



Assessing the Influence of Extension Delivery on the Perceived Effectiveness of Improved Cassava Production Technologies in Osun State, Nigeria

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ABSTRACT: Extension support is essential for effective delivery of improved agricultural technologies. This study investigated the effectiveness of improved cassava production technologies and the requisite of extension delivery on it in Osun State, Nigeria. Specifically, the study identified the improved cassava production technologies disseminated to farmers. All the fifty extension personnel in the State Agricultural Development Project (ADP) were purposively interviewed. Data were summarized with frequency counts, percentages and means. Correlation coefficient was used for hypothesis testing. Result show that the following extension services were offered to famers in the study area: extension services, fertilizer procurement, agrochemicals, cooperative facilities, social networks, tractor hiring services, credit facilities, improved planting materials and marketing. The mean age of Extension Agents (EAs) was 44 ± 7.11 . About 84% of the Extension Agents were males while 16% were females. All the EAs had post-secondary education, while 92% of them had spent more than 10 years on the job. The mean fortnightly session training attendance was 18.22 ± 8.93 over the past one year. The extension contact with farmers was low. Almost 89% of the EAs claimed to have disseminated all the cassava production technologies to farmers. Also, a positive and significant association existed between effectiveness of the improved technologies and EAs' years of experience ($r = 0.303$; $p < 0.05$) and the number of training had with farmers ($r = 0.323$; $p < 0.05$). It was recommended that Extension Agents' training and retraining programmes should be intensified so as to ensure effectiveness of improved cassava technologies.

Keywords: Effectiveness, Extension Agents, Extension Delivery, Social Networks, Improved Technologies

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INTRODUCTION

Cassava, *Manihot esculenta* Crantz is the third most important food crop in the tropics after rice and maize. It is a major food crop in Nigeria. It is consumed daily by over one billion people, mostly in the sub-Saharan Africa. Presently, there are over 200 possible uses of cassava worldwide (Yahaya and Aina, 2007). Each

component of the plant is useful; the leaves can be consumed as vegetable, cooked as soup ingredient or dried and fed to livestock as protein supplement. The stem is used for plant propagation and grafting, while the roots are processed for both human and industrial consumption (CBN, 2006). In view of the fact of

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its usefulness in combating hunger and ensuring food security in the nation, research has been concentrated on improving cassava for increased productivity per hectare of land.

As a result of this, a number of research institutes have made concerted efforts towards the development of new varieties of cassava. There are two main species of cassava, viz: sweet cassava, *Manihot palmata* and bitter cassava, *Manihot utilissima*. The goal of the researcher is the expansion of its usage. As a result of this, the International Institute of Tropical Agriculture has played a leading role in the development of improved varieties that are superior to the old and resistant to diseases such as Cassava Bacterial Blight (CBB) and African Cassava Mosaic Virus (ACMV). The improved varieties, TMS30572, TMS30555 and TMS(4)21425 have been developed. These varieties are also superior to the old varieties in terms of tuberization (International Institute of Tropical Agriculture, 1992).

In recent times, as a result of continuous improvement through breeding, improved varieties, NR8082 and NR8033 have also been developed. The development of research without a veritable and dynamic extension service will render all research efforts a futile attempt. The role of extension in disseminating improved technologies to farmers cannot be overemphasized. Extension plays a great role in improving agricultural development through the dissemination of the result of research to farmers. To carry out extension, a number of institutional and government and non-governmental agencies have been established to ensure that farmers get to know and adopt the improved agricultural technologies that are relevant to their needs and situations. These agencies such as the Agricultural Development Project (ADP), have disseminated improved production technologies to farmers with the aim of getting them to adopt the technologies thereby effecting a positive change in their standard of living.

This is done by facilitating the education of the farmers to improve their skill, knowledge and attitude as related to agricultural development. Extension also transmits the result of research institutes to farmers and carries the problem of the farmers to researchers for solution.

However, agricultural extension in Nigeria is faced with a lot of problems which, according to Rogers (1996), involves poor training of agricultural extension staff which has been identified as part of the reasons for the problem of the relative ineffectiveness of much of extension in the field. This problem of poor training, according to Crowders *et al.* (1999), applies not only to extension staff, but also to agricultural professionals in general. Unfortunately, the training of human resources in agriculture is often not a high priority in the development plans of developing countries. As a result, curricula and teaching programmes are not particularly relevant to the production needs and employment demands of the agricultural sector (Crowders *et al.* 1999). On the other hand, the problem of illiteracy of the farmers, which engenders poor level of understanding of the innovations being communicated to them, poor funding and poor motivation also constitute problems to extension. In the same vein, most of the farmers themselves are so conservative and risk averse that they are poorly receptive to accepting new ideas being communicated to them. To worsen the situation is the issue of financial poverty which according to Umebadi (2000), hinders their capability to procure the farm inputs.

