Effectiveness of Extension Services in Enhancing the Productivity, Income and Welfare of Women Farmers Cooperatives in Kajuru Local Government Area of Kaduna State

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Abstract
The broad objective of this study is to assess the effectiveness of extension service in enhancing the productivity, income and welfare of women farmers' cooperative in Kajuru LGA. The population of the study was 310 farmers of 18 registered farmers' women cooperative in Kajuru LGA of Kaduna state. 80 women farmers were selected, the sampling technique used were purposive and simple random sampling method. The eighty respondents returned their questionnaires. Hence, the data was analysed based on eighty questionnaires using descriptive statistics, mean rating, multiple response, likert scale and standard was used to determine the effectiveness of extension services on the productivity, income and welfare of the women farmers in Kajuru LGA of Kaduna state, the study revealed that women farmers' cooperative societies in the study area affirms that extension services has increase their productivity, income and also improved their welfare. Consequently, the study recommended government should pay attention on land consolidation programme in view of the fragmented holding as well as excess land should be redistributed to the less privileged women farmers as this will enable women farmers to have more access to land which will help them to adopt the new innovations. Also, government and other interested agencies who needs the services of agriculture, should assist women farmers' cooperative in term of chemicals, fertilizer, heavy machines, improve seedlings and improve farming equipment's, credit facilities, research agencies/institutes, and build adult education centres where the extension agent can enlighten members of the women farmers' cooperative societies on the uses of modern techniques in agriculture.

Key words: *Effectiveness, Extension Services, Productivity, Income, Welfare, Women Farmers Cooperatives.*

INTRODUCTION

Agricultural and rural development in African countries vary from one area to another depending on a range of factors including natural resources endowments, political stability, cultural and the socio-economic environment. The greatest challenge to the Africa's agricultural sector is how to increase food production to outstrip the rate of population growth. Women are at the forefront of meeting this challenge, as agricultural production is primarily their domain (CIAT, 1990).

Women farmers in Africa are productive force in subsistence agriculture participation actively in the primary production of food crops, animal production, and transportation of food crops from the farm to the house, processing, storage and marketing (Banji and Okunade, 2005). In Nigeria, it is estimated that 60-80% of the agricultural labour input is provided by women (Ingawa, 1999). The range of agricultural activities usually undertaken by farmers shows that women participation in virtually all the activities as their male counterparts (Ojidoh, 1993). They are involved in the production of crops such as maize, cassava, coco yam, vegetables etc. (Ogunbameru and Pandey, 1992). However, most documents concerned with the productivities of small-scale farmers in Nigeria assumed that the small-scale farmers who produce most of the food crops are men. This assumption is false, because women have been found to be involved in all farm activities in addition to helping their husbands transport, process, store and marketing of farm produce (NARP, 2000) In many developing countries, there is a growing need for rapid rural development in which agricultural development is realized to be an essential component. In Nigeria, about 60% of the population is involved in agricultural occupation of these percentages; it is believed that the rural farmers form the majority of the population. The increasing demand for agricultural products by an enlarged populace has put farmers in a position where they need the knowledge of the scientific breakthrough to meet-up.

Consequently, the need was felt to modernize the agricultural sector with a view to accelerating the country's economic growth as well as improving the wellbeing of Nigerians. This explains the proliferation of strategies to accelerate food production in the country. But some of these efforts often prove to be ineffective.

A number of reasons were given for the inefficiencies of these strategies. The first is that effort of the state and federal government were never properly coordinated. Secondly, as quoted by Olatumbosun (1995) put, its measure to increase food production are not match by those design to improve marketing and distribution. Lastly, the same traditional method of supplying farm inputs, including credits to farmers are still being employed.
Extension service is a vital pre-requisite to widespread and sustains agricultural development (Benor et al 1984). It is difficult even in highly developed countries to encourage farmers to adapt rapidly to the new technology and more efficient practices and based on continuously advancing research without farmers clearly understanding them. Furthermore, extension service is geared towards the needs for strategies that might be effective in moving agriculture forward in Africa, i.e. from predominantly traditional to a modern sector of African economies. In addition, agricultural extension services are an attempt to bring together the theories and practices of rural development through extension work. Through agricultural extension, farmers are informed of normal ways of farming as well as new technical and economic possibilities that could be useful if adopted. In developing nations like Nigeria, extension is the function of the government and is supported by public fund.

