

## Prospects of Cooperative Societies Intervention in Extension Service Delivery in Delta State, Nigeria

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### ABSTRACT

The study assessed the prospects of cooperative societies in extension service intervention in Delta State, Nigeria. Specific issues examined were the socio-economic characteristic of the agricultural co-operators (farmers) in the study area, in which agricultural co-operatives can promote agricultural extension delivery and the constraints that might militate against the co-operative's involvement in extension delivery. Multi-stage sampling technique was used to select 382 respondents from two of the three agricultural zones in the state (Delta North and Delta Central). Descriptive statistical tools; mean frequency and inferential statistical tools; Anova and Freidman test were used for Data analysis. The result showed that the major areas cooperatives can play vital roles in extension delivery include, providing information about improved farming practices (mean =3.56), providing members with market information (mean =3.56), getting information from research institute to solve members farming challenges (mean=3.37), organizing farm trainings for members (mean=3.32), informing development/government agencies about members farming challenges (mean=3.32) and linking members to input supplies (mean=3.24). Possible constraints to cooperatives engagement in agricultural extension delivery include inadequate capital or fund (mean =3.68), inadequate trained personnel (3.41), lack of co-operation among members (3.48) and members not having time to engage in extension service delivery (2.52). It was therefore recommended that cooperatives should be trained to improve their potentials in extension service delivery.

**Keywords:** cooperative, societies, extension, service, delivery

### INTRODUCTION

The responsibility for providing extension services has been largely that of government. Specifically, extension services has always been provided through government-owned agencies, such as the Ministry of Agriculture, the government owned/controlled research institutes which spread across the country with mandates on specific crops and livestock, universities, and other agricultural-based intervention programmes such as the National Accelerated Food Production Programme (NAFPP), the various River Basin Development Programmes, Operation Feed the Nation (OFN) Programme, and Fadama III programme. In Delta State particularly, such programmes include Live and Own a Farm (LOAF), Delta Beyond Oil and Growth Enhancement Scheme Programme (GES) (Agbam, 2011). The level of achievement of these government owned

extension agencies has been of great concern to academics and practitioners (Erie, 2009). Most evaluation studies to determine their level of effectiveness in meeting the challenge of providing efficient extension services tends to conclude that these agencies did not make any significant impact on the agricultural scene (Omotayo, Chikwendu and Adebayo 2001, Erie, 2009). Funding has been and will remain a crucial issue in the development of a sustainable framework for effective extension delivery in Nigeria. Much of the success attributed to the ADP from its initial trial stages in the enclave programmes in Funtua, Gombe, and Gusau in 1975 to the later states – wide adoption of the strategy was as a result of the funding arrangement which had a strong World Bank support (Central Bank of Nigeria 2002, and National Agricultural Extension and Rural Liaison Service 2002). The significant drop in the performance of the extension system after

the withdrawal of the World Bank loan (Apantaku, Sodiya, Apantaku and Fakoya 2000; Oladele, 2004) explicitly attests to the importance of adequate funding of extension. This provides an impetus for the search for an appropriate framework for sustainable strategy to keep extension at the optimum level required to achieve its goals in an agrarian economy like Nigeria.

In recent years, many researchers have suggested that agricultural and rural development strategies would benefit from increased collaboration between government or public extension organizations and non-governmental organizations or the private sector (Egbuna, 2003). Agricultural co-operatives represent viable alternative to delivering agricultural extension services to farmers. Oladele (2004) noted that harnessing of NGO's/cooperative efforts for a wider coverage and sustainability of the extension services required special attention for the extension service to remain functional and relevant to the needs of majority of farmers. This is because these co-operatives constitute an institutional asset, whose obvious mandate is on farm – related matters i.e. how to mobilize and induce members of the rural sector to a greater productive effort (ICA, 2010). With such a mandate and potential one would assume that agricultural co-operatives would be pre-disposed to embarking on agricultural extensional services. However, concerns have been expressed over the co-operative movement in agricultural extension delivery. Ofuoku and Urange, (2009) asserted that the co-operatives are more interested in seeking credit and, in some cases input provision for their members (Baarda 2006), suggesting their minimal interest in actual agricultural extension services. It therefore becomes imperative to examine the prospects of cooperatives intervention in extension service delivery

### Objective of the Study

The specific objectives of the study are to

1. Identify the socio-economic characteristic of members of agricultural co-operatives in the study area.
2. Identify areas in which agricultural co-operatives can promote agricultural extension delivery in the study area.
3. Identify the constraints that might militate against agricultural co-operatives

involvement in extension delivery in the study area.

