Journal of Community & Communication Research
ISSN: 2635-3318
Volume 6, Number 2, December 2021
Accessible at: https://jccr.sccdr.org.ng

PERFORMANCE ASSESSMENT OF FIELD EXTENSION AGENTS ON SELECTED AGRO-FORESTRY PRACTICES IN SOUTH-SOUTH ZONE, NIGERIA

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ABSTRACT
The study assessed the performance efficiency of the field extension agents on selected Agro Forestry practices in South-South zone, Nigeria. Multi stage random sampling techniques were employed to select 27 block extension supervisors, 324 Cocoa-plantain farmers, 108 mushroom farmers and 108 field extension agents. Primary data were collected using a structured questionnaire and analysed with descriptive and inferential statistics. Out of 18 performance indicators, only two were rated low level of job performance' efficiency. Thus: organizing awareness on nutrition (2.89) and supervising farmers on storage techniques (2.80). The results showed that the field extension agents had capacity development needs on: knowledge and management of computer programmes ($\bar{x}$=2.32), plant breeding ($\bar{x}$=2.28) and team building ($\bar{x}$=2.99).Multiple regressions showed that coefficient of determination .334 on areas of capacity development related significantly with the performance efficiency of the field extension agents, while the calculated F-value of 4.46 which was greater than the tabulated F-value of 1.75 at .05 alpha level signified that there was no significant difference among each of the areas of capacity development attained by the field extension agents as regards their individual relationship with their job performance efficiency. The study concluded that the job performance efficiency of the field extension agents on selected agro-forestry practices was moderate but highly dependent on the areas of capacity development attained and therefore recommended high motivation of the field extension agents towards their roles.
Keywords; Capacity development, performance efficiency, agro-forestry practices

INTRODUCTION

Agroforestry, according to Alao *et al*, (2013) and Amonum *et al*, (2015) is a land sustains use that involves deliberate intension, introduction or mixture of trees or other woody perennials with crops or animals with benefits from ecological and economical interactions. The choice of agro forestry (cocoa-plantain intercrop and mushroom), to cater for deforestation and environmental degradation, ensures the sustainability of the production based and meet the need for production of multiple outputs through maintenance of soil fertility, reduction of

wind speeds and creation of microclimates favourable to crops; Owombo, (2016) and Carodenuto (2019).

In reality, Agro-forestry farmers in Nigeria are into small scale farming; Adebiyi *et al* (2013) which needs best possible access to knowledge and information to play a vital role in the country's development. The Cocoa Research Institute of Nigeria (CRIN) considered the collaboration with organizations like Agricultural Development Programme (ADPs) as significant to boost the transfer of information on techniques of cocoa production in the country, for, developing technologies without reaching the appropriate audience becomes waste.

Communicating scientific and improved agrisilviculture (crop + trees) technologies to farmers requires the development of field extension agents' capacity through team work, training, communication and motivation, Aidah, (2013). Vulturius *et al,* (2020) ascertained that farmers' capacity to cope with and adapt to uncertainties or risk, be it climatic, market or price, finance, pest and diseases depend on many factors such as access to relevant information among others and the end goals of these efforts, Khartun *et al* (2020) include poverty alleviation, environmentally responsible development and agricultural diversification in rural areas.

Agricultural Development Programme (ADP) is an Agricultural Extension Organization in Nigeria, that can help solve the agricultural development problems. Jasmon *et al*, (2013) viewed that the whole extension process is dependent on the field extension agents who are the critical element in all the extension activities; With all these developments, little or no assessment has been done on the job performance efficiency of the ADPs' field extension agents towards cocoa-plantain intercrop and mushroom production techniques in the South-South zone, Nigeria.

The main objective of the study was to assess the job performance efficiency of the field extension agents on selected agro-forestry crops production techniques in ADPs of South-South Region, Nigeria. The specific objectives were to:

i. evaluate the respondents' (block extension supervisors, self and farmers) assessment on the field extension agents' job performance efficiency in relation to selected agro-forestry practices;
ii. assess the Capacity Development Needs of the field extension agents in relation to selected agro-forestry practices. It was hypothesized that there was no significant relationship between the areas of capacity development attained and the job performance efficiency of field extension agents.

