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Enhancing Performance of Farmers' Cooperative in Rice Innovation System in Enugu State, Nigeria

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Abstract

The state has witnessed proliferation of farmers' cooperative; and while new ones are emerging in their numbers, some old ones are becoming less functional and others going into extinct The study examined factors for enhancing performance of rice farmers' cooperative in rice innovation system. Seventy members of rice farmers' cooperatives were selected using proportionate random sampling technique in a multistage sampling procedure. Data were collected by use of structured interview schedule and analysed using descriptive statistics, and principal component analysis. Results show that rice farmers' cooperative existed mostly as multipurpose with average membership of 24 persons and mean age of 45years. Majority (74.5%) were males, married (88.6%) and literate (76.7%) with 22 years of experience in farming. Leadership constitution was by election, and membership restricted to rice farmers (85.7%), and farmers in related fields (78.6%). Members were obliged to monthly payment of dues, (100%), regular attendance to meetings (95.7%) and obedience to rules and regulations (70%). The cooperatives had linkages with credit institutions (M=3.9), non-governmental organizations (M= 3.0), Agricultural Development Programme/Ministry of Agriculture (M= 2.5) and others. However, the cooperatives were constrained by inadequate government support (M=3.6) poor institutional linkage (M= 3.5), poor market structure (M=3.3), poor membership commitment (M=2.5) and others. The respondents identified fund, linkage, training and leadership- related factors as pertinent for enhancing performance of rice farmers' cooperative in rice innovation system. Thus, the study recommends that government and public extension agencies should support rice farmers' cooperatives through training, provision of market/infrastructural facilities and favourable policy environment.

Key Words: Farmers' cooperative, innovation system, rural institutions, actors, rice

Introduction

Rice (*Oryza sativa*) ranks among the most important staple food for about half of the human race (National Cereal Research Institute(NCRI), 2004; Daramola, 2005). According to Uba (2013) about 70% of Nigerian feed on rice, while about 30% of their cereal-based diets is also from rice. More recently, the demand has been on the increase partly due to shift in consumption preference in favour of rice, population growth, and rising income (Balasubramanian, et al., 2007). According to West Africa Rice

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Development Agency (WARDA) (2005) the relative growth in demand for rice is faster in Africa than anywhere in the world. Thus, sustainable increase in production of rice is both a national, regional and global concern.

Rice is cultivated in virtually all the agro ecological zones in Nigeria. However, production/demand gap is still high. Heiko and Mathias (2007) reported that the output of local rice was estimated at 3 million tons, while the demand amounted to 5 million tons. In other words, Nigeria produces two million tons and consumes about five million tons of rice annually, thus, expends $800 million yearly on importing the deficit of about three million tons (Awe, 2006). Nigeria is one of the largest importer of rice in the world (Damola, 2010) and the largest importer in West Africa, with an average yearly import of over 2 million metric tons since the year 2000 (Emodi and Madukwe,, 2008) .

Several explanations have advanced in literature for the above scenarios. According to USAID/Nigeria (2010) Nigeria rice farmers are unable to produce enough rice and meet quality standards because they lack some key resources available to other farmers in more developed nations. The sector is dominated by small holders (Daramola, 2005) and the use of relatively primitive tools for farm operation (Saturnina , 2005). Joseph (2009) also listed other problems of rice production to include changes in government policies in the area of concession and tariff, poor agricultural credit system, market infrastructure, input supply linkages and dearth of critical human resources capacity along the value chain to drive the system.. Above all, production potential for rice in the country is not yet fully explored; while the country has a potential land area of between 4.6 and 4.9 million hectares, only 1.7 million hectares of the total land area for rice production is being cropped. (Ojehomon et al., 2009). Hence, the problems of rice production in Nigeria cut across the entire rice innovation system and addressing them require a systematic approach.

Rice innovation system comprises a network of economic actors including research, education, credit, information, government, public extension, private sectors, NGOs, processors/, marketers, input providers and transporters that engage in generation, adaptation, diffusion, and use of technical and institutional knowledge over time; the interaction that exist for knowledge generation and use and the policy environment/infrastructure influencing the interaction. (Emodi and Dimelu, 2012). According to Erenstein et al. (2003) different actors including farmers and their association (farmers' cooperative) are involved in each step of production. However, the innovative strength of the whole process is a function of interaction, linkages, alliance and knowledge flow in the system. Therefore, innovative performance of the system depends not only on how the individual actors perform in isolation, but also on how they interact with each other as element of a collective system of knowledge creation and use. Overall performance of the entire system largely anchors on the performance of individual actors.

