

ASSESSMENT OF PROFICIENCY OF SUBJECT MATTER SPECIALISTS IN MONTHLY TECHNOLOGY REVIEW MEETINGS (MTRMS) ACTIVITIES IN IMO AND AKWA IBOM STATES, NIGERIA.

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Abstract

*The paper examined proficiency of Subject Matter Specialists (SMSs) in activities of Monthly Technology Review Meetings (MTRMs) of Agricultural Development Programmes (ADPs) in Imo and Akwa Ibom States, Nigeria. Some fifty five SMSs drawn from Imo and Akwa Ibom States ADPs and participating in a refresher training workshop on MTRM activities were all sampled and engaged in the study. Vital data were generated from the workshop participants through structured questionnaires which were issued before and after the training course. The data obtained for the study were then analyzed using descriptive statistics and Paired T-test analysis. Results of the study showed that SMSs had good knowledge of the various MTRM activities such as Producing MTRM reports (4.09), Establishing Skill Plots (3.96), Concept of Impact Points (3.80) as well as Concept and conduct of Monthly Technology Review Meeting (3.72). Nevertheless, the SMSs had only moderate knowledge of Assessing contact farmers' capacity to participate in field research (3.53), Selection of vital Inputs for field research (3.12), Development of methodologies for on farm Adaptive Research (3.52), Field Data Collection and Collation (3.63) Development of production recommendation (3.49). The moderate knowledge level of SMSs in MTRM activities revealed sources of job performance lapses and inefficiencies among the core technical team of the Extension system and further highlighted the need for the refresher training workshop for the SMSs in the two states. Results further showed their proficiencies were substantially improved by the training workshop especially in such activities like Producing MTRM monthly reports (4.32), Establishing Skill Plots (4.34), Concept of Impact Points (4.32) Production of Lesson Plan (4.30) and Concept and conduct of Monthly Technology Review Meeting (4.12); Development of methodologies for on farm Adaptive Research (4.10), Field Data Collection and Collation (4.00) Development of production recommendation (4.32) etc. Furthermore, results of paired test analysis of the pre and post workshop assessments of proficiency levels of the SMSs in the listed MTRM activities indicated significant mean score differences among some of the variables at 5% levels. They included Selection of appropriate farm inputs (4.005***); Assessing contact farmers capacity to participate in field research (3.951***); Developing methodologies for on farm research (3.04***); Development of*

*production recommendation (4.353***) as well as production of lesson plan (2.935***). It is thus recommended that such refresher training workshop should be organized periodically for the SMSs and indeed for the entire technical staff of Extension agencies in the study area.*

Keywords: Proficiency, Subject Matter Specialists, Monthly Technology Review Meetings

Introduction

Technology development is the result of aggregated knowledge that accumulates over a period of time and sieved for the substances, which eventually is to solve problems of basic needs that will make life better for the users (Chukwu, 2007). The purpose of technology development is to improve living conditions and, in the process,, generate opportunities for people to make a livelihood and improve their standard of living. It is considered to be the primary driving forces for growth and welfare of any developing country (Balakrishan, 2004). Unfortunately, most of agricultural technologies developed and transferred to the farmers did not meet up the required standard and this negatively affected their adoption at farmers' fields. The top-down method of agricultural technology development, which ignored the idea, priorities, interest as well as the innovation of farmers, has resulted to low adoption and lack of sustainability of the developed technologies. Consequently, there is constant low adoption of most technologies development and transferred to the farmers. Hence, there is need for a truly alternative method that would integrate farmers into the processes of knowledge creation and full adoption of relevant technologies for increased production.

The movement towards stronger participation by farmers in agricultural research and extension is fuelled by a growing realization that the socio-economic and agro-ecological conditions of farmers are complex, diverse and risk-prone, and that conventional approaches, based on research station trials followed by unidirectional technology transfer, are unlikely to be fruitful. In Nigeria, the Research Extension Farmers Input Linkage System (REFILS) has emerged as a virile system which actively engages the key stakeholders in productive agriculture. Thus Participation, skills and knowledge of the stakeholders in the REFILS activities have much bearing on the success of the system. The system encourages strong linkages with agricultural research institutions, places great emphasis on a

professional approach to extension and requires an exclusive devotion to extension work (Okwuiche *et al.*, 2012).