Thus, in an attempt to impact this knowledge on how to accelerate agricultural production and the use of modern technologies to farmers, an extension service officer is required to install new technology to farmers and teach them how to adopt and improve production practices in an attempt to increase food production and incomes. It is an extension office however, that helps farmers to take advantage of research finding s and technological advances and quickly adjust to seasonal and economic conditions. In acknowledging the paramount role of extension officers in bringing about agricultural development, an extension structure can and should be developed to suit local conditions, resources and requirement. There is therefore, no doubt that extension services are viable instrument of agricultural development. But the extent which its effectiveness has been felt by rural farmers in Kajuru LGA is another side of the matter.

In an attempt to reduce the poverty level among rural Nigerians and also to increase the income and productivity of the rural dwellers, extension services was established by Nigerian Government in 1980 to help farmers acquire new innovations through the effort of extension agents. Little or no attempt has been made to study the effectiveness of extension services on the productivity, income, and welfare of the rural women farmers in the study area if some of the objectives of extension services has being realized or not.

The study therefore, provides answers to following questions:

The broad objective of this study is to assess the effectiveness of extension service in enhancing the productivity, income and welfare of women farmers cooperative in Kajuru L.G.A. Specifically, the objectives of the study include the following:

1. To identify the socio-economic characteristics of the women farmers in the study area.
2. To determine various extension services available to women farmers
3. To determine how often extension agents visit women farmers in the study area
4. To identify the effects of extension services on women income and welfare
5. To study the problems militating against effective adoption of new innovation/ technology by the women farmers in the study area.
6. To proffer possible solutions to the problem affecting adoption of new innovation/ technology in the study area.

METHODOLOGY

Study Area

The study was conducted in kajuru local government area of Kaduna state. The choice of the areas was made due to the predominance of women farmers cooperative society, and their farming activities which form the basis for this study.

Kajuru local government area of Kaduna State was created in March 1997; out of Chikun local government area with headquarter at Kajuru. Kajuru local government area is bounded on the east by Igabi LGA, on the south east by Zango Kataf LGA and Kachia LGA to the south. Kajurn LGA has ninety-six (96) localities with fifty-three (53) kilometres away. Kajuru local government area has a census population of 109,810; comprising of 54,506 male and 55,304 female (Census, 2006).

The area is marked with two distinct seasons of wet and dry season; the wet season commences in the month of April while dry season extends from October to March and is marked by the hot dry north easterly harmattan winds. Farming is the main occupation of the people of Kaduna and it is characterised predominantly by mixed cropping, of such crops as maize sorghum, millet, cowpea, rice, cassava, coco yam, sugarcane, tomato, pepper, acha, ginger and potato. Rain-fed agriculture is mostly practiced in the area with little Fadama

agriculture. Crop production is still manually done in small-scattered pieces of land with the use of implements such as hoes, cutlasses, knives, and axes with very few medium and large-scale farmers that are engaged in tractor ploughing which is visible along access roads.

Population of the Study

Kajuru Local Government has twenty registered women farmers cooperative society. At the time of this study the twenty societies were viable with a total membership of three hundred and ten and this formed the population of the study.

Sample size

Sixteen respondents consisted of (eight new members, those who are member for just a year now and eight old members, those who are member for two years or more) were randomly selected from five of the viable women farmers cooperative societies in the LGA normally reached by extension agents. In all eighty women famers respectively were selected for this research work.

Purposive sampling technique was employed to select five women farmers' cooperative societies which was assisted by the list of the participants given by KADP Officers in Kaduna and also through the assistance of the divisional cooperative officer in the local government area were the study was carried-out.

Analytical Techniques

Descriptive statistical tools such as measures of central tendency (mean, multiple response, weighted mean score, percentages, standard deviation and frequency distribution tables) will be used to achieve objectives 1, 2, 3, 5, and 6 of the study.

