

Restricted Usage of Soya Beans in Oju Local Government Areas of Benue State, Nigeria

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ABSTRACT

This study was designed to identify regular usage of soya beans in Oju Local Government Area (LGA) of Benue State, Nigeria. Specifically, the study determined the (1) regular uses of soya beans in the menu of households in Oju LGA of Benue State, (2) accessibility of soya beans to households in Oju LGA of Benue State, (3) nutritional value/benefits of soya beans (4) different uses of soya beans in the diet. It answers three research questions and tested three hypotheses. The population was made up of all literate and illiterate homemakers. Simple random sampling technique was used to select 240 homemakers from the population. The instrument for the study was structured questionnaire. The questionnaire was dully validated and the reliability established prior to utilization. Copies of the instrument was administered on 240 subjects, filled and were retrieved. Means and t-test were used for data analysis. The findings from this study includes; (1) five (5) regular usage of soya beans, (2) five accessibility of soya beans, (3) five (5) nutritional values of soya beans and five awareness in the uses of soya beans. Based on the findings it was recommended that 1) Adequate enlightenment campaign should be carried out by government and Non-governmental organization on the importance and nutritive values of soya bean in Oju LGA of Benue State. (*J ARAHE 24(2):49-55, 2017*)

KEY WORDS: Restricted usage, soybeans, literate, illiterate, homemakers

INTRODUCTION

Background to the study

A soya bean (*Glycine max* L.) is a Legume that grows in tropical, subtropical and temperate climate (Nwamarah, 2005). It originated from china. Soya bean plant was used as Food between 11th & 17th centuries in the eastern China. It was later introduced to other countries such as Philippines, Indonesia, Japan, Vientnam, Thailand, Malaysia, India and Burma. The spread of Soya beans was due to the establishment of sea and land trade routes (Richard and Heid, 2000).

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Soya beans was introduced to and cultivated in Nigeria in 1908. It was accepted as full Legume but more as an industrial crop (Adekoya, 2000). In the 1960s, the bulk of the country's crop soya beans came from Guinea savanna belt of Benue, Niger and kwara States. Nigeria became the highest producer of soya bean in West Africa. Today about 30,000–70,000 hectares of Land was established by small scale farmers with an average yield of 500 kg in Benue State (Adekoya, 2000).

Soya beans occur in various sizes and in several seed coat colours, including yellow, mottled and black or brown. The shells of the matured soya bean are hard, water-resistant and protect the cotyledon and germ (Hypocotyls) from damage. The scar, visible on the seed coat is helium is the micropyle or small opening in the seed coat which can allow the absorption of water.

Soyabean is the most nutritious of all the beans. Adekoya (2000) identified Soya bean as an important source of high

quality but inexpensive protein and oil. It has an average protein content of 40%. Soya bean is said to have the highest protein content of all Food crops compared to other protein- rich Foods such as eggs, meat and fish and it is by far the cheapest. It also has superior amino acid profile compared to other sources of plant protein. The amount of Soya beans Protein consumed by human worldwide is currently relatively low, but there is increasing public and commercial interest, and it has a great potential as a major source of dietary proteins for the future (soya beans; link "<http://www.iita.com>."). The oil content is about 20%, it also consist of 35% carbohydrate and about 5% ash. It is rich in Mineral salts such as Calcium, Phosphorus, Sodium and Manganese as well as Vitamins A, B and D. It also contains Vitamin C when sprouted (Nwamarah, 2005). Osho (2003), stated that soya beans though still largely regarded as a relatively new crop, has made a successful incursion into the diet of many Nigerians, particularly children and nursing mothers. Soybean derivatives such as soy-gari, soy-milk, soy-ogi, soy-ebiripo and soy-lafun have been developed and found to be a good substitutes for more conventional food ingredient like melon, cow-milk and cow-pea. Therefore, the value of soybean both for satisfying human dietary needs and for compounding livestock feeds cannot be overlooked. There is need to stimulate and encourage the production of soybeans in Benue state.

