foods, milk and other products. For over two decades, the International Institute for Tropical Agriculture (IITA) made concerted efforts aimed at improving the productivity of soyabean by developing high yielding, early maturing varieties capable of nodulating in

association with the local rhizobia and processing other good economic traits (IITA 1994)

Most people do not see Soybean as edible, so they tend to find other sources of plant protein. The crop is still not readily available in the market like other food stuffs and majority of the farmers are still not planting it despite all the potentials of the crop, its nutritive value and the popularization activities carried out on the crop by extension agencies, Research Institutes, Universities and organizations such as NESTLE PLC. Religion has been identified as a factor which makes some farmers to adopt or reject Soybean cultivation and utilization even when it is well disseminated to them. For example, Ajala et al (1992) found that some farmers claimed that the introduction of soybean runs parallel to their religious belief and hence, Soybean utilization level in this case becomes unrealizable or low.

It is against this background that this study provided answers to the following research questions: Are farmers aware of the cultivation and utilization of soyabean? To what extent do farmers plant and utilize Soybean? Are farmers aware of the benefits/potentials of soybean? What are the farmers' perceived constraints associated with the cultivation and utilization of soyabeans?

The general objective of the study was to examine the constraints associated with cultivation and utilization of soyabeans by farmers in Ogun State, Nigeria while the specific objectives were to: Determine the level of farmers' awareness of the cultivation and utilization of Soybean, Determine farmers' extent of cultivation and utilization of Soybean, Determine farmers' awareness of the benefits/potentials of soybean, Identify the constraints associated with the cultivation and utilization of soyabeans.

The following hypotheses stated in the null form were tested: Ho_1: There is no significant relationship between the socio-economic characteristics of farmers and their cultivation of soyabeans. Ho_2: There is no significant relationship between the socio-economic characteristics of the farmers and their utilization of soyabean.

2.0 Methodology

The study was carried out in Ogun State which is one of the thirty six states in Nigeria. The state is bounded in the West by Republic of Benin, in the East by Ondo State, in the North by Oyo State and in the South by Lagos State.

The state has a land area of about 16,409.26 square kilometers and is located between Latitude $6^o30`$ and $8^o10`$ North of the equator and Longitude $2^o15`$ and $4^o15`$ to the East (Batholomeu, 1990). The vegetation of Ogun State ranges from fresh water swamp with mangrove forest in the South East through diverse woody guinea savannah in the North Western tip. Ecologically, the state largely falls within the rainforest zone and partly within the Southern Guinea Savannah zone. It experiences bimodal rainfall distribution which lasts for upward 7 to 8 months (mid March-late October) with temporary cessation in the first three weeks of August, referred to as "August break". The mean annual rainfall distribution in the state is about 1300mm (Lawal-Adebowale, 2002) while the annual rainfall varies over the years, the temperature of about 28^oC and relative humidity of about 78% relatively remain uniform. Ogun state is divided into twenty (20) Local Government Areas (LGAs) and is occupied mainly by Yoruba speaking people but with subgroups of dialects such as Egba, Yewa, Ijebu, Remo, Awori and Egun. People from other parts of Nigeria also reside in the state. The people of Ogun state engage in one form of economic activity or another as means of livelihood. These include trading, farming, tie and dye production, civil service, pottery and other professional and technical occupations. Farming is the dominant economic activity of people of Ogun State. They engage in both crops and livestock production.The population of this study is made up of farmers in Ogun State.

Multi-stage and random sampling techniques were used to select 120 respondents as follows:.

Stage 1 – Two zones were randomly selected out of the four agricultural zones in Ogun state.

Stage 2 – Two extension blocks were randomly selected from each of the zones to have a total of 4 blocks.

Stage 3 – Three villages were selected randomly from each of the blocks to have a total of 12 villages. Ten farmers were then randomly selected from each of the villages. A total of 120 farmers therefore constitute the respondents for the study.

Data for the study were collected from primary and secondary sources. Primary data were collected with the aid of well-structured interview guides that were administered to the farmers. While secondary data were sourced from journals, literatures, text related to the project topic, government and non-government agencies including the Ogun state Agricultural Development Programme (OGADEP), Ministry of Agriculture, Food and Agriculture Organization (FAO) and International Institute of Tropical Agriculture (IITA) Ibadan, Oyo State, Nigeria. Data was subjected to descriptive and inferential statistical analysis. Frequency count and percentage distribution were used to describe the personal characteristics of the farmers while inferential statistics such as Chi square and Pearson Product Moment Correlation (PPMC) were used to test the hypotheses of the study.

