RURAL YOUTHS' INVOLVEMENT IN SOYBEAN VALUE ADDITION: A CASE STUDY OF YOUNG FARMERS' IN OYO STATE, NIGERIA.

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ABSTRACT

This study assessed the involvement of rural youths in soybean value addition process in Oyo State, Nigeria with aim of describing the socio-economic characteristics of young farmers that are involved in soybean value addition process; determine the perception of young farmers towards the soybean value addition process; examine the awareness of soybean value addition available to young farmers; determine the level of youth involvement in soybean value addition and examine the constraints in value addition of soybean production among rural young farmers. A multistage sampling procedure was adopted in the study. Firstly, purposive sampling technique was used to select two zones (Ibadan/ Ibarapa zone and Oyo zone) from the four agricultural zones in Oyo State based on the predominance of soybean farmers in the area. Secondly, proportionate random sampling technique was used to select three Local Government Areas (LGAs) from the two zones. Two LGAs (Akinyele and Ido) from Ibadan/Ibarapa zone and one LGA (Afijio) from Oyo zone were selected. Thirdly, proportionate sampling technique was used to select 8, 7 and 6 communities from Akinyele, Ido and Afijio LGAs respectively; this makes a total of 21 communities. Finally, simple random sampling technique was used to select 6 youths that were involved in soybean value addition process in each community making 126 youths (between the ages of 18 and 40 years) that were are involved in soybean value addition for the study. Data collected were analyzed and summarized using frequency count, chi-square and correlation analysis among others. The results revealed that the mean age of rural youths that were involved in soybean value addition was 27.80 ± 7.17 years. The majority (73.0%) were female, many of them (57.1%) had a high level of awareness about soybean value addition activities (fresh soybeans, dried soybeans, roasted soybeans, soy grits, soy flour, soy milk, soy sprouts and soy curd/tofu). About 73.8% had a high level of involvement and their main constraints against their involvement were inadequate processing skills (mean= 3.65), hazard involved (mean= 3.37) and low shell life span of soybean products (mean= 2.88). The results of the chi-square indicated the indigenous status (χ^2 = 2.104; P≤0.05) and marital status (χ^2 = 17.334, P≤0.05) had a significant association with respondents' involvement in soybean value addition activities. Household size (r = 0.820; P<0.01) had significant relationship with respondents' involvement in soybean value addition activities. According to the findings, the study recommended and concluded that stakeholders are encouraged to increase awareness on soybean value addition activities among rural youths to enhance their involvement which might positively influence soybean production thereby sustain plant protein sustainability.

Keywords: Involvement, Rural youths, Soybean, Value addition, Young farmers

INTRODUCTION

Nigeria is a nation that is blessed with good climatic conditions that favour agricultural production. Agriculture is an important sector in the economic development and poverty alleviation drive of many countries. The important role of agriculture in the industrial growth and development of most industrialized countries in the world cannot be overemphasized (Adeyemi and Adekunmi 2005). The agricultural sector is more pronounced in the developing countries like Nigeria which is the main thrust of national survival, employment, food and foreign exchange earnings (Adebayo & Okuneye

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2005). The Nigeria administration policy on agriculture is Agricultural Promotion Policy (APP) in 2015 which is aimed to build an agricultural business with key stakeholders by creating economy capable of job growth, sustainable income-generating export, food creations and economic diversification. The policy also focuses on crops value chains such as wheat, maize, soybean and tomatoes, along with building complex linkages between agro-industries and organizations. To attain good health in Nigeria, the importance of protein in the daily meal of every citizen cannot be overlooked. The Food and Agriculture Organization (FAO 2009) stipulated that every individual is expected to consume71g of protein every day. A cheap protein source is a step forward towards promoting good health (Food and Agriculture Organisation-FAO (2009). Animal protein sources which include fish, beef, mutton and pork, among others, are very expensive and in most cases beyond the reach of average Nigerian household. The tendency is to fall back to plant relatively cheap protein.

