

**AWARENESS AND UTILIZATION OF “SOBO” (*Hibiscus Sabdariffa-Roselle*) BY FARM FAMILIES IN ANIOCHA NORTH LOCAL GOVERNMENT AREA OF DELTA STATE, NIGERIA**

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**ABSTRACT**

*Hibiscus sabdariffa (Roselle) is known for its numerous health and medicinal benefits. “Sobo” is an indigenous non-alcoholic drink made from hot extract of Roselle calyces and consumed in Savannah and semi-arid region of Africa. This study assessed awareness and utilization of sobo among farm families in Aniocha Local Government Area of Delta State. Multistage sampling procedure was employed to select a sample of 140 farm families who responded to a 22-item interview schedule that was used for data collection. Relevant data were subjected to descriptive statistical analysis such as mean, percentage, pooled mean and ranking. Among others, it was found that about 91.4% of the respondents were aware of sobo drink. Friends and neighbours were the sources of information on sobo to about 73.6% of the respondents while only 9.3% got the information from Extension Agents. While about 31.4% of respondents do not utilize sobo at all, majority of those who do (43.6%) are doing so at a low rate of one (1) time per week. The major constraints that farmers are facing relates to preparation of sobo. It was recommended that extension activities should be invigorated, with a view to closing the gap in farmers’ knowledge about several health and medicinal benefits of sobo and how to prepare it. Campaign should be mounted to encourage farmers to utilize sobo on a higher than the observed 1-2 times per week and at the expense of carbonated soft drinks with its usual high sugar content. Further investigations to increase the shelf life of sobo and to ascertain quantities that are optimal for various age ranges in the farm families should be carried out.*

**Key words:** Health, Nutrition, Utilization, “Sobo” drink, Roselle, *Hibiscus sabdariffa*

**INTRODUCTION**

The 1991 census data on occupation and employment status show that Nigeria is still predominantly an agrarian society with 45 percent of the population engaged in agriculture. There is however a noticeable drop from the 70 percent level observed for agriculture and allied activities in the labour force sample survey of 1966-1967. While agriculture provided 65.7 percent of the Gross Domestic Product (GPD) in 1957, the percentage is 41 in 1999 (Encyclopedia of the Nations, 2012). The perennial growth in population and subsequent food shortage has made successive governments to implement various agricultural programmes and projects aimed at significantly increasing productivity (Olatunji, Etuk and Adesope, 2012). These efforts are already yielding dividends even as some Nigerians are beginning to embrace modern agricultural production technologies and investing in large-scale farming (Total facts about Nigeria, 2012). It should be noted, however, that much remains to be done because the problem of food insufficiency for the teeming population is far from being solved.

Several factors have been blamed for Nigeria's inability to achieve food sufficiency. For example, Nwachukwu (2008) explained that one of the problems for non-realization of the goal of food sufficiency is that most Nigerian farmers are ageing and the younger generation appears not to be interested in farming. Asogwu (2004) attributed the problem to inability to mobilize and adequately empower youths to take up agriculture. On the other hand, the advent of oil boom in the early 1970s, led to over-concentration of attention on the oil sector at the expense of the agricultural sector. The consequence was an aggravated decline in agricultural productivity and marked increase in rural poverty (Badru, 2002, Alademerin, 2009). Other researchers have blamed the problems of low agricultural productivity on inadequate or high cost of technology, ailing technology transfer systems, excessive land fragmentation, climate change, incidences of pests and diseases, inadequate supply of input, inadequate food storage facilities and several farmer-related factors (Ilevbaoge 1999; Olatunji 2005b; Alademerin, 2009; Olatunji, Etuk and Adesope 2012).

Among farmer-related factors that may affect agricultural productivity are farmers' socio-economic status, level of education, household size, his perception, attitude and of course, his nutritional status and health situation. Among others, the physical fitness and ability of a farmer to exact energy that is required in agricultural production will depend, to a large extent, on his nutritional status and health. Studies have shown that there are six essential food nutrients that man requires for healthy growth and development. These are : (1) protein (2) carbohydrate (3) fats and oil (4) vitamins (5) mineral salts and (6) clean water (Olatunji, Etuk and Adesope 2012).