Close engagement with farmers through the cycle of diagnosis, experimentation and dissemination undoubtedly increases understanding of these conditions, of the opportunities and constraints farmers face, and of their own technical knowledge. This also enhances the prospects that externally-promoted technologies will be adoptable, locally owned, and environmentally and institutionally sustainable. In the REFILS approach, the principal task of extension workers is not first and foremost to transfer agricultural know-how and technology to farmers. Instead, the role of the extension worker is to facilitate an in-depth situation analysis by the farmers themselves. The system puts emphasis on strengthening farmers' problem-solving capacities from the very beginning of problem diagnosis by research through the process of extension delivery.

Also, the system involves the transfer of technical information from research institutes through Extension (i.e. Agricultural Development Programme) to the farmers. Moreover, most technologies emanating from the research institutes are necessarily validated for adaptation to the farmers' physical economic and socio-cultural environment. Again, there are already standardized procedure for transfer of technologies from research to extension which requires substantial competences on the part of the operators of REFILS (Ekwe, *et.al* 2015).

The key functions performed by State ADPs include the promotion and dissemination of improved agricultural technologies as well as facilitating adoption of the new technologies among farmers and other end users. The functions are carried out through target activities such as Monthly or Quarterly Technology Review Meetings (MRTM or QTRM), Fortnightly Training (FNT), Block Review Meeting (BRM), Contact Farmers Training (CFT), Small Plot Adoption Techniques (SPAT), On-Farm-Adaptive-Research (OFAR) and Management Training Plots (MTP) (Anaeto, 2003).

Specifically, Monthly technology review meetings (MTRMs) constitute the tasks of continuously upgrading and up-dating the professional skills of Subject Matter Specialists (SMSs) and other zonal Extension officers through periodic interaction with the research scientists from Research Institutes. Such interactions hold for two full days each month. At each session, the SMSs review Extension agents (EAs)' reactions to previous recommendations as well as specific technologies that would be transferred to EAs during the month. Also, field problems or conditions that needed attention of the the Research Institutes are also presented. The MTRM encourages interactive discussion and

knowledge/information sharing among the SMSs and the EAs (Nnadozie, *et.al.*, 2015).

It therefore becomes necessary to state that SMSs occupy strategic position in the technology pathway from the research institutes to farmers and therefore can substantially determine success of ADP extension delivery. This is partly because they provide the requisites learning situations for EAs who serve as the adoption facilitators. According to (Agbaraevo (2013), effectiveness of the extension delivery mechanism is to a large extent responsible for success or failure of extension programme and should always be used in measuring extension effectiveness. Again, the effectiveness of extension organizations like the ADPs in conducting its technology transfer activities can be used to assess success of programmes.

Against this background, it has been observed in recent times that quality of extension services was grossly depreciating among the ADPs due to several factors. One of such factors was the fact that several technical staff of ADPs who had vast knowledge and experiences in the MTRMs have either left the system or no more actively involved. On the other hand, the serving technical staff were either never trained, or were trained a long while ago that they needed updating of their skills and knowledge.

Considering this situation, it was therefore expedient to update and refresh the knowledge and skills of subject matter specialists of the states' ADPs (Imo and Akwa Ibom) through a training workshop in order to get them properly equipped for efficient extension services delivery in the states. In achieving the purpose of organizing workshop, the issues of examining the proficiency levels of subject matter specialists in MTRM Activities as well as imparting in the participants the requisite skills and knowledge for efficient conduct of MTRMs were set in focus. This paper therefore seeks to assess the proficiency of the SMSs in conducting the activities of MTRMs in the Imo and Akwa Ibom States. Specifically, the study examined the socio-economic characteristics of the respondents; assessed extent of knowledge of MTRM activities among the SMSs before and after the training; compare participants' proficiencies in MTRM activities before and after the training workshop

Methodology:

A total of 55 SMSs from Akwa-Ibom and Imo States Agricultural Development Programmes (ADPs) were involved in a refresher training course on principles and methodologies for Research Extension Farmers Input Linkage System (REFILS) organized by NRCRI Umudike, Abia State. One essential activity of the REFILS is to conduct the MTRMs for the SMSs by the respective ADPs. Thus, it was

expedient to determine knowledge of MTRM activities among the SMSs before the refresher training and then after the training to establish whether indeed the training had any significant impact on the proficiency of the participants. Thus using structured questionnaires, information were elicited regarding their knowledge and practices in certain listed MTRM activities in their respective states. Data were collected, pooled and analyzed with descriptive statistics as well as paired T-test inferential statistics.