The knowledge and use of soya bean will help to reduce the malnutrition being -suffered by Children-Malnutrition is a term used for all forms of illness resulting from a shortage or excess of nutrients in the body (National Planning Commission-NPC, 2001). Protein-energy malnutrition (PEM) is one of the major forms of malnutrition in developing countries including Nigeria Soya beans is one of the World's most valuable Legumes with tremendous potential for alleviating protein-based malnutrition Osho (1993), observed that soymilk and soy yoghurt have been an effective alternative to artificial milk for infants and children, who have a particular need for adequate protein in their diets or exhibit allergic reactions to artificial milk (Addo and Oguntona, 1993).

Soyabean is very useful in the preparation of biscuit, bread, pastries, soup, snacks and soya milk, (IITA, 1989 and Brownson, 2009), Approximately half of the carbohydrate in soya beans is crude fibre (Soya beans Utilization Alternative-SUA (1988). Fiber decreases intestinal transmitted diseases. Cummings (1982), Burkilt (1982) and Brownson (2009) in line with the above stated that the large

amount of fibres consumed by African natives protect them from suffering from many diseases common to the Western man such as Colon cancer, Cardiovascular disease, hemorrhoids, and varicose veins of the legs. Industrially, soya beans oil extract are used in the manufacture of margarine, vanaspati, and also as medium of paint, vanishes, linoleum, printing inks. After the oil extraction, the residue cake/meal is very rich in protein and mineral salt and very valuable as fertilizer or as feed for livestock or for preparing flour for general consumption. De-fatted soya flour is of great importance in diabetics' diet. As its starchy content and saccharides are low, it is suitable for diabetic patient (<http://www.soya.be/history> of soya beans). Soya bean is used in the fresh State and also in the manufacture of beans curd and vegetable soup. When soymilk is boiled, film is formed on the surface. This film is collected, fried and used in soup, it is rich in protein. Soya beans are used as green Vegetable and are preserved by canning or freezing the soya bean crop is used as forage for ploughing under, before planting certain crops such as sugarcane.

Unfortunately, soya beans has been very difficult to cook; hence it cannot be made into Staple food in Benue in particular and in Nigeria as a whole. With the present economic depression in Nigeria, the level of protein intake is very low resulting in high degree of malnutrition. The staple Food in Benue State contain mostly Carbohydrates, since soyabean is a source of complete proteins and it is very cheap, it can be a regular feature of the menu of many families in Benue State. There is need therefore to enlighten families about the nutritional value/benefits of soya beans and the need to use it regularly in order to reduce the degree of malnutrition in Benue State.

Objective of the study

The general objective of the study was to identify the impact of soya beans among the families in Benue State of Nigeria. Specifically, the study determined the:

1. Regular use of soya beans in the menu of households in Oju L.G.A Benue State.
2. Accessibility of soya beans of households in Oju L. G.A of Benue State.
3. Nutritional Value/benefits of soya beans in Oju L.G.A Benue State.
4. The different uses of Soya beans in the diet in the rural and urban areas in Oju L.G.A Benue State.

Research questions

The following research question were raised

1. What are the uses of regular use of soya beans in the menu of households in Oju L.G.A Benue State?
2. What are the Accessibility of soya beans to households in Oju L.G.A of Benue State?
3. What are the Nutritional Value/benefits of soya beans in Oju L.G.A Benue State
4. What are the difference in the uses of Soya beans in the diet of rural and urban areas in Oju L.G.A Benue State?

Hypotheses

The hypothesis was formulated and tested at 0.05 level of significance.

1. There is no significant difference in the regular usage of soya beans menu to households in the rural and urban areas in Oju L.G.A Benue State.
2. There is no significant difference in the accessibility to soya beans to households in the rural and urban areas in Oju L.G.A Benue State.
3. There is no significant difference in the nutritional value/benefits of soya beans in rural and urban areas in Oju L.G.A Benue State.
4. There is no significant difference in the uses of Soya beans in the diet in the rural and urban areas in Oju L.G.A Benue State.