Generally, cooperative is an autonomous association of persons unified voluntarily to meet their common economic, social and cultural needs through a jointly-owned and democratically controlled enterprise (International Cooperative Alliance (ICA), 2010 in Ibitoye, 2013). Bhuyan (2007), stressed that rural cooperatives including rice farmers'

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cooperative plays important roles in mobilizing and distributing credit to the farmers; providing members with a wide range of services such as health, recreational and housing facilities, input distribution (Nweze, 2002); and dissemination of information on modern practice in agriculture. By pooling capital, labour, goodwill and other resources, (Ebonyi and Jimoh, 2002 in Ibitoye, 2013) members are able to carry out profitable activities, which if undertaken by individuals, would involve greater transaction cost, risk and efforts. Farmers can realize the scale economies of bulk acquisition and enter into more stable trade agreement with suppliers or processors. (Afolami, et al., 2012).

In recent times, the government, non-governmental organizations and donor agencies have encouraged and promoted formation of cooperative as requisite for accessing agricultural support services. The state has witnessed proliferation of cooperative in many sectors including rice sector. Incidentally, while new ones are emerging in their numbers, some old ones are becoming less functional and others going into extinct. Consequently, farmers habitually move from one cooperative to another in quest of getting their needs and problems solved. Therefore, building a functional, effective and sustainable rice producers' group (rice farmers' cooperative) is a priority for improving rice production. This is particularly important given the huge business opportunity that exists in the Nigerian rice sector; especially in the wake of the intended policy that will prohibit rice import. Thus, the study sought to:

1. describe the socio-economic characteristics of rice farmers' cooperative;
2. ascertain challenges of rice farmers' cooperative and
3. identify factors for enhancing performance of rice farmers' cooperative.

Methodology

The study was conducted in Enugu State, Nigeria. The state occupies an area of 8727.1km^2 and has a population of about 3, 257, 278 persons (NPC, 2006). The population of the study comprised rice farmers who are members of rice farmers' cooperative. Multistage sampling technique was adopted for the selection of respondents. In the first stage two agricultural zones namely Uzowani and Izi-uzo were purposively selected out of the five agricultural zones because they are the hub of rice production, processing and marketing in the state. The second stage involved the purposive selection of one block in each zone (Uzowani and Isi uzo blocks.) based on the volume of rice production activities. Also one circle from each block were purposively selected for similar reasons, giving a total of two circles All (7) rice farmers' cooperative (Adani circle (4) and Ehamufu circle (3)) identified in the circles were used. Each cooperative consisted of between 10 -25 members. A proportionate random selection of 50% of members in each cooperative was employed for the selection of the respondents. A total of 70 rice farmers' cooperative members was used for the study.

Data were collected through the use of structured interview schedule. The instrument elicited information on the characteristics of members. The respondents were asked to indicate their sex (male, female), educational qualification (no formal education, primary education, secondary education, tertiary education), Farming experience (years), area of specialization in rice sector (production, rice marketing, rice processing , Both), farm size (ha), quantity of rice harvested/processed (bags annually), The respondents provided information on the features of the cooperatives in the following areas; types of

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cooperative (rice production, rice marketing, rice processing, multipurpose), membership Size (number), leadership Structure , source of Fund (levy imposition, launching, loan and others). Linkage with organizations such as research institutes, universities, ADP/MOA e.t.c.; were accessed on 4 point – Likert – type scale of " very strong(4), strong (3), weak (2), non existence (1)".

To ascertained the challenges facing rice farmers. Cooperative, respondents were asked to indicate among a list of possible challenges, the perceived seriousness on a 4 point Likert type scale (a great extent(4), extent(3), little extent (2) , extent (1). Furthermore, respondents were asked to indicate the extent to which they agree that strategies could enhance performance of rice farmers' cooperative on a four point Likert type scale as follows: strongly agree (4), agree (3), disagree (2), strongly disagree (1),. Data were analysed using mean scores, standard deviation, and factor analysis; and presented with descriptive statistics such as percentage. Only variables with loadings of 0.40 and above, ∑10% over lapping variance were used in naming the factors. Also variables with mean scores ≥ 2.5 are regarded as strong linkage or serious, and <2.5 is weak or less serious as the case may be.