Specifically, farmers’ proficiency levels in MTRM activities were captured with 5-point Likert type measurement scale. These included ‘very much knowledge’ assigned the highest scale of 5... graded downwards to ‘very little knowledge’ with lowest scale of 1. . The maximum weighted score of 5 was further divided by 3 to obtain the class interval of 1.33 for the three categories of proficiency levels as employed by Ekwe and Nwachukwu,(2006). As a result, class ranges for the three categories of proficiency levels emerged as follows 0.00-2.33=low; 2.34-3.66=moderate and 3.67-5.00=high.

Results and Discussion:

Results in presented in Table 1 showed distribution of the participants according to their socio-economic characteristics. The results indicated that the states ADPs had substantial proportion of young technical staff members(49%) whose ages were between 31 – 40 years while 43.6% of respondents were between

ages of 41-49 years. The result shows that the SMSs in the two States ADPs are still in their middle ages, strong, virile and optimally capable of discharging their duties. Youthful workforce is expedient in the coping with challenging tasks of extension services delivery in Nigeria just as same is also indispensable in fostering productive agriculture ((Akpa, 2007).) However, majority (60%) of respondents only had 1 – 10 years working experience . In this regard, Ekwe and Ukanwolu (2016), had posited that long working experience adds to quality of knowledge and information sharing among participatants in MTRMs. Furthermore, majority (72.7%) of the SMSs in the two states ADPs were males further suggesting that majority of technical staff members in extension delivery agencies are males. This result agreed with Ukanwolu (2014) who observed that although women constitute 60-80% of the agricultural labour force in Nigeria, yet extension services are carried out by mostly the males to the disadvantage of women.

Also, results in Table 1 further revealed that while most of the SMSs participated in Monthly Technology Review Meetings (89.1%), Establishment/management of On-farm Adaptive Research Trials (74.6%), Fortnightly Trainings (72.7%) and Supervision and monitoring of Field activities (70.9%) only some of the respondents were involved in planning the field activities (56%) and annual zonal REFILS workshops (65%).

Table 1:Distribution of respondents according to Socio-economic Characteristics of participants in the Training

	Freq	%		Freq	%
Age			Working Experience		
<20	0	0	0 – 10yrs	33	60.00
21 – 30	3	5.6	11 – 20yrs	18	32.7
31 – 40	27	49.0	20 – 30yrs	4	7.3
41 – 50	24	43.6			
51 – 60	1	1.8			
Sex			Educational status		
Male	40	72.7	B.Sc/HND	37	67.3
Female	15	27.3	M.Sc	18	32.7
Participation in REFILS Activities					
Planning field Activity	31	56.4	Fortnightly Training (FNT)	40	72.7
On farm Research Trials	41	74.6	Zonal Workshop	36	65.5
Monthly Technology Rev. Meeting	49	89.1	Field Monitoring and Supervision	39	70.9

Revised Survey Data (2018)

Examining the SMSs proficiency in MTRM activities before the Training, results in Table 2 revealed that before the refresher training course, participants had good knowledge of the various MTRM activities such as Producing MTRM reports (4.09), Establishing Skill Plots (3.96), Concept of Impact Points (3.80) Production of Lesson Plan (3.74) and Concept and conduct of Monthly Technology Review Meeting (3.72).

However, the respondents had only moderate knowledge of Assessing contact farmers' capacity to participate in field research (3.53), Selection of vital

Inputs for field research (3.12), Development of methodologies for on farm Adaptive Research (3.52), Field Data Collection and Collation (3.63) Development of production recommendation (3.49). The fair knowledge level of SMSs in MTRM activities reveals some of the sources of job performance lapses and inefficiencies among the core technical team of the Extension system and further highlighted the need to commit resources to organize the refresher training workshop for the SMSs in the two states.