Methodology

Research design

The study adopted a survey research design. It sought information from families/ homemakers in their planning and preparation of soya beans for families in Benue State.

Population for the study

The population for the study consist of Literate and illiterate homemakers (108,000) (National Population Commission (NPC) 2006). They plan and prepare meals for families in Oju LGA.

Sample and sampling technique for the study

Simple random sampling technique was used to select 240 homemakers from the population. Twenty-Five (25) homemakers from each of the six wards in the urban centers making a total of 150 Homemakers and Fifteen (15) homemakers from each of the six wards in the rural centers,

making a total of ninety (90) homemakers.

Instrument for data collection

A structured questionnaire based on a five point scale of strongly agree, to strongly disagreed was used for data collection. The instrument was subjected to validation by two experts from the department of Home Science and Management, University of Agriculture, Makurdi.

Method of data collection

The 240 questionnaire were administered by hand by the researcher and two assistants to the illiterate homemakers were assisted in interpretation of the questionnaire. All the 240 copies of the questionnaire were retrieved after completion.

Method of data analysis

Mean was used to analyze the data collected. The mean of 3.5 was used for decision making, such that a mean rating on any item by the respondents equal to or above 3.5 was taken as "Agree" while any mean rating lower than 3.5 was taken as "Disagree" and t-test was used to test all the hypotheses at 0.05 level of significant.

Research Question 1: What are the uses of regular use of soya beans in the menu of households in Oju L.G.A Benue State.

Findings regular use of soya beans

1. Homemakers in Oju L.G.A do not used soya beans regularly in the diet of their family inspite that it does not give them any discomfort they rather made use of cow pea in their diet (Table 1).

2. Homemakers in Oju L.G.A do not use soya beans regularly because they believe that its preparation is stressful and that it consumers much fuel (Table 1).

Hypothesis 1: There is no significant difference in the regular usage of soya beans menu to households in the rural and urban areas in Oju L.G.A Benue State.

Table 2 shows a calculated t- value of 4.549 which is significant at .000. Since the P value of .000 is less than the alpha level ($p < 0.05$), the null hypothesis which states that there is no significant difference in the regular usage of soya beans menu to households in the rural and urban areas in Oju L.G.A Benue State was rejected. Consequently there is a significant difference.

Research Question 2: What are the Accessibility of soya beans of households in Oju L.G.A of Benue State?

Findings Accessibility of Soya beans

1a. soya beans is not cheap and readily available to the Homemakers in Oju L.G.A (Table 2).

b. Other proteinous Foods such as meat, milk, fish and egg are easily accessible than soya beans in rural and urban area of Oju L.G.A (Table 2).

c. soya beans products such as flour, snacks, are not commonly found in markets and shops in Oju LGA (Table 2).

Table 3 revealed that the five items had a mean range of 2.01 to 3.999. This indicated that many Homemakers especially those in the rural areas do not have access to soya beans while some homemakers in the urban areas have ac-

cess to soya beans (Item 1). Homemakers in the rural and urban areas disagreed that soya beans is cheaper than other beans (Item 2). The table also revealed that other proteinous Foods such as fish, eggs, meat, are easily accessed than soya beans by Homemakers. Soya beans products such as flour; snacks were not readily available in the rural areas, while they were available in the urban areas (Item 4 & 5).

Hypothesis 2: There is no significant difference in the accessibility to soya beans in the households in rural and urban areas in Oju L.G.A Benue State.

