Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development
Vol. 22, Issue 3, 2022
PRINT ISSN 2284-7995, E-ISSN 2285-3952

ROLE PERCEPTION AND ROLE PERFORMANCE OF EXTENSION AGENTS IN POST-HARVEST ACTIVITIES OF RICE IN SOUTHWESTERN, NIGERIA

Margaret Olayemi OYEDOKUN[1], Adedayo Olufemi AJAYI[2], Michael FAMAKINWA[2]

[1]Institute of Agricultural Research and Training, Southwest Farming System Research and Extension Programme PMB 5029 Moor Plantation Ibadan, E-mail: oyedokunolayemi@hotmail.com
[2]Obafemi Awolowo University, Department of Agricultural Extension and Rural Development, Ife, Nigeria, Emails: dayoajayi2018@gmail.com, mfamakinwaoauife.edu.ng, famakinwamichael2013@gmailcom

Corresponding author: mfamakinwaoauife.edu.ng, famakinwamichael2013@gmail.com

Abstract

The paper assessed role perceived and performed by Extension agents (EAs)) in post-harvest activities (PHAs) of rice in Southwestern Nigeria. Structured questionnaire was employed to elicit quantitative data from 124 EAs across the area of study while focus group discussion guide and in-depth interview guide were used to collect qualitative data from the farmers and local fabricators in the study area. Appropriate descriptive statistics were used to describe and summarise quantitative data while paired T-test was used to test the difference between role perception and performance of respondents in PHAs of rice. Content analysis was used to analyse the qualitative data. The result showed that EAs were competent in traditional method of parboiling paddy rice (mean = 4.46) and sun drying of paddy rice (mean = 4.30). EAs mostly perceived training rice farmers on rice value addition (96.7%) and facilitating loans for rice farmers (93.5%) however, performed linking rice farmers to markets ((84.7%) and training them on drying paddy to a safe moisture content (80.6%).The result showed that were significant difference existed between the perceived and performed roles ($t = 21.915$; $p \leq 0.05$) of EAs in post- harvest activities of rice. The study concluded that there was a wide gap between perceived and performed roles of EAs in rice postharvest activities. Hence, EAs should be equipped with necessary skills and knowledge in modern PHAs of rice through capacity building in order to perform their roles effectively to enhance utilisation of high-quality enhancing post-harvest technologies.

Key words*: competence, extension agents, perceived role, performed role, post-harvest activities*

INTRODUCTION

According [10], agricultural development lies at the heart of income generation, poverty reduction and food security of most developing countries. The onus to achieve these trio goals is strongly dependent on the extent to which agricultural extension service delivery is efficiently performed. It is therefore a basic tool in government programmes and projects that aim at bringing about changes in all facets of agricultural production and raise rural living standards, positive change in agricultural production and improved standard of living can be achieved from intensive and sustainable engagement of agricultural extension.

According [15], Nigeria is the largest producer of Rice (paddy) in Africa with an average production volume of 8 million metric tonnes. As of 2019, Nigeria was ranked as the 14th largest producer of rice in the world with China being the top producing country [11] reported that Nigeria has increased rice production from 2.9 metric tonnes in in 2005 to 4.1 million tonnes in 2014, with further increased in 2015 to 4.3 metric tonnes and 4.8 metric tonnes in 2016. [11] established that there are evidence from past studies that despite increase in local rice production, there is still persistence deficit in its supply compared to the excess demand for the commodity [7]. One of the reasons attributed to the situation is the inability of the local rice to compete favourably with imported rice based on the submission of [1] that most Nigerian rice processors/farmers

lack adequate technology to meet international standards, as locally produced rice contains a lot of stones and other impurities. By implication improved technologies of handling rice processing can address the problem of post-harvest loss and its inability to compete with imported products in terms of taste, packaging and quality. To achieve this, farmers must be given an opportunity to access appropriate post-harvest technologies of rice and necessary information on markets. This is expected to be done by extension workers.