Soybean (US) or Soya bean (UK) (*Glycine max*) is a leguminous species that originated in China. It grows in tropical, sub-tropical and temperate climates. Soybean was successfully introduced to Nigeria in the middle belt area (Benue state) in 1928 but the first successful cultivation of Soybean was in 1937 (Ezedinma 1965). Nigeria presently produces about 500,000 MT of soybean annually making it the largest cultivator of the crop on the African continent (International Institute of Tropical Agriculture-IITA 2017). Soybean grows pods enclosing edible seeds. It helps to improve soil fertility by adding nitrogen from the atmosphere. This is a major benefit for African farming systems, where soils have become exhausted by producing more food for the increasing population and where fertilizers are hardly available and are expensive for farmers. Soybean has the highest protein content of all food crops and is second only to groundnut species in terms of oil content amongst food

legumes. It is an important source of high-quality protein and oil. According to IITA (2017), it has an average protein content of 40% and oil content of 20%. It is the only plant source that contains all the Essential Amino Acid (EAA) (FAO/WHO/UNU 2007). The oil produced from soybean is highly digestible and contains no cholesterol. A "by-product" from oil production (soybean cake) is used as a high protein animal feed in many countries. In recent time, the government has encouraged the use of value chain production in the agricultural crop which helps to increase rural employment, wealth creation and diversification of the economy.

Nigeria currently produces soybean worth $85 million in the international market, although most of the nation's soybean is consumed locally where they are used especially to formulate foods to help malnourished children and in the production of soya milk. The local industries and export market for the product is increasing and growing rapidly. The value addition in soybean is a series of activities that are carried out on soybean crop to create a marketable product or service from its conception to the final consumption (International Labour Organization-ILO 2009). Soybean consumption (IITA 2017) has increased dramatically among the urban, poor and middle-income groups in Nigeria. Soybean fortified products not only have more protein and minerals than their non-fortified counterparts, but they are also considerably cheaper than other sources of high-protein such as fish, meats, milk and other protein-rich legumes. The cost of protein when purchased as soybean is only about 10-20% of the protein from fish, meat, eggs or milk. Many Nigerians now incorporate soybean into their diets and the Nigerian Government has declared its production and utilization a national priority (IITA 2017). Soybean is processed into various forms such as milk, flour, cheese (wara), cake and oil. These products are highly patronized because they are inexpensive, have acceptable tastes and some are conveniently sold where

people congregate. They have become major sources of the daily protein intake of children and adults in Nigeria (Amusat and Ademola 2013).

In Nigeria, the utilization of soybean products in many households led to eating soybean foods (Amusat and Ademola 2013). A study shows that the nutritional status of children is significantly better in soybean using households than in households that did not use soybean. The study also provides evidence that soybean processing had a positive impact on the producer's income (IITA 2017). Soybean is used to fortify cereal products such as bread, baby food, cookies, sandwich, and condiments among others. (Agarwal *et al.* 2013). Soybean by-products are used as fodder to feed animals which can be made into hay or silage. Soybean cake is also an excellent nutritive food for livestock and poultry. Soybean is also used as raw materials for industrial products such as oil, soap insect repellant, cream, inks, crayons, plastics, textiles, bio-diesels among others (McGraw-Hill Encyclopedia of Science and Technology 2005).

Studies indicated that the youths (young people between the ages of 18 and 40 years (CYIAP 2006) possess unique capabilities such as dynamism, strength, adventure, ambition, hilarity, innovation proneness among others (Akwiwu *et al.* 2005). These are assets for agriculture and they might sometimes have their farms or gardens and on the other hand complement parent's farm effort by supplying labour for a wide variety of activities. They receive farm information and in some cases assist parents in analyzing innovations. The participation of youths in soybean is determined by certain personal, social and economic factors like their ages, education, marital status, parents` income, parent's occupation, household size and youth's dependence status. Youth constitute more than 40% of people in the society (CYIAP 2006), with the introduction of

improved technologies in agriculture, a lot of improvement in the rate of involvement in soybean production is established in Nigeria. The technologies include improved varieties, use of herbicides and pesticides, use of machinery, use of fertilizer, improved storage and processing machine must be readily available to increase the output. Generally, with the rapid socio-economic growth now being experienced all over the world, Youth in Africa (including Nigeria) play an important role in value addition of agricultural production. They are the principal labour force in the processing and marketing of agricultural products and they take part actively in farming activities and in processing farm products in addition to their domestic responsibilities (Eugene and Eme 2014). They are fully involved in the generating substantial income through soybean production, processing and marketing of the product (Goldsmith 2008).