Intake of dirty water or inadequate consumption of foods that supply the first five nutrients may predispose humans to disease infection, weakness of the body, inability to work and even death. The ultimate impact of ill-health is decline in farmers' productivity, income and livelihood. Rampant poor health among adult population in developing countries do contribute to low agricultural productivity (Okyere, Chiang, Thangata and Andam, 2011). Most farm families in Nigeria are hardly able to adequately meet their carbohydrate nutrient requirements. Olatunji, Agumagu and Adesope (2011) noted that increasing high costs has continued to make protein from animal sources unaffordable to a vast majority of Nigerians, the worst affect being the farm families. Unfortunately, however, they also found that ignorance on the part of the farm families is a barrier yet to be overcome in the way of remediation of farmers protein deficiency through utilization of soyabean which have been nicknamed "the poor man's meat". The consequence is that majority of farm families in Nigeria are still suffering from protein deficiency diseases in spite of wide-range and cheap soyabean by-products that could be utilized as a preventive measure.

It should be noted also that vitamins and minerals abound in fruits and vegetables such as pineapple, banana, grapes, pawpaw, carrot, apple, okro, lettuce, cashew, mango, avocado pear and others. Vitamins and mineral salts help to maintain body tissues. They help the bones and the teeth grow strong and healthy while protecting the body from diseases by fighting disease germs in the body (Oyegbeda, 2008). Deficiency of vitamin A, C and D can cause night blindness, scurvy and abnormal bone growth respectively. Any of these would normally impact negatively on farmers productivity. It is unfortunate that not many farm families in Nigeria are able to adequately meet their vitamin and

mineral salts requirements. This implies that availability of cheaper alternative sources of vitamins and minerals would be an advantage.

Wong *et al* (2002) noted that the calyces of *Hibiscus sabdariffa* have been found to be rich in vitamins, natural carbohydrate, protein and other antioxidants. *Hibiscus sabdariffa* L. belongs to the family of Mavcaceae. It is known by different synonyms and vernacular names such as Roselle. It is believed to originate from India but now cultivated throughout the Tropics (Berhaut, 1979). Botanically, it is described as thick red fleshly, and cup shaped calyces plant. It is cultivated for its leaves, seeds, and calyces used as vegetables, refreshing drinks source of oils and food preservatives (Wong 2000). It is also cultivated for medicinal and health purposes (D'Heureux and Baurie, 2004). In Nigeria, it is the red coloured soft drink, which is a hot water-extract of the red flower of *Hibiscus sabdariffa*, that is usually called “Soborodo” or “sobo” drink.

Literature is replete with health benefits of drinking “Sobo” made from Roselle. It helps to lower blood pressure, balance cholesterol levels in the body, and improve blood circulation. It helps to reduce viscosity of blood, stimulates peristaltic movements in the intestines and improves the health condition of diabetic patients. “Sobo” drink has been noted to be effective in relieving coughs, stimulating the production of bile in the liver and suppression of appetite. Research have shown that Roselle contains a wide range of vitamins, and minerals including vitamin C, calcium, Niacin, riboflavin and flavonoids (Awhin, 2012; Babajide *et al* 2004). Chukwuma, (2010) also explained that “Sobo” has antihypertensive properties, as it contains 15-30% organic acids including citric acid, maleic acid, and tartaric acid. It has been used in folk medicine as a diuretic, mild laxative, treatment of cardiac, nerve disease, cancer and urinary tract infections.