The failure of agricultural extension had been traced to inadequate communication infrastructure, training and inefficient link with researchers and industrialists or fabricators. Despite all the highlighted problems of extension, new technological advances in post-harvest handling of rice need be transferred to the farmers. Extension agents in the study area are often involved in technology transfer at the expense of providing marketing services to rice farmers. The Ministry type extension organisations largely embark on technology transfer rather than services that impinge on improved income and profit maximization [2].

According to [12] [16], the conventional transfer of technology models was the top down and feedback models. The top-down technology transfer is a one-way process where technologies developed by scientists are passed on to extension services to be transferred to users. The functioning of the feedback model solely rests with the extension service organization. [5], cited in [6], reported that the great challenge facing the agricultural technology transfer is not just how to approach the end users, but how to sustain the use of technology to meet the future challenge. [11] cited in [16] stated that agricultural extension has changed over times. It is no longer restricted to the emphasis on technology transfer reflected by the Training and Visit (T & V) System but has moved towards broader concepts which include developing the skills and management capacities of farming families. Extension helped to facilitate the access of farmers, their organizations and other market actors to knowledge and technology and facilitate their interaction with similar organizations.

[10] further explained that sustainability and productivity of agricultural sector worldwide depends on the quality and effectiveness of extension services among other factors. He also observed that in developing countries, there is a gap between agricultural performance and available research information. This has also been attributed to poor extension services delivery as well as limited interaction between technology developers (researchers) and extension workers. [10] also reported that poor communication between actors in extension services delivery particularly the Government, NGOs, private sector (agribusiness) and farmers has also been shown to hinder flow of developed technologies to farming communities.

In addition, dissemination of modern post-harvest activities of rice is not adequate as reported by [8] that a large number of rice farmers claimed not have heard of many posts–harvest technologies. This is affirmed the recommendation of past study submitted by [2] that institutional information service should be provided to farmers in developing countries in order to achieve the goal of improving the income of the farmers and livelihood through adoption of improved postharvest technologies. [2] recommended that extension services should explore the possibility of providing more market related information to farmers in order to increase their income and findings of [8] that a large number of farmers in Bangladesh claimed not to have heard of many post-harvest technologies let alone of adopting them. Implicitly, low extension agents-farmers ratio coupled with low competency of extension agents on post-harvest activities of rice forms the basic reason why farmers are facing series of challenges in handling the required postharvest activities in modern way. If the situation is allowed to linger on, all efforts by the government at all levels and that of international donors and research institutes to

boost locally produced rice to compete favourably with foreign rice will be in vain.

The situation therefore, calls for prompt action from extension agents as they are in the best position to help develop all the required knowledge and skills needed by farmers to keep abreast of the new innovations on rice post-harvest activities through education, training and advisory services or else farmers may not be able to handle post-harvest operation successfully at all stages. Moreover, studies have been carried out on role perception and performance of extension agents in maize marketing [13] and effectiveness of extension agents in agricultural developments in general but there is scanty literature on roles perception and performance by extension agents in post-harvest activities of rice in Southwestern Nigeria. It is against this background that this study assessed the role perception and performance of EAs in PHAs of rice in the study area.

(i)determine their perceived level of competency in PHAs of rice;

(ii)examine perceived and performed roles of extension agents in post-harvest activities of rice; and

(iii)examine the difference between perceived roles and performed role extension agents in post-harvest activities of rice farmers in the study area