Soybean though still regarded as a relatively new crop, has made a successful incursion into the diet of many Nigerians, particularly children and nursing mother because of its high nutritional contents. Despite the high nutritional value of soybean compared other legumes, lack of knowledge of its uses has limited its adoption, production and processing in non-traditional areas of cultivation (Osho *et al.* 2009). To bridge the gap, efforts are being made by research institutes, Non-Governmental Organizations (NGOs) and industries to promote the production, processing and utilization of soybean in Nigeria.

Many youth residing in rural areas are engaged in agricultural activities especially crops like cassava and maize but many of them are not involved in soybean production, over 50 products can be derived from soybean but in Nigeria, only a few are being exploited. The problems of mass poverty arising from the production and consumption pattern of Nigerians. National Economic Empowerment and Development Strategies (NEEDS), which

is a programme of the Federal Government of Nigeria, spelt out in clear terms the need to assist farmers in provision of agricultural inputs to tackle poverty since half of Nigerian's poor people work in that sector (Nigerian Farmers' Group 2018). Nigerian Farmers' Group (2018) reported that there is a need to support the value addition that has not been maximized perfectly to make soybean product available and to meet the demand of people. Soybean production has not been meeting the demand for consumption and industrial usage. Vast resources needed in the value chain are either non-utilized or under-utilized. Young farmers' use of outdated techniques, capital is scarce and investment is lean. Hence, the processing is traditional; the output is insufficient and the basic needs of people remain unfulfilled. There is need for processors and industries to explore the value addition in the agricultural crop, particularly soybean value chain. This will help to generate employment, bridge the gap between processor and consumers, and thereby alleviate poverty in the nation. The aforementioned problems arouse the quest to assess the young farmer's involvement in the soybean value addition production with aim of describing the socio-economic characteristics of young farmers that are involved in soybean value addition process; determine the perception of young farmers towards the soybean value addition process; examine the awareness of soybean value addition available to young farmers; determine the level of youth involvement in soybean value addition and examine the constraints in value addition of soybean production among rural young farmers.

The hypothesis was formulated in null form as follows: there is no significant relationship between the socio-economic characteristics of young farmers and their involvement in the soybean value addition process.

MATERIALS AND METHODS
This study was conducted in Oyo State in Southwestern Nigeria, Oyo state was purposively chosen as the study area in southwestern Nigeria because of large participation of rural youth that is involved in soybean production and concentration of agricultural technologies relating to soybean production in the area through National Agricultural Research Institutes (NARIs) and IITA.

Oyo State formed in 1976 is located at coordinates 8° 00′N 4°00′E. Its capital is Ibadan with average daily temperature ranges between 25° C (77.0° F) and 35° C (95.0° F), almost throughout the year. Agriculture is the main occupation of the people of Oyo State. The climate in the state favours the cultivation of crops like maize, yam, cassava, millet, soybean, rice, plantains, cocoa, tobacco, palm oil and palm kernels, cotton, kola nuts and cashew. Oyo state is blessed with various states, federal and international agency that provides administrative service and technical support to farmers.

The target population of the study was young farmers between the ages of 18 and 40 years (CYIAP 2006) that are involved in soybean value addition activities in Oyo state. Oyo state is divided into 4 agricultural zones. These are Ibadan / Ibarapa zone (14 local governments), Saki zone (10 local governments), Ogbomosho-land zone (5 local governments) and Oyo zone (4 local governments). A multistage sampling procedure was used to select a representative proportion of the respondents for the study. At the first stage, purposive sampling technique was used to select two zones (Ibadan/Ibarapa zone and Oyo zone) from the four agricultural zones because there is a high level of soybean production in the area. At the second stage, purposive and proportionate sampling technique was used to select 2 Local Governments Areas in Ibadan/Ibarapa zone namely (Akinyele and Ido) LGAs and 1 Local