### HYPOTHESES OF THE STUDY

The null hypothesis tested are:

H<sub>01</sub>: There is no significant relationship between co-operator's characteristics and their perceived role of cooperatives in agricultural extension delivery.

H<sub>02</sub>: There is no significant difference among the prospective agricultural extension activities of cooperatives.

### METHODOLOGY

The study was conducted in Delta State of Nigeria, which is located in the South-South geo-political zone of the country between latitude 5°00" and 6°30"N of the equator and longitude 5°00" and 6°45"E of the Greenwich Meridian. Delta State is made up of twenty-five local government areas (LGAs). The state was created out of the former Bendel State the 27th August 1991. It is divided into three senatorial districts namely: Delta North, Delta Central, and Delta South. The state covers a land area of about 17,698 square kilometres. Out of these, about one-third is waterlogged and swampy (DSAP, 2006). Data was collected from the respondents with the use of questionnaire. The population of the study comprised of 337 registered agricultural co-operators drawn from 217 cooperative societies in the study area. Multi stage sampling technique was used, explained as follows:

**Stage1:** Random sampling of 2 of the 3 agricultural zones of the State, namely Delta North and Delta Central agricultural zones.

**Stage2:** The second stage of sampling was the employment of proportional random sampling to select 50% of the local government areas in the two selected agricultural zones. Thus, 5 local government areas each were selected from the two agricultural zones to give 10 local government areas used for the study.

**Stage3:** The number of registered agricultural cooperatives in the selected local government areas, based on information gathered from the Ministry of Commerce and Industry, Delta State 2013, was 4340 comprising 1,432 cooperatives in Delta North and 2,908 cooperatives in Delta Central. The total population or membership size of the selected cooperatives was 72,779. Given this population, the recommended sample size based on the sample size Table of

proportion is 382(Lane,2013). To get this sample, five percent (5%) of the cooperatives were proportionally sampled across the selected local government areas to give a total of 217 cooperatives used for the study, comprising of 72 cooperatives from Delta North and 145 from Delta Central.

**Stage4:** The average membership of the cooperatives is 20 per cooperative. However, in order to sample 382, a proportional random sample of 10.497% was taken for each local government area. This proportion was arrived at by dividing the recommended sample size (382) by the average membership of the selected cooperatives i.e. 382/3639 (see Table 3.1). Thus, a total of 155 cooperative members were sampled from Delta North, while 227 were sampled from Delta Central to give a total of 382. Table 1 shows the average number of

members sampled per cooperative, per local government area, per senatorial district. Descriptive statistical tools including frequency count, mean, standard deviation and percentages and inferential statistics; Friedman test and Anova were used to analyse data collected. In this study Factorial Anova was employed in which the dependent variable (cooperatives role in extension delivery) was compared across selected characteristics of cooperatives (Barbara and Fidell, 2007). Friedman test is a non-parametric statistical test used to detect significant differences across multiple variables coded at an ordinal scale (Bortz, *et al* 2010). In this study, Friedman test was employed to test the significance of the differences among the prospective extension activities the cooperatives are willing to engage in.

**Table1.** Sampling Procedure

LGA	No. of Agric Cooperatives	Total no. of Cooperators	Average Membership	Number of Cooperatives (5%)	Average Membership of Selected Cooperatives	Sample (10.497%)
Ika south	309	6,303	20	15	315	33
Ika northeast	230	5,944	26	12	297	31
Ukwani	350	6,748	19	18	337	35
Aniocha north	287	4,316	15	14	216	23
Oshimili north	256	6,279	25	13	314	33
Total =5	1,432	29,590	105	72	1,480	155
Okpe	506	8,350	17	25	418	44
Isoko south	802	11,474	14	40	574	60
Ethiope east	670	9,479	14	34	474	50
Uvwie	428	6,302	15	21	315	33
Ughelli south	502	7,584	15	25	379	40
Total =5	2,908	43,189	75	145	2,159	227
Total =10	<b>4,340</b>	<b>72,779</b>	<b>180</b>	<b>217</b>	<b>3,639</b>	<b>382</b>