Table 2: Distribution of respondents according to Extent of knowledge in MTRM Activities before the Training Workshop

s/no	MTRM Variable	Very weak	Weak	Fairly strong	Strong	Very strong	Mean
1	Selection of research inputs	6(10.9)	9(16.4)	16(29.1)	18(32.7)	6(10.9)	3.12
2	Assessing research farmers attributes.	2(3.6)	6(10.9)	14(25.5)	25(45.5)	8(14.5)	3.53
3	Methodologies for on farm adaptive research	2(3.6)	7(12.7)	15(27.3)	20(36.4)	11(20.00)	3.52
4	Field data collection and collation	2(3.6)	6(10.9)	12(21.8)	24(43.6)	11(20.0)	3.63
5	Data analyses & interpretation	4(7.2)	6(10.9)	25(45.5)	14(25.5)	6(10.9)	3.18
6	Concept and conduct of MTRMs	1(1.8)	7(12.7)	13(23.6)	19(34.5)	15(27.3)	3.72
7	Producing MTRM reports	1(1.8)	7(12.7)	3(5.5)	19(34.3)	25(45.5)	4.09
8	Development of production recommendation	3(5.4)	8(14.5)	16(29.1)	14(25.5)	14(25.5)	3.49
9	Concept of impact points	1(1.8)	4(7.3)	12(21.8)	25(45.5)	13(23.6)	3.80
10	Production of lesson plan	0(0.0)	8(14.5)	11(20.0)	23(41.8)	13(23.6)	3.74
11	Establishing skill plots	3(5.5)	2(3.6)	8(14.6)	20(36.4)	22(40.00)	3.96

Revised Survey Data (2018); Mean scores 0.00-2.33= low; 2.34-3.66=moderate and 3.67-5.00=high

An assessment of participants' proficiency levels in MTRM activities was repeated after the workshop to ascertain whether or not the refresher training workshop achieved the desired purpose. Results in Table 3 indicated that participants proficiency levels in MTRM activities have indeed been substantially improved by the training workshop as shown in their mean scores for such activities as Producing MTRM monthly reports (**4.32**), Establishing Skill Plots (**4.34**), Concept of Impact Points (**4.32**) Production of Lesson Plan (**4.30**) and Concept and conduct of Monthly Technology Review Meeting (**4.12**); Assessing contact farmers capacity to participate in field research (3.53), Selection of vital Inputs for field research (3.12), Development of methodologies

for on farm Adaptive Research (**4.10**), Field Data Collection and Collation (**4.00**) Development of production recommendation (**4.32**). Results of post workshop assessment revealed that SMSs' proficiency levels in the MTRM activities were quite high as indicated by the overall mean score value of 4.59. Llewellyn (2007) had reported that technology review forum makes for new ideas and techniques to be more effectively illustrated thereby improving the impact of extension and training. Therefore a "demand-driven" technology transfer mechanism is needed for extension personnel to receive the transfer of best quality of agricultural research output that would enhance extension services delivery.

Table 3: Distribution of respondents according to Extent of knowledge in MTRM Activities after the Training Workshop

s/no	MTRM Variable	Very weak 1	Weak 2	Fairly strong 3	Strong 4	Very strong 5	Mean max=5
1	Selection of research inputs	2(3.6)	0(0.0)	11(20.0)	26(47.3)	16(29.1)	3.96
2	Assessment of research farmers attributes in OFAR	0(0.0)	0(0.0)	8(14.5)	28(50.9)	19(34.5)	4.20
3	Methodologies for on farm adaptive research	1(1.8)	1(1.8)	5(9.1)	32(58.2)	16(29.1)	4.10

4	Field data collection and collation	2(3.6)	0(0.0)	11(20.0)	24(43.6)	18(32.7)	4.00
5	Data analyses and interpretation	2(3.6)	1(1.8)	13(23.6)	21(38.2)	18(32.7)	3.92
6	Concept and conduct of MTRMs	4(7.2)	1(1.8)	6(10.9)	16(29.1)	28(50.9)	4.12
7	production of monthly reports for MTRM	0(0.0)	1(1.8)	8(14.5)	18(32.7)	28(58.7)	4.32
8	Development of production recommendation	0(0.0)	0(0.0)	9(16.4)	19(34.5)	27(49.1)	4.32
9	Concept of impact points	1(1.8)	1(1.8)	7(12.7)	16(29.1)	30(54.5)	4.32
10	Production of lesson plan	1(1.8)	1(1.8)	7(12.7)	16(29.1)	30(54.5)	4.30
11	Establishment of skill plots	0(0.0)	1(1.8)	6(10.9)	21(38.2)	27(49.1)	4.34