Government Area in Oyo Zone (Afijio) LGA. Hence, 3 LGAs were chosen based on the fact that there is a high concentration of young soybean processor. At the third stage, the proportionate technique was used to select eight communities in Akinyele LGAs, seven communities in Ido LGAs and six communities in Afijio LGAs representing 20% of the rural communities in each of the LGAs selected. In all 21 communities were selected for the study. At the fourth stage, simple random sampling technique with sample frame of early farmers between the ages of 18 and 40 years (CYIAP, 2006) was used to select 6 processors from each community making a total of 126 youths that are involved in soybean value addition for the study.

Structured validated interview scheduled containing both open and closed-ended questions were used to elicit relevant information from the respondents. Secondary data were sourced from the proceedings, textbooks, journals, annual reports of FAO, IAR&T, NAERL and IITA. The involvement was determined by indicating the steps in the soybean value addition process the respondent engaged in their communities. Their responses were against a 4- point rating scale of Often (3), Occasionally (2), Rarely (1) and not at all (0). The maximum and minimum score was 27 and 0 respectively. The total involvement score per respondent was further classified into three levels: high, medium and low using mean score plus/ minus standard deviation. That is: high for scores above mean plus standard deviation; low for scores below mean minus standard deviation; and medium for scores between the two. The respondents' perception was measured by asking the respondents to react to eight perception statements. Their reaction was against five-point Likert-type scale of strongly agree (5), agree (4), undecided (3), disagree (2), and strongly disagree (1) for the positive and vice versa for the negative statements. The total perception score per

respondent was further classified into three categories: positive, indifferent and negative using mean score plus/minus standard deviation. That is: positive for scores above mean plus standard deviation; negative for scores below mean minus standard deviation; and indifferent for scores between the two. Descriptive statistics such as mean, frequency

Table 1: Distribution of socio-economic characteristics of respondents (n = 126)

Variable	Frequency	Percentage
Age (Years)		
15 – 20	17	13.5
21 – 25	40	31.7
26 – 30	15	11.9
31 – 35	54	42.9
Sex		
Male	34	27.0
Female	92	73.0
Marital Status		
Single	47	37.3
Married	76	60.3
Widowed	03	2.4
Indigenous status		
Indigene	101	84.2
Non-indigene	25	19.8
Formal education levels		
Formal education	40	31.7
No formal education	86	68.3
Main occupation		
Farming	70	55.5
Trade	39	31.0
Civil Servant	17	13.5
*Source of capital		
Personal savings	67	53.2
Loans	26	20.6
Contributions	87	69.1
Cooperatives	98	77.8
*Source of labour		
Self	74	93.2
Family	28	23.3
Hired	24	20.0
Income from processing soybeans ($)		
10,000-30,000	59	46.8
40,000- 60,000	38	30.2
70,000- 100,000	29	23.0

*Multiple responses

count, percentages, means and standard deviations, together with inferential statistics such as Chi-square and Pearson Product Moment Correlation were used to check the validity and reliability of the data.

RESULTS AND DISCUSSION
Socio-economic characteristics of the respondents
Results in Table 1 shows that the respondents were predominantly of female (73.0%), this implies that soybean value addition in rural areas is mostly done by the female as a means of livelihood, this might be connected with the fact that the value addition was not labour intensive. The majority (84.2%) was indigene with a mean age of 27.80± 7.17 years, this implies that the respondents were in their active and productive age which could be deployed effectively to soybean value addition activities. Furthermore, the majority (60.3%) married with an average household size of 2.50±1.58 persons; this implies that the respondents had family responsibilities to cater for with revenue from soybean value addition activities. It also shows that higher

percentage (53.3%) depended on personal saving as a source of capital for a startup in soybean value addition; this may be as a result of inaccessibility to loan/ capital as youth or female. Also, the majority (93.2%) identified family labour as the main source of labour, this pointed to the fact that they don't have enough capital to hire labour. Besides, the mean income from soybean value addition per annum was \$133.50 ± 81.69. Many (68.3%) had no formal education and the main occupation of many (55.5%) was farming. The findings agreed with Muhammed (2007) who claimed that rural dwellers either directly or indirectly depend on agriculture.

