

ASSESSMENT OF INDIGENOUS PRACTICES BY RURAL FARMERS IN YAM PRODUCTION IN SOUTHERN ZONE OF TARABA STATE: THE AGRICULTURAL EXTENSION IMPERATIVES

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Abstract

This study focused on the agricultural extension imperatives for promoting indigenous knowledge and practices in yam production in the Southern Zone of Taraba State, Nigeria. Specifically, the objectives of the study was to find out the extent to which yam farmers employ indigenous knowledge and practices in Yam production and areas of indigenous practices required by agricultural extension services in promoting yam production in the Southern Zone of Taraba State. The study was carried out in Southern Taraba State which comprises Wukari, Ibi, Takum, Ussa, and Donga. It employed survey research design. The target population for the study was 2500 rural yam farmers. The proportionate sampling technique was used in selecting 250 rural yam farmers which constituted the sample for the study. A structured questionnaire was used for data collection. The data were analyzed using the mean and independent t-test statistics. The results showed that some indigenous knowledge in yam production practices was being employed to a large extent in the southern zone of Taraba State. These practices include shifting cultivation, bush fallowing, tillage operations, mounds making, crop rotation, mixed cropping, harvesting, processing and storage. The finding also showed a number of areas in which indigenous knowledge and practices needed to be given consideration by agricultural extension services for promoting yam production in the southern zone of Taraba State. These included among others shifting cultivation, bush fallowing and mixed cropping.

Keywords: Yam, Southern Taraba, Agricultural extension, Indigenous practices

Introduction

Rural farmers are known to play leading roles in agriculture including crop production. They grow a number of indigenous root and tuber crop species. Prior to the application of scientific technologies in crop production, rural farmers were known to have used indigenous methods in crop production such as land preparation, soil fertilization, planting, harvesting, processing, storage and marketing. These practices have variously been described as traditional knowledge, indigenous technical knowledge or Ethno Science (Awoke, 2002).

It has been observed that modern agricultural practices have contributed immensely in boosting agricultural productivity, yet rural farmers in Nigeria have continued to rely on crude farming practices. Indigenous agriculture has been characterized by small scale production and fragmentation of the agro ecosystem. The practice of scientific agriculture has been blamed for neglecting the socio-economic heterogeneity and characteristics of

traditional agricultural practices. Amalu (2004) reported that by understanding the intrinsic features of traditional farming, such as ability to bear risk, biological taxonomy and the production efficiencies of symbolic crop mixture, it is possible to obtain important information that may be useful in developing appropriate agricultural practices which are sensitive to the complexities of different agro-ecological and socio-economic processes.

Southern Taraba State consists of Wukari, Ibi, Takum, Ussa, and Donga Local Government Areas (LGAs). They are all located in the guinea savanna agro-ecological zone of Nigeria. The climate is favourable for yam production and is marked by dry season (November-March) raining season (April-October) with average rainfall of 1350mm per annum. It is also known for its preponderance of disperse forests and tall grasses.

Agriculture constitutes the main bedrock of Taraba State economy. Over 80% of Taraba State indigenes are involved in agricultural

production (Taraba State Government, 2014). The State is endowed with fertile land, favorable climate condition and immense agro-based raw materials including wildlife, livestock, and crop resources. The economic activities in the area centre largely on food production, marketing and distributive trade.

Production of yam has been one of the age long activities among rural farmers in the zone. Rural farmers cultivate the bulk of yam varieties which serves as staple food in the area. They possess a vast wealth of knowledge about yam production resources and practices built up over centuries. Not only does this knowledge include information about different yam species, landraces and their uses, but also the principles of cultivating and tending them. This knowledge notwithstanding, indigenous and adapted species, landraces, other yam species and favourable agro ecosystem are disappearing by dilution and replacement leading to the loss of yam genetic resources of great value and consequently, low yam production. These degradations which may be attributed to a number of influences including habitat destruction, pollution, climate change, resource over-exploitation, or soil mining and poverty could be checked if agricultural extension activities could be focused and promoted in this regard.

It is believed that one extreme rich source of information about yam production therefore is the indigenous knowledge of local farmers. Ehreheld (2006) reported that traditional farming practices have emerged over several years of cultural and biological evolution and this represents accumulated experiences of interaction with the environment by rural farmers but without a clue to agricultural extension input, capital or scientific knowledge. He also pointed out that most peasant farmers have limited access to farm inputs, capital, and related technologies. Majority of the farmers have been described as of illiterate and conservative with little or no priorities in their approach to modern agriculture.

