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Factors Influencing the Utilization of Soybean among Homemakers in Ilorin Local Government Area of Kwara State, Nigeria

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Abstract

The study investigated factors influencing the utilization of soybean among homemakers in Ilorin West Local Government Area of Kwara State. Two research questions were raised, survey research design was adopted. The population comprised of 98,802 homemakers. 264 samples were randomly selected. Likert scale questionnaire was used to collect data. Pearson's product moment correlation coefficient was used for reliability of the instrument which yielded a correlation of 0.78. Data collected were analysed using Mean and Standard Deviation. Findings showed that Soybean is used because it is cheap($\bar{x}$ = 3.22) and affordable ($\bar{x}$ = 2.87). The study concludes that affordability, high nutritional value and its health benefits are factors influencing the utilization of soybean. It is recommended that more awareness campaigns should be frequent on the nutritional value and uses of soybean products.

Keywords: Factors, Influence, Utilization, Soybean, Homemakers.

Introduction

Soybean (*Glycine max*(L.) *Merr*), an important oil seed belonging to the family leguminosae is usually grown as a food crop. Soy protein contains all the essential amino acids, most of which are present in amounts that closely match those required for humans or animals. It has a protein-digestibility-corrected amino acid score very close to 1, the highest rating possible and the same rating for animal proteins such as egg white and casein. In phytochemicals, which have been shown to offer unique health benefits. Soybean has versatile end uses, including human food, animal fed and industrial material (Liu, 2000, 1997). Soy foods have high protein content and high protein utilization (the percentage of the available protein the body can use), leading to the highest amount of protein gained.

In the Kwara State (study area), the women planters (home makers) often describe the crop as their "second husband" because it helps to solve many financial obligations, feed their families and assist to promote good health. Fabiyi (2011) expressed his views on the need to improve the

nutritive quality of local food among home makers through better processing and enrichment. It seemed that the developing countries of the world especially West African countries have poor feeding culture among the poor people. High protein foods such as meat, fish, eggs and milk are very expensive especially to the low income home makers who are the majority in the population of Nigeria. Henkel (2005) and Ashaye (2005) pointed out that, soybean is considered by many agencies to be a source of complete protein which contains significant amount of all the essential amino acids that must be provided to the human body because of the body's inability to synthesize them. For this reason soybean is a good source of protein, among many others for vegetarians and vegans or for people who want to reduce the amount of meat they eat.

Ugwu and Nwoke (2011) explained that locality influenced the utilization of soybean as the production site is in the rural area where there are large expanse of land. They use it in making cheap protein products at affordable price such as (meat, infant formula and oil). On the other hand, Olatunji, Etuk and Adesope (2012) viewed that in the Urban areas, Urban residents find it difficult to adopt the use of soy beans in their meals because they have access to other proteinous foods and supplements that they thought had been prepared under a better hygienic condition. Also, urban dwellers are mostly medium or high income earners. They may find it easier to afford protein products other than soybeans.

Poor utilization of soyabeans can be a problem because of the impending dangers it can cause to health if not well processed before use, other constrain and challenges confronting utilization of soybean could be as a result of odors, crude processing method, inadequate training and lack of awareness of its health benefit. (Messina, 2010).One of the major challenge confronting these home users is validating the process and devising methods that will help check for quality. For instance the fermentation of soybean to produce tempeh and the production of soy milk are common products that are produced in rural areas with quality of many of the products being inferior because of lack of standardization. Hence, there is the need for urban-rural integration in order to assist home users and rural processors in producing soybean products with wholesome consistent quality.

The odour of soybean drives some homemakers away from utilizing it, because some do not like the odour, it has a beany odour that must be remove by adding flavor. According to File, Hartley, Alom, and Rattray (2003).Some of the products obtained from soybean e.g. soybean oil turn rancid easily and give rise to green, grassy odors. The perception of most of the homemakers about the soybean is very low, the reason is that most of them have been seeing soybean everywhere but they don't know its importance. Some believe that it is only used for animal feed not for human consumption.