Sources of information about soybean value addition activities
The results in Table 3 shows that the majority (76.2% and 68.2%) of the respondents always received information about soybean value addition processes as shown in Table 2; from friends/relatives and radio/ television respectively. Also, about 39.7% often received information from research institutes. The respondents' accessibility to the

Table 2. Soybean value addition process

S/N	Soybeans products	Process
1	Fresh Soybeans	If the beans are picked just after the pod is filled out (when the pod is plump and green), they can be cooked as a green vegetable, similar to lima beans.
2	Dried Soybeans	Dried mature beans must first be soaked before cooking.
3	Roasted Soybeans	Dried uncooked soybeans can be spread on shallow trays and roasted lightly in a 300 degree
4	Soy Grits:	Coarsely ground dried soybeans cook in about half the time of whole dried beans (see above) and have a meat-like texture.
5	Soy Flour	Soy flour is a fine powder, rich in protein, with almost no starch or gluten.
6	Soy Milk	The easiest way to make soy milk is to gradually stir 8 cups of cold water into 2 cups of soy flour. Heat to simmering in the top of a double boiler, then lower heat, cover and cook 40 minutes.
7	Soy Sprouts	Sprouted dried soybeans are a very nutritious fresh vegetable that can be steamed, fried, creamed, or used fresh in salads, soups, stews or casseroles.
8	Soy Curd (Tofu)	Soy curd is curdled soy milk made by adding acid or mineral salts (calcium sulfate) to the milk.

information from the Oyo State Agricultural Development Programme (OYSADEP) extension outfit was not encouraging as many (51.6%) of them didn't receive the information from the quarter. This implies that the major sources of the information were friends/ relatives, radio/ television and research institutes. This result agrees with that of Eugene and Eme (2014) who had earlier reported that young farmers use more of non-professional interpersonal sources of information such as friends and other farmers than professional interpersonal sources of information.

Awareness of the soybean value addition activities

Awareness was categorised into three levels using their mean scores and standard deviation; based on the assumption that the level of involvement scores assumed normal distribution. Results in Table 4 shows that many (57.1%) of the respondents had high, few (24.6%) had medium and very few (18.3%) had low awareness of soybean value addition activities in the study area. This indicated that more than half of the respondents had a high level of awareness about available soybean value addition activities.

Perception of rural youth in the soybean value addition process

The perception was measured using Likert's scale and frequency count analysis. The findings in Table 5 reveals that more than half of the respondents strongly agreed with

perceptional statements such as that soybean value addition processing are time-consuming (76.2%), soybean value addition processing is labour intensive (70.6%), poor pricing is a challenge to soybean enterprises (63.5%) and soybean value addition processing equipment are not expensive (51.6%).

Furthermore, following frequency count and percentages analysis the finding in Figure 1 (pie chart) reveals 76.2% had favourable perception, 17.5% were indifferent and 6.3% had unfavourable perception. This indicates that majority of the youth have unfavourable perception about soybean value addition
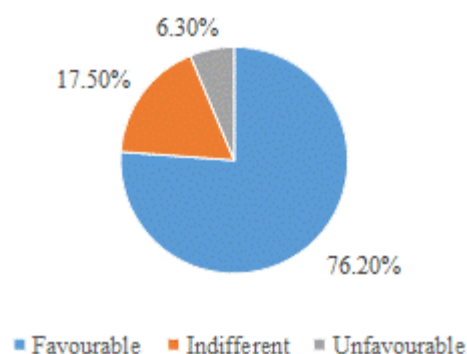

Figure 1: Respondent's level of perception towards rural youth in soybean value addition activities

Table 4: Respondent's level of awareness in soybean value addition

Level of Awareness	Frequency	Percentage
High	72	57.1
Medium	31	24.6
Low	23	18.3

Table 3: Sources of information about soybean value addition activities (n=126)

