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Bottlenecks in the Utilization of NSPRI Technology: A Case Study of Isale Awe Village in Kwara State, Nigeria

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SUMMARY

This study assessed bottlenecks in the utilization of NSPRI postharvest technology in Isale Awe village, Kwara State, Nigeria. This research was conducted at Isale Awe village with a sample size of 48 cassava processors through multistage sampling procedure. The data were analyzed using descriptive and inferential (linear regression) statistics. The mean age of the respondents was 48.75±12.535 years, majority of the respondents were male (83.3%) and educated (66.7%). The results showed that cassava processing centre was widely utilized by cassava processors in Isale Awe with a weighted mean score of 2.58. High cost of maintenance (WMS = 2.17) is the major challenge/bottleneck in the utilization of the technology. In addressing bottlenecks in utilization of NSPRI's postharvest technologies, there is urgent need for all stakeholders in rural development to gear up efforts in implementing this scheme in technology transfer paradigm in order to boost their utilization among the end users.

INTRODUCTION

Adoption and utilization of new technologies in the developing countries had been consistently hampered by portfolios of factors including both financial and non-financial barriers. Obviously, these barriers had progressively blocked most of these countries from benefiting from global technological advancement thereby encumbering their economic competiveness in the comity of nations. This technological backwardness and ignorant had done more havoc in the rural areas in virtually all members African region, Nigeria inclusive. Succinctly, the hurdles faced by these countries in adopting improved technologies range from poor energy grids and poor access to internet facilities. Other barriers to technological advancement in these countries include high costs of technology acquisition, low technological literacy, and institutional weakness resulting into ineffective policymakers. Worse still, the alarming digital divide had even complicated the already fragile issues thereby deepening inequality in technology access among various socio-cultural and economic groups. This newsletter investigates bottlenecks in the context of the usage of cassava processing centre provided by Nigerian Stored Products Research Institute (NSPRI) via adopted villages scheme (AVS) in Isale Awe village, Kwara State, Nigeria. In lieu of this, this research effort is contributing to the existing literature that aims at defining pathways to overcome major obstacles to technologies that promote food security and sustainable development especially through postharvest loss reduction pathways. This research utilizes explanatory research at the preliminary stage to examine this phenomenon in AVS setting.

Methodology

Study Area: The study was carried out in Isale Awe Community in Asa Dam Local Government Area of Kwara State. It is located at an elevation of 267 meters above sea level and its population amounts to 142,275 in National Population Census (NPC) (2006). The annual rainfall received in this region is very moderately high, usually above 1,800 mm. Temperatures are fairly uniform throughout the year and the differences between day and night are slight. The major crops in Isale Awe are vegetables, yam, cassava and maize. The study area is dominated mainly by Yoruba people.

Population of the study: the population of the study included all the cassava processors in the study area.

Sampling procedure and sample size: A multistage sampling procedure was employed to select 48 respondents for the study. The first stage involved purposive selection of Isale Awe community since is one of the adopted villages in Asa Local Government Area of Kwara State and well known for cassava processing while the second stage involved the random selection of four (4) cells out of the eight (8) cells in Isale Awe community. The third stage involved the random selection of twelve (12) cassava processors from each of the selected cells in the community to give a total number of forty eighty (48) respondents as the sample frame for the study.

Source and type of data: The primary data were obtained with the aid of a well-structured questionnaire.

Data analysis: The data collected were analyzed using descriptive statistics and inferential statistics (Linear Regression model).

Measurement of variables: Bottlenecks in to the level of utilization of NSPRI postharvest technologies was obtained using a 4-point scale namely; Very Severe = 3, Severe = 2, Moderately Severe = 1 and Not Severe = 0. The benchmark was obtained by adding 3+2+1+0 = 6 which is divided by 4 to give 1.5. Any mean score of 1.5 and above is serious challenge the level of utilization, otherwise minimal challenge (Authors' defined).

Results and Discussion

Socio-Economic Characteristics of the respondents at Isale Awe community

The mean age of the respondents was found to 48.75±12.535 years (Table 1). This implies that the respondents are still in their economically active age and can adequately engage in cassava processing activities. This development will invariably influence adequate food availability and household's food security in the study area. This finding is in line with the report of Umen *et al.* (2013) which pointed out that many rural dwellers are still in their active and energetic ages and still find pleasure in agricultural activities which can potentially translate into sufficient food availability.

The results in Table 1 showed that majority (83.3%) of the respondents were male while only few (16.7%) were female. This finding indicated that cassava processing is a male dominated business in the study area. This development maybe connected with drudgery involved in the cassava processing operations. Therefore, young men often have a higher access to information on new technologies and are expected to participate in cassava processing more than their female counterparts. This finding indicated that most of the processors in Isale Awe village were male. This is similar with the work of other authors (Ogunyinka and Oguntuase, 2020) in which male headed households accounted for about 67% of their sample.