Most Nigerian farm families live below poverty line and do not have access to good health care services. As such, it is more imperative to adopt disease-preventive measures. One way of doing this is to improve farmers' food nutrient requirements through less costly but equally effective means. Studies have shown that man's need of vitamins and mineral salts could be effectively and efficiently supplied through utilization of this rich but cheap source - “Sobo” drink made from *Hibiscus sabdariffa* (Roselle). Against this background, it is imperative to investigate the status of awareness and utilization of *sobo* drink by farm families in Aniocha North Local Government Area of Delta State, Nigeria. Thus, it was the objective of this study to: determine awareness about *sobo* drink among farm families; identify farm families' major sources of information about *sobo* drink; determine the frequency of utilization of *sobo* drink by farm families in the study area and identify constraints to utilization of *sobo* drink by farm families in the area of study.

## **METHODOLOGY**

All the farm families in the 24 communities that make up Aniocha Local Government Area of Delta State comprised the population for the study. Multistage sampling procedure was employed to select a sample. First, simple random sampling technique was employed to select 5 out of the 24 communities in the area of study. Secondly, 4 villages were selected per community through simple random sampling technique. In each of the villages sampled, at least 7 farm families were purposively selected from every 4<sup>th</sup> household. Thus, the sample for the study comprised 140 farm families. Most farm families in the area of study was made up of 5-7 persons. These include, father, mother

and 3-5 children. In each of the sampled farm families, the father, mother or a grown up child (above 18 years) who was accessible at the time of data collection was interviewed and his or her responses taken as data elicited from that farm family. A 22- item structured interview schedule was used to collect data for the research. Relevant data were subjected to descriptive statistical analysis (mean, percentage, pooled mean and ranking).

**RESULTS AND DISCUSSION**

The results of data analyses are presented in the order of stated specific objectives for the study.

**Awareness of *sobo* drink among farm families in Aniocha North Local Government Area of Delta State**

The first specific objective is to determine awareness of *sobo* drink among farm families in the area of study. Relevant data were subjected to descriptive statistical analysis (percentage). The results are as indicated in Table 1.

**Table 1: Percentage distribution of respondents' on awareness of *sobo* drink**

|           | Frequency | Percentage |
|-----------|-----------|------------|
| Aware     | 128       | 91.4       |
| Not aware | 12        | 8.6        |
| Total     | 140       | 100        |

The result indicates that 128 (representing 91.4% ) of respondents are aware of *sobo* drink. Only 12 of the sample (8.57%) are not aware of *sobo* drink. The finding is commendable even as it reveals that a very large percentage of farm families in the study area are aware of *sobo*. “Awareness” is the first stage in the traditional adoption model proposed by the North Central Rural Sociology subcommittee in 1955 (Olatunji, 2005a). The finding of this research indicates that most of the farm families (91.4%) have at least laid the solid foundation upon which adoption could be built. No one would adopt innovation for which he is not aware because adoption is not an automatic or a reflex action. This high percentage of awareness may be a reflection of an effective agricultural extension system operating in the area of study.

**Farmers' sources of information about *sobo* drink**

Respondents were asked to indicate their major sources of information about *sobo* drink. Relevant data were subjected to descriptive statistical analyses (percentage and ranking). The results are presented in Table 2.

**Table 2: Percentage distribution of respondents' based on sources of information about of *sobo* drink**

| S/N | Information Sources           | Frequency | Percentage | Rank |
|-----|-------------------------------|-----------|------------|------|
| 1   | Friends and Neighbours        | 103       | 73.6       | 1    |
| 2   | Agricultural Extension Agents | 13        | 9.3        | 3    |
| 3   | Internet                      | 1         | 0.8        | 6    |
| 4   | Print Media                   | 2         | 1.3        | 5    |

|   |                           |    |      |   |
|---|---------------------------|----|------|---|
| 5 | Radio/Television          | 2  | 1.4  | 4 |
| 6 | <i>Sobo</i> drink hawkers | 19 | 13.6 | 2 |