**Source:** Delta state ministry of commerce and industry.

**Measurement of Variables in the Study**

**Role of Cooperative in Extension Delivery**

The areas in which cooperatives can promote agricultural extension delivery was measured by asking the respondent to indicate their level of agreement with set of areas in which they perceive cooperatives can promote agricultural extension delivery, A 4 points rating was used: strongly agree (coded 4), agree (coded 3), disagree (coded 2) and strongly disagree (coded 1). Decision was taken based on the means score of 2.50 to know if they agree or disagree with a particular item/statement regarding cooperative role in the agricultural extension service. Thus, the mean of  $\geq 2.50$  signifies agreement, while a mean score of  $< 2.50$  signifies disagreement.

The mean of 2.50 was obtained by adding  $4+3+2+1=10 \div 4 = 2.50$ . The cumulative score obtained by summing a respondent response on all the 10 statement, represent the degree to which the respondent perceive that cooperative societies can play a role in agricultural extension delivery. In other to categorize co-operators based on their perceived role of cooperative in extension delivery the value of the maximum and minimum scores obtainable which are 50(10 times x the code of 4) and 10 (10 x 1) was determine as follows  $(10 \times 4) + (10 \times 1) = 50 \div 2 = 25$ .

Thus, a respondent with a total score on the perception statements:  $> 25$  = is said to have a high perception while  $\leq 25$  is low perception.

### Constraints That Might Militate Against Extension Delivery

The constraints militating against cooperative involvement in extension delivery was obtained using a 4-point rating scale measured as follows: very serious, (scored 4), serious (scored 3), little serious (scored 2) and not serious (scored 1). A mean score of  $\geq 2.50$  was used to determine if a constraint to extension delivery is serious or not. Thus, a mean score of  $\geq 2.50$  signifies serious constraint while mean  $< 2.50$  imply a constraint to extension delivery is not serious. The mean of 2.50 was obtained by adding  $4 + 3 + 2 + 1 = 10$  and dividing by 4 i.e.  $4 + 3 + 2 + 1 = 10 \div 4 = 2.50$ .

## RESULTS AND DISCUSSIONS

### Socio-Economic Characteristics of Respondents

The socio-economic characteristics of the respondents are shown in Table 1. The various characteristics are discussed as follows:

The result showed that the average age of the respondents was 45.5 years, implying that most of the co-operators are in their active and productive age. Similar results regarding the

younger age of members of cooperative was reported by Ibitoye (2012). Majority (70%) of the respondents were male, which agrees with Ngbakor, *et al.*, (2013) finding. Similar result regarding low female participation in cooperative activities was reported by Mgbakor *et al.*, (2013). The marital status of the respondents showed that most (84.6%) co-operators were married, this finding is supported by the result of Akinbile *et al.*, (2008), who noted that participants in community and cooperative organization are mostly married people, who participate in order to improve their economic livelihood.

The average farming experience was 8 years. The educational status of the co-operators revealed that all the co-operators were literate with 61.7% having HND and university degree. Result shows that majority of the co-operators (63.8%) had 10-19 years farming experience, with average farming experience of 8 years. The average income of the co-operators was N250,005 which is quite low. Majority of the cooperative farmers were engaged in livestock production and crop production (74.5% and 70%) respectively.