METHODOLOGY

This study was conducted in South-South Zone' with six States (Cross River, Akwa Ibom, Delta, Bayelsa, Edo and Rivers) in Nigeria. According to Cocoa Association of Nigeria (CAN), the top Cocoa producing States in South-south, Nigeria were Cross River, Akwa Ibom, Edo and Delta States. Out of four, Cross River, Akwa Ibom and Delta States were randomly selected for the study. The study area is situated within the humid tropics and its proximity to the sea makes the States generally humid with very calm tropical climate, marked by two distinct seasons – the rainy and dry seasons, making it a tropical rain forest area.

The population for the study comprised, Block extension supervisors (BES), field extension agents (FEAs), selected agro-forestry (Cocoa-plantain and Mushroom) farmers in the three States. Multiple stage sampling procedure was used and selected samples gotten as stated in 1.

Table 1: Selected samples for the study

Selected states	No. of Agricultural zones	Selected Agricultural zones	3-blocks Each for supervisors	4-cells each for agents	1-mushroom farmer each	3-cocoa-plantain farmers
Akwa Ibom	6	5	15	60	60	180
Cross River	3	2	6	24	24	72
Delta	3	2	6	24	24	72
Total	**12**	**9**	**27**	**108**	**108**	**324**

Thus, total sample size for the study was 567 respondents whom validated questionnaire was administered upon and retrieved accordingly. Focus group discussion was also used.

Analytical Technique

To assess the level of job performance of field extension agents in the study areas' ADPs, a list of jobs performed by the agents was measured using 5- point Likert scale of very low=1, low=2, average=3, high=4, very high=5. Mean score of 3.0 was taken as a bench mark for decision making. To ascertain the areas of Capacity Development Needs in ADPs by the field extension agents in South-south Region with respect to cocoa-plantain intercrop and mushroom production techniques, the list of production activities was developed using 5- point Likert typed scale of Very Much=5, Much=4, Average=3, Little=2, Very little=1. The mean score of 3.0 was a bench mark for decision making, i.e. 5+4+3+2+1=15/5 =3

Model specification

Descriptive statistics was used in testing the objectives while Multiple Regression was used in testing the hypothesis thus:

$$Y= \alpha\text{-}b0\ b1X1 + b2X2 + b3X3 \text{ ------} + ei$$

Where,

Y=Job efficiency (mean response)

X_1 to X_n =Areas of Capacity Development

X_1 =Value- performance addition on cocoa plantain and mushroom

X_2 = Crop entomology and parasitology

X_3= Land/soil management

X_4= Coping with climate changes in cocoa and mushroom production

X_5 = Risks management

X_6 = Formation co-operative as a social capital

X_7= Knowledge and management of computer programmes

X_8= Biotechnology (plant breeding)

X_9= Effective extension delivery strategies (FFS,T&V,FPA, SPAT)

X_{10}=Programme planning, monitoring and evaluation of Agrisilviculture programme

X_{11}=Time management

X_{12}= Effective communication skill

X_{13}= Creative thinking

X_{14}= Problem solving and decision making/farmers focus

X_{15} = Effective marketing strategies/linkages

X_{16}= Team building

X_{17}=Farmers resource development and management

ei =Error term

RESULTS AND DISCUSSIONS

Job performance efficiency of field extension agents

The result in Table 2 revealed the efficiency of field extension agents as accessed by self, block extension supervisors and the farmers. Out of 18 performance indicators, only two were rated low level of job performance' efficiency thus: organizing awareness on nutrition with the mean score of 2.89 and supervising farmers on storage techniques had the mean score of 2.80. Accountability to supervisors and farmers with the mean score of 3.94 takes the lead as the highest level of job performance efficiency attained by field extension agents', followed by writing reports and correspondences with the mean score of 3.85.

Table 2: Distribution of respondents on their perception of field extension agents' job performance efficiency