The measurement of effectiveness of extension services: The analysis of the effectiveness of extension services on the productivity, income and welfare were analyzed using five point Likert Scale: Very large extent (VLE) as 5 points, large extent (LE) as 4 points, uncertain (UC) as 3 point, small extent (SE) as 2 point, and very small extent (VSE) as 1 points. The weighted mean score was also obtained by dividing the total weighted score for all the options by the number of respondents to obtain a mean sore for each statement. The value judgement was three (3), which was obtained by dividing the total score value by the number of the options (15/5). This is also applicable to compatibility and complexity. It is used to achieved objective 4

RESULTS AND DISCUSSION

This section analyses and discusses the socio-economic characteristics of the women farmers in the study area, its impact on their incomes and the constraints faced as a result of their adoption of new innovations.

Socio Economic Characteristics

Table 1: Distribution of women farmer by their Personal and Socio-Economic Characteristics

Personal and socio-Economic Characteristics	Frequency	Percentage
Age (years) 20 and below	10	12.5
21-30	15	18.75
31-40	35	43.75
41-50	15	18.75
50 and above	5	6.25
Marital Status		
Single	5	6.25
Married	67	83.75

Divorced	2	2.5
Separated	1	1.25
Widowed	5	6.25
Household Size		
<5	5	6.25
5-10	45	56.25
11-15	20	25
16 and above	10	12.5
Level of Education		
No form of education	8	10
Quranic education	11	15.0
Primary school	39	48.75
Secondary school	11	13.75
Tertiary	10	12.5
Farm size (ha)		
< 0.5	4	5.0
0.5 -1.0	70	87.5
1.1 -2.0	5	6.25
2.1 and above	1	1.25
Farming experience (years)		
1 -10	18	22.50
11 – 20	22	40.0
21 – 30	20	25.0
31 – 40	7	8.75
41 – 50	3	3.75
Religion		
Christianity	45	56.25
Islam	35	43.75
Primary occupation		
Farming	75	93.75
Trading	3	3.75
Civil Servant	2	2.75

Source: Field Survey, 2011

Age

As shown in Table 1 below, majority (81.25%) of the farmers examined were within the age bracket of between 21-51 years. This shows that large numbers of respondent were young, active and are likely to be more productive, as such given adequate levels of farming resources, the farmers have the potential to maximise their farm output. This result is in conformity with the result obtained by Erinle (1990) in his research on prospects for increased production of tomato and pepper in northern Nigeria; he found that age of farmers to some certain extent affects his marginal ability.

Educational Qualification

The need for education in agricultural production cannot be overemphasized. According to Imonikhe (2004), education would significantly enhance farmer's ability to make accurate and meaningful management decisions, it could also enhance knowledge of improved techniques such as how to read and interpret recommended packages. Also in Ingwu (1985) found out in his study about Obudu farmers in Cross Rivers State, which the educational

attainment of farmers greatly influences their decision to adopt to new innovation. The study revealed that (49%) of the farmers attended primary school and this constituted the largest number of educational qualification attained among the farmers. While (15%) had quaranic education. This may be one of the reasons why farmers could easily understand the need to adopt new innovation brought to them by the extension agents.

Farming Experience

The result further indicates that majority (40%) of the farmers have farming experience of between 11 – 20 years farming experience.

Household size

The size of household is an important factor in traditional agriculture because it influences to a large extent the supply of labour for immediate farm employment (Akinyemi, 1998).
As revealed also in the study, majority (56%) of the farmers have family size of between 5-10 people. The implication of the above result is that farmers may have to supplement most of their farm family labour with hired labour.

Marital Status

The study further revealed that majority (84%) of the farmers are married.

Farm Size (ha)

Farm size is an important fixed input resource factor in agricultural production. This is because it determines to a large extent the level of agricultural production (i.e., small or large scale production). The size of the farm cultivated by farmer is a function of population pressure, family size, labour availability, financial background and experience of the farmer (Imonikhe, 2004). As indicated in Table 4.1, majority (88%) of the farmers had farm size of between 0.5-1.0 (ha). This implied that most of the farmer respondents in the area were small scale holders.

Religion

About 56% were Christians while 34% were Muslim

Primary Occupation

The study revealed that 94% of the women were farmers, 4% were traders while 3% were civil servants.

