

EXTENSION TEACHING OF MELON FARMERS HOW IMPROVED FARM PRACTICES SHOULD BE USED AND ADOPTED UNDER THEIR OWN INDIVIDUAL FARM LOCATION AND RESOURCE AVAILABILITY IN YAKURR LOCAL GOVERNMENT AREA OF CROSS RIVER STATE, NIGERIA

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ABSTRACT

The study analyzes extension teaching of melon farmers how improved farm practices should be used and adopted under their own individual farm location and resource availability in Yakurr Local Government Area of Cross River State. Data were collected from 76 respondents in the study area using proportional sampling techniques and the 76 respondents were picked from the list of farmers in extension agents' list that covers the study area. Data collected were analyzed using descriptive statistics. The ranking of sources of information regarding new innovations in melon production in the study area saw extension agent (47.36%) as major source of information regarding to new technologies in melon production. The radio (22.36%), television (19.74%), friends / neighbour (9.21%) and internet / website information (1.32%) were ranked second, third, fourth and fifth respectively. The result of the test of hypothesis shows that there is significant different in yield of melon farmers that were trained by skilled extension agents and yield of melon farmers that were not trained. It was recommended that government should train more extension agents and post them to rural areas where melon farms were established this would enable more farmers to adopt innovation that would lead to increased productivities and increased standard of living in rural communities.

Keywords: Agricultural, Extension, Agro-Biotechnology Adoption, Melon

INTRODUCTION

Agricultural extension is the promotion of agricultural technologies to meet farmers' need. An agricultural extension practice is an educational procedure directed towards linking technology creation to technology utilization subsystems. Technology transfer to farmers depends on appropriate and efficient technology development, dissemination and adoption (Jackson, 2003). The transformation of agriculture from low productivity traditional inputs to high productivity modern inputs is a major problem facing agricultural development in developing countries in the world (Ibrahim et al, 2006). Raising productivity is necessary to increase food production and farmers' income in both developed and developing countries in the world. Optimum / efficient food production cannot take place until the problems which militate against agricultural extension system and information dissemination for improved production are identified and solved (Adinya, 2011; Anok, 2012).

Information on new technologies / innovations reach a large proportion of farmers through personal contacts such as visits by extension agents while electronic and other mass media methods are also used. Farmers received most of their information from other farmers and/ private inputs supplies and many also benefit from radio, television, information communication technology (ICT), demonstration and training by extension agents (Nwachukwu, 2005).

Extension service delivery has to do with the exchange of information and services between researchers, scholars, farmers and other related agencies, extension agents need access to information with little or no barriers to facilitate their job. In other words, there is need for increased interactions between research stations- extension agents- farmers through radio, television and information communication technology (ICT) for the exchange of ideas, technologies and relevant information for increased

agricultural production. Extension agent (communicator) must teach farmers how improved farm practices should be used and adopted under their own individual farm location and resource availability (Eze, 2006).

Agricultural extension communication methods refer to ways or means, used by extension agent(s) to transmit messages to and from an audience. Extension agent(communicator) has to utilize various methods and devices to enhance the efficacy and effectiveness of his messages in terms of producing the desired effect on the target audience (farmers) (Agun, 1979; Akpabio, 1997; Akinsehinde,2007).This study is aimed at encouraging melon farmers in the study area to actively participate in extension training and adoption of innovations in improved melon production and this would enable them to point major and minor problems encountered by them that researchers in research institutions will find solutions to problems.

STATEMENT OF THE PROBLEM

The problem of slow and low adoption of innovations among melon farmers in Nigeria is one of the major problems that lead to low productivity in melon production in Nigeria (Maunder, 1973; Onyenweaku, 2004; Ibrahim, Zongoma and Shettima, 2006). In recent years the decline in its production is caused by gap in information dissemination to farmers, weak linkage system in extension, non-adoption of new innovations, inefficient use of available resources (Onyenweaku, Agu and Obasi, 2000; Onyenweaku, 2004; Meera, 2004). Ime (2003) maintained that in Nigeria, series of agricultural extension communication strategies have been used to promote the transfer of new technologies and farming practices to farmers but have been hindered mostly by poor communication system, poor financial allocation to various extension agents and poor monitoring system. All these have created wide gap in

technology development and transfer in all aspects of agriculture to farmers.

Ike(2003) revealed that there is a wide gap between what research findings have shown to be possible and feasible on the one hand, what actually obtains on the other. He further stated that, irrespective of the potentials and promise of any agricultural research findings, the full potential cannot be realized until it has been brought to the knowledge of farmers.