It was also revealed that 33.3 percent of the respondents had no formal education (Table 1). However, 41.7 percent of the respondents had primary school education, 8.3percent of the respondents had secondary education, 0.0 percent of the respondents had tertiary school education while 16.7 percent of the respondents had non-formal education. The finding signifies the fact that most of the respondents were educated and this can potentially stimulate remarkable paradigm shift in respect of technology adoption especially as related to cassava processing. This high level of formal education could facilitate reasonable agricultural production as a result of adoption of improved technologies and practices. This is in support of Nwachukwu *et al*. (2008) who stated that farmers with more years of schooling tends to participate more in agricultural activity/programme (cassava processing) than those with no formal education at all.

Table 1: Distribution of respondents by Socio-Economic Characteristics (n = 48)

Socio-Economic Characteristics	Frequency	Percentage
Age range (Years)		
≤30	4	8.3
31-40	8	16.7
41-50	20	41.7
Above 50	16	33.3
Mean	**48.75**	
S.D	**12.535**	
Sex		
Male	40	83.3
Female	8	16.7
Educational level		
No formal education	16	33.3
Primary school	20	41.7
Secondary school	4	8.3
Tertiary school	0	0.0
Non-formal education	8	16.7

Source: Data analysis Outputs, 2025

Available NSPRI Technology in the study area

Table 2 presented the distribution of respondents based on the availability of NSPRI technology in the study area. The result in the table 5 indicated that all (100.0%) of the respondents indicated the availability of cassava processing unit/centre provided by NSPRI in their area. The finding therefore revealed that cassava processing unit established by NSPRI is readily available for use in the study area.

Table 2: Distribution of respondents by available NSPRI Technologies in the study area

NSPRI Technology	Frequency	Percentage
Cassava processing centre	48	100.0

Source: Data Analysis Outputs, 2025

Bottlenecks in the utilization of NSPRI Technology

According to Table 3, the bottlenecks in the utilization of NSPRI Technology in Isale Awe village in the rank order include high cost of maintenance (WMS = 2.17), high cost of technology (WMS = 1.67), poor coordination (WMS = 1.43), limited capacity (WMS = 1.25), poor collaboration (WMS = 1.17), lack of training (WMS = 1.08), technical know-how (WMS = 0.67) and inadequate access to technology (WMS = 0.42). From the result of the finding, it was observed that the effects of the identified bottlenecks in the utilization of NSPRI Technology in Isale Awe village was below average among the cassava processors indicating that these hurdles were not significant enough to undermine the contribution of NSPRI technology to overall development in cassava processing in the study area. Although cassava plays critical roles as regards ensuring food available and security but many processors face challenges such as inadequate access to technology and financial constraints, which adversely affect their participation levels (Olajide and Baba, 2020).

Table 3: Distribution of respondents by bottlenecks in the utilization of NSPRI Technology

Bottlenecks	VS	S	MS	NS	WMS	Rank
Technical know-how	4(8.3)	0(0.0)	20(41.7)	24(50.0)	0.67	7th
Limited capacity	4(8.3)	12(25.0)	24(50.0)	8(16.7)	1.25	4th
Poor collaboration	4(8.3)	16(33.3)	12(25.0)	16(33.3)	1.17	5th
Poor coordination	8(16.7)	16(33.3)	12(25.0)	12(25.0)	1.43	3rd
High of cost technology	12(25.0)	16(33.3)	12(25.0)	8(16.7)	1.67	2nd
Inadequate access to technology	0(0.0)	0(0.0)	20(41.7)	28(58.3)	0.42	8th
High cost of maintenance	28(58.3)	4(8.3)	12(25.0)	4(8.3)	2.17	1st
Lack of training	12(25.0)	0(0.0)	16(33.3)	20(41.7)	1.08	6th

VS = Very Severe (3), S = Severe (2), MS = Moderately Severe (1), NS = Not Severe (0)
Mean = 9.83; S.D = 4.610
Source: Data Analysis Outputs, 2025

CONCLUSION

It was concluded that though cassava processors were faced with some difficulties in the utilization of cassava processing centre provided by NSPRI in Isale Awe village, it was observed that the effects of those challenges was below average indicating that the challenges were not significant enough to undermine the contribution of NSPRI technology to the overall development in cassava processing value chain in the study area. Based on the findings of this study, this recommendation is put forward: Village adoption programme significantly influenced the level of utilization of NSPRI's postharvest technologies, there is therefore need for all stakeholders in rural development to gear up efforts in implementing village adoption programme in technology transfer paradigm in order to boost their utilization among the end users.

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