Extension Services available to the women farmers

The data in table 2 shows that a hundred percent each of the respondents says that extension agents have offer services of Distributing improved seedling, engage farmers in extension education, Teach farmers how to apply fertilizer, How to use heavy machines in farming, and How to use herbicides and insecticides respectively. About 98% of the respondents says that extension agents provides services of Creating awareness of improved agricultural technology, and Advisory services respectively. The study also revealed that Majority (96.25) agrees that extension agents help farmers to access credit facilities while 54% accept that agents investigate market facilities for the farmers. the study further revealed that 91% of the respondent says that extension agents Improve farmers decision making skill while majority (94%) accept that the service of Control of ectoparasite of livestock was provided to the farmers. other extension services provided to the farmers is the Various methods of processing different Crops which accounted for 86% and finally majority (69%) of the

respondents accepted that services on Improved method of livestock husbandry was provided to the farmers.

Table 2: Distribution of extension services in the study areas

Activities	No of Respondents	percentage
Distributing improved seedling	80	100
Creating awareness of improved agri. tech.	78	97.5
Engage farmers in extension education	80	100
Investigate market facilities for farmers	43	53.75
Help farmers to access credit facilities	77	96.25
Improve farmers decision making skill	73	91.25
Teach farmers how to apply fertilizer	80	100
How to use heavy machines in farming	80	100
How to use herbicides and insecticides	80	100
Control of ectoparasite of livestock	75	93.75
Various methods of processing different Crops	69	86.25
Improved storage methods for all crops produce	75	93.75
Improved method of livestock husbandry	55	68.75
Advisory services	78	97.5

Source: Field Survey, 2011 * Multiple responses

Modes of visitation by the extension agents to the farmers

Data analysis result (Table 3 below) indicated that majority (61%) of the respondents said that extension agents use to visit them monthly and mostly during their monthly meetings. This shows that all the respondents received extension services in their various cooperative societies.

Table 3: Distribution of extension agents' visitations to the farmers

Modes of visitations	Frequency	Percentage
Weekly	5	6.25
Monthly	49	61.25
Quarterly	14	17.5
Half yearly	9	11.25
Yearly	3	3.75
Never visited	0	0
Total	**80**	**100**

Source: Field Survey, 2011

Farmers' perception on the nature of the innovations introduced through extension services

Compatibility of Innovations:

Another item considered in this study was compatibility of innovations; Compatibility in table 4 has low mean response of 2.65 and with standard deviation of 1.223. The statement which says that the Innovations introduced through the extension services are compatible is rejected this is because it has low mean score which is below the value judgement of (3) and for the purpose of this study, the statement (d) is unaccepted. The implication of this result is that some of the innovations are not all that are compatible with what the farmers use to know before. This could be as a result of complain that some of the innovations such as fertilizer

application to some crops such as yam. Farmers complain that when fertilizer is apply to yam during cultivation such yam will decay shortly after harvest but with their former method of not applying fertilizer to yam during cultivation is better-off. That is to say that not all innovation is compatible to the farmers.

Complexity of Innovations:

The statement in table 5, which states that innovations introduced through extension service are not complex, has high mean response of 3.91 and standard deviation of 1.223. The result indicates that the new innovations introduced to respondents through extension agents were easy to operate, use and applied. This statement is accepted to be true this is because, its weighted mean score is higher than the value judgement which is 3 points. This suggests that new innovations introduced to respondents are not complex as it does not required rigorous processes in applying them.

Table 4: Distribution of respondents according to their Perceptions of the Compatibility of the new innovations introduced to them by the extension agents

Statement	Option	Score (x)	Frequency	Weighted mean
Innovations	Very large extent	5	6	30
introduced through	Large extent	4	21	84
the extension	Uncertain	3	3	9
services are	Small extent	2	39	78
compatible	Very small extent	1	11	11
Total		**15**	**80**	**212**

Weighted mean score (x): 2.650 **Std Deviation:** 1.223 **Decision:** Not Compatible

Source: Field survey, 2011

Table 5: Distribution of respondents according to their Perceptions of the Complexity of the new innovations introduced to them by the extension agents

Statement	Option	Score (x)	Frequency	Weighted mean
Innovations	Very large extent	5	12	60
introduced through	Large extent	4	59	236
the extension	Uncertain	3	1	3
services are not	Small extent	2	8	16
complex	Very small extent	1	0	0
Total		**15**	**80**	**315**

Weighted mean score (x): 3.938 **Std Deviation:** 0.752 **Decision:** Not Complex

Source: Field survey, 2011

Farmers' perception on the effectiveness of extension services in enhancing productivity, income and welfare of the respondents

Very large extent (5), Large extent (4), Uncertain (3), Small extent (2), Very small extent (1). The weighted mean score was also obtained by dividing the total weighted score for all the options by the number of respondents to obtain a mean score for each statement. The value judgement was three (3), which was obtained by dividing the total score value by the number of the options (15/5). This is also applicable to compatibility and complexity in (table 5 and 6) above.