MATERIALS AND METHODS

The study was conducted in Southwestern Nigeria which has six states which can be group into three based on the similar attributes namely: group 1(Osun and Oyo States), group 2 (Ondo and Ekiti States) and group 3 (Lagos and Ogun States). A two-stage sampling procedure was used to select respondents for this study. At the first stage, one state per group was purposively selected to make a total of three states namely: Osun, Ekiti and Ogun States based on their prevalence in production of rice. At the last stage, all serving public field level extension agents Agricultural Development Programmes across the three states, were selected account for 63 EAs in Ogun, 33 in Ekiti and 28 in Osun States making a total of 124 respondents. Two Focus Group Discussion Duly pretested and validated questionnaire was used to collect quantitative data from the respondents. The questionnaire contain both open and closed questions. Primary data collected were summarized and described through the use of frequency counts, percentages, means and standard deviation while paired sample t- test analysis was used to test difference between perceived and performed roles of EAs. Two Focus Group Discussion (FGD) sessions were conducted per state to elicit qualitative information from rice farmers and two In-depth interview sessions were conducted per state from local fabricators to triangulate the quantitative findings, making a total of six FGD sessions and six In-depth interview sessions. Qualitative data were analyzed through the use of content analysis. Content analysis is the systematic analysis of the content of a text (e.g., who says what, to whom, why, and to what extent and with what effect) in a quantitative or qualitative manner. The key informant interviews carried out were recorded with an electronic device and later transcribed. The role perception and performance were measured by asking the EAs to indicate what they perceived as their roles in the list of expected roles in PHAs of rice and each one was scored one point while they were to indicate the one they performed and each performed was scored one point. EAs were also asked to rate their self-perceived level of ability in the 15 competence areas of PHAs of rice by using a Likert type scale with (1) as not competent, (2) little competence, (3) somewhat competent, (4) competent and (5) very competent as used by [4].

RESULTS AND DISCUSSIONS

Competence of EAs in handling various PHAs of rice

Results in Table 1 reveals that the respondents indicated that they were competent in traditional method of parboiling paddy rice (mean = 4.46), sun drying of paddy rice (mean = 4.40), traditional method of rice

threshing (mean = 4.35), and adequate information on traditional harvesting (mean = 4.31 while they were somewhat competent in storage handling methods (mean = 3.28), however they either were not competent in other PHAs. This findings revealed that the EAs were competent in traditional method of parboiling paddy rice, sun drying of paddy rice, traditional method of rice threshing, giving adequate information on traditional harvesting and storage handling methods, but less competent in other nine PHAs activities.

Table 1. Competence of EAs in PHAs of rice

Competency variables	Mean	St. Dev.
Traditional method of Parboiling paddy rice	4.46	1.185
Sun drying of paddy Rice	4 .40	1.103
Traditional method of rice threshing	4.35	1.067
Adequate Information on traditional harvesting	4.31	1.205
Storage handling methods	3.28	1.173
Good skill on rice winnowing	2.24	1.157
Knowledge of using ICT to source for modern rice technologies	2.21	1.184
Adequate knowledge on giving financial education for rice farmers	2.09	0.991
Adequate information on rice marketing	2.05	1.104
Adequate knowledge of packaging and labelling milled rice	1.05	1.182
Possession of good knowledge of using de-stoner	1.03	1.103
Possession of knowledge on how to handle processing machines	1.02	0.995
Good knowledge of networking among other actors	1.01	0.991
Adequate knowledge on quality control in rice	1.00	1.092

Source: Field survey, 2019.

The inference that can be drawn from this result is that the respondents were highly competent in performing the activities that involves traditional techniques and tools, but less competent in the aspect that involves modern techniques and equipment's. This finding gives credence to the observation of [8] that most of the processes utilized by rural rice farmers were mostly traditional and so issue of technological advancement in rice processing needs attention. Definitely if attention would be given to the rice sector it has to start with the extension agent that has the mandate to train farmers for the technological advancement as no one can give what he doesn't possess. The FGD excerpt below further support the quantitative finding that EAs were competent in modern postharvest activities.