Table 4 shows a calculated t- value of 3.973 which is significant at .000. Since the P value of .000 is less than

Table 1. Mean Ratings of Respondent by Rural and urban Homemakers on the regular use of soya beans

S/No	Regular uses of soya beans	Rural respondents N ₁ =90		Urban respondents N ₂ =150		Total respondents N ₃ =240	
		X ₁	Decision	X ₂	Decision	X ₃	Decision
1	The family make use of Soya beans regularly.	2.72	Disagreed	3.51	Agreed	3.21	Disagreed
2	The families consume Cowpea more regularly than soya beans.	1.2	Disagreed	1.9	Disagreed	1.63	Disagreed
3	Consumption of soya beans regular does not give the Families any problem.	4.15	Agreed	3.53	Agreed	3.76	Agreed.
4	Preparation of soya beans regularly is not stressful.	1.93	Disagreed	2.14	Disagreed	2.06	Disagreed
5	Cooking soya beans regularly consumes more fuel.	4.6	Agreed	4.9	Agreed	4.79	Agreed

N₃: Total Respondents, N₂: Rural Respondents, N₁: Urban respondents, X₁: Mean Ratings of Rural Homemakers, X₂: Mean Rating of Urban Homemakers, X₃: Mean Ratings of Rural and Urban Homemakers. Table1 shows that the five items had mean ratings of 1.63–4.79. This revealed that some of the Homemakers, especially in the rural area hardly made use of soya beans, while some in the urban areas made use of it more often. Item 2 revealed that homemakes make use of cowpea more than soya beans. Home Economist in the rural or urban areas agreed that consumption of soya beans does not give them any discomfort in item 3 but its preparation is stressful and consume a lot of fuel (item4 & 5). α : 0.05

Table 2. t-test analysis of difference between Rural and urban Homemakers on the regular use of soya beans

Group	N	Mean $\bar{x}$	Standard deviation	Df	t-cal	p (2-tailed)
Rural	90	2.9300	1.4412	239	4.549	.000
Urban	150	3.19600	1.2157			
Total	240					

Table 3. Mean Ratings of Respondents of Homemakers on the Accessibility of soya beans

S/No	Accessibility of soya beans	Rural respondents N ₁ =90		Urban respondents N ₂ =150		Total respondents N ₃ =240	
		X ₁	Decision	X ₂	Decision	X ₃	Decision
1	Soya beans is readily available in the locality.	1.95	Disagreed	3.51	Agreed	3.34	Disagreed
2	Soya beans is cheaper than other beans.	1.87	Disagreed	1.9	Disagreed	2.01	Disagreed
3	Other protentous Foods such as meat, fish, egg and milk are easily accessible than soya milk	4.55	Agreed	3.53	Agreed	3.99	Agreed
4	Readymade soya bean flouris available in the community.	1.35	Disagreed	2.14	Agreed	2.87	Disagreed
5	Soya beans snacks are sold in shops and in open markets in this locality.	1.85	Disagreed	4.9	Agreed	3.35	Agreed

N₃: Total Respondents, N₂: Rural Respondents, N₁: Urban Respondents, X₁: Mean Ratings of Rural Homemakers, X₂: Mean Rating of Urban Homemakers, X₃: Mean Ratings of Rural and Urban Homemakers

the alpha level ($p < 0.05$), the null hypothesis which states that there is no significant difference in the accessibility to soya beans in the household in rural and urban areas in Oju L.G.A Benue State was rejected. Consequently there is a significant difference.

Research Question 3: What are the Nutritional Value/benefits of soya beans in Oju L.G.A Benue State?

Table 5 revealed that the five items had a mean range of 4.14–4.48 this indicated that both rural and urban areas. Homemakers are aware of the nutritive values of soya beans in Oju L.G.A. They agreed that soya beans contain proteins, vitamins and minerals, carbohydrates and oil (items 1, 2 & 3 respectively). The table also revealed that homemakers in both rural and urban areas agreed that soya beans have greater advantages over other leguminous plants and that it contributes to the growth and development of family members (Items 4 & 5 respectively).

Hypothesis 3: There is no significant difference in the nutritional value/benefits of soya beans in rural and urban areas in Oju L.G.A Benue State.