The result data in table 6 indicated that option (a) statement "Extension services have enhanced productivity" has a high mean score of 3.63 and with standard deviation of 1.023.

This statement was ascertain to be very true as it mean score is more than the value judgement with 0.63, for this reason the statement is accepted to be true as it shows that extension services has increase the productivity of the respondents. The option (b) statement "Extension services has led to increase in income" has also a high mean score of 3.4 and standard deviation of 1.164, this statement was also ascertain to be true as it mean score is higher than the value judgement, this revealed that extension services has been effective on area of increasing the income of the respondents. Distribution of the farmers' perception on the effectiveness of "extension services have improved welfare" also score high mean score of 3.46 and the standard deviation of 1.179. This statement is accepted as it mean score out-wage the value judgement. In this case the extension services have been effective in improving the welfare of the respondents.

Table 6: Distribution of respondents according to their Perceptions of the effectiveness of extension services in enhancing productivity, income and welfare of the respondents

Statement	Option	Score(x)	Frequency	Weighted Score(fx)
(a)Extension services has enhanced productivity	Very large extent	5	11	55
	Large extent	4	48	192
	Uncertain	3	2	6
	Small extent	2	18	36
	Very small extent	1	1	1
Total		**15**	**80**	**290**
Weighted mean score (x): 3.625 **Standard Deviation:** 1.023 **Decision:** Effective				
(b)Extension services has led to increase in income	Very large extent	5	10	50
	Large extent	4	41	164
	Uncertain	3	5	15
	Small extent	2	19	38
	Very small extent	1	5	5
Total		**15**	**80**	**272**
Weighted mean score (x): 3.400 **Standard Deviation:** 1.164 **Decision:** Effective				
(c)Extension services has improved welfare	Very large extent	5	13	65
	Large extent	4	38	152
	Uncertain	3	7	21
	Small extent	2	17	34
	Very small extent	1	5	5
Total		**15**	**80**	**277**
Weighted mean score (x): 3.462 **Standard Deviation:** 1.179 **Decision:** Effective				

Source: Field survey, 2011

Farm output (yield/ kg/ha)

Table 7: shows the proceeds from the crops cultivated by the sampled respondents on their farmland in the study area by the new members (before they join women farmers cooperative societies) and old members (with extension services). Three crops that are common to the study area were considered for the research. The crops include: Maize, Sorghum, and soya beans.

As indicated in table 7, the total output in kilogram per hectare of the crops cultivated by the old members was 17,420.49 and new members was 10,289.66 kg/ha respectively. This implied that old members of the women farmers' cooperative societies increased their output

appreciably by 7,130.83 kg/ha more than their counterpart, this is because the old members make use of extension services as members of women farmers' cooperative societies. And for that reason, their total output was far more than that of new members who have not been using extension service. The finding is not too surprising because those who apply modern farming practices are likely to enhance their output.

Table 7: Output of old members with extension services and new members without extension services

Crops	Old Members (Extension) yield (Kg/ha)	New Members (No Extension) yield (Kg/ha)
Maize	7,384.07	2,957.75
Sorghum	6,527.07	3,401.53
Soya beans	3.509.10	3,930.40
Total	**17,420.49**	**10,289.66**

Source: Field survey, 2011

Effectiveness of extension services on the income of the respondents

Income is an important factor in establishing the farmer's disposition to accept and apply extension services. Majority of the respondents in the study area were able to increase their income as a result of the effectiveness of extension services. Table 8 revealed that majority (7.5% and 0%) of new members and old members respectively have income of <19000 in one planting season. While majority (25% and 2.5%) of new members and old members respectively have income between (19000 – 69,999) in one planting season. The study also revealed that majority (55% and 12.5%) of the new members and old members earn income between (70,000 – 119,999) respectively. The study further indicates that majority (10% and 62.5%) of new members and old members respectively have income between (120,000 – 169,000) respectively as their income for one farming season. While majority (2.5% and 22.5%) of new and old members claim that they earn income of between (>169,999) respectively in one planting season. This implied that the old member's have higher income over the income of new members who have just joined the cooperative societies. The higher differences in the net farm income of the old members over the new members may be attributed to the effectiveness of extension services. Nevertheless, the net farm income realized by most of the respondents was above the average rural household income of #42,644 reported by the 2003 – 2004 living standard survey (FOS, 2004).