"They train us the little they can, on what we have known before. There is nothing new in what they teach now. If they really want to help us they should teach us how we can use machine to do most of the post- harvest operations at the same time assist us to get loan so that we can buy our own. The agents should also help us to get market for our rice produce". ***(FGD excerpt from Oke – Mesi in Ekiti west LGA, Ekiti state.***

Perceived and performed roles of EAs in PHAs of rice

The results in Table 2 reveal that respondents had a good perception training them on rice value addition (96.7%), facilitating loans for rice farmers (93.5%), sourcing for new techniques (92.7%), formation farmers into cooperatives (91.1%), drying paddy to a safe moisture content of 13-14% (91.1%), providing information on best time to harvest rice (90.3%); linking them to market (90.3%), providing information on hygiene practices on rice PHAs (88.7%), training rice farmers on destoning of rice (88.7%)and among others as the roles expected of them in rice PHAs. This finding implies that majority of the EAs had a good perception of the roles expected of them to perform in rice PHAs both on their traditional functions and more technical aspect of post-harvest activities such as providing information on best harvesting time of rice, training them on drying paddy to a safe moisture content of 13-14%, demonstrating hygiene practices on rice PHAs, training them on modern drying techniques, training them on destoning of local rice and facilitating how rice farmers group can erect milling machine. That is, the EAs perceived all the expected roles as important that they must perform. This finding contradicts the findings of [13] and

[14] that extension agents only had a good perception in just traditional functions of technology transfer and had less technical aspects of their roles. This finding might be due to assertion of [9] and [12] that agricultural extension service is no longer restricted to transfer of proven technologies but it has assumed a changing roles from a focus on technology transfer to a focus on facilitating a range of interventions in complex contexts.

On the other hand, the results in Table 2 shows that the affirmative responses by the extension agents indicated that they performed satisfactorily postharvest functions of linking rice farmers to markets ((84.7%), training them on drying paddy to a safe moisture content of 13-14 percent (80.6%), providing information on best time to harvest (79.6%), provision of information on how to access loan (72.8%), formation farmer rice group/cooperatives, and in that order. While extension agents performed poorly in training them on modern drying techniques (40.3%), facilitating erection of rice milling machine (18.5%), liaising with policymakers on rice improvement (8.1%), training them on rice value addition (6.5%) and training of fabricators on how to construct rice processing machine (3.2%).

Table 2. Perceived and performed roles in PHAs (n=124)

Post-harvest activities of rice	**Perceived roles**		**Performed roles**	
	F	%	F	%
Linking rice farmers to markets	116	93.5	105	84.7
Training farmers on storage techniques	106	85.5	103	63.1
Drying paddy to a safe moisture content of 13-14%	113	91.1	100	80.6
Provide information on best time to harvest	112	90.3	99	79.8
Provision of information on how to access loan	110	88.7	92	74.2
Formation into rice group/cooperatives	113	91.1	90	72.6
Teaching them on destoning of rice through destoning machine	110	88.7	56	45.2
Demonstrate Hygiene Practises on rice PHAs	112	90.3	78	62.9
Training them on rice value addition	102	82.3	8	6.5
Provide adequate Information on threshing	94	75.8	70	56.5
Carry out of advocacy campaign on improved rice processing	119	96	55	44.4
Training them on modern drying techniques	94	74.8	50	40.3
Training them proper parboiling	93	75	84	67.7
Facilitates erection of milling machine	88	71	23	18.5
Introduction of farmers to harvesting machines	98	79	45	36.3
Organize excursions	62	50	42	33.4
Facilitates training of fabricators	93	75	38	30.6
Facilitate construction of storage facilities	98	79	4	3.2
Liaise with policy makers to assist rice farmers	88	71	10	8.1

Source: Field survey, 2018.

The implication of these results is that majority of the EAs only performed the traditional functions of providing information but they performed poorly in the technical aspects of rice postharvest activities such training rice farmers adding value to rice, destoning of rice, proper drying of paddy rice, training them on how to use modern

postharvest machines such as milling machines, mechanical threshers and dryer and among others. The result further suggests that although the EAs had a good perceptions of almost all the roles expected of them, there was a wide gap between their role perception and performance. This could be attributed to poor competency of EAs in the use of modern postharvest technologies of rice. This consequently lead to continuous use of traditional processing techniques by rice farmers which account for poor quality of most of locally produced rice in the country as pointed out by [1] that poor extension service delivery contributed to poor quality of local rice in Nigeria. The excerpts from focus group discussion (FGD) and key informant Interview (KII) disagreed with the claimed of EAs in the performance of their expected roles as most farmers reported that they did not benefit much from the activities of EAs in rice PHAs in the study area. This is similar to the findings of [8] that a large number of rice farmers claimed not have heard of many posts–harvest technologies.