Results and Discussion

Socioeconomic characteristics of respondents

Majority (74.3%) of the respondents were males, while only 25.7% were females. The finding collaborates with Afolami, et. al., (2012) who reported dominance of male folk in rice production in Ekiti and Ogun States. This could be due to the strenuous and time-consuming nature of rice farming activities. Women are mostly involved in activities like weeding, fertilizer application, bagging etc. Greater proportions (88.6%) of the respondents were married with average family size of 5 persons. The result is in line with Jibowo (2003) who reported that vast majority of the rural farmers are married people and have a large family size, probably because most rural farmers rely on cheap family labour for their agricultural activities. Majority (75.9%) of the respondents were literate and in their productive age (45 years). The age and literacy composition of rice farmers' cooperative is important and timely given the increasing technological advancement in agriculture which drives the knowledge structure of the agriculture labour force.

Greater proportion (41.3%) of the respondents had between 11 and 20 years of farming experience. The mean farming experience was 22 years. This suggests high exposure and accumulation of experience in rice production. It is also possible that within these years the farmers may have attended many trainings in rice production. Majority (78.6%) specialized in both production, processing and marketing with mean farm size of 2.8 hectares. This confirms the observation that Nigeria rice sector is dominated by small holders farmers (Daramola, 2005) and there is little or no specialization. This could be attributed to several factors such as poor infrastructural facilities, poor or lack of access to inputs, low technical expertise, weak linkage networks in rice innovation system. About 63% had contact with extension agent, while 37.1% of them had never been visited by extension agent. The significant proportion of cooperatives not visited could either be because they are not recognised or registered with extension agency. It could also be associated with low coverage that characterized most extension outfits which is attributed

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to inadequate extension professionals, poor funding and several institutional and administrative problems. Similarly, a greater proportion (54.3%) of the respondents had received training in the last 5 years, while a significant number (45.7%) had never received training. This suggests that a good number of the cooperatives are poorly linked to relevant institutions or organizations who could provide training in various areas of identified needs of the cooperatives.

Table1:Percentage distribution of respondents by socio-economic characteristics

Socioeconomic characteristics	Percentage (n=70)	Mean
Sex		
Male	74.5	
Female	25. 5	
Age		
31-40	37.0	
41-50	45.6	45.1
>50	17.4	
Marital status		
Married	88.6	
Single	8.6	
Widowed	1.4	
Divorced	1.4	
Household size		
1 – 5	50	
6 – 10	48.5	5.4
>10	1.5	
Academic level		
No Formal Education	24.2	
Primary Education	48.6	
Secondary Education	18.6	
Tertiary Education	8.6	
Farming experience		
1 – 10	15.7	
11 – 20	41.3	
21 – 30	35.7	21.6
> 31	7.4	
Area of specialization		
Rice Production	4.3	
Rice Processing	8.6	
Rice Marketing	8.6	
Combination Of The Three	78.6	
Farm size (Hectares)		
2 -.3	77.1	2.8
> 4	22.9	
Extension visit		
Yes	62.9	
Extension contact in last 1 Year		
0 – 1	74.3	
2 – 3	25.7	1.0
Training In last 5 Years		
Yes	54.3	

Characterization of rice farmers' cooperative

Majority (81.4%) of the respondents belonged to multipurpose cooperative society. Only about 11%, 4% and 3% were engaged in rice production, marketing and processing cooperatives, respectively (Table 2). Most farmers belong to multipurpose cooperative, probably due to involvement of many farmers in all the commodity value chain. Above all, cooperative societies in Nigeria perform multipurpose functions ranging from production, processing, marketing, distribution and financing of agricultural products (Ibitoye, 2013).

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This affords farmers opportunity to access services, infrastructural facilities and explore capacity/empowerment opportunities. The composition of membership were between 21 and 30 persons (64.3%) and 10 to 20 persons (35.7%), while the mean membership size was 24 persons. Traditionally, membership of rural groups between 10 and 15 persons are commonly recommended. However, Onyeagocha (2008) stated that farmer's cooperative society Act does not specify the maximum number of members of any cooperative society. Majority (85.7%) of the cooperative society required that members must compulsorily be a rice farmer. About 79 % accepted membership from farmers in related fields, while 11.4%, 10% and 4.3% had no requirement, used age restriction and an indigene, respectively. On the contrary, Ambruster (2001) noted that in arrangement of farmers' cooperative society that there is open membership. Ideally membership of cooperative should be voluntary and restriction by certain requirements may discourage interested farmers.