Extension agent(s) must know not only what is to be communicated but how to communicate or transfer innovations to farmers. Therefore, knowledge of communication methodology, the problems inherent in the teaching process and possible ways of overcoming them becomes major component in the professional training of the trainers (Sica, 1981; Akinsehinde, 2007).

RESEARCH QUESTIONS

- (i) What are the socio-economic characteristics of melon farmers in the study area?
- (ii) What type of extension communication methods was used by extension agent(s) for training of melon farmers to adopt innovations in melon production in the study area?
- (iii) Does extension agent motivate early adopters to diffuse innovations among others melon farmers in the study area?
- (iv) Does extension agent use teaching aids such as charts, graphs, diagram, maps, posters, film or slide show, projector, power-point, demonstration plot (Small Plot Adoption Technique (SPAT PLOT) to train melon farmers in the study area?
- (v) What are the factors militating against extension service delivery in the study area?

OBJECTIVES OF THE STUDY

The main objective of the study is to analyze extension teaching of melon farmers how improved farm practices should be used and adopted under their own individual farm location and resource availability in Yakurr Local Government Area of Cross River State.

The specific objectives of the study area to:

- (i) examine the socio-economic characteristics of melon farmers in the study area;
- (ii) determine different types of extension communication methods used by extension agent(s) to communicate with melon farmers in the study area;
- (iii) determine whether extension agents use teaching aids to train melon farmers in the study area; and
- (iv) Identify and analyze the factors militating against extension service delivery in the study area.

SIGNIFICANCE OF THE STUDY

Information on new technologies reach a large proportion of farmers through personal contacts such as visit by extension agents, while electronic and other mass media methods are used.

In Cross River State, Cross River Agricultural Development Programme (CRADP) set goals for the extension agents aimed at increasing agricultural productivity, increasing farmers income and improved standard of living in rural area. To achieve the laudable objective, the extension aim of CRADP has an organization structure, which permits the flow of information from the Chief Agricultural Extension Officer(CAEO) to Village Extension Agent(VEA) who teaches improved production technologies to farmers, he also brings back to the research station information on actual farmers' problems and reaction to recommended practices. The result of research findings would enable other melon farmers in other states or countries to participate in ADP extension training on improved melon production technologies(IMPTs), this

would enable them to increase agricultural productivity and net farm income.

The findings of the study would assist researchers to know the problem encountered by farmers or their felt needs that requires immediate /urgent solutions. This study is therefore considered significant because it would help to identify and analyze the factors militating against extension service delivery in the study area.

The result of the findings would assist melon farmers, researchers, development experts and policy makers to formulate good policies for melon production in Nigeria.

METHODOLOGY

STUDY AREA

The research was carried out in Yakurr Local Government Area of Cross River State, Nigeria. Cross River State is divided into three senatorial Zones, namely Northern, Central and Southern Senatorial zones. Yakurr Local Government Area is one of the Local Government Areas among the six Local Government Areas that constitute the Central Senatorial District of Cross River State, while other Local Government Areas in the Central Senatorial zone are Boki, Etung, Ikom, Obubra and Abi Local Government Areas. In 1991, Yakurr Local Government Area was created and it covers about 67,044 square kilometers land mass (Obeten, 2011; Ibiang, 2011).

Yakurr Local Government Area is divided into thirteen political wards for effective political administration. The names of political wards are Assiga, Nyima, Afrekpe/Epenti/ Uhin-Agu, Ajere, Ntan, Mkpani/Agoi, Abanakpa, Nko-Nkpolo/Ukpawen, Biko-biko, Ikpakapit, Ijiman, Ijom-Ugep and Idomi with a population of about 78,402 people(Quarterly News Letter of the Ministry of Local Government Affairs, Cross River State, Nigeria, (2006; Obeten, 2011; Ibiang,

2011). Yakurr Local Government Area is politically organized on the basis of a number of people in the various families, units, villages, village groups and clans. A number of villages with common ancestry form a village group, while a number of village groups with common deity and common ancestry form a clan. A clan has a ritual head (clan head) who acts as the custodian of the clan's deities, a source of information on clan taboos, morals and ritual observances, and as a go-between or the interpreter of the wishes of the clan's deities to people of the clan (Abasiattai, 1987; Obeten, 2011; Ibiang, 2011). The names of clans in Ugep are as follows: Ijom, Usene, ketabebe, Ijiman, Keyeli, Obioko, Ikpakapit, Ntankpo, Yenon and Njelekoko), while the names of clans in Ekorri are as follows: Ajere, Edang/Okon, Obono, Akugom, Kpatuitankekomkdio, Atakpalewanko and Ntupentintinton. The clans in Nko include: Kedangba, Okomasi, Obanamkpai, Ntan, Kema/Okponwen and Ukpwenukpolo, while the names of clans in Agoi are as follows: Akankpat and Ijiman, while the names of clans in Idomi are as follow: Kekowa, Akugm and Kekomkobo.