"All rice farmers in this area are not enjoying any service from extension agents for the past ten years, we cannot process our paddy rice into milled rice because we don't have access to milling machine and. government should help us by empowering with training. Rice farmers have been suffering because extension agent is no longer available as they used to. The area we would have love extension to intervene most is linking us to market so that we can sell and gain". ***(FGD discursion excerpt from Idi-Ogungun Community, Boripe LGA, Osun State)***

"Extension agents visits them seldomly and that there is not much information from them on PHAs of rice. They only visits during intervention programme from international and private organizations". (***FGD discursion excerpt from Ogunmakin in Obafemi-Owode LGA, Ogun State)*** *----"but ordinarily we are not enjoying their service in post-harvest activities of rice. Unlike the good old days when they are always on their toes to assist farmers to get result. Their service now is occasionally rendered when there is cause for them to do so. Extension agents need to spread useful information that can assist us to solve marketing problems of locally produced rice. All the information we expect them to provide are not forthcoming".* ***(FGD excerpt from Onigbedu Community, Ewekoro LGA, Ogun State)***

"Extension agents have never visited me let alone asking me to fabricate any machine for farmers to process paddy rice. Can the farmers afford it? Maybe that is why they have not been doing that". ***(KII excerpt from a local fabricator in Ado- Ekiti in Ekiti State).***

The inference drawn from the both quantitative and qualitative results is that the discrepancy of opinion between the extension agent and the rice farmers is not a signal of untruthfulness from either party, but a declaration of field reality. The effort of extension agents has not been felt by majority of rice farmers sampled, probably because low extension-farmers ratio in the study area.

Difference in roles perception and roles performance of EAs

The results of paired sample t-test in Table 3 show that there were significant differences between the expected and performed roles ($t = 21.915$; $p \leq 0.05$) of extension agents in the area of study.

The result implies there were observable differences between perceived and performed roles in all the PHAs of rice. The significant differences in all the roles occur because the EAs had better perceptions than their role performance.

This implies that there is a big gap between the perceived and performed roles of extension agents in post-harvest activities of rice in Southwestern Nigeria, which could result in ineffectiveness of extension workers as opined by [3].

This findings can be attributed to low capacity building of extension agents in modern postharvest technology of rice and low extension agents–farmers ratio. Consequently, regularly trainings and workshops need to be given to EAs to bridge the existing gap.

Table 3. Differences between perceived and performed roles (n=124)

Post-Harvest activities	Mean Role perception	Mean Role Performance	t- value	Sig.
Rice PHAs	18.35	10.45	21.915**	0.000

Source: Field survey, 2018.

CONCLUSIONS

Majority of EAs were very competent in traditional roles of providing advisory services to farmers but less competence in technical functions of rice PHAs, They perceived all expected roles in rice PHAs as important but only performed advisory roles. The study concluded that were disparity between perceived and performed role of EAs in rice PHAs in the study area. Based on his findings, it is therefore recommended that extension agents should be equipped with necessary skills and knowledge in modern PHAs of rice through regular and relevant capacity building in order to perform their roles effectively to bridge the gap between perceived and performed roles. This can be done organizing regular workshops, seminars and short courses for extension agents to keep them abreast of modern post- harvest system especially on the use of machines for PHAs by relevant stakeholders (government, research institutes and extension organisations. Finally, government should employed more extension agents to cater for the need of rice farmers through effective dissemination of appropriate post-harvest technologies that will promote utilization of high-quality enhancing post-harvest technologies for sustainable rice production in Nigeria.

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