

# **INFORMATION SOURCES USED AND CONSTRAINTS IN ADOPTION OF SOYABEAN PRODUCTION AND UTILIZATION TECHNOLOGIES IN KWARA STATE NIGERIA.**

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## **ABSTRACT**

*The study analysed the information sources, usage and constraints in adoption of Soybean technology in Kwara State, Nigeria. Three hundred farmers were randomly selected from two Agricultural Development Project zones of the state. The data were analyzed with the use of simple descriptive statistics such as frequency counts, and percentages. The result showed that agricultural extension agents, posters, friends, radio, extension pamphlets, as well as agents of private farms were important sources of information used. The constraints include inadequate tractor services for expanding production, taste, storage, markets, and odour. The paper recommends among others the dissemination of extension messages on soybean technology to address odour and promote taste.*

**Keywords: Information source, Constraints, Adoption, Soybean production and utilization Technology.**

## **INTRODUCTION**

Soybean's potential contribution to farming systems, nutrition and national income has been documented in literature. It has the highest protein content of 40.3% and a higher total digestible nutrient percentage (91.9%) than cowpea (79.5%) and therefore a better source of energy (Onochie, 1975). Traditionally, cassava, maize, rice, yam and cowpeas are staple food in Nigeria. The inclusion of soybean in the traditional diet will increase the protein quality of the nutrition. The substitution of soybean for cowpea and locust bean has considerable potential for improving the nutritional content of rural diet at a lower cost (Smith *et al*, 1993).

Owolabi *et al* (1996) evaluated the nutritional state of children between the ages of 2 and 15 years in communities that use or do not use soybean. The study showed that community producing and using soybeans had a high proportion of nutritionally normal and a lower percentage of severe malnourished children than the communities that do not use soybean. Its acceptance and continuous use by households to improve protein intake and income require inflow of new ideas and information. Smith *et al* (1993) opined that the development of adaptable technologies for small-scale farmers in developing countries requires understanding of farmer's conditions and priorities. The effectiveness of the medium used to spread news about the innovation is an important factor in the acceptance of it. Williams (1969) reported that extension officers were the most regularly used source of information followed by radio and fellow farmers in western Nigeria. Conversely, Bogunjoko (1983) indicated that radio was most frequently used medium by farmers in the northern part of Nigeria. Swanson *et al* (1999) reported that public sector funding for information and technology dissemination is declining in America, farmers are left with no choice to seek information from the private sector. This is contrary to Nigeria situation. Idachaba *et al* (1995) found Agriculture Development Project as highest agency providing extension services in Nigeria.

Apart from the medium for disseminating information, a thorough understanding of farmers' circumstances on production and the prevailing problems will assist in programme effectiveness. Arifin, *et al* (1985) analyzed the demand and supply of soybean in Indonesia. He observed that potential exists for increased soybean production, which hinges on the

development of improved market infrastructures, alterations in price and income relationships and the development of consistent policies aimed at stimulating production. Other factors that required attention include lack of high yield cultivars, agricultural policies and instability of soybean marketing structures. Nirmal-Chandra et al (1996) found non availability of improved seeds and lack of technical knowledge regarding packages of practices among small farms were the major constraints to expanding soyabean production over a larger area.

Marmel (1988) found that small farmers were willing to produce soybean however; untimely provision of seeds and chemicals adversely affected the performance of about a quarter of the total farmers studied. Whingwiri, (1987) identified the following causes of limited production of soybean in Zimbabwe: use of non-recommended cultivars, ignorance of cultivars used, low plant density possibly due to poor seed viability, lack of fertilizer ignorance of and lack of use of inoculants.

Other reasons identified by farmers include low yield (600-1000kg/ha), shattering at harvest, pubescence on plants causing itching and/or wound at harvest, necessitating the use of gloves. The time for harvest of soybean was also not flexible enough to allow for labour fluctuations, feeding by doves reduced yields, grading was also more time consuming than maize and late rain before threshing reduce seed quality (Whingwiri, 1987). Heide et al (1992) reported that farmers see lack of capital and shortage of labour as major constraints. Sharma, et al (1996) analyzed the factors responsible for differences between potential and actual yield of soybean production technology in India. The analysis indicated that inadequate of knowledge of soybean production technology, insufficient capital for purchasing input, lack of skill labour at peak periods, and non-availability of timely inputs and labour are the major constraints which resulted in low production and income.