It is located between Latitude $5^{\circ} 10'N$ and $6^{\circ} 51'North$ of the equator and longitude $4^{\circ} 40'E$ and $8^{\circ} 32'East$ of the Greenwich meridian. The study area has an annual rainfall distribution, which ranges from 1,200mm to 1,324mm with an annual temperature of $25-28^{\circ}C$ (Obeten, 2011; Ibiang, 2011). There are two distinct climatic seasons in the area; rainy season from March to October and dry season from November to February.

The main crops grown in the study area are yam, cassava, rice, potato, maize, okra and vegetables (fluted pumpkin, waterleaf, green (*Amaranthus species*), while cash crops grown in the study area include oil palm, oranges, plantain, banana, cocoa and guava. Apart from farming the people of the area also engage in agro-based activities, a good number of people are involved in civil service, marketing of agricultural products and other forms of non-farming

activities like barbing salons, hair dressing salon, tailoring, computer centers and provision stores (Ekumbe, 2009; Obeten, 2011; Ibiang, 2011).

SAMPLING TECHNIQUES

The sample size was selected from the population and respondents were proportionally selected according to number of respondents (melon farmers) in each village. The list of rice farmers in each village was obtained from "Village Extension Agents (VEAs) that disseminate information on innovations and improved production technologies. Random sampling technique was employed in this study. In the first stage, four political wards were randomly selected from 13 political wards. In the second stage, two clans (the names of clans selected from Ugep are as follows: Ntankpo and Njелеkoko, while the names of clans selected from Ekori are as follows: Atakpalewanko and Akugom, the names of clans selected from Agoi are as follows: Akankpat and Ijiman; while the names of clans selected from Idomi are as follows: Kekowa and Kekomkobo) were randomly selected from each of the four political wards selected. A number of villages with common ancestors form a village group, while a number of village groups with common deity and common ancestry form a clan. In the third stage, one village was randomly selected from each of the eight clans that were selected. In the fourth stage, ten respondents were randomly selected from the six villages, while eight respondents were randomly selected from the remaining two villages. In all, 76 respondents were randomly selected.

SOURCES OF DATA COLLECTION

Data required for decision-making that provided solutions to research problems already stated were collected with use of primary and secondary data. Primary data were collected with the use of questionnaire, while secondary data were obtained from

books, journals, magazines, census data, annual Central Bank of Nigeria reports.

METHOD OF DATA COLLECTION

Seventy-six copies of questionnaires were printed and administered to selected respondents in the study area. For illiterate respondents, we asked questions using vernacular to ensure that the illiterate farmer understand the question, so that the farmer can provide the right answer, then, I filled the questionnaire for the respondent.

ANALYTICAL TECHNIQUE

Analytical tool for this study is descriptive statistics such as frequency distribution and percentages, these were used to analyze objectives (i) to (iv).

Table 1: Distribution of Respondents According to Socio - Economic Characteristics

Age	Frequency	Percentage (%)
18 - 20	1	1.3
21 - 31	15	19.74
31 - 40	35	46.05
41 - 50	13	17.11
51 years and above	12	15.79
Total	76	100
Gender		
Male	55	72.37
Female	21	27.63
Total	76	100
Marital Status		
Single	12	15.79
Married	55	72.37
Widower	5	6.58
Divorce	4	5.26
Total	76	100
Farming Experience		
(years)		
1 - 5	25	32.89
6 - 10	20	26.32
11 - 15	10	13.16
16 years and above	21	27.63
Total	76	100
Farm size (Hectors)		
0.1 - 1.9	30	39.47
2- 2.9	26	34.21
3 - 3.9	10	13.16
4 hectares and above	10	13.16
Total	76	100
Educational attainment		
Junior Sec. Sch. Cert.	6	7.89
Senior Sec. Sch. Cert	35	46.05
First Sch. L. Cert.	20	26.32
No schooling/Education	15	19.74
Total	76	100

Source: Computed from Field Survey Data, 2016

RESULTS AND DISCUSSION

Table 1 reveals that 46.05% of the respondents were between the ages of 31 - 40 years while 19.74% of the respondents were between the ages of 21 - 30 years. Table 1 also reveals that 17.11% of the respondents were between the ages of 41 - 50 years. Only 1.31% of them were between the ages of 18 - 20 years. The average age was 39 years. This implies that majority of the respondents were within the economically active age of 21 - 50 years. Table 1 also reveals that 72.37% of the respondents were male while the remaining 27.63% of them were female. This implies that the male melon farmers were more than female melon farmers in the study area. According to Table 1, 72.37% of the respondents were married. While singles, widows and divorced had 15.79%, 6.58% and 5.26% respectively.