Some factors that may influence soybean utilization includes locality, economy, availability, processing method, level of awareness of its nutritional knowledge and storage facilities. Locality influence the utilization of soybean in the rural areas, because proteinous food of animal origin may be so expensive for them to afford. On the other hand, in the urban areas, urban residents find it difficult to adopt the use of soybeans in their meals because they have access to other proteinous food and supplements that they thought had been prepared under a better hygiene condition. Soybean is a product that is used in food and in confectionary and in oil industries for making general products to supplement diet. Furthermore, it is one of the major raw materials in agro allied sectors as components of animal feeds. As a result of this, there is high demand for soybean because of its diverse uses and this promote it and make its demand to be high and also create job opportunities which helps in development of the state. Availability of soybeans in the rural areas also serves as an encouraging factors that promote its utilization. Inadequate storage facilities influences utilization of soybeans during off seasons. Low level of awareness of nutritional knowledge and health benefits of soybeans reduces its utilization as most home makers may be ignorant of the extent which soybean can be used. The long processing and uniqueness in preparing of soybean which is different from other legume's products may discourage most users from using it. Homemakers believes soybean is very cheap can be used to replace animal protein in foods. Due to the medicinal and nutritional value of soybean, some homemakers see the need to inculcate it into their diets as it fights against cancer, it's known to be an anti-oxidant, it helps in menopausal age and also helps to reduce aging.

Olatunji, Etuk and Adesope (2012) discovered that many farm-families in Abia State have discontinued utilization of soybean products due to lack of storage facilities, inadequate training in processing and production methods and decrease in level of awareness.

According to Fakorede (2001) children and young mothers are benefiting from locally made protein rich foods using soybeans in Nigeria. To homemakers, Soybeans are making it possible for a lot of women to earn their own way and achieve a greater degree of independence than ever before because it helps to pay school fees and medical bills. In places where soybeans are grown, roughly 40 percentage of the income earned by women is thought to be derived from soybean production or processing. Soybean reduces hunger; flavor soup, and is very good for children" therefore, soybean has been well integrated into the local diet. According to (Opaleke, 2012) both the rural and urban women in Ilorin West Local Government Area use soybean as the major weaning food for their infants. The intent of this study therefore is to investigate factors influencing the utilization of soybean among homemakers. The study will be of great importance to all the stakeholders concerned, vis-à-vis

homemakers, nutritionist, Home Economist, researchers, dieticians, social health workers students, Extension workers and government.

Objective of the study

The main purpose of the study was to investigate factors influencing the utilization of soybean among homemakers in Ilorin West Local Government Area of Kwara State, Nigeria. Specifically, the study determined:

i. factors influencing utilization of soybeans by homemakers in Ilorin West Local Government Area of Kwara State, Nigeria.
ii. Location (urban/rural) related factors influencing utilization of soybeans by homemakers in Ilorin West Local Government Area of Kwara State, Nigeria.

Research Questions

1. What are the factors influencing utilization of soybeans by homemakers in the study area?
2. What are the Location (urban/rural) related factors influencing utilize-tion of soybeans by homemakers in Ilorin West Local Government Area of Kwara State, Nigeria?

Methodology

***Design and Area of study* :-** The study adopted a survey research design where data was collected from subjects using Likert type scale questionnaire. Survey research design was chosen because the researcher collected information from a large population using sample to generalize. The study was conducted in urban and rural areas of Ilorin West Local Government Area of Kwara State. The study covered the eight (8) wards in Ilorin West Local Government Area of Kwara State. Out of the eight wards, five (5) are situated at the Urban Area while three (3) are situated in the rural area

***Population*:** The population comprised of all the women (homemakers) who are traders in all the markets in the eight wards in Ilorin West Local Government Area of Kwara State. The total population was Ninety eight thousand eight hundred and two (98,802) home makers. (Population Census 2006).

Sample and sampling technique: Multistage sampling technique was used to select 264 respondents for the study as follows:

Stage 1 involved stratifying Kwara State into 16 local government areas (LGAs)

Stage 2 involved selecting one LGA which is Ilorin West Local Government Area.