Table 8: Distribution of income of the respondents

Income	New Members Frequency	Percentage %	Old Members Frequency	Percentage %
<19,000	3	7.5	0	0
19,000-69,999	10	25	1	2.5
70,000 – 119,999	22	55	5	12.5
120,000 – 169,999	4	10	25	62.5
>169,999	1	2.5	9	22.5
Total	**40**	**100**	**40**	**100**

Source: Field survey, 2011

Problems Militating Against Effective Adoption of New Innovation/ Technology by the Respondents

The major constraints reported by respondents table 10, were low capital outlay and high cost of machine which was first with 100% respectively, communication barrier and high cost of improve technology ranked second and third with 98% and 94% respectively. High cost of labour ranked fourth with 69%, compatibility and conservatism ranked fifth and sixth with 41% and 33% respectively. And finally complexity ranked seventh with 16% as reported by the respondents.

Table 10: Distribution of major constraints militating against effective adoption of new innovation/ technologies

Constraints	Frequency	Percentage	Rank
Low capital outlay	80	100	1st
High cost of machines	80	100	1st
Communication barrier	78	97.5	2nd
High cost of improve technology	75	93.75	3rd
High labour cost	55	68.75	4th
Compatibility	33	41.25	5th
Conservatism	26	32.5	6th
Complexity	13	16.25	7th

Source: Field Survey, 2011 * Multiple res

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary of findings

This paper revealed that the extension services had a positive impact on the income, productivity and welfare of the women farmers cooperative societies in the study area.

The first of objective of the study was to identify the socio-economic characteristics of the women farmers in the study area. The study shows that 81.25% of the farmers examined were within the age bracket of between 21-51 years. The study revealed that 49% of the farmers attended primary school and this constituted the largest number of educational qualification attained among the farmers. While (15%) had quaranic education. The result further indicates that majority 40% of the farmers have between 11 – 20 years farming experience. The study revealed that majority (56%) of the farmers have family size of between 5-10 people. The implication of the above result is that farmers may have to supplement most of their farm family labour with hired labour. The study also revealed that majority (84%) of the farmers is married. majority (88%) of the farmers had farm size of between 1-5 (acres). About 56% were Christians while 34% were Muslim. The study revealed that 94% of the women were farmers, 4% were traders while 3% were civil servants.

The second objective of the study was to determine various extension services available to women farmers. some of the extension activities identified by the respondents and are analyse as follows hundred percent each of the respondents says that extension agents have offered services of Distributing improved seedling, Engage farmers in extension education, Teach farmers how to apply fertilizer, How to use heavy machines in farming, and How to use herbicides and insecticides respectively. About 98% of the respondents say that extension agents provides services of creating awareness of improved agricultural technology, and Advisory services respectively. The study also revealed that Majority (96.25) agrees that extension agents help farmers to access credit facilities while 54% accept that agents investigate market facilities for the farmers. the study further revealed that 91% of the respondent says that extension agents Improve farmers decision making skill while majority

(94%) accept that the service of Control of ectoparasite of livestock was provided to the farmers. other extension services provided to the farmers is the Various methods of processing different Crops which accounted for 86% and finally majority (69%) of the respondents accepted that services on Improved method of livestock husbandry was provided to the farmers.