Shannon et al (1995) reported problems facing farmers in Zaire on soybean production. These include insect pests attack, poor germination, unproductive variety and shattering, lack of market, little time to grow soybean, lack of good variety, over abundant rainfall, ignorance, difficulty in eating soybean, low soil fertility, insufficient land and weeds.

In Benue State, Nigeria, Shannon et al (1995) also reported shattering losses, labour requirement for threshing, difficulty in uprooting plants at harvest, lack of fertilizer and damage by insects and birds as problems of soybean production. Adekanmbi (1992) found offensive taste, high rate of spoilage and lack of knowledge of how to process soybean as constraints to its adoption.

Weingartner et al (1987) reported that farmers objected to use of soybean because of cooking time, taste, unfamiliarity with acceptable uses, and belief that soyabean as a crop is poisonous. This study attempts to answer the following questions:

What are the sources of information used by farmers in Kwara state on soybean?

What are the constraints facing the adoption of soybean technology?

The main objective of this study was to analyse the information sources used and constraints in adopting soybean technology production and utilization technologies.

## **METHODOLOGY**

This study was conducted in Kwara State, Nigeria. Two out of the four Agricultural Development Project zones were selected because of the concentration of soybean in the area. A random sampling of three hundred farmers were drawn from the list of those involved in the production. The list used contains the names of farmers who have test-cultivated and accepted to include soybean in their enterprise mix. Hence, each farmer selected must have cultivated the crop in the last two production seasons prior to date of data collection. Since a farmer who has cultivated the crop is assumed to have just test cultivated the crop and might not have made up his mind to include it in his enterprise mix.

The instrument for data collection was interview schedule. This was divided into two sections. Section one identified and spelt out fifteen sources from which information on soybean could be sought by farmers and asked the farmers to answer yes or no to indicate use. These information sources were grouped into three based on Patel's (1977) classification which are interpersonal localities, interpersonal cosmopolite and mass media. Section two was on the constraints to use of soybean technology. The farmers were asked to list the constraints facing adoption of soybean technology. Each question was therefore placed on multiple response. The data were analysed with simple descriptive statistics of frequency and percentages.

## RESULTS AND DISCUSSION

### Information sources of soybean technology

On the external cosmopolite used, table 1 shows that Agricultural extension agents are the mostly (85%) used sources, followed by another 50% who use agents of the private firms while staff of research institutes were scarcely used by 45% of the respondent using it. All of these constitute external cosmopoliteness because they do not reside in the communities of the respondents. The finding contradicts American experience as reported by Swanson, et al (1999) that public sector funding for information and technology dissemination is declining, farmers are left with no choice to seek information from the private sector. However, the study support, Idachaba (1995) that found ADP as highest agency providing extension services in Nigeria.

Internal localities or internal sources are important and used by the respondents to elicit information on soybean technology. Majority (75%) consult friends, 60% seek information from neighbours while family members were the least consulted by 55% of the respondents. It is not a surprise that farmers seek information from people in their immediate environment since they constitute the primary group of interaction as identified by Ekong (1988). Majority (79%) of the respondent got vital information from posters on soybean technology, 75% used radio, 66% used extension leaflets/pamphlets, 40% read newspaper, 25% visit experimental station, 15% gained knowledge from mobile cinema while 10% use agricultural show. The fact that posters were presented in local languages coupled with the pictorial aid could have been responsible for the high percentage recorded.

In general, the rating of the sources of information used by farmers revealed that Agricultural Extension agents were ranked 1st, posters ranked 2nd, radio and friends ranked 3rd, Extension leaflet and pamphlets ranked 4th, neighbours ranked 5th, family members ranked 6<sup>th</sup>, staff of research institute ranked 7th, Newspapers ranked 8th, visit to experimental station was ranked 9th while mobile cinema and Agricultural show ranked 10th and 11th respectively. This result supports William (1969), and Jibowo (1992) that extension agents are the most used source of information. This may be due to the ADP system that encourages feedback from farmers and a retraining for extension staff through fortnight training (FNT) and Monthly Technology Review Meeting (MTRM). However, it is worthy to note that Agricultural show, mobile cinema newspaper and visit to experimental station are not so useful to this respondent. The frequency with which Agricultural shows are held and the distance of the venue from the farmer's farm might have served as barrier. To reach more farmers, the use of mobile cinema needs to be reactivated.

