A Comparative Analysis of Factors Affecting the Adoption and Non-adoption of Orange Fleshed Sweet Potatoes among Rural Farmers in Abia State, Nigeria

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Introduction

Orange-fleshed sweet potatoes (OFSP) have high levels of beta-carotene, which is a precursor of vitamin A. Given the potentials of OFSP and the level of awareness created by the extension unit of the National Root Crops Research Institute (NRCRI) and other collaborating institutions, it is expected that most farmers in Abia State should adopt this variety.

However, it is important to note that farmers routinely make complex decisions, based on a number of factors, especially regarding the adoption of agricultural technologies (Asiabaka & Owens, 2002). Some of these factors, as asserted by Asiabaka, Morse & Kenyon (2001) in Asiabaka et al. (2002) range from farmers' personal characteristics to the complexity, compatibility and knowledge of the technology.

Methods of Data Collection

- The population for the study comprised all sweet potato farmers in Abia State. Multi-stage, purposive and snowball sampling procedures were used in selecting sixty respondents (thirty adopters and non-adopters each). Structured interview schedule was used in collecting the essential quantitative data from the sampled respondents.
- To assess farmers level of knowledge on the production of OFSP variety, the respondents were required to tick 'yes' or 'no' against each of eighteen sets of positive and negative statements measuring knowledge. They were eventually categorized into low knowledge, moderate knowledge, and high knowledge. The rate of adoption of each OFSP technology among the adopters was measured using the framework developed by Ovwigho (n.d.) which is the Sigma score method on the five adoption stages namely; awareness, interest, evaluation, trial, and adoption.
- Quantitative data were analyzed using descriptive statistical tools such as percentage, frequencies and mean scores.

References

Asiabaka, C., & Owen, M. (2002) Determinants of adoptive behaviors of rural farmers in Nigeria. *Proceedings of the 18th AIAEE Annual Conference,* Durban, South Africa: AIAEE

Purpose of the Study

The purpose was aimed to conduct a comparative analysis of the factors affecting the adoption and non-adoption of OFSP among rural farmers. Specifically, the study sought to:

- ascertain the respondents' sources of information on OFSP production;
- examine the knowledge level of both adopters and non-adopters on the production of OFSP;
- determine the adoption rate of OFSP production technology among adopters;
- determine the motivational factors that influenced the adoption of the OFSP among adopters; and
- ascertain the constraining factors that inhibited the adoption of OFSP among non-adopters.

Results

Table 1: Sources of information on OFSP

	Adopters	Non-Adopters
***Sources of information**	**Percentage**	**Percentage**
Extension agents	10.0	-
International agencies	3.3	-
Fadama	6.7	-
Fellow farmers	**53.3**	**46.7**
Friends/neighbours	36.7	20.0
Families	3.3	-
Print media	3.3	3.3
Religious organization	3.3	-
Research institutes	30.0	6.7
Radio	3.3	16.7
Community leaders	6.7	-
Television	6.7	3.3
Agric. Cooperatives	50.0	3.3
Community meetings	6.7	-
Internet	3.3	-
Mobile phone	13.3	-
Input dealers	3.3	-
Market	3.3	20.0

Multiple responses

Table 2: Respondents preference to sources of information on OFSP

	Adopters		Non-Adopters	
***Sources of information**	**Percentage**	**Ranking**	**Percentage**	**Ranking**
Extension agents	6.7	6th	-	-
Fellow farmers	20.0	2nd	**46.7**	1st
Friends/neighbours	16.7	3rd	20.0	2nd
Research institutes	13.3	4th	6.7	5th
Radio	-	-	13.3	3rd
Television	-	-	3.3	6th
Agricultural cooperatives	**33.3**	1st	-	-
Mobile phone	10.0	5th	-	-
Market	-	-	10.0	4th

Results (contd.)