The third objectives of the study sought to determine how often extension agents visit women farmers in the study area. It was discovered that 61% of the respondents said that extension agents use to visit them monthly and mostly during their monthly meetings.
The fourth objective of the study was to determine the farmers perception on effectiveness of extension services, the result indicated that "extension services has enhanced productivity" with high mean score of 3.63 and standard deviation of 1.023, the respondents agree that extension services has led to increase in income" with high mean score of 3.4 and standard deviation of 1.164. While a high mean score of 3.46 and SD of 1.179 was attributed to the farmers' perception that effectiveness of extension services has improved welfare. These really shown that the presence of extension services has improve their standard of living both on the areas of high productivity, increase in income and improve welfare of the farmers. Compatibility has mean response of 2.65 and with the SD of 1.223. The low mean score implies that the innovations are not all that compatible with what the farmers use to know before. Majority of the respondents with the mean score of 3.91 and SD of 0.752 agree that innovations introduced to them are not complex.
The five objective of the study aim at identify the effects of extension services on women income and welfare. The study further indicates that majority (10% and 62.5%) of new members and old members respectively have income between (120,000 – 169,000) respectively as their income for one farming season.

It was also revealed that total output in kilogram per hectare of the crops cultivated by the old members was 17,420.49 and new members was 10289.66 kg/ha respectively. This implied that old members of the women farmers' cooperative societies increased their output appreciably by 1730.83 kg/ha above their counterpart. The finding is not too surprising because those that apply modern farming are likely to enhance their output.
The objective six of the study was to study the problems militating against effective adoption of new innovation/ technology by the women farmers in the study area. The major constraints reported by respondents were low capital outlay and high cost of machine which was first with 100% respectively, communication barrier and high cost of improve technology ranked second and third with 98% and 94% respectively. High cost of labour ranked fourth with 69%, compatibility and conservatism ranked fifth and sixth with 41% and 33% respectively. And finally complexity ranked seventh with 16% as reported by the respondents.

Conclusion

The study revealed that extension services has enhanced their productivity, income, and welfare and that extension workers used to pay them monthly visit which has help the farmers to be able to adopt all the improve practices introduced to them by the extension agents. The study also show that the income of the old members who have been using extension services have had their income increased more than the income of the new members when they have not been using extension services. The study further revealed some of the major constraints militating against effect adoption of new innovation as low capital outlay and high cost of machine, communication barrier, and high cost of improve technology, High cost of labour, compatibility and conservatism.

Recommendation

Based on the findings of the study, the following recommendations are proffered wit emphasizes on the problems identified so as to enable extension services make more positive impacts on the income, productivity and welfare of the women farmers cooperative societies in Kajuru Local Government Area of Kaduna state. The recommendations are as follows:

i) Realizing that women farmers cooperative societies often avoid expensive practices, government and other interested agencies who needs the services of agriculture, should assist women farmers cooperative in term of chemicals, fertilizer, heavy machines, improve seedlings and improve farming equipments which has to be sold to the farmers at subsidized rates as this will enable farmers to afford modern technology and use them to enhance more of their income, productivity and improve their welfare.

ii) The findings indicate that all the respondents were smallholder farmers with fragmented farmland. It is suggested that government should pay attention on land consolidation programme in view of the fragmented holding. This will ensure maximum benefits of mechanization of recommended improved innovations and provision of land that can be mechanized. Hence, there is need for redistribution of land. The excess land should be redistributed to the less privileged women farmers as this will enable women farmers to have more access to land which will help them to adopt the new innovations

iii) Credit facilities should be made easily available to women farmers. Also savings mobilization should be encouraged among the women farmers to boost their farming activities as this will improve the capital base of the farmers.

iv) There is the need for research agencies to critically study the adoption behaviour of the farmers. this will help the change agents to design social change programs to gain acceptance and the relevant approach to take in order to reach and persuade the most critical segment of the community with adoption of improve innovations as their primary objectives. As this will change the conservative attitude of some of the farmers so that they we know the important of adopting new innovations and come to accept them.

v) Government should build adult education centres where the extension agent can enlighten members of the women farmers' cooperative societies on the uses of modern techniques in agriculture. This will help reduce the cases of complexity encounter by the farmers.

vi) The extension agents should strive to learn the local language of the farmers so as to enable them communicates more efficiently to the farmers; as this will enable the farmers and extension agents to interact more effectively and which will enable the farmers to adopt new innovations without many difficulties and thereby enhances their performance.

vii) To solve the problem of not compatibility of innovations/ technology, Agricultural research institute should make more research on some of the crops that farmers find difficult to preserve after using recommended technology. This will enable the farmers to adopt more.

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