Sources of information	Always Frequency (F) (%)	Often F (%)	Rarely F (%)	Not at all F (%)
Extension agents	10 (7.9)	20 (15.9)	31 (24.6)	65 (51.6)
Research institutes	13 (10.3)	50 (39.7)	40 (31.7)	23 (18.3)
Friends/ relatives	96 (76.2)	10 (7.9)	6 (4.8)	14 (11.1)
Religion institution	03 (2.4)	10 (7.9)	11 (8.7)	102 (81.0)
Radio/ Television	86 (68.2)	20 (15.9)	04 (3.2)	16 (12.7)
Newspapers	15 (11.9)	16 (12.7)	18 (14.3)	77 (61.1)

process. This might be connected with the fact that soybean value addition processing machines were not expensive and high plant protein content of the value-added products.

Level of rural youth involvement in soybean value addition activities

Level of involvement was categorised into three levels using their mean scores and standard deviation; based on the assumption that the level of involvement scores assumed normal distribution. The results in figure 2 show that the respondents have high (73.8%) level of involvement in soybean value addition. These findings in line with internal group dynamics theory supported by the findings of Akpomovia (2010) who also identified some other group characteristics as part of determinants to the rate of involvement of an organization in rural development activities.

Constraints militating against the involvement of rural youth in soybean value addition activities.

The constraints were measured using mean and standard deviation analysis. The results in
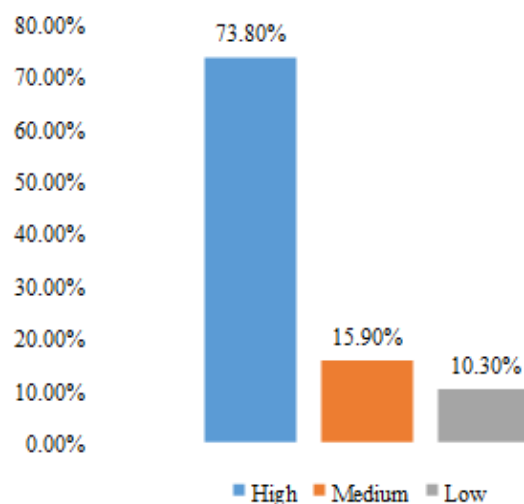

Figure 2: Respondent's level of involvement in the soybean value addition process

Table 5: Respondent's Perception of Rural Youth in Soybean value addition process

Perception Statements	SA	A	U	D	SD	Mean
Soybean valued products upset my stomach	03 (2.4)	02 (1.6)	11(8.7)	21 (16.7)	89 (70.6)	4.29
Soybean products have a short shelf life	06 (4.8)	02 (1.6)	31 (24.6)	71 (56.3)	16 (12.7)	3.26
Soybean milk is readily available	21 (16.7)	20 (15.9)	03 (2.4)	65 (51.6)	17 (13.5)	2.73
Poor pricing is a challenge in soy bean enterprises	80 (63.5)	27 (21.4)	02 (1.6)	12 (9.5)	05 (4.0)	1.93
Soybean value addition processing equipment is not expensive	65 (51.6)	16 (12.7)	22 (17.5)	10 (7.9)	13 (10.3)	2.48
Soybean value addition products are a good source of money	16 (12.7)	50 (39.7)	02 (1.6)	50 (39.7)	08 (6.3)	2.18
Soya cheese is easy to purchase	18 (14.3)	80 (63.5)	05 (4.0)	08 (6.3)	06 (4.8)	1.87
Soybean flavour soup is delicious and nutritive	19 (15.1)	83 (65.9)	04 (3.2)	06 (4.8)	14 (11.1)	1.80
Livestock enjoys soybean by-product (waste materials)	15 (11.9)	91(72.2)	02 (1.6)	08 (6.3)	10 (9.7)	1.62
Soybean value addition process is time-consuming	96 (76.2)	13 (10.3)	04 (3.2)	03 (2.4)	10 (9.7)	1.59
Soybean processing is labour intensive	89 (70.6)	20 (15.9)	05 (4.0)	02 (1.6)	10 (9.7)	1.52

Grand mean = 33.54 SA- Strongly Agree, A- Agree, U- Undecided, SD- Strongly D - Disagree,

Table 6 show that inadequate processing skill (mean= 3.65) ranked highest among the constraints militating against the involvement of rural youths in soybean value addition activities, followed by hazard involved in activities (mean= 3.37) and Low shelf life-span have highest (mean= 2.88) in that order. The poor state of the road system (mean= 1.32) ranked least among the constraints. This implies that inadequate processing skills and hazard involved in the processing were main constraints to rural youth involvement in soybean value addition activities in the study area, this finding corroborates the result of Nigerian Farmers' Group (2018). This might

negatively affect the choice of soya products in diet despite their high level of acceptance.