Stage 3 involves stratifying the LGA into eight (4) wards

Stage 4 involves using convenient sampling technique to select one (1) Market from each of the wards in the above Local Government making a total of eight(8) eight markets.

Stage 5 involves randomly selecting thirty (33) women traders (homemakers) from each markets thereby resulting to 264 homemakers which were used for the study.

***Instrument for data collection*:** The instrument used for this study was a Questionnaire titled: Analysis of Factors Influencing Soybean Utilization among

Homemakers (QAFISUH)AH). The questionnaires was developed based on the objectives and research questions. Responses of each item was rated on a on a "4-point" scale ranging from "1" which indicates "strongly disagree" to "4" which indicates "strongly agree". The questionnaire was face validated by three experts in Home Economics. The test- retest method of reliability was adopted in ascertaining the reliability of the questionnaire. The responses were then correlated using Pearson Product Moment Correlation and a coefficient of 0.78 was obtained. This was in agreement with the proposition of Cooper & Schindler (2008) who indicated that 0.7 could be an acceptable reliability coefficient.

***Method of Data Collection*:** The questionnaire were administered to the homemakers in Ilorin West Local Government area on different days by the researcher with the help of two trained research assistants who understood the local language and facilitated interaction with the homemakers. Out of three hundred (300) questionnaire administered to the homemakers, two hundred and sixty four (264) were retrieved in Ilorin West Local Government Area. This represent 88% return rate.

***Method of data analysis*:** Mean (X) and Standard Deviation (SD) were used for data analysis. Any item with a mean value between 2.50 and above was regarded as agreed fact of the factor influencing the utilization of soybean, while less than 2.50 were regarded as disagreed fact of the factor influencing soybean utilization. The Standard Deviation (SD) of each item was used to determine how the opinions of the respondents deviated from the mean.

Findings of the Study

Research Question 1: What are the factors influencing utilization of soybeans by homemakers in the study area?

Table 1: Mean responses of homemakers on factors that influence soybean utilization

S/N	Factors influencing utilization of soybean	Mean	S.D	Remark
1	Soybean is used because it is comparatively cheap	3.22	0.91	Agree
2	People who use soybean are perceived relatively poor	3.01	1.03	Agree
3	Soybean is use because of its nutritional value	2.76	1.18	Agree
4	Soybean is used because of its health benefits	2.93	1.02	Agree
5	Low income homemakers consume soybean more	2.88	1.05	Agree
6	People do not use soybean because of its odour	2.91	1.01	Agree
7	Soybean is preferred to other protein products	3.12	0.88	Agree
8	Soybean is used because it is affordable compared to meat	2.87	1.02	Agree
9	Hotels, eateries and other outdoor meal providers use soybean	3.24	0.84	Agree
10	Soybean is used to prepare babies food	2.91	1.08	Agree
11	Soybean is used on a daily basis	2.44	1.21	Agree
12	Soybean is used in boosting the nutritive value of meal.	3.17	0.88	Agree
	Grand Mean/Standard Deviation	**2.96**	**1.01**	**Agree**

Table 1 revealed mean opinions of the respondent among selected homemakers in Ilorin. The mean scores to the items ranged from 2.44 to 3.24. The table showed that the respondents agreed to the entire variable 1-12 on factors influences the utilization of soybeans among selected homemakers in Ilorin West Local Government Area of Kwara State. This implied that Soybean is used because it is cheap ($\bar{x}$ = 3.22), affordable compared to meat ($\bar{x}$ = 2.87) and is used in boosting the nutritive value of meal($\bar{x}$ = 3.17) in the study area. The standard deviation of the items ranged from 0.84 to 1.21 which indicated that the respondents were close in their responses.

Research question 2: What are the Location (urban/rural) related factors influencing utilization of soybeans by homemakers in Ilorin West Local Government Area of Kwara State, Nigeria?

Table 2: Mean Responses on location (urban/rural) related factors that influence soybean utilization among respondents.