**Table 1.** Socio-economic characteristics of respondents

Characteristics	Categories	Delta north		Delta central		Total	
		Freq	%	Freq	%	Freq	%
Age (years)	30 & below	4	2.3	14	8.7	18	5.3
	31-40	34	19.3	21	13.0	55	16.3
	41-50	74	42.0	64	39.8	138	40.9
	51-60	52	29.5	50	31.1	102	30.3
	>60	12	6.8	12	7.5	24	7.1
	<b>Total</b>		<b>176</b>	<b>100.0</b>	<b>161</b>	<b>100.0</b>	<b>337</b>
Sex	Female	47	26.7	51	31.7	98	29.1
	Male	129	73.3	110	68.3	239	70.9
	<b>Total</b>	<b>176</b>	<b>100.0</b>	<b>161</b>	<b>100.0</b>	<b>337</b>	<b>100.0</b>
Marital status	Married	156	88.6	129	80.1	285	84.6
	Single	17	9.7	19	11.8	36	10.7
	Widow(er)	3	1.7	3	1.9	6	1.8
	Divorce/separated			10	6.2	10	3.0
	<b>Total</b>	<b>176</b>	<b>100.0</b>	<b>161</b>	<b>100.0</b>	<b>337</b>	<b>100.0</b>
Educational qualification	Primary school	2	1.1	3	1.9	5	1.5
	Secondary school	9	5.1	18	11.2	27	8.0
	NCE/OND	28	15.9	36	22.4	64	19.0
	HND/University first degree	123	69.9	85	52.8	208	61.7
	Post-graduate	14	8.0	19	11.8	33	9.8
	<b>Total</b>	<b>176</b>	<b>100.0</b>	<b>161</b>	<b>100.0</b>	<b>337</b>	<b>100.0</b>
Family size	1-4	69	39.2	58	36.0	127	37.7
	5-8	88	50.0	82	50.9	170	50.4
	9-12	15	8.5	14	8.7	29	8.6
	>12	4	2.3	7	4.3	11	3.3
	<b>Total</b>	<b>176</b>	<b>100.0</b>	<b>161</b>	<b>100.0</b>	<b>337</b>	<b>100.0</b>
Farming experience	<10	21	11.9	20	12.4	41	12.2
	10-19	117	66.5	98	60.9	215	63.8



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(years)	20-29	22	12.5	19	11.8	41	12.2
	30-39	9	5.1	21	13.0	30	8.9
	40-59	7	4.0	3	1.9	10	3.0
	<b>Total</b>	<b>176</b>	<b>100.0</b>	<b>161</b>	<b>100.0</b>	<b>337</b>	<b>100.0</b>
Income ₦ (annual)	100,000 & below	9	5.1	8	5.0	17	5.0
	101,001-200,000	40	22.7	27	16.8	67	19.9
	200,001-300,000	111	63.1	70	43.5	181	53.7
	300,001-400,000	13	7.4	40	24.8	53	15.7
	400,001-500,000			12	7.5	12	3.6
	>500,000	3	1.7	4	2.5	7	2.1
<b>Total</b>	<b>176</b>	<b>100.0</b>	<b>161</b>	<b>100.0</b>	<b>337</b>	<b>100.0</b>	
Farm Enterprise*	Livestock Production	133	75.6	118	73.3	251	74.5
	Crop Production	133	75.6	103	64	236	70
	Fishing	49	27.8	60	37.3	109	32.3
	Others Specify	2	1.1	3	1.9	5	1.5

\*Multiple response, **Source:** field survey 2015

### Cooperative Characteristics of Respondents

The result of the study revealed that 70.3% of the respondents had been in cooperative business for the past 6-10 years, with an average of 8 years. Most (92.9%) of the respondents

belonged to the multi-purpose cooperative society (MPCS). Majority of the cooperatives (63.8%) existed for the past 11-20 years, with an average of 15 years of experience.

**Table 2.** Cooperative characteristics

Characteristics	Categories	Delta north		Delta central		Total	
		Freq	%	Freq	%	Freq	%
Cooperative experience (years)	1-5	26	14.8	30	18.6	56	16.6
	6-10	125	71.0	112	69.6	237	70.3
	11-15	17	9.7	14	8.7	31	9.2
	16-20	2	1.1	5	3.1	7	2.1
	21-25	3	1.7			3	.9
	>25	3	1.7			3	.9
<b>Total</b>		<b>176</b>	<b>100.0</b>	<b>161</b>	<b>100.0</b>	<b>337</b>	<b>100.0</b>
cooperative type	Crop	4	2.3	10	6.2	14	4.2
	Livestock	4	2.3	6	3.7	10	3.0
	multi-purpose	168	95.5	145	90.0	313	92.9
	<b>Total</b>	<b>176</b>	<b>100.0</b>	<b>161</b>	<b>100.0</b>	<b>337</b>	<b>100.0</b>
Sex composition	All male	6	3.4	2	1.2	8	2.4
	All female	5	2.8	7	4.3	12	3.6
	Both	165	93.8	152	94.4	317	94.1
	<b>Total</b>	<b>176</b>	<b>100.0</b>	<b>161</b>	<b>100.0</b>	<b>337</b>	<b>100.0</b>
Length of cooperative existence (years)	1-10	51	29.0	63	39.1	114	33.8
	11-20	117	66.5	98	60.9	215	63.8
	21-30	5	2.8			5	1.5
	>30	3	1.7			3	.9
	<b>Total</b>	<b>176</b>	<b>100.0</b>	<b>161</b>	<b>100.0</b>	<b>337</b>	<b>100.0</b>

*Source:* field survey 2015

### Potential Area of Cooperative Role in Extension Delivery

Table 3 show areas of agricultural extension services the co-operators believed agricultural cooperatives can and should be involved.