Knowledge level of farmers on OFSP production techniques
The majority (73.3%) of non-adopters and adopters (90.0%) had high knowledge about OFSP production techniques.

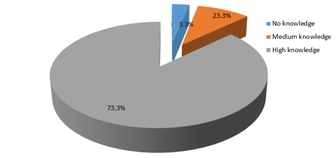

Figure 1: Knowledge level of non-adopters on OFSP production techniques

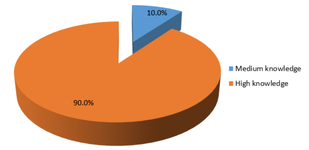

Figure 2: Knowledge level of adopters on OFSP production techniques

Rate of adoption of OFSP production technologies among adopters

- A greater percent (23.3%) of the adopters had an adoption score of 24, while only 3.3% of them had an adoption score of 35 which shows that the majority of them were still in their early stage of adopting OFSP production technologies.

Table 3: Motivational factors affecting the adoption of OFSP among adopters

Variables	Mean	Std. Deviation
Pleasant taste of OFSP	**2.90***	0.583
Profit from sale of OFSP roots	**2.73***	0.721
Profit from sale of OFSP vines	**2.47***	0.697
High consumer preference	0.77	1.357
Availability of market for the sale of OFSP product	1.27	0.650
Adequate knowledge of OFSP	1.30	1.622
Relative cheaper cost of innovation	0.37	0.999
Simplicity in using the recommended production practices	1.47	1.224
Moderate price of herbicide	0.13	0.507
Moderate price of inorganic fertilizer	0.30	0.952
Access to OFSP vines	0.53	1.224
Availability of OFSP vines	1.20	1.769
Availability of credit	1.83	1.840
Availability of labor	0.63	1.326
Combats vitamin. A deficiency	0.40	1.221
High yield of OFSP	1.95	0.632
Nutrient content of OFSP	0.13	0.730
Other health benefits of OFSP	0.13	0.730

*Motivational factors

Table 4: Perceived constraints to the adoption of OFSP among non-adopters

Variables	Mean	Std. Deviation
Low soil fertility	0.17	0.648
Low consumer preference associated with sweet potato product	0.73	1.202
Lack of market to sell increased quantity of OFSP being produced	1.10	1.517
Unavailability of OFSP vines needed for planting	**3.20***	1.495
High cost of OFSP vines needed for planting	1.23	1.501
High cost of herbicide	1.10	1.626
Recommended production practices are complex to carry out	0.23	0.679
Unpleasant taste of OFSP	0.13	0.730
Lack of capital to carry out necessary farm activities	**2.27***	1.856
Difficulty in integrating OFSP production technologies into existing production system	0.30	0.794
High cost of OFSP tubers	0.70	1.393
Lack of knowledge about OFSP production techniques	1.67	1.768
Lack of storage facilities	1.30	1.557
High cost of inorganic fertilizer	1.70	1.685
Unavailability of inorganic fertilizer	1.03	1.564
Unavailability of labour	0.30	0.651
Inadequate farmland	0.80	1.627
Poor access to information on OFSP	0.13	0.730
High cost of labor	0.27	1.015
Inefficient transport system	0.13	0.730
Inaccessible road to farmland	0.27	1.015

*Perceived constraints

Conclusion and Extension Implications

- The major factors that inhibited the adoption of OFSP was the unavailability of resources needed for production. Hence, in addition to creating more sensitization and awareness about OFSP, concerted efforts should be made by the extension agencies to provide adequate inputs (vines and other planting materials) so as to encourage more farmers to go into production of the vitamin A rich OFSP.
- The study underlined the importance of a well-organized institutional information provision on OFSP production technologies through demand-led extension and advisory services to the farmers.
- Also, since fellow farmers were the most preferred and frequently used source of information, extension agents should consider the impact and influence of informal sources of agricultural information and as such they should be viewed as essential sources of information and trained so as to disseminate information on OFSP effectively.