S/N	Location (urban/rural) related factors	Mean	S.D	Remark
1	Soybean is rarely available to urban homemakers	3.10	0.92	Agree
2	Soybean is readily available to rural homemakers	3.11	0.99	Agree
3	Some rural homemakers cultivate their soybean so it is used in rural households.	3.48	0.81	Agree
4	Soybean is expensive in urban location	2.95	0.99	Agree
5	There is no farmlands for soybean cultivation in urban area	2.97	1.05	Agree
6	Distance from farmlands to markets is a barrier in purchasing soybean in urban areas.	2.61	1.16	Agree
	Grand Mean/Standard Deviation	**3.04**	**0.99**	**Agree**

Table 2 revealed that mean opinions of the respondents ranged from 2.61 to 3.48. The table showed that all the variables were rated as agreed. The result showed that almost all the location parameters affect the utilization ofn soybeans among the selected homemakers in the study area. This result implied that soybean is readily available to rural homemakers ($\bar{x}$ = 3.11) but distance from farmlands to markets is a barrier in purchasing soybean in urban areas ($\bar{x}$ = 2.61). The standard deviation of the items ranged from 0.81 to 1.16 which indicated that the respondents were close in their responses.

Discussion of findings

The main objective of this study was to investigate the factors influencing the utilization of soybean among homemakers. The result of the mean ratings in research question one (Table1) revealed that soybean is used because it is cheap and affordable

compared to other protein source and is used in boosting the nutritive value of meals in the study area. This implied that factors influencing utilization of soybeans by homemakers in the study area includes the fact that soybean is comparatively cheap and mostly consumed by hotels, eateries, other outdoor meal providers and homemakers. This is in line with Fakorede (2001) who explained that children and young mothers are benefitting from this local plant that are protein-rich in food.

The findings agreed with that of Ijarotimi and Famurewa (2006) who established that high percentage of the mothers agreed that soybean was a good source of protein, and that soybean could be used as protein substitute in weaning food. The findings also corroborate that of Ugwu and Nwoke (2011) who revealed that soybean products have been accepted and consumed by a great number of people in Orumba South Local government Area of Anambra State in Nigeria because its nutritive value. This findings also confirms the study of Wolf (2012) who stated that homemakers believes soybean is very cheap and can be used to replace animal protein in foods. This findings also agreed with Encyclopedia.com (2017) that soybeans are used in a multitude of forms, e.g., as soy sauce, soybean meal, vegetable oil, tofu (bean curd), miso (fermented soybean paste), and soy milk, and as a coffee substitute. In the United States, soybean products such as tofu, miso, and soy milk have become especially popular in lowfat and vegetarian diet. The green crop is used for forage and hay, and the cake as stock feed and as fertilizer. Soybean oil is used commercially in the manufacture of glycerin, paints, soaps, rubber substitutes, plastics, printing ink, and other products. This also agreed with North Carolina Soybeans producers association(2017) who discovered that soybeans are high in protein and are a major ingredient in livestock feed. They reiterated that most soybeans are processed for their oil and protein for the animal feed industry. Some percentages are processed for human consumption and made into products including soy milk, soy flour, soy protein, tofu and many retail food products.

It was also confirmed that in addition to its high food value, Soybean is one of the least expensive sources of protein in Nigeria. This findings also agree with Liu (2000) who discovered that Soy foods are becoming some of the fastest-growing categories in the food industry, with products ranging from traditional soy foods to protein ingredients and from dairy and meat alternatives to various types of Western and traditional food enriched with soybean flour. This findings revealed that soybean is of high nutritional value and has health benefits. The findings is in consonant with the views of Henkel (2005) ; Ashaye (2005) ;Ugwu and Nwoke (2011) who all pointed out that, soybean is considered by many agencies to be a source of complete protein. One that contains significant amount of all the essential amino acids that must be provided to the human