The pooled results indicate that the respondents believed that cooperatives can be involved in six of the ten areas of extension delivery listed in the table since the means are greater than 2.50.

Base on the mean benchmark of 2.50, the major areas they believed cooperatives can play vital roles in extension delivery include, providing members with information about latest farming practice (mean =3.56), providing members with market information (mean =3.56), getting information from research institute to solve members farming challenges (mean=3.37), organizing farm trainings for members (mean=3.32), informing development/

government agencies about members farming challenges (mean=3.32) and linking members to input supplies (mean=3.24).

**Table3.** Potential areas of cooperative role in extension delivery

Roles	Delta north		Delta central		Pooled	
	Mean	SD	Mean	SD	Mean	SD
Provide members with information about modern farming practices	3.51	.70	3.63	.49	3.56*	.61
Provide market information on farm product prices	3.52	.50	3.60	.49	3.56*	.50
Source agricultural information from research institutes.	3.34	.68	3.42	.53	3.37*	.61
Organizing farm training for members.	3.18	.53	3.47	.50	3.32*	.54
Informing development/government agencies about members farming problems.	3.22	.58	3.43	.52	3.32*	.57
Link members to input suppliers	3.19	.76	3.30	.65	3.24*	.71
Establish farm demonstration sites	1.95	.81	2.63	1.07	2.27	1.00
Take members on tour/Excursion.	2.22	.62	2.17	.91	2.20	.77
Take members to agric shows and exhibitions.	1.87	.81	2.12	.91	1.99	.87
Link members to marketers	1.69	.69	1.46	.64	1.58	.68

\*Agreed (mean > 2.50), Source: field survey, 2015.

**Constraints against Cooperative Involvement in Extension Delivery**

Table 4 shows possible constraints that can limit cooperatives engagement in agricultural extension delivery. The major constraints include inadequate capital or fund (mean =3.68), inadequate trained personnel (mean=3.41), lack of co-operation among members (mean=3.48) and members not having time to engage in extension service delivery (mean=2.52).The of inadequate capital as a major constrain may be as a result of the fact that most agricultural cooperatives do not have access to formal credit (Lawal, 2009). Knowing full well that, some of the extension activities required capital for effective implementation. Similarly, the cooperatives lack adequately trained personnel

to guide the cooperatives in their extension delivery services. Furthermore, the cooperatives do not send members on training courses as a result of inadequate capital. Lack of co-operation among members for extension services may be because of their limited understanding of cooperative as a source of credit/loan to members

Such constraints as government discouragement of cooperatives from getting involved in extension activities (mean =1.48), co-operators not knowing where to get farm information (mean =2.10) and lack of knowledge of institutions that can assist members with their farm problems (mean =2.23) were not serious constraints since their mean score were less than 2.50.

**Table4.** Constraints against cooperative involvement in extension delivery

Constraints	Delta north		Delta central		Total	
	Mean	SD	Mean	SD	Mean	SD
Inadequate capital/fund	3.65*	.48*	3.72	.49	3.68*	.48
Inadequate trained personnel's	3.28*	.47*	3.55	.63	3.41*	.57
Lack of co-operation among members	3.45*	.60*	3.52	.57	3.48*	.59
Members may not have time to engage in extension service delivery	2.28	.94	2.79	.94	2.52*	.97
Government may discourage cooperative from getting involved.	1.50	.65	1.45	.68	1.48	.66
Not knowing where to get modern farm information from	1.89	1.03	2.33	1.13	2.10	1.10
Lack of knowledge of institutions that can assist members with their farm problems	2.05	.94	2.44	1.00	2.23	.99