	Extension agents		Block supervisors		Farmers		Pooled	
Job specification/ Variables	**Mean $\bar{X}$**	**SD**	**Mean $\bar{X}$**	**SD**	**Mean $\bar{X}$**	**SD**	**AV. $\bar{X}$**	**AV. SD**
Developing farmers' interests on improved farm practices	**3.43**	**.78**	3.42	.69	3.55	.90	3.47	.79
Using appropriate delivery method: SPAT, FPA, FFS, T&V	3.42	.95	3.52	.84	2.38	.90	3.11	.90
Directing farmers to sources of farm inputs	3.73	.84	3.73	.79	2.68	1.04	3.38	.89
Organizing awareness on nutrition	3.29	.86	3.08	.84	2.31	.83	2.89	.84
Training farmers on record keeping	3.5	.97	3.65	.77	3.40	.87	3.52	.87
Formation of cooperative groups	3.25	.93	3.34	.77	3.27	.90	3.29	.87
Linking farmers to credit (loan) sources and method of repayment	3.48	.89	2.98	.90	2.78	.87	3.08	.89
Training farmers on regular and timely use of agro-chemicals	2.25	.88	3.21	.73	3.59	.79	3.02	.80
Coordinating farmers on pruning and trimming exercise	3.61	.85	3.69	.78	3.86	.89	3.72	.84
Training on copping with climate change	3.59	.84	3.64	.75	3.31	.69	3.51	.76
Training farmers on harvesting techniques	3.45	.82	3.18	.80	3.32	.69	3.32	.77
Monitoring &Evaluating the soil/land conservation programme	3.75	.82	3.40	.80	3.87	.74	3.67	.79
Teaching value addition (processing and packaging)	2.95	.83	3.37	.75	3.69	.74	3.34	.77
Planning and developing calendar of work	3.73	.80	3.27	.94	3.41	.96	3.47	.9
Linking farmers to marketing outlets	3.73	.79	3.29	.84	2.52	.97	3.18	.87
Supervising farmers on storage techniques	2.73	.86	3.53	.88	2.14	.94	2.80	.89
Accountability to both farmers and supervisors	3.90	.77	3.82	.78	4.10	.73	3.94	.76
Writing reports and correspondence	3.92	.87	3.72	.81	3.92	.79	3.85	.82
Grand mean score	**3.43**		**3.44**		**3.23**			
Mean cut-off point	**3**							
Number of respondent	**108**		**27**		**432**			

Source: Field Survey: 2020

Development on the wellbeing of the farmers would have been high with nutrient utilization at the right proportion; Onwubuya *et al*, (2018). It is therefore pertinent to focus attention on farmers' education and information dissemination through various extension media and methods; Frederick *et al*, (2021), to increase farmers' knowledge and awareness on nutrition, health and economic benefits of the crops, to boost the adoption and utilization of the agro-forestry practices.

Capacity development needs on production of selected agro-forestry practices

Table 3 revealed the 7 areas in which the field extension agents had very little technical, social and leadership skills as follows: Team building had mean score of 2.99; value addition had mean score of 2.78; development and management of farmer resources had the mean score of 2.58; policy management had the mean score of 2.47; programme planning, monitoring and evaluation had the mean score of 2.46; knowledge and management of computer had the mean score of 2.32 while biotechnology/plant breeding had 2.28. These are the areas that need the attention of the ADPs management board who can organize the development forum on these areas which would enhance increase in production, marketing and utilization of cocoa, plantain and mushroom among small scale farmers in South-south zone, Nigeria. Tarekegne *et al*, (2017), viewed those extension agents' deficiencies in social skills and leadership development skills, which are directly related to their duties, to act as a team with farmers, affect the success of the extension services. It can be deduced that, not only the technical skill of the extension agents is needed for developing the capacities of the farmers but the social and leadership skills.

Table 3: Distribution of field extension agents on areas of capacity development attained in the process of executing service in south-south ADPs

Areas of capacity development	**Mean $\bar{X}$**	**SD**	**Remark**
Technical proficiencies: value-addition on crops e.g. plantain/ cocoa and mushroom	2.78	1.03	Very little
Agro-forest crop entomology and parasitology	3.58	.79	Much
Land/ Soil management	3.45	1.00	Much
Coping with climatic changes in agro-forest crop production	3.20	.90	Much
Risk management in agro-forest crop production	3.41	.72	Much
Policy management in agro-forest crop production	2.47	.83	Very little
Knowledge and management of computer programmes e.g. use of ICT technologies- SMS, U-tube, Instagram, WhatsApp	2.32	.86	Very little
Biotechnology (plant breeding)	2.28	.93	Very little
Effective extension delivery strategies	3.58	.85	Much
Programme planning, monitoring and evaluation	2.46	.73	Very little
Time management	3.76	.79	Much
Effective communication skill	3.50	.84	Much
Creative thinking	3.41	.96	Much
Problem solving and decision making/ farmer focus	3.35	.89	Much
Effective marketing strategies/linkages	3.25	.87	Much
Team building	2.99	.81	Very little
Farmer resource development and management	2.58	1.02	Very little
Grand mean score	**3.08**		
Number of respondent	**108**		
Mean Cut-off point	**3**		