Table 2 also shows that majority (91.4%) of the respondents indicated that the leadership structure was through election and only 4.3% each indicated that it was by appointment and selection, respectively. The result shows that leadership of rice farmers is democratic. This promotes cohesion, accountability and acceptance of leadership by members. The leadership composition included president (100%), secretary (97%), financial secretary (98.6%), treasurers (94.3%), welfare officer (44.3%), PRO (77.1%) and provost (27.1%). The size of the leadership is large, which might be as a result of high level of organizational expectation of members. Majority (97.1%) of the cooperatives sourced for fund from fine to defaulters, while 92.9% each were from sales of products and levy imposition on members, respectively. Also 71.4% and 8.6% relied on loan from banks/ government and launching, respectively. Relatively, members depend more on informal sources of fund for their activities than formal sources. This could be attributed to poor access to credit..

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Table 2: Percentage distribution of respondents according to characteristics of rice farmers cooperative

Variables	Percentage (%) n=70	Mean
Types of rice farmers		
Rice production	11.4	
Rice processing	2.9	
Rice marketing	4.3	
Multipurpose	81.4	
Membership size		
10 – 20	35.7	
21 – 30	64.3	24.4
Leadership structure		
Election	91.4	
Appointment	4.3	
Selection	4.3	
Leadership composition		
President	100	
Secretary	97.1	
Financial secretary	98.6	
Treasurer	94.3	
Welfare officer	44.3	
PRO	77.1	
Provost	27.1	
Source of fund		
Levy imposition	92.9	
Launching	8.6	
Loan from government/banks	71.4	
Sales of products	94.3	
Fine on defaulters	97.1	
Membership obligation		
Paying monthly dues	100	
Attending meeting	95.7	
Exchange of labour	52.9	
Abiding rules and regulations	71.4	
Requirement for membership		
No requirement	11.4	
Must be a farmer in the related field	78.6	
Age restriction used	10.0	
An indigene	4.3	
Compulsorily a rice farmer	85.7	

*multiple response

Linkage with organization

Table 3 shows that rice farmers' cooperative had strong linkage with ADP/MOA (M=2.6), credit institutions (M=3.9) and non-governmental organization (NGO) (M=3.0). On the other hand, linkages with research institute (M=1.5), universities (1.50), colleges of

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agriculture (M=1.90), agro allied firms (M=1.8) and private consultancy firms (M=1.5) were weak. This suggests poor linkage altitude and practice, which could imply limited interactive learning, communication and information flow with relevant organizations in the system. Weak linkage undermines the group capacity to provide services and training for her members. The strong linkages that existed with service organizations like ADP and credit institutions could be due to the prominent role played by these organisations in the provision of training and credit facilities. Also it could be due to popular use of group approach as key requirement for accessing supports from public, donors and non-governmental organizations. According to Afolami et al., (2012) this has influenced the design of many programmes of assistance to smallholders in Nigeria to the extent that donors and Non Governmental Organisations have often made group formation a prerequisite for accessing project resources.

Table 3: Mean score on linkage with organization

Organization	Mean	Standard deviation
Research Institute	1.5	.737
Universities	1.5	.814
Agricultural Development Programme/Ministry of Agriculture (ADP/MOA)	2.6	.843
Credit institutions	3.9	.347
Non governmental organization (NGO)	3.0	.843
Colleges of Agriculture	1.9	.899
Agro allied firm enterprises	1.8	.523
Private consultancy firms	1.5	.847