The findings in Table 2 show that about 1.4% each got information about *sobo* drink from Newspaper/pamphlets/books and radio/television respectively while 0.7% get the information from the internet. It is not surprising that all respondents who got the information from internet, print media and radio/television is abysmal 3.5% put together. Most of the respondents are illiterates. They live in rural areas where electricity to power computer, television and radio sets are grossly inadequate, if available at all. As high as 73.6% (rank 1) got the information from friends and neighbours. Another 13.6% (rank 2) got out from *sobo* Hawkers while only 9.3% got the information from Extension Agents. This finding obviously suggests that Agricultural Extension activities are at very low ebbs in the area of study. The Training and Visit (T & V) extension system proposed by Benor and practiced in Nigeria under the Unified Agricultural Extension system presupposes that one Extension Agent will deliver extension messages in all agricultural commodities namely; crops, fisheries, livestock, agroforestry and agroprocessing (Unamma et al, 2004). The implication of the finding is that agricultural extension system is ineffective in the area of study. It is either that there are no Extension Agents or that they are not discharging their duties as expected.

**Frequency of utilization of *Sobo* drink by Farm Families**

Respondents were asked to indicate their frequency of utilizing *sobo* drink per week. The findings are as shown in Table 3.

**Table 3: Percentage distribution of respondents' based on frequency of utilization of *sobo* drink**

| S/N        | 0 time/week | 1 time/week | 2-3 times/week | 4 and above times/week | Total |
|------------|-------------|-------------|----------------|------------------------|-------|
| Frequency  | 44          | 61          | 23             | 12                     | 140   |
| Percentage | 31.4        | 43.6        | 16.4           | 8.6                    | 100   |

It can be discerned in table 3 that about 31.4% of the respondents do not utilize *sobo* drink at all. Data in Table 1 reveal that many of these people are aware of *sobo* drink but they appear not to have moved from the "Awareness" up to "Adoption" stage. Chances are that they are uninformed or misinformed about the health and medicinal benefits of utilizing *sobo*. This is the place of Extension Agents in disseminating extension messages that would enhance the agricultural productivity and livelihood of the farmers. It should be noted that majority of the farmers in the area of study live below poverty line and are hardly able to meet their daily carbohydrate nutrient requirements. Many of the are obviously unable to provide their protein, vitamin and mineral salts needs from animal sources nor fruits and vegetable sources. The fact that they are still not taking advantage of a cheap source of vitamin and mineral salts like *sobo* calls for worry. The implication is that about one-third of farm-families in the area of study are likely to be susceptible to vitamin and mineral salt deficiency diseases such as scurvy, rickets, skin lesions, osteomalacia and the like. This will have very negative implications for agricultural

development in a nation that is grappling with high population growth without a corresponding growth in agricultural labour supply and agricultural productivity. This phenomenon is capable of reducing farm labour supply which Nwachukwu (2008) and Olatunji and Akanwa (2010) had indicated was grossly inadequate. It could also aggravate the rate of protein, vitamin and mineral salt malnutrition-related morbidity and mortality which Igbedioh (1990) had already noted to be on the increase in Nigeria.

It is commendable, however, that about 43.6%, 16.4% and 8.6% of the respondents utilize *sobo* at the rates of 1, 2-3 and 4 and above times per week respectively.

**Constraints to farmers utilization of *sobo* drink**

The respondents were asked to assess constraints they face in utilizing *sobo*. The results of analysis of relevant data are presented in Table 4.

**Table 4: Mean ratings of respondents' perceived constraints to utilization of *sobo* drink**

| S/N | Constraints to <i>sobo</i> drink utilization                             | Mean  | Rank | Pooled mean |
|-----|--|-------|------|-------------|
| 1   | I don't know how to prepare <i>sobo</i> drink                            | 2.50* | 2    |             |
| 2   | <i>Sobo</i> drink is difficult to prepare                                | 2.53* | 1    |             |
| 3   | <i>Sobo</i> is not always available in the market                        | 1.50  | 3    |             |
| 4   | <i>Sobo</i> drink has an unpleasant taste                                | 1.20  | 5    |             |
| 5   | <i>Sobo</i> is comparatively expensive than other soft drinks            | 1.14  | 7    | 1.514       |
| 6   | Society perceives <i>sobo</i> as a cheap drink or drinks for poor people | 1.39  | 4    |             |
| 7   | <i>Sobo</i> may have negative health implications                        | 1.10  | 8    |             |
| 8   | Prepare <i>sobo</i> usually take a long time                             | 1.18  | 6    |             |