Source: Field Survey, 2020

The significant relationship between areas of capacity development attained by the field extension agents and their job performance efficiency:

The R-square value (coefficient) of .337 predicts 34% of the influence of those areas of capacity development attained by the field extension agents on their job performance efficiency. This shows that the areas of capacity development attained by the field extension agents collectively have significantly positive correlation (relationship) with the job performance efficiency. Null hypothesis is rejected. The calculated F-value of 4.46 which is greater than the tabulated F-value of 1.75 at .05 alpha level with 17 and 165 degrees of freedom signifies that there is no significant difference that exist among each of the areas of capacity development attained by the field extension agents as regards their individual relationship with their job performance efficiency. This also signifies that the areas of capacity development attained by the field extension agents are indifferent in their relationship with their job performance efficiency. This is in tandem with the findings from Yamour (2014), that there is a strong link between human resource capital building and employee job performance.

Table 4: Semi-log Coefficient of determination on areas of capacity development attained as it relates performance efficiency of field extension agents.

Variables	Coefficient	Std Error	t-value
Constant	2.928	.546	5.364
Effective marketing strategies/linkage	.164	.045	3.630***
Coping with climatic changes in cocoa and mushroom production	-0.87	.040	-2.146**
Time management	-0.084	.047	-1.771*
Problem solving/farmer focus	-.018	.046	-1.736*
Knowledge and management of computer programme	.079	.045	1.733*
Planning, monitoring and evaluation of agrisilviculture programme	.076	.050	1.522
Biotechnology (plant breeding)	.059	.039	1.506
Effective communication skill	.061	.041	1.496
Farm resource development and management	- .061	.043	-1.401
Value addition on cocoa, plantain, mushroom	.052	.040	1.317
Creative thinking	.051	.047	1.083
Risk management	.031	.051	.601
Formation of Cooperatives as a social capital	-.022	.044	-.489
Team building	.017	.043	.402
Soil management	-.011	.038	-.287
Crop entomology and parasitology	.011	.048	.227
Effective extension delivery strategies (FFS, T&V, FPA, SPAT)	.002	.041	.061
R-square=.337			
F =4.457			

F tab =1.75 P>0.05 df =165. *** ** * Significant at 1% , 5%, 10% respectively

The coefficient of effective marketing strategies and linkages was significant at 1% alpha level and correlated positively with the job performance efficiency of the field extension agents (t= 3.63) ***. This implies that more exposure to and usage of effective marketing strategies and linkages will increase both the subjective and objective performance efficiency of the field extension agents. Andri et al, (2019) confirms that, assurance of timely payment of purchased cocoa beans and offering other incentives through efficient marketing system can boost fewer

farmers to put in extra labour and work to produce marketable surplus of cocoa or even continue to produce cocoa.

The coefficient of copping with climate changes (t= -2.146) ** correlated negatively with the job performance efficiency of field extension agents but significant at 5% alpha level. This result implies negative relationship with the job performance efficiency which negates the a priori expectation that increased in development with copping strategies on climate change will increase the job performance efficiency of the extension agents; Obayelaau, et al (2014). Its significance at 5% alpha level indicates 95% level of importance to coop with climate changes on agro-forest crop production via food sustainability.

CONCLUSION AND RECOMMENDATIONS

The job performance efficiencies of the field extension agents as assessed by self, block extension supervisors and the agro-forestry farmers in south-south ADPs was moderate. The field extension agents in the South-south zone ADPs had capacity development needs on the following areas: technical efficiencies, policy management in agro-forestry crops production, knowledge and management of computer programmes, plant breeding, programme planning monitoring and evaluation team building and farmer resource development and management. The study therefore recommended that:

i. The Agricultural Development Programme (ADPs) organization officers should intensify their efforts in motivating the field extension agents through job rotation, job enlargement and job enrichment that bring about job recognition and satisfaction which in turn poses greater efficiency on job performance.
ii. The field extension agents should intensify their performance efficiency in developing the farmers in the areas of nutritional values gotten from the agro-forestry crops and also supervising the farmers on storage techniques as the agro-forest crop farmers have deficiencies on these aspects.
iii. The field extension agents should make personal efforts in developing their abilities on value additions on agro-forestry products, management of computer programmes such as use of social media in sharing information among themselves, supervisors and farmers; plant breeding, team building and development of farmers resources through planning, monitoring and evaluation.

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