Challenges of rice farmers' cooperative

The respondents indicated that the major challenges encountered by the cooperatives were inadequate government support (M = 3.6), competition from private firms (M=3.7) poor institutional linkage (M=3.5) poor market infrastructure (M=3.3), poor funding (M= 3.2) unfavourable government policy (M=2.9) and poor commitment of members (M =2.5). The results align with Malthus (1999) that some of the problems facing cooperatives in Nigeria are shortage of skilled personnel, inadequate financing, excessive government control and lack of trust among members. Similarly, Ibitoye (2013) reports that the most serious problems of cooperative include inadequate capital accumulation (96%), government interference (86%) and unavailability of loan (74%). In other word, the formation, organization and performance of cooperative is a function of the policy environment, available fund, leadership and co-operation of members towards realization of common interest. Unfavourable and unstable government policy in the areas of input subsidy and importation is a disincentive to the operation and realization of the goal of rice farmers' cooperative . The minor challenges identified by the respondents were poor access to extension (M=2.4), poor technical skill/knowledge of rice production (M= 1.8), low literacy level of members (M= 2.1), poor adherence of members to constitution (M= 1.9) and others. Invariably, the challenges of cooperative revolve on poor institutional supports, lack of understanding of the principle and approaches of cooperatives. and inability of cooperative members to cope with the modern methods and tools of production.

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Table 4 : Mean distribution on challenges of rice farmers cooperative

Factors	Mean	Standard deviation
Poor member commitment	2.5	.772
Inadequate government support	3.6	.516
Poor funding	3.2	.819
Poor level/knowledge the concept of cooperative	1.7	.557
Dispersed settlement of farmers	1.2	.508
Poor access to extension services	2.4	.753
Poor institutional linkages	3.5	.697
Poor market infrastructure	3.3	.778
Bottleneck in relevant government institution	2.0	.551
Poor adherence of member to constitution/regulation	1.9	1.632
Seasonality of rice production	1.2	.916
Competition from private firms	3.7	.720
Low literate level of members	2.1	.617
Unfavourable government policy	2.9	.798
Mode of selection of beneficiaries	1.1	.555
Poor technical skill/knowledge rice production processing & marketing	1.8	.671
Poor maintenance of production implements	2.1	.804

Factors for enhancing performance of rice farmers' cooperative.

The results of factor analysis shows that the factors for enhancing performance of rice farmers' cooperative society were fund, institutional, training and development and leadership related- factors. (Table 5)

Fund -related factors: Fund- related factors were improved coordination of cooperative (-0.420), access to loan (0.550), empowerment for income diversification (-0.643), improved access to input supply (0.644) and provision of training on rice production, processing and marketing (0.904). This agrees with the recommendation of Ibitoye (2013) that due to low capital accumulated by cooperative members and subsequent small amount of loan disbursed to members, cooperative societies should be encouraged in the areas of increased supply of credit from financial institutions, purchase of more agricultural implements and farm inputs. By principle, cooperative societies are expected to provide goods and services to members for increased income and savings investment, improved productivity and bargaining power through maximum utilization of economies of scale, cost and risk sharing.. This essentially depends on the commitment and pooled resources particularly finance from members or external sources. Sadly, majority of the rice farmers cooperative members remain in the societies to gain benefit from government agricultural assistance (Eze, 2000). Members are hesitant to commit their resources to the cooperative movement, perhaps due to lack of trust on the

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leadership and poor orientation of cooperative group as instrument for accessing external and government support services. Moreover, most cooperatives lack access to formal credit assistance despite the implementation of several agricultural credit schemes in the country; and wide use of cooperative mechanism as a requisite for accessing support services from both government, external donor and non- governmental organizations. Therefore, supporting cooperative through adequate orientation, provision of credit is critical to improved performance and sustainability of rice farmers' cooperative.

Institutional factor: Institutional factors essential for enhancing the performance of rice farmers' cooperative were enhanced linkage/ interaction with relevant institution and among cooperatives (0.695), leasing out land to farmers' cooperative by government (0.730) and improved government support/ favorable policy (0.562). Generally, actors in the agricultural innovation system have poor linkage altitude and orientation. Consequently, innovations take place in isolation with little or no collaboration and synergy for efficient functioning of the whole system. In other words flow of information, ideas and interactive learning are forestall leading to poor novelty, dissemination and utilization of output at the productive sector. Hence, ability of rice farmers' cooperative to perform their roles is adversely affected when there is weak or absence of linkages with relevant institutions like ADPs, private sectors, agro-input and processing firms, credit institutions e.t.c. Also, poor linkages foster the formulation of poorly evidence –based policy which often are unfavourable to the productive sector. Nigeria has implemented several programmes and policy designed to favour domestic production of rice for example ban and high tariff on imported rice. But imported rice which is competitively of better quality and preferred by many Nigerians continues to infiltrate into homes, market and social occasions. Thus, addressing the issue of linkage in rice innovation system is an imperative for improved performance since the strength of linkage among actors determines the efficiency of the individual component and the integral components of rice innovation system. Besides, functional policy instrument and government supports with stringent measure against poor implementation targeted at provision of infrastructure/subsidized inputs, assistance for acquisition of modern harvesting and rice processing equipment for delivery of sufficient and high quality processed rice at competitive prices is indispensable for enhanced activities of cooperative and productivity in particular. In addition, government needs to review policy that informs the operations and activities of cooperative to encourage increase cooperative altitude/spirit among rice farmers.