Further analysis of Table 1 reveals that the respondents 32.89% had farming experience of 1 - 5 years; where as 27.63% of them had farming experience of 16 years and above. Only 13.16% of them had farming experience of 11 - 15 years. This result confirms similar findings by Ibrahim *et al*/2006 that farmers had farming experience of 2 - 18 years. The average farming experience was 8.5 years. Table 1 reveals that 39.47% of the respondents had farming of 0.1 - 1.9 hectares, whereas 34.21% of them had farm size of 3 - 3.9 hectares. The average farm size was 2.4 hectares.

Table 1 also reveals that 46.05% of the respondents disclosed that they attended primary school. Only 19.74% of the respondents had no formal education.

Table 2: Distribution of Respondents According to Melon Seeds / Yield per Hectares

Type of Rice Seeds	Frequency	Percentage
Improved melon seeds	50	65.79
Local melon seeds	20	34.21
Total	76	100
Yield per hectares (tones)	Frequency	Percentage
1- 2	50	65.79
3 - 4	16	21.05
5 - 6	10	13.16
Total	76	100
Price of melon per kg	Frequency	Percentage
Improved variety melon	50	65.79
Local Variety melon	20	34.21

Source: Computed from Field Survey Data, 2016

Analysis of Table 2 reveals that 65.79% of the respondents planted improved variety of melon seeds. While 34.21% of them disclosed that they planted local variety of melon seed. Table 2 also reveals that 65.79% of the respondents disclosed that their melon yield was 1 to 2t / ha. While 21.05% of them had melon yield of 3 - 4t / ha. Only 13.16% of them disclosed that the melon yield was 5 - 6t/ha. This implies that the yield was far below Nation Cereal research Institute (1988) yield of 2.5 - 8.0 tons/ha that was realized with high level of fertilizer applied, optimum plant population, weed control and crop protection measures. The result of the findings agrees with earlier findings Agba *et al* (2014); reported that yield of melon has consistently fallen from 8 tons /ha to 1 - 2 tones /ha, because of non - optimal use of recourse and non - adoption of improved melon production technologies.

Table 3: Distribution of Respondents According to Sources of Information

Sources of Information	Frequency	Percentage (%)
Extension agent(s)	36	47.36
Radio	17	22.36
Television	15	19.74
Internet	1	1.32
Friend / Neighbors	7	9.21
Total	76	100

Source: Computed from Field Survey Data, 2016

From Table 3, 47.36% of the respondents saw extension agent as major source of information regarding to new technologies in melon production. The radio (22.36%), Television (19.74%), friends / neighbors (9.21%) and internet / website information (1.32%) were ranked second, third, fourth and fifth respectively. The result of these findings agrees with earlier findings of Ilevbaoje and Odume (2001) and Ahong (2011), who reported similar result.

Table 4: Distribution of Respondents According to Extension Service Delivery/Provision of Information on Melon Production Technologies

Extension Service delivery / provision of information on rice production technologies	Frequency	Percentage %
Yes	50	65.79
No	26	34.21
Total	76	100
Availability of extension agent in study area	Frequency	Percentage %
Yes	45	59.21
No	31	40.79
Total	76	100
Frequency of extension visit	Frequency	Percentage %
Every day	15	19.75
Twice a month	30	39.47
Once a month	15	19.74
Thrice a month	6	7.89
Not at all	10	13.16
Total	76	100

Source: Computed from Field Survey Data, 2016

According to Table 4, 65.79% of the respondents disclosed that extension agents offered extension service delivery /information on melon production technologies. Further analysis of Table 4 reveals that 39.47% of the respondents were visited twice by extension agent(s). While 7.89% of them were visited thrice monthly.

Table 5: Description of Respondents According to Ratio of Extension Agents to Melon Farmers in the Study Area

Ratio of Extension agents to rice farmers	Frequency	Percentage %
1:5,000	30	39.47
1:4,000	20	26.32
1:3,000	8	10.53
1:2,000	4	5.26
1:1,000	5	6.58
1:5,00	4	5.26
1:350	5	6.58
Total	96	100

Source: Computed from Field Survey Data, 2016

Table 5 reveals that 39.47% of the respondents disclosed that ratio of extension agents to melon farmers in the study area was about 1:5,000. While 10.53% of them revealed that the ratio of extension agent the melon farmers in the study area was about 1:3,000. This implies that the rate of extension agents to melon farmers in the study area is below the recommended standard of 1:100. It also suggested that extension agents should be employed and posted to the study area.