\*Agreed (mean > 2.50), Source: field survey, 2015

**Influence of Cooperative Characteristics on their Role in Extension Delivery**

Factorial Anova was employed to test the influence of co-operative characteristics on co-

operators' perception of the role of or extent to which cooperative can contribute to extension delivery. The result is presented in Table 4.10 (see detailed result in appendix). Anova result

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reveal that length of cooperative existence ( $F = 3.08, P < 0.050$ ) and cooperative types ( $F = 8.49, P < 0.050$ ) have a significant influence on cooperators perception of the extent to which cooperatives can contribute to or play a role in

extension delivery. Sex composition of the cooperatives have no significant influence ( $F = 0.363, P \leq 0.050$ ) on co-operators perception of the extent to which co-operatives can engage in extension delivery.

**Table5.** Influence of cooperatives characteristics on cooperative role in extension delivery (Factorial Anova)

Parameter Factors	SexComposition FactorsMean		Cooperative Type FactorsMean		Length of cooperative existence FactorsMean	
	1	Both	28.33	multi-purpose	28.27 <sup>b</sup>	>30
2	All female	29.58	Livestock	30.00 <sup>ab</sup>	21-30	24.00 <sup>b</sup>
3	All male	30.00	Crop	30.50 <sup>a</sup>	11-20	28.30 <sup>a</sup>
4					1-10	28.96 <sup>a</sup>
F. value	0.363		8.49*		3.08*	

\*Significant at 5% level, Source: field survey, 2015

### Test of Difference in Prospective Extension Activities of Cooperatives

Friedman test was used to analyze the hypothesis that states that, there is no significant difference in the prospective extension activities of cooperatives. The result is presented in Table 6. Friedman test result ( $\chi^2 = 16.836; df = 9; P < 0.050$ ) is significant at the 5% level, which means that there is a significant difference in the prospective extension activities of the cooperatives i.e. the extension activities co-operators expect their cooperatives to get involved in.

The post hoc test revealed that providing members with information on modern farming practices (mean=7.58), market information (mean=7.47), and getting information from research institutes to solve members farming

challenges (means = 6.91), were the most or highest significant extension activities expected by members from the cooperatives relative to other activities. There is no statistical difference in these three activities.

The perceived role of the cooperatives in these three activities is significantly higher than their expected role in organizing farm training (mean = 6.78), informing development agencies of members farming challenges (6.72) and linking members to input suppliers (6.37). The least significant role was linking members to marketers (mean = 2.28). Reason for this is that the co-operators prefer dealing directly with and selling their produce or product directly to the consumers in order to maximize profit.

**Table6.** Test of difference in the prospective extension activities of co-Operatives (Friedman test)

Extension Activities	Mean Rank
Provide members with information about modern farming practices	7.58 <sup>a</sup>
Provide members with market information	7.47 <sup>a</sup>
Source information from research institutes.	6.91 <sup>a</sup>
Organizing farm training for members.	6.73 <sup>b</sup>
Informing development/government agencies about members farming problems.	6.72 <sup>b</sup>
Link members to input suppliers	6.37 <sup>b</sup>
Establish farm demonstration sites	3.91 <sup>d</sup>
Take members on tour/Excursion.	3.76 <sup>d</sup>
Take members to agricultural shows and exhibitions.	3.26 <sup>d</sup>
Link members to marketers	2.28 <sup>e</sup>

$\chi^2 = 1683.662; df = 9; p < 0.050$ , Source: field survey 2015

## CONCLUSION

Based on the findings of the study, it was concluded that cooperatives have potential roles to play in extension service delivery. The major areas they can contribute to extension delivery include, providing members with information about latest farming practice providing members

with market information getting information from research institute to solve members farming challenges organizing farm trainings for members informing development/government agencies about members farming challenges and linking members to input supplies. However, their potentials to participate in extension delivery can be hampered several factors such as

lack capital/fund to finance extension delivery, inadequate trained personnel to carry out extension delivery, lack of cooperation among member and members not having time to engage in extension delivery.

### RECOMMENDATIONS

Based on the findings of the study, the researchers suggest the following

1. Co-operators should be exposed to training programmes to build their capacity to deliver extension services.
2. Extension activities cooperatives should be at a time convenient to members to enable them have full participation.
3. Cooperatives should link up to financial houses such micro finance bank to assess fund to enable them finance their extension activities.

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