\*Mean  $\geq$  2.0 = serious constraint

As shown in Table 4, respondents agree that one of the constraints is that *sobo* is difficult to prepare (mean 2.53, rank 1) and that they do not know how to prepare *sobo* (mean 2.50, rank 2). Surtleff and Aoyagi (2010) explained that in Ondo State, nearly 100,000 Nigerians (three-fifths of them being women) have been trained in soyabean production and by-product preparation by local NGOs, Hospitals, and church groups working with IITA and various government agencies. Such training should be extended to other states of Nigeria while incorporating preparation of other useful products such as *sobo* drink. Respondents' mean ratings of all other items is less than the 2.5 cut off point for agreement. The implication is that there are no other significant constraints to their utilization of *sobo* other than those related to its preparation. Respondents do not think that *sobo* has negative health implications (mean 1.10, rank 8). They do not think that *sobo* drink is more expensive than carbonated soft drinks (mean 1.14, rank 7). The time it takes to prepare *sobo* (mean 1.18, rank 6) and its taste (mean 1.20, rank 5) were not considered to be serious constraints by the respondents. What remains is concerted efforts at invigorating extension service that focuses on disseminating improved technologies for preparation and preservation of *sobo*. Researches are equally needed to develop ways

of extending the shelf life of *sobo* drink especially in rural areas where refrigeration is a great constraint.

### **CONCLUSION**

Awareness and utilization of *sobo* drink among farm families in Aniocha North Local Government Area of Delta State was investigated. Among others, it was found that majority (91.4%) of the respondents are aware of *sobo* drink. However, most of the respondents (73.6%) got the information from friends and neighbours while only 9.3% claimed to have gotten the information from Extension Agents. The study shows that about 31.4% of the respondents have not been utilizing *sobo* at all even though majority of them are aware of it. Thus, one-third of the farmers may be, more likely than not, susceptible to vitamin and mineral salts malnutrition-related diseases which may, in turn, increase the already high morbidity and mortality rate. The effect is that less labour supply will be available for agricultural production.

### **RECOMMENDATIONS**

Based on the findings of the research, the following recommendations were put forward for implementation:

1. there is an urgent need to strengthen the extension system such that Extension Agents are deployed to all available circles. There should be proper monitoring and supervision of the Extension Field Staff to ensure prompt and effective delivery of extension messages even as this study revealed that most of the farmers obtained information on *sobo* drink from friends and neighbours rather than from Extension Agents.
2. extension efforts should focus on training farm families on how to prepare *sobo* drink. The Women in Agriculture (WIA) in the Agro-processing sector could take-up this challenge by acting as resource persons to train farm women and others on how to prepare *sobo* drink. The major constraints expressed by respondents has to do with ignorance of the processes of *sobo* preparation. Extension service should disseminate improved techniques for preparation and preservation of *sobo* drink.
3. although studies are needed to ascertain quantities of *sobo* that is appropriate or optimal for all age ranges in the farm family, it is obvious that the zero (0) and the one (1) time per week dosage taken by more than 75% of the respondents is inadequate. Most farm families utilize sugar and soft drinks with high sugar contents at a rate higher than they do *sobo* drink. Utilization of more *sobo* than carbonated soft drinks should be encouraged because it would certainly yield better dividends to farmers. Campaign for utilization of *sobo* instead of carbonated soft drinks should be invigorated.
4. Research is needed to identify ways of increasing the shelf life of *sobo*. Production could also be commercialized with improved packaging to attract wider markets and higher adoption among all farm families.

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