3.0 Results and Discussion

3.1 Personal Characteristics of Respondents

Results in Table 1 show that 75% of the respondents are male while 25% are female. The table further shows that most (31.9%) of the respondents were above 40years with a mean age of 54.8years. Also from the table, 55.8% of the respondents are muslims and 40.8% are christians while 4.4% practiced traditional religion.

Sixty four point two percent (64.2%) of the respondents were married while 35.0% had no formal education. Most (68.3%) of the farmers were operating on a small scale level while 26.7% were operating on medium scale and 5.0% are operating on a large scale. One of the problems facing agriculture in Nigeria is that most of the farmers are poor resource people and there are no enough funds to carry out their agricultural production activities. They do not also have enough access to machinery and these could be part of the reasons why most farmers are operating on a small scale.

Less than half (35.0%) of the respondents have been practicing farming for over 20 years and majority (83.3%) grew food crops. Most (66.9%) of the farmers cultivated 1-3 hectares of land.

3.2 Farmers' awareness of Soybean Cultivation

From table 2, majority (81.6%) of the farmers were aware of Soybean cultivation while only 18.4% were not aware. This high level of awareness might be due to the efforts of extension agents and agricultural organizations responsible for agricultural extension services in Ogun State.

3.3 Sources of farmers' knowledge on Soybean

As shown in table 3 below, majority (56.7%) of the farmers acquire knowledge from extension agents. Other sources of information available to the farmers are media (20.0%), fellow farmers (12.5%), friends (8.3%) and neighbors (2.5%).

3.4 Farmers' Constraints to the Cultivation of Soybean

Table 4 below shows farmers' constraints to the cultivation of soybean. About half (50.8%) of the farmers were hindered by lack of market while 32.5% were hindered by lack of knowledge about soybean cultivation. If there is no ready market for the crop, farmers would be discouraged from producing while inadequate knowledge of the cultivation of the crop will also make farmers not to venture into its production. Other constraints are inadequate funds and lack of storage facilities.

3.5 Farmers' Constraints to the Utilization of Soybean

According to the results in Table 5, the major constraint to farmers' utilization of soyabean is their inadequate of knowledge of the processing of the crop. The inability to cook soyabeans like any other bean was ranked second while the drudgery associated with the processing of soyabean to recipes was ranked third among the constraints. Other constraints associated with the utilization of the crop are the crop's peculiar odor and inability to preserve the recipes of the crop.

3.6 Forms of utilization of soyabean by farmers

Results in Table 6 show that farmers utilize soyabean most in the form of soyamilk (59.2%), this is followed by soya cheese (44.0%), soya moinmoin (40.0%), soya iru (23.3%) and soya akara (20.8%).

3.7. Test of Hypotheses

Hypothesis test of the relationship between respondents' socio economic characteristic and soybean cultivation

Ho_1 – There is no significant relationship between the socio-economic characteristics of farmers and cultivation of soyabean.

Results in Table 7 show significant relationships between educational status, sex and soyabean cultivation. This implies that the level of farmers education determine wether or not they cultivated the crop. More educated farmers planted soyabeans while most of the illiterates did not. This might be due to the fact that the level of education of farmers is one of the factors determining their adoption of agricultural technologies. More male farmers also adopted the cultivation of the crop than the female farmers.

Correlation analysis also shows a significant relationship between the farmers 'age, farm size, year of farming and soybean cultivation. This implies that age, farm size and years of farming play a significant role in soybean cultivation by the farmers.

Hypothesis test of the farmers' socio-economic characteristics in relation to the utilization of soybean

Ho_2: There is no significant relationship between the farmer's socio-economic characteristics and utilization of soybean

The correlation test in table 9 shows that there is no significant relationship between the farmer's socio-economic characteristics and their utilization of soybean. This implies that the farmers' sex, religion, marital status, education and scale of production do not determine wether the farmers will utilize the crop or not even if they planted it. Their aim of planting might be to sell the grains.

Result in Table 10 shows that there is a significant relationship between age and the utilization of soybeans. The inverse relationship between these variables shows that the higher the age, the less the utilization of the crop and vice-versa. Younger farmers utilize soyabeans more than the older ones probably because they better realized the importance and the nutritive value of the crop.

4.0 Conclusion and Recommendations

Based on the outcome of the analyzed and interpreted study data, it was concluded that farmers faced different shades of constraints in the production and utilization of soyabean, and that, age, sex, educational status, farm size and years of farming played significant roles in farmers' cultivation of soyabean while age of farmers

determine their utilization of the crop.

From the findings of this study, the discussions therein and the conclusions drawn, the following recommendations were made:

- Farmers should be linked with markets and market outlets for marketing of soyabeans.
- Extension services targeted at soyabean cultivation and utilization should be more vigorously pursued.
- Farmers should be linked up with sources of soyabean seeds and other agro inputs.
- Governments at all levels should make credit/funds available to the farmers at a very relatively low interest rate so that it will encourage them to plant the crop.