Effectiveness is the measure of the extent to which improved technologies has produced the expected results or met the objectives for disseminating them (Ajala, 2011). The main objective of the study therefore was to evaluate the influence of extension on the effectiveness of improved cassava production technologies in Osun State. Specifically, the study examined the demographic characteristics of Extension

Agents in the study area; assessed the influence of extension service delivery on effectiveness of improved cassava production technologies and established the relationship between the

characteristics of extension agents and the perceived effectiveness of the improved cassava technologies.

MATERIALS AND METHODS

All the available extension personnel in the State ADP were purposively interviewed with a structured interview schedule. This includes the Village Extension Agents, (VEAs) Subject Matter Specialists (SMSs), Zonal Extension Officers (ZEOs) and Block Extension Officers (BEOs). All of them totaling fifty were interviewed. This is because all the extension workers mentioned, irrespective of their statuses, were involved in disseminating cassava production technologies to farmers. Data were summarized with frequency counts, percentages, means and correlation coefficients.

Measurement of variables

Effectiveness, which is the dependent variable, was measured following Mgbada (2006). Farmers were given a 23 item statements

structured based on the objectives of the improved cassava production technologies and measured on a 5-point Likert scale, thus: very effective (5 points), effective (4 points), fairly effective (3 points), rarely effective (2 points), and not effective (1 point). Effectiveness index was the sum of the scores on all the 23 statements per farmer. The maximum score was 115 while the minimum was 23. The mean score were used to determine the extent of effectiveness. The characteristics of the extension agents, such as age, sex, level of education, years of job experience, the number of trainings had with farmers, number of fortnightly trainings had with farmers, and the number of in-service trainings attended were measured with the actual figures provided by the respondents.

RESULTS AND DISCUSSION

Extension Agents' characteristics

Data in Table 1 show that majority (74 %) of the Extension Agents are between the ages of 40-53. The mean age was 44.5 with 7.11 standard deviation. These are matured, relatively young and energetic workforce who should be able to persuade farmers to adopt improved farm technologies and who can still contribute many years of active service to agricultural development through extension service. According to Jibowo and Sotomi (1995), people in this age category are always full of aspirations, energetic and are highly ambitious. This finding also agrees with the report of Olajide - Taiwo and Akinsorotan (2006) that majority of extension workers in the Southwestern Nigeria were between the age range of 36 and 45 years. This is contrary to the findings of Oladele (1995),

who stated that a few of the Extension Agents in south-western Nigeria were old. Majority (84%) of the Extension Agents were males, while 16% were females. This could be because many people regard agriculture as a job for the males. This conforms to previous reports which showed more males involvement in extension activities than females (Olawoye, 2002; World Bank, 1980).

All (100%) the EAs had post-secondary education. This implies that of they were well educated and supposedly knowledgeable and well informed about their job. The level of education should enhance the job performance of the extension workers and hence should enhance effectiveness of the improved cassava technologies. Majority (92 %) of the Extension Agents had spent more than 10 years and above on the job. This showed that majority of them

**Table 1: Distribution of Extension Agents according to their demographic characteristics
n=50**

Characteristics	Frequency	%	Mean	Std
Age (years)				
36 – 46	7	14		
40 – 46	26	52	44.5	7.11
47 – 53	11	22		
54 – 60	6	12		
Gender				
Male	42	84		
Female	8	16		
Years of formal schooling				
12-14	4	8		
15-17	40	80	15.7	3.15
17 and above	6	12		
Years of job experience				
10-20	18	36		
21-30	28	56	14.89	1.09
30-above	4	8		
Fortnightly training attended				
<11	12	24		
11-20	37	74	18.22	8.93
21-above	1	2		

Source: Field survey, 2011

were experienced hands that should be able to bring their experiences to bear in influencing cassava farmers to adopt improved technologies.

This analysis revealed a high level of fortnightly training session attendance with a mean of 18.22. while the mean extension contact was 9.5. This is significantly high enough both to expose the farmers to the need for the adoption of the improved technologies and also to persuade them to actually adopt them, hence enhancing the effectiveness of improved technologies.