Ben (2010) maintained that extension service seems to rely on scientific facts without giving priority attention to peasant farmers' technologies. The absence of the match between local and modern practices have made rural

farmers with little capital base to depend on their indigenous knowledge and practices without paying attention to improved technology - based production. The goal of agricultural extension services has always been to fill the gap between rural farmers and research institutes in crop and animal production. It should be able to identify indigenous knowledge practices that are peculiar to rural farmers and which could serve as a better combination with modern technologies to give desirable results. The rural agricultural extension services in promoting and harmonizing indigenous practices do not seem to focus on the promotion of technological and science- based agriculture and articulation of programmes that address the use and improvement in indigenous knowledge practices. New horizons need be explored for agricultural extension services in promoting indigenous knowledge and practices in yam production on technologies initiated from research.

The main aim of this study therefore was to determine the agricultural extension services imperatives in promoting indigenous knowledge and practices in yam production in the Southern zone of Taraba state.

Methodology

The study was carried out in the Southern Zone of Taraba State which comprised Wukari, Ibi, Takum, Ussa, and Donga LGAs. It employed survey design. The study considered survey design the appropriate design to use because it involved the use of rural farmers and agricultural extension personnel who were associated with the phenomenon under investigation. The target population for the study was 2500 rural yam farmers. The proportionate sampling technique was used in selecting 10% of yam based rural farmers involved in the study. Based on this 250 respondents comprising 125 male and 125 female rural yam farmers constituted the sample for the study.

A structured questionnaire was the instrument used for data collection. The instrument was based on a research question and hypothesis. The research question focused on the extent to which yam farmers employ indigenous knowledge and practices in Yam production while the hypothesis dealt on indigenous practices required by agricultural extension services in promoting yam production in

Southern Zone of Taraba State. To answer the research question, a plethora of areas of indigenous yam production practices were presented for rating. Results in this regard are presented in Table 1. To test the hypothesis, the views of male and female farmers on the areas of indigenous knowledge and yam production practices were compared for significant difference. Results in this regard are presented in Table 2.

The questionnaire was administered by personal contact through the assistance of Ministry of Agriculture and Natural Resources' staff serving in the study area. The data collected from the respondents were analyzed using mean and independent - t-test to compute data to answer research question and test the hypothesis respectively. The hypothesis was tested at 0.05 level of significance. Based on the calculated mean, the following guidelines were used to interpret and make decisions on the findings. Each opinion involved two main decisions: High Extent and Low Extent. Items with mean scores of 2.5 and above were accepted as High Extent and those below 2.5 were regarded as low extent.

Results

The results as presented in Table 1 shows that some indigenous knowledge and practices were employed to a high extent like shifting cultivation, bush fallowing, tillage operations, mounds making, crop rotation, mixed cropping, harvesting, processing, and storage. However, the

extent of employment of indigenous knowledge and practices regarding alley cropping, bush fallowing, ridge construction and maintenance were low.

Table 1: Mean distribution of extent of employment of indigenous knowledge and practices by rural farmers in Southern Zone of Taraba State

S/N	Items	Mean score	Remark
1	Shifting cultivation	3.67	**
2	Bush fallowing	3.22	**
3	Alley cropping	2.46	*
4	Tillage operations	3.51	**
5	Mounds making	3.84	**
6	Ridge construction	1.60	*
7	Staking	3.41	**
8	Crop rotation	3.00	**
9	Mixed cropping	3.31	**
10	Maintenance	1.12	*
11	Harvesting	3.4	**
12	Processing and storage	3.72	**

N=250; **High Extent; * Low Extent

The results as presented in Table 2 indicate that there no significant differences that existed between the male and female yam farmers' opinions in item numbers 1-2 and 4-10. These items recorded calculated t values which were lower than the tabulated t values at df of 249 and $P = 0.05$. Following this, the hypothesis was upheld in this respect. Also, the calculated t-value for item 3 was greater than the table t-value at 248 df and $\alpha = 0.05$ significance level.