Hypotheses Testing
Pearson's correlation analysis was used to test the hypothesis. The results in Table 7 revealed that the household size (r=0.820, p≤0.01) and income (r=0.583, p≤0.01) were positive and significantly related to the involvement youth in soybean value addition process. This implies that the higher the household size and income from soybean value addition activities, the higher their involvement in soybean value addition activities. This might be connected to the free labour from the

Table 6: Constraints militating against the involvement of rural youth in soybean value addition activities.

Variable	Mean	Std. dev.	Rank
Inadequate processing skills	3.65	1.29	1st
Hazard involved in soybean processing	3.37	1.39	2nd
Low shelf life-span	2.88	1.15	3rd
High cost of raw material in the industry	2.78	1.40	4th
High processing equipment	2.42	1.15	5th
Low palatability	2.35	0.95	6th
There is no access to the credit facility	2.16	0.93	7th
There is low patronage	1.88	0.77	8th
There is poor extension service	1.77	1.16	9th
Inadequate expertise/ workforce in the processing industry	1.76	1.06	10th
Low soybean availability	1.73	1.02	11th
There is low household acceptance	1.63	1.04	12th
Unfavourable market situation	1.58	1.16	13th
Lack of storage facility	1.46	0.95	14th
Poor state of road system	1.32	0.73	15th

Grand mean = 2.19

Table 7: Result of the relationship between socio-economic characteristics of the rural young farmers and their involvement in the soybean value addition process

Variables	Correlation coefficient (r)	P-value	Decision
Age	0.100	0.036	NS
Household size	0.820**	0.000	S
Income soybean value addition activities	0.853**	0.000	S
**. Correlation is significant at the 0.01 level (1-tailed).			
S= Significant, NS= Not significant			

Table 8: Results association between socio-economic characteristics of the rural young farmers and their involvement in soybean value addition

Variables	χ^2-value	Df	P-value	Decision
Sex	41.029[*]	1	0.001	Significant
Marital status	17.334[*]	2	0.002	Significant
Indigenous status	7.562[*]	2	0.023	Significant
*Significant at the 0.05 level (2-tailed)				

household and encouragement due to the income from their activities.

Also, the results chi-square analysis in Table 8 reveals that sex (χ^2=41.029, P≤0.05), indigenous status (χ^2=7.562, P≤0.05) and marital status (χ^2=17.334, P≤0.05) were positive and significantly associated to their involvement in soybean value addition process. This agrees with Adesope (2006) and Adebayo *et al.* (2002) who opined that youths are less conservatives in their nature and are more receptive to change.

CONCLUSION

The results of analyses carried out show that majority of the respondents who engage in value addition process were female with fairly good formal education. They have a positive perception with an averagely high level of awareness and involvement in soybean value addition. They faced many constraints such as low household acceptance; inadequate processing skills affect the production of soybean production among others. It was recommended among others that rural development stakeholders need to promote orientation and concrete information to improve the involvement and perception of the rural young farmers, provide infrastructural facilities to the people in rural areas to aid value addition processes and facilitate adequate and functional credit facilities to cater for the problem of capital faced by the young rural farmers. These findings will provide a database for policymakers on how to enhance value addition of arable crops, soybean inclusive, in their future developmental programmes.

REFERENCES

Adebayo K and Okuneye PA 2005 Economics of Agricultural Extension In: Agricultural Extension in Nigeria Adedoyin SF (ed.) Agricultural Extension in Nigeria. Ilorin, Journal of Agricultural Extension Society of Nigeria (AESON)*,*79:251p.