Table 6 shows a calculated t- value of 57.452 which is sig-

nificant at .000. Since the p value of .000 is less than the alpha level ($p < 0.05$), the null hypothesis which states that there is no significant difference in the nutritional value/benefits of soya beans soya in the household diet in the rural and urban areas in Oju L.G.A Benue State was rejected. Consequently there is a significant difference.

Research Question 4: What are the difference in the uses of Soya beans in the diet in the rural and urban areas in Oju L.G.A Benue State.

Table 4 indicated that majority of the Homemakers in the rural and urban areas of Oju L.G.A, agreed on the uses of soya bean with the mean rating of 4.04 to 4.53. Only few Homemakers in rural areas (with the mean ratings of 3.38), do not agree that soya beans oil is good for cooking and it does induce obesity (items 3).

Hypothesis 4: There is no significant difference in the uses of Soya beans in the diet of household in the rural and urban areas in Oju L.G.A Benue State

Table 7 shows a calculated t- value of 14.992 which is significant at .000. Since the p value of .000 is less than the alpha level ($p < 0.05$), the null hypothesis which states

Table 4. t-test analysis of difference between Rural and urban Homemakers in the accessibility to soya beans

Group	N	Mean $\bar{x}$	Standard deviation	Df	t-cal	p (2-tailed)
Rural	90	2.2940	1.29177	239	3.971	.017
Urban	150	2.7960	1.40112			
Total	240					

Table 5. Mean Ratings of Responses by rural and Homemakers on their awareness of the nutritive values of soya beans

S/No	Nutritional value of soya beans	Rural respondents N ₁ =90		Urban respondents N ₂ =150		Total respondents N ₃ =240	
		X ₁	Decision	X ₂	Decision	X ₃	Decision
1	Soya beans is rich protein.	4.02	Agreed	4.76	Agreed	4.48	Agreed
2	Soya beans contain vitamins and minerals.	3.77	Agreed	4.4	Agreed	4.16	Agreed
3	Soya beans contains carbohydrate and oil	4.13	Agreed	4.73	Agreed	4.23	Agreed
4	soya beans have greater advantages than other leguminous plant.	3.82	Agreed	4.36	Agreed	4.15	Agreed
5	Soya beans contribute to the growth and development of family members.	3.84	Agreed	4.32	Agreed	4.14	Agreed

N₃: Total Respondents, N₂: Rural Respondents, N₁: Urban Respondent, X₁: Mean Ratings of Rural Homemakers, X₂: Mean Ratings of Urban Homemakers, X₃: Mean Ratings of Rural and Urban Homemakers

Table 6. t-test analysis of difference between Rural and urban nutritional value/benefits of soya beans

Group	N	Mean $\bar{x}$	Standard deviation	Df	t-cal	p (2-tailed)
Rural	90	3.9160	.15241	239	57.452	.000
Urban	150	4.5140	.21303			
Total	240					

Table 7. Mean Ratings of Responses of Rural and Urban Homemakers on the uses of soya beans

S/No	Nutritional value of soya beans	Rural respondents N ₁ =90		Urban respondents N ₂ =150		Total respondents N ₃ =240	
		X ₁	Decision	X ₂	Decision	X ₃	Decision
1	Soya beans is used to supplement infant food.	3.58	Agreed	4.74	Agreed	4.32	Agreed
2	Soymilk is a nourishing drink for infants and adults.	4.4	Agreed	4.73	Agreed	4.53	Agreed
3	more dishes could be prepared from soya beans than other beans	3.97	Agreed	4.67	Agreed	4.41	Agree
4	soya beans products such as bread, cake, pastries, soup soymilk are good for the young and aged.	4.91	Agreed	4.73	Agreed	4.42	Agreed
5	Soya beans oil is good for cooking and it does not induce obesity.	3.38	Disagreed	4.44	Agreed	4.04	Agreed