Revised Survey Data (2018); Mean scores 0.00-2.33= low; 2.34-3.66=moderate and 3.67-5.00=high

Results of paired variables test analysis of the pre and post workshop assessments of proficiency levels of the SMSs in the listed MTRM activities indicated significant mean differences among some of the variables at 1% and 5% probability levels. Specifically, mean scores of proficiency levels of SMSs before and after the training workshop were significantly different at 1% probability level for such variables like Selection of appropriate farm inputs (4.005***); Assessing contact farmers capacity to participate in field research (3.951***); Developing methodologies for on farm research (3.04***); Data analyses& interpretation (3.951***); Development of production recommendation (4.353***) as well as Production of lesson plan (2.935***) and was equally significantly different for the variable "Concept of impact points (2.649**) and techniques for handling field problems (2.074**) at 5

% probability level. The results imply that the training workshop actually enhanced the SMSs' proficiency in the selected MTRM activities as indicated by the fact that their knowledge levels after the workshop were significant differences from their knowledge levels before the workshop. Also, the results indicate that resources spent to organize the workshop were quite justified and worthwhile as key objectives of the workshop were achieved. Idrisa and Ogunbameru (2012), had opined that training is crucial to the performance of the duties of extension workers as knowledge gained through training keeps the extension workers abreast of new development in their profession. Thus it is only when extension technical staff are given the opportunities to upgrade their current level of knowledge that they can be competent to train farmers

Table 4: Paired T test evaluation of participants' proficiencies in MTRM Activities before and after the Training workshop

s/no	MTRM Variables	After Training Mean	Before Training Mean	Mean Differences	Std Error mean	T value
1	Selection of research inputs	3.96	3.12	0.84	.00408	4.005***
2	Assessment of research farmers attributes in OFAR	4.20	3.53	0.67	.00408	3.951***
3	Methodologies for on farm adaptive research	4.10	3.52	0.58	.00408	3.004***
4	Field data collection and collation	4.00	3.63	0.37	.00707	1.789
5	Data analyses and interpretation	3.92	3.18	0.74	.00707	3.642***
6	Concept and conduct of MTRMs	4.12	3.72	0.40	.00707	1.696
7	production of monthly reports for MTRM	4.32	4.09	0.23	.00408	1.157
8	Development of production recommendation	4.32	3.49	0.83	.00408	4.355***
9	Concept of impact points	4.32	3.80	0.52	.00408	2.649***
10	Production of lesson plan	4.30	3.74	0.56	.00408	2.935***
11	Establishment of skill plots	4.34	3.96	0.38	.00408	1.832*

Calculated from Revised Survey Data (2018) *; ** and *** represents 10%, 5% and 1% significant levels

Conclusion:

Results showed that the 3-day workshop significantly imparted on the participant the requisite knowledge and skills for effective execution of MTRM activities

in extension services delivery in their respective states. Before the training workshop, SMSs' proficiency levels in some MTRM activities such as assessing contact farmers' capacity to participate in

field research, selection of vital Inputs for field research, development of methodologies for on farm Adaptive Research, field data collection and Collation, development of production recommendation were simply moderate and so not as good as expected hence the need for a refresher training workshop to improve on their proficiency status. Furthermore, from the results of the study it is certain that proficiency levels of SMSs in all MTRM activities were improved by the knowledge gained during the training especially in some activities such as selection of appropriate farm inputs; assessing contact farmers capacity to participate in field research; developing methodologies for on farm research; development of production recommendation; as well as production of lesson plan and was equally significantly different for the variable "concept of impact points" where there were significant differences in the mean scores values of their rating before and after the training workshop. It is thus recommended that such refresher training workshop should be organized periodically for the SMSs and indeed for the entire technical staff of Extension agencies in the study area.

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