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Table 1: Personal Characteristics of the farmers

Variable	Frequency	Percentage	Mean
Sex			
Male	90	75.0	
Female	30	25.0	
Age			
20 – 30	2	1.7	
31 – 40	18	15.1	
41 – 50	35	29.9	54.8
51 – 60	38	31.9	
61 – 70	26	21.8	
Religion			
Islam	67	55.8	
Christianity	49	40.8	
Traditional	4	4.4	

Table 1: Personal Characteristics of the farmers (contd.)

Variable	Frequency	Percentage	Mean
Marital Status			
Single	2	1.7	
Married	77	64.2	
Divorced	20	16.7	
Widow/widower	21	17.4	
Educational Level			
Tertiary Education	21	17.5	
Secondary Education	31	17.1	
Primary Education	36	30.0	
No Formal Education	42	35.0	
Scale of Production			
Large Scale	6	5.0	
Medium Scale	32	26.7	
Small Scale	82	68.3	
Years of Farming			
1 – 5years	9	7.49	
6 – 10years	29	24.2	
11 – 15years	4	17.5	3.51
16 – 20years	19	15.8	
Above 20years	42	35.0	
Type of Crop Grown			
Cash Crop	20	16.7	
Food Crop	100	83.3	
Farm Size			
1 – 3 hectares	79	65.8	
3 – 6 hectares	17	14.2	
6 – 9 hectares	10	8.3	1.63
Above 9 hectares	14	11.7	

Source: Field survey 2012

Table 2: Awareness of Farmers on Soybean cultivation

Variable	Frequency	Percentage
Aware	98	81.6
Not Aware	22	18.4

Source: Field Survey 2012

Table 3: Source of farmer's knowledge on Soybean

Variable	Frequency	Percentage
Extension Agent	68	56.7
Fellow Farmers	15	12.5
Friends	10	8.3
Neighbors	3	2.5
Media (Radio & TV)	24	20.0

Source: Field Survey 2012

Table 4: Farmers' Constraints to the Cultivation of Soybean

Constraints	Frequency	Percentage	Rank
Lack of market for soyabean	61	50.8	1
Lack of knowledge of soyabean cultivation	39	32.5	2
Soybean production is not profitable	48	40.0	3
Inadequate fund to buy inputs	28.3	9	4
Lack of storage facilities	49	40.8	5

Source: Field Survey 2012

Table 5: Farmers' Constraints to the Utilization of Soybean

Constraints	Frequ	Percen	
I do not know how to process the crop	46	38.3	1
Soybean cannot be cooked like beans	50	41.7	2
Processing into recipes is tedious	31	25.8	3
Soybean has a peculiar bad odor	48	40.0	4
It cannot be preserved for long	44	36.7	5
It cannot be used alone without mixing the crop	26	21.7	6

Source: Field Survey 2012

Table 6: Forms of utilization of soyabean by farmers

Recipe utilized	**Frequency**	**Percentage**
SoyMilk	71	59.2
Soya akara	25	20.8
Soya iru	28	23.3
Soya cheese	44	36.7
Soya moinmoin	40	33.3

Source: Field Survey 2012

Table 7: Chi –Square result of the relationship between Farmers' Socio-economic characteristics and soybean cultivation

Variable	$\chi 2$ Value	df	P	Decision
Sex	8.34	1	0.03	S
Religion	9.73	2	0.47	NS
Marital Status	18.82	3	0.22	NS
Educational Status	31.43	3	0.05	S
Scale of Production	15.26	2	0.43	NS

Source: Field Survey 2012

Table 8: Result of correlation test of relationship between farmers' socio-economic characteristics and soyabean cultivation

Variable	**r**	**P**	**Decision**
Age	0.96	0.04	S
Farm Size	0.78	0.02	S
Years of farming	0.68	0.04	S

Source: Field Survey Data 2012

Table 9: Chi-Square results of the relationship between farmer's socio-economic characteristics and utilization of soyabean

Variable	$\chi 2$	df	P	Decision
Sex	4.001	1	0.68	NS
Religion	14.669	2	0.26	NS
Marital Status	17.502	3	0.49	NS
Educational Level	16.999	3	0.85	NS
Scale of Production	20.565	2	0.30	NS

Source: Field Survey Data 2012

Table 10: Result of the correlation test of relationship between farmers' socio economic characteristics and utilization of soyabean

Variable	**r**	**P**	**Decision**
Age	0.64	-0.043	S
Farm Size	0.16	0.14	NS
Number of years of farming	0.04	0.93	NS

Source: Field Survey Data 2012

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