Table 2: Indigenous practices required by agricultural extension services for promoting yam production in southern zone of Taraba State

S/N	Items	Male farmers		Female farmers		t-cal	Remark
		X_1	S_1^2	X_2	S_2^2		
1	Shifting cultivation	3.62	0.76	3.68	0.66	0.278	* NS
2	Bush fallowing	3.22	0.68	3.25	0.70	0.212	* NS
3	Alley cropping	2.46	0.35	2.48	0.37	2.266	* *S
4	Tillage operation	3.51	0.36	3.52	0.38	0.132	* NS
5	Mound making	3.84	0.78	3.84	0.80	0.241	* NS
6	Ridges construction	1.60	0.72	1.65	0.74	0.126	* NS
7	Staking	3.41	0.72	3.48	0.84	0.235	* NS
8	Mixed Cropping	3.31	0.68	3.32	0.70	0.450	* NS
9	Maintenance	1.12	0.41	1.16	0.43	0.524	* NS
10	Harvesting	3.14	0.59	3.18	0.62	0.241	* NS
11	Processing	3.36	0.68	3.40	0.70	0.541	* NS
12	Storage	3.72	0.81	3.75	0.83	0.589	* NS

$N_1=125$; $N_2=125$; $t_{-tab}=1.96$; $P=\alpha 0.05$; $df=249$; NS= Non significant; * = Accepted; ** significant

This indicated that there was significant difference in the opinions of male and female yam farmers regarding alley cropping. The related hypothesis was therefore, rejected in this regard.

Discussion of the findings

The findings of in this aspect of the study indicated that yam farmers in the Southern Zone of Taraba State usually employ to a high extent indigenous knowledge and practices in yam production. Such areas included shifting cultivation, bush fallowing, tillage operations, mounds making, crop rotation, mixed cropping, harvesting, processing and storage. This finding is in consonance with that of BOSTID (2001) and Shiwa (2003) who confirmed that rural yam farmers like typical indigenous people usually live in a particular territory and operate their own farming practices, distinct social and cultural ways of life.

Ben and Ikpi (2011) also maintained that indigenous people have a wealth of knowledge about root and tuber crops resources built up over centuries. One rich source of information about tuber crop production is the knowledge of local people whose livelihood depends on their management of biological resources. Indigenous rural farmers often have profound and detail knowledge of the ecosystem and species with which they are in contact and have developed effective ways of ensuring they are sustainably managed.

Areas of indigenous knowledge and practices required by agricultural extension services for promoting yam production in the southern zone of Taraba State

This study has revealed a number of areas of indigenous knowledge and practices which need to be given consideration by agricultural extension services for promoting yam production in the southern zone of Taraba State. These included among others shifting cultivation, bush fallowing and mixed cropping. The finding specifically indicated that far greater number of yam farmers practiced mixed cropping as a measure for maintaining the diversity of yam production in their area. Okunlola and Adekunle (2000) reported similar findings in their study. There are indications that in the southern zone of

Taraba State, local farmers inter-crop yam with other crops like maize, okra, cassava, melon as well as Bambara nut using techniques that ensure sustainable protection and conservation of generic priority and diversity of such crops for generations. Most of them also adopt mixed cropping in yam production. Other indigenous knowledge and practices like processing of yam into flour has also been identified by the study as those which are indigenous to local farmers in southern zone of the state.

The role of extension services in promoting indigenous knowledge practices among yam farmers is quite pertinent and imperative and it engenders extension services' consideration. Okulolan and Adekunle (2000) suggested the duties of agricultural extension in this regard to include assisting yam farmers to perfect their practice through training and matching local ideas with modern scientific knowledge and also helping to carry these practices of local farmers to the researchers for improvement. Collaborating this view, Warren (2000) maintains that agricultural extension service has a vital role to play in promoting and enhancing indigenous knowledge and practices by facilitating the generation of new local ideas, harmonizing local ideas with modern technology, communicating local knowledge to scientists for improvement, helping local farmers to perfect on their indigenous practices, and packaging farmers' experiences and practices for diffusion into the fabrics of the social farming setting.

Conclusion

Rural farmers in southern zone of Taraba State do develop, promote, and protect indigenous knowledge and practices in yam production. This has contributed immensely to boost agricultural productivity in the zone. By understanding the intrinsic features of indigenous yam production practices, it is possible to obtain important information that may be useful for developing appropriate agricultural practices which are sensitive to the complexities of agro-ecological and socio-economic process in the zone. Extension as a service delivery system which bridges the gap between rural farmers and the researchers has a fundamental role to play in this regard.

Recommendations

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

1. Agricultural extension services in the zone should encourage indigenous knowledge and practices of rural yam farmers by promoting alongside with modern scientific knowledge, activities that enhance local productivity.
2. Agricultural extension services in the zone should promote the compilation of indigenous technical knowledge common among yam farmers to enhance their improvement and integration in extension packages.
3. Agricultural extension services in the zone should focus on activities that will enhance and encourage the integration of indigenous knowledge within the yam technology development process to enable them contribute their indigenous practices to the total technology mainstream and packages disseminated to all farmers.

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