Table 6: Description of Respondents According to Listen to Radio or Watched Agricultural Extension Programme on Television

Listen to radio or watched agricultural extension programme on television	Frequency	Percentage %
Yes	50	65.79
No	26	34.21
Total	76	100

Source: Computed from Field Survey Data, 2016

Table 6 reveals that 65.79% of the respondents listen to radio or watched agricultural extension programme on television. This helps to create awareness on issues and highlights problems existing in special areas in the study area.

Table 7: Distribution of Respondents According to Types of Technologies Adopted in the Study Area

Type of technologies adopted	Frequency	Percentage %
Correct planting space	-	-
Recommended rate of fertilizer	30	39.47
Use of herbicide for weed control	11	14.47
Use of pesticide for pest control	15	19.74
Insecticide for insect control	20	26.32
Total	76	100

Source: Computed from Field Survey Data, 2016

Table 7 reveals that 39.47% of the respondents adopted recommended rate of fertilizer applied while 14.47% of them adopted herbicides for weed control. This implies that more farmers in study areas have adopted the use of herbicides for weed control. This implies melon farmers in the study area attributed this increase in adoption of herbicides to effective extension service delivery by extension agent(s), readily acceptability of new innovations by farmers and lack of hired labourers in the study area.

Table 7 also reveals that 26.32% of them adopted insecticides for insects control in the farmers.

Table 8: Distribution of Respondents According to Different Types of Extension Communication Methods used by Extension Agent(s)

Types of extension communication methods		Frequency	Percentage %
Individual Contact		20	26.32
Group Contact		35	46.05
Method		21	27.63
Mass Media Method			
Total		76	100

Source: Computed from Field Survey Data, 2016

Table 8 reveals that 26.32% of the respondents were persuaded to try new melon production technologies. The extension worker interacted on a one to one basis (individual contact method) with the extension agent who gave guidance / training concerning adoption of an innovation this led to new behavior in the way of life of the clientele (farmer) and farming technique. While 46.05% of them disclosed that extension agents used group contact method to teach and demonstrate new innovations to them.'

According to Akpabio (1977) group contact method was used when time and number of the extension agents are limited and they help in persuading the farmers to try new innovations because the assumption that group decisions carry more weight in an area than an individual decision. This method motivates early adopters to actively diffuse the innovation among other people or groups with similar production condition.

According to Table 8, 27.63% of the respondents disclosed that extension agents used mass media methods to provide technical assistance or technology transfer to farmers in order to provide solution to identified or envisaged problems.

Table 9: Distribution of Respondents According to Medium of Interaction with Extension Agents

Medium of interaction with extension agents Spoken / Written	Frequency	Percentage %
words	26	34.21
Pictorial Presentation	30	39.47
Audio - Visual Presentation	20	26.32
Total	76	100

Source: Computed from Field Survey Data, 2016

From Table 9, 34.21% of the respondents disclosed that public address system was used as a medium of interaction with extension agents. While 39.47% of them disclosed that extension agents used pictorial presentations to train farmers. Example of pictorial

presentation includes chalk board, electric board, posters, photographs, wall charts, maps.

Further analysis of Table 8 revealed that 26.32% of the respondents were trained by extension agents that used audio - visual. Examples of audio - visuals are protectors, film strips, sliders, opaque, overhead projector, computer, video, television and radio set.

Table 10: Distribution of Respondents According to Factors Militating against Extension Service Delivery in the Study Area

Factors militating against extension service delivery	Frequency	Percent %
Poor communication	40	52.63
Inadequate finance	23	30.26
No website information	13	17.11
Total	76	100

Source: Computed from Field Survey Data, 2016

Table 10 reveals that several constraints militate against extension service delivery in the study area. These constraints include poor communication (52.63%), inadequate finance (30.26%) and no website information (17.11%). The findings of this study agree with earlier findings of Ahong (2011), who reported the several constraints militate against extension service delivery.

CONCLUSION

The extension agents used mass media method and other extension teaching methods to provide technical assistance to farmers in order to provide solutions to identified or envisaged problems.

RECOMMENDATIONS

Based on the findings of the study, the following were recommended:

- (i) Extension service delivery could be improved for better and more efficient service delivery by training more extension agents and post them to rural areas where melon farms were established.
- (ii) Capacity building of melon farmers through regular training by extension agents.

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