Training and development : The factors loading under training and development include improved extension contact (0.806) and provision of training for members on cooperative education (0.781). Training and development of cooperative groups is as important as its mobilization and formation. Membership of cooperative groups often comprises persons who are either less informed or had misconception of the true meaning, principles, purpose and operations of cooperative society. Hence, the initial and sometimes the persistent difficulty in harnessing resources and required commitment of members; and subsequent extinction of many potentially viable groups. The most important reasons for cooperative failure in Nigeria according to Borgens (2001) are due to shortage of trained managers, lack of understanding of the principle and approaches of cooperatives and inability of cooperative member to cope with the modern methods and tools of production.

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Hence FMARD (20002) rightly recommends that the state cooperative movement should liaise with non- governmental organization operating within and outside states to reorient the members and organize adult education for them. Also provision of training for members in production, processing, marketing and possible strategies for income diversification, particularly at the wake of increasing challenges of climate variability and change is crucial for improved productivity and performance of cooperative.

Leadership : Leadership factors for improving performance of rice farmers cooperative in rice innovation system were provision of leadership training on management of cooperatives business (0.803) and improved market infrastructure (0.672). The bane of most cooperative groups in Nigeria and other developing countries is poor leadership. According to Onje, (2003) the problem of dishonesty among cooperative leaders is one of the factors retarding the growth of cooperative in Nigeria. Many community elites capture the opportunity to exploit the less educated and vulnerable members of rural areas. Ironically most trainings accessed focused on acquisition of technical skill to the neglect of cooperative management and organizational skill of leaders. Leadership of rice farmers' cooperative basically requires training on democratic operation of group, principle/management of cooperative, human relation and group dynamics. The level of functional and cooperative education possessed by the leadership as well as the quality of cooperative management greatly affect performance and sustainability of cooperative.

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Table 5: Rotated component analysis of factors for enhancing performance of rice farmers' cooperative

Factors	Fund	Institutional	Training and development	Leadership
Enhanced linkages/interaction with relevant institution and among cooperatives	-0.074	0.695*	0.224	-0.051
Leasing out land to farmers government by	0.244	-0.730*	0.103	0.242
Improved access to credit	0.614	-0.002	-0.506	-0.390
Improved extension contact	-0.126	0.380	0.806*	0.153
Improved coordination of cooperatives	-0.420*	-0.270	-0.075	0.377
Giving loan to farmer by government	0.550*	-0.241	-0.146	-0.005
Provision of leadership training on management of cooperative buz	0.213	-0.202	0.040	0.803*
Provision of income diversification opportunities	-0.643*	0.285	0.057	-0.117
Improved market infrastructure	0.243	0.270	-0.045	0.672*
Provision of training for members cooperative education	0.134	-0.280	0.787*	-0.222
Improved government support favourable policy	0.139	0.562*	-0.110	0.242
Provision of training on rice production, processing and marketing	0.904*	0.104	-0.027	0.082
Improved access to input supply	0.644*	0.044	0.191	-0.141

Conclusion

Rice farmers cooperative are dominated by male farmers of productive age and considerable years of farming experience in rice production. Multipurpose cooperative societies are more popular with certain restrictions for membership. Structurally, rice farmers' cooperative has adequate leadership and are democratically organized. However, they are poorly linked to relevant institutions in the rice innovation system. Above all, the activities of rice farmers' cooperative are constrained by poor funding, institutional linkages, market infrastructure, unfavourable policy and lack of government support. Hence, access to sustainable fund, strong and effective institutional linkage and policy support, adequate training and leadership orientation are expedient for enhanced performance of rice farmers' cooperative. The study therefore, recommends public and non-governmental extension organizations should orientate and train rice farmers' cooperative on basic principle, management, leadership and operation of cooperative society. Government should stimulate and encourage interaction and linkage actors in rice innovation system through policy and financial support.

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