N₃: Total Respondents, N₂: Rural Respondents, N₁: Urban Respondents, X₁: Mean Ratings of Rural Homemakers, X₂: Mean Rating of Urban Homemakers, X₃: Mean Ratings of Rural and Urban Homemakers

Table 8. t-test analysis of difference between Rural and urban Homemakers on the regular use of soya beans in household diet

Group	N	Mean $\bar{x}$	Standard deviation	Df	t-cal	p (2-tailed)
Rural	90	20.14	13.61	239	14.992	.000
Urban	150	23.31	13.74			
Total	240					

that there is no significant difference in the regular use of soya beans in household diet in the rural and urban areas in Oju L.G.A Benue State was rejected. Consequently there is a significant difference.

DISCUSSION

The findings of the study on the regular use of soya beans (tables) that Homemakers in the rural areas of Oju L.G.A did not make use of soya beans regularly in their diet. In the urban areas of Oju L.G.A, some homemakers also did not make use of soya beans regularly because their mean response was just at the cut-off point (3.51 Table 1, item 1).

Soya beans were accepted as full Legume, but more as an industrial crop when it was introduced and cultivated in Nigeria Adekoya 2000. Families in Oju Local Government area of Benue State consume more Cowpea beans than soya beans. This is probably because cowpea beans were originally cultivated in the tropical region where Nigeria is situated and not introduced as industrial crop like soya beans (Brownson, 2009; Kroll, 1997).

Findings on the accessibility of soya beans by Homemakers in Oju LGA (Table 2) revealed that soya beans are not readily available in the rural areas. This could be due to the fact that soya beans are mainly cultivated in the Guinea Savannah belt of Benue State (Adekoya, 2000). In Oju

LGA, soya beans are neither a cash crop nor a crop cultivated for consumption in the local government area.

Findings in the awareness of the nutritive values of soya beans by the homemakers in Oju LGA (Table 3) showed that the Homemakers generally agreed that soya beans is rich in protein, vitamins, minerals, carbohydrates and oil and contribute to the growth and development of family members (James, 1998). The awareness is more pronounced in the urban areas. This is in agreement with the information retrieved from the internet (www.lita.com 2007).

Findings from the Study on the uses of Soya beans (Table 4) indicated that homemakers in Oju LGA are aware that soya beans is used to supplement infant food; soya beans products are good for the young and the aged as observed by Nwamarah (2005), more dishes could be prepared from soya beans than other beans. The findings also corroborated the information retrieved from the internet ([http://www.soya.be/history of soya beans](http://www.soya.be/history%20of%20soya%20beans)), which stated that soya bean is very useful in the preparation of bread, biscuits, cake, pastries, snack, soup, soymilk etc. It also stated that industrially, soya beans oil extract are used in the manufacture of margarine vanaspati.

The findings of this study revealed that many homemakers have come in contact with soya beans and its various uses, and have agreed that it is a good source of protein that can equate animal source of protein. The respondents

also obtain information on the uses and preparation of soya bean from enlightenment campaign and workshops.

CONCLUSION

In this study, Homemakers do not use soya beans regularly in their meal preparation despite its rich source of protein and other nutrients. The study further showed that Homemakers do not readily access soya beans in their locality. This may account for their not making use of soya beans in their meal preparations.

Availability of soya beans in the rural and urban areas of Oju LGA as well as adequate enlightenment campaign would reduce the malnutrition experiences both by children and adults which will enhance the health of the people in Oju LGA.

RECOMMENDATION

The following recommendations were made, based on the finding of the study.

1) Farmers should be encouraged and assisted in cultivate soya beans so that it could be made available in sufficient quantity for all to use.

2) The use of pressure cooker in cooking can help solve the problem of long cooking hours and also reduce the amount of fuel consumed.

3) Leaflets and books on recipes of soya beans should be made available for Homemakers to use.

4) Adequate enlightenment campaign should be carried out by government and Non-governmental organization on the importance and nutritive values of soya bean in Oju LGA.

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