Adedoyin SF 2005 Youth and Children Programme in Nigeria, In Agricultural Extension in Nigeria. Adedoyin SF (ed.) Agricultural Extension in Nigeria. Ilorin, Journal of Agricultural Extension Society of Nigeria (AESON), 79:208 - 219.

Adeyemi AA and Adekunmi AO 2005 Assessment of Rural Children Involvement in Arable Crops Production Activities in Odo-Otin Local Government Area of Osun State, Nigeria in: Proceedings of the 7th National Research Conference and Network Meeting of CYAI in Nigeria Held in Tai Solarin. University of Education, Ijebu-Ode, Nigeria. Nov. 28 – Dec. 1: 35 – 38.

Adesope OO 2006 Learning with concept and knowledge maps: A meta-analysis. Review of Educational Research, 76 (3):413-448.

Agarwal DK, Billore SD, Sharma AN, Dupare BU and Srivastava SK 2013 Soybean: Introduction, Improvement, and Utilization in India: Problems and Prospects. Agricultural Research, 2:293–300.

Akpomovia OB 2010 Self-Help as a Strategy for Rural Development in Nigeria: A Bottom-Up Approach. Journal of

Alternative Perspective in Social Sciences, 2(1): 88-111.

Akwiwu CO, Nwajiuba CU and Nnadi FN 2005 Harnessing the potentials of youths for rural household food security in Nigeria. Animal Production Research Advances, 1:104 -110.

Amusat AS and Ademola AO 2013 Utilisation of Soybean in Oniyo Community of Oyo State, Nigeria. Global Journal of Science Frontier Research Agriculture and Veterinary, 13 (7):7-15.

CYIAP-Network 2006 Challenges faced by children and youth: The responses of Development service providers in Nigeria. Torimiro DO and Adisa BO (eds.) Proceedings of the 8th National Research Conference and Network Meeting of Children and Youth in Agriculture Programme in Nigeria (CYIAP-Network) held the Department of Agricultural Extension and Rural Development, University of Ilorin, Ilorin, Kwara State. November 27-30: 2- 11.

Eugene O and Eme OI 2014 Role of the Youths in National Development. Singaporean Journal of Business Economics, and Management Studies, 3 (2):164- 182.

Ezedinma FOC 1965 The Soybean in Nigeria. Production Agricultural Society of Nigeria, 3:13-16

FAO/WHO/UNU 2007 Protein and amino acid requirements in human nutrition, WHO technical report series, WHO Press:150p

Food and Agriculture Organisation, FAO 2009 The state of food and agriculture; also on http://www.fao.org/3/i0680e/i0680e.pdf .

Goldsmith PD 2008 Economics of Soybean Production, Marketing, and Utilization. In LA. Johnson, PJ White & R Galloway (eds.), Soybeans: Chemistry, production, processing, and utilization, Urbana: AOCS: 117-150.

International Institute of Tropical Agriculture-IITA 2017 Soybean annual report. Available at https://www.iita.org/wp-content/uploads/2019/01/2017-IITA-annual-report.pdf.

International Labour Organisation-ILO 2009 Value Chain Development for Decent work: A guide for development practitioners, governments and private sector initiatives. www.ilo.org/wcmsp5/groups/public/ed_emp/emp_ent/documents/instructionalmaterial/wcms_115490.pdf.

Muhammed MAS 2007 Rural Development and Enterprise Development, Alexandria: Sustainable Development Association.

McGraw-Hill 2005 Concise Encyclopedia of Science & Technology, 5th Edition by Mcgraw-Hill professional, USA.

Nigeria Farmers' Group 2018 Online news. Suite 03, White House, Anguwan Lambu, Along Keffi-Akwanga Express Road, Keffi, Nasarawa State. NFGCS Farm Centre, Ga'ate Community, Along Keff-Akwanga Express Road, Kokona LGA, Nasarawa. Soyabean https://nigeriafarmersgroup.org/cropinfo/soyabeans/.

Osho SM, Akinleye SO and Akanni KA 2009 Determinants of Soybean Production in Southwestern Nigeria. acta SATECH, 3 (1): 29- 34.