body because of the body's inability to synthesize them. This findings agreed with Organic Information Services (2017) whose research discovered that soybean oil has health benefits like helping with cognitive disorders, such as Alzheimer's disease, improves bone growth and helps to prevent osteoporosis, improves heart health and improves skin health. This findings is also in consonant with Arnarson, (2015) who discovered that Soybeans are high in protein, and are also a decent source of both carbs and fat. They are a rich source of various vitamins, minerals and beneficial plant compounds, such as isoflavones and that soybeans may reduce the risk of breast and prostate cancer, and alleviate the symptoms of menopause. This disagree with Levis, et al (2011) and Newton & Grady (2011) who in a recent trial discovered that the daily administration of tablets containing 200 mg of soy isoflavones for 2 years did not prevent bone loss or menopausal symptoms.

The findings also agreed with Onwueme and Sinha, (1999). who stated that about 40% in soybean seed is protein and contain 20% unsaturated fatty acids. Soybean also provides adequate amount of carbohydrate, digestible fiber, minerals and Vitamins. They also explain that due to the medicinal and nutritional value of soybean, some homemakers see the need to inculcate it into their diets as it fights against cancer, it's known to be an anti-oxidant, it helps in menopausal age and also helps to reduce aging. They reiterated that the meal is rich in minerals particularly calcium, phosphorous and iron, it has good as to excellent content of the vitamins, thiamin, riboflavin and niacin.

The result also revealed that some home makers do not use soybean because of its odour. This findings agree with File,Hartley,Alom,and Rattray (2003) whose findings revealed that some of the products obtained from soybean e.g. soybean oil turn rancid easily and give rise to green, grassy, beany odors which drives some homemakers away from utilizing it. This findings is in consistent with Turner(2016) who discovered that soybean oil is a substitute for palm oil as they are both vegetable oils and that this has helped a lot as demand is higher for bean oil due to the palm oil shortage. The findings also revealed that locality affect utilization of soybean as it is rarely available to urban homemakers because of distance from farmlands to markets and this serves as a serve as a barrier to purchasing soybean in urban areas and so it is expensive in urban locations but is readily available to rural homemakers because some rural homemakers cultivate their soybean. This findings agreed with the views of Ugwu and Nwoke (2011)who explained that locality influenced the utilization of soybean as the production site is in the rural area where there are large expanse of land. This finding is in variance with Olatunji, Etuk and Adesope (2012) who are of the opinion that urban residents find it difficult to adopt the use of soy beans in their meals because they have access to other proteinous foods and supplements that they thought had

been prepared under a better hygienic condition and not because of non-availability. The findings also disagree with Brandon (2001) and Olatunji, Etuk and Adesope (2012) who discovered that many farm-families in rural areas discontinued utilization of soybean products due to lack of storage facilities, inadequate training in processing and production methods and decrease in level of awareness of its nutritive content and health benefits. This disagreed with Malvick,(2016) who observed that planting date seemed to be a factor in production of soybean and high levels of Sudden death syndrome (SDS) also affect production which may be difficult to manage by rural farmers because it is important to use resistant soybean varieties as well as selected seed treatments to manage Sudden death syndrome (SDS).

Conclusion

The study concludes that locality, affordability, high nutritional value and health benefits of soybeans are factors influencing its utilization among homemakers.This implied that the low price, high nutritional value and numerous health benefits are factors influencing the utilization of soybean among homemakers in Ilorin West Local Government Area of Kwara State. The findings also concludes that soybean is rarely available to urban homemakers because of distance from farmlands to markets and so it is expensive in urban locations but is readily available to rural homemakers because rural homemakers cultivate their soybean.

Recommendations

Based on the findings of this study, the following recommendations were made:

- More awareness campaigns should be frequent on the nutritional value and uses of soybean products in both rural and urban locations.
- Access to soybean should be made easy to both the farmers and the consumers via provision of road and transportation in production sites.
- Storage facilities should be provided for by all stakeholders for soybean in the rural areas to preserve its use for longer period .
- There is the need for urban-rural integration in order to assist home users and rural processors in producing soybean products with wholesome consistent quality.

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