Table 2 shows the following as important constraints to use of soybean technology.

There are 68% of the respondents who identified inadequate tractors as a constraint. The national minimum wage for workers put at ₦7500 by Obasanjo regime in 1999 has made labour cost for farm operations to rise. A cheaper alternative for timely cultivation of land could have been the use of tractors. Few tractors are available for cultivation in the study area. The cost of a tractor is not

within the reach of these farmers. Therefore their willingness to expand production has been hindered by inadequate tractor, for hiring.

The next constraint is 'Taste', which 67% of the respondents identified as hindrance to utilization. Taste is an important factor that influence demand for a commodity, it may take time for them to change. Cow milk and other legumes have been in circulation for a long time. Though the respondents might not be eating it on a regular basis, the taste of it might have made them not to adjust to soybean. There could be a better processing method which will aroma for more taste.

About 63% of the respondents identified storage of seed and products as constraints. They claimed to have stored seed for the following year planting only to observe that many of it did not germinate. Also, there is claim that the product does not have long shelve value. The post harvest handling of soybean to enable farmers obtain viable seed and keep product may be an important area where information may be needed.

There are about 62% of the respondents who found the form of utilizing soybean as a constraint. This may be as a result of adding soybean to other product. Closely related to this is 57% of the respondent that said soybean cannot be cooked and eaten directly like cowpea. Improvement on the seed to make it cook like cowpea may make more people to use it.

About 37% of the respondents found soybean processing to be strenuous while 17 % says it consume time. The time and the strength to process soybean may compete with other income generating activities. This may make the respondents to think it easier to spend more on other protein source or may be a need to teach farmers on how to reduce time in removing seed coat through boiling on toasting and how to lasting sieving through the use of white nylon cloth.

Few respondents (31%) found planting difficult, 25% reported that it has low market value while 13% claim that rodents cut down soybean seedlings. The studies by Sharama, Nehaktar and Patel (1996) and Shannon (1994) have reported similar findings.

## CONCLUSION

Agricultural extension agents still maintain the lead on the source from which farmers seek information on soyabean technology in Kwara State, Nigeria. However, posters, radio, friend, extension pamphlets, and agents from private firms' serve as important source of information. The constraints to adoption of soyabean technology were: inadequate tractors for expansion of farm land, tastes, storage, no market, frequency of use, cannot be eaten directly like beans, and odour.

## RECOMMEDATIONS

Based on the findings, the paper recommends the intensification of the information sources frequently used and a reactivation of the mobile cinema, agricultural show for wide coverage of audience. Also, information on where to procure tractor services, odour reducing methods of processing, effective storage, markets for soyabean need be disseminated to farmers.

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**Table 1. Frequency of use of sources of information for soybean technology.**

Information sources		Frequency	Percentage*
(a)	External cosmopolites		
(i)	Agricultural Extension Agents	255	85
(ii)	Staff of Research Institute	135	45
(iii)	Agent/salesman of private firm	150	50
(b)	Internal localities		
(i)	Friends	225	75
(ii)	Family members	165	55
(iii)	Neighbours	180	60
(c)	Mass media		
(i)	Visit to experimental station	75	25
(ii)	Visit to agricultural show	30	10
(iii)	Posters	237	79
(v)	Newspapers	120	40
(vi)	Mobile cinema	45	15
(vii)	Radio	225	75

Source: Field survey (2002)

\*The percentages do not add up to 100% because of multiple response.

**Table 2: Constraints to Adoption of Soybean Technology**

Constraint	Frequency	Percentage
Rodent attack seedlings	40	13
Low market price	76	25
Storage	190	63
Processing	112	37
Odour/smelling	155	51
Taste	200	67
Cannot be eaten directly like bean	172	57
No market	189	63
Inadequate Tractors for hiring	205	68
Difficulty in planting and harvesting	95	31
Utilization	185	62
Time consumption in processing	50	17

\* Multiple response

Source: field survey (2002)