Results in Table 2 show that majority (74%) of the extension agents had between 1 and 5 trainings with farmers in the past one year. The number of trainings had with farmers was not high enough to motivate and promote mass

adoption of disseminated improved cassava technologies by farmers so as to enhance their effectiveness. The mean extension contact was 41 with standard deviation of 6.9. The mean number of in-service trainings attended was 36.68. This may not be significantly high enough to empower them to effectively train the farmers on the improved farm technologies with a view to enhancing the effectiveness of the technologies. This finding was corroborated by Oladele (1999); Ogungbaigbe and Adekunle (2001) who were of the opinion that there was still need for frequent in-service training in order to upgrade the Extension Agents' knowledge and skills for effective performance especially in the interpretation and comprehension of research results.

Effectiveness of extension services

As shown in Table 3, the result of the rank order of effectiveness of each of the extension agencies services showed that tractor hiring services ranked first with weighted mean score of 3.02 while fertilizer procurement ranked second with mean score of 2.52 followed by the agrochemical services with mean score of 2.34. This analysis shows that tractor hiring service

is the most effective service rendered by the extension agency followed by fertilizer procurement and agrochemical. The case of tractor hiring may be as a result of the topography of the study area which is favourably disposed to tractorization while the reason for the high effectiveness of the three services may be due to the fact that farmers have to pay for them.

Table 2: Distribution of Extension Agents according to extension contact, number of training had with farmers and number of in-service trainings (n = 50)

Variables	Frequency	Percentage	Mean	Std
Extension contact				
20 – 30	3	6	41.04	6.9
31 – 40	20	40		
41 – 50	22	44		
Above 51	5	10		
Number of trainings had with farmers				
1 – 5	13	26	11.28	6.27
6 – 10	15	30		
11 – 15	9	18		
Above 16	13	26		
Number of in-service training attended				
1 – 20	2	4	36.68	9.5
21- 40	25	50		
41 – 60	23	46		

Source: Field survey, 2011

Table 3: Rank-order of the perceived effectiveness of the services provided by the extension agency

Services	Weighted Mean Score (WMS)
1. Tractor hiring services	3.02
2. Fertilizer procurement	2.52
3. Agrochemicals	2.34
4. Improved planting Material	1.56
5. Extension/Advisory services	1.48
6. Credit facilities	1.46
7. Cooperative facilities	1.39
8. Social network	1.37
9. Marketing facilities	1.36

Source: Field survey, 2011

Hypothesis testing

The results in Table 4 show positive and significant relationships between effectiveness of improved cassava production technologies and years of experience ($r = 0.303$) farmers training ($r = 0.323$) at 0.05 level of significance. The coefficient of determination (r^2) showing 9.1% variation in effectiveness was attributed to years of experience of Extension Agents, while 10.4% variation in effectiveness was attributed to farmers training. This finding is in

agreement with Farinde *et al.*, (1996), that factors related to the personality development of the extension personnel were found more influential to the effectiveness of the Training and Visit extension system. Also, farmers' training was found to be significantly related to the level of effectiveness of improved technologies. This finding agrees with Jibowo (2000), who identified leadership attributes of extension personnel as essential for the success of any agricultural programme.

Table 4: Correlation analysis showing the linear relationship between perceived effectiveness of improved technologies and the selected characteristics of extension agents

Variables	Pearson correlation coefficient r	Coefficient of determination r^2	Percentage contribution %	Decision
Age	0.172	0.029584	2.9	NS
Years of schooling	0.190	0.0361	3.6	NS
Years of experience	0.303*	0.091809	9.1	S
Farmers' contact	-0.234	0.054756	5.4	NS
Farmers' training	0.323*	0.104329	10.4	S
Attitude to farmers	-0.164	0.026896	2.68	NS

Source: Field Survey, 2011

*Significant at 0.05 level of significance

CONCLUSION AND RECOMMENDATIONS

From the findings of this study, it could be concluded that there are more male extension agents than females in the study area. Moreover, majority of the Extension Agents have disseminated all the improved cassava technologies to farmers in the State. Also, the following extension services were offered to farmers in the study area: extension/advisory services, fertilizer procurement, agrochemicals, cooperative facilities, social networks, tractor hiring services, credit facilities, improved planting materials and marketing. The following characteristics of extension agents had positive and significant relationship with effectiveness

of improved cassava technologies: years of experience and farmers training. Based on the findings of the study, the following recommendations were made:

1. Efforts should be intensified at providing and training more extension agents particularly females to ensure effective dissemination of improved practices.
2. There is the need for follow-up of the farmers on the part of extension so as to sharpen their acquired skills on the improved technologies.
3. There is the need for close monitoring of extension staff for better performance

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