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Extent of opportunities in rice cultivation practices at Lohit district of Arunachal Pradesh

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ABSTRACT

A Study was conducted in Sunpura block, Lohit district of Arunachal Pradesh with objective of studying the relationship between the selected socio-personal characteristics and extent of opportunities during rice cultivation by the rice growers with sample size of 150 respondents.The extent of opportunities in rice cultivation is any kind of benefit or facility provided to rice growers directly or indirectly by Government or Non-Governmental Organization but not the benefits from natural sources. The study revealed that 60 per cent of rice growers were fall under the medium category, 22 per cent low and 18 per cent high category, which implies that the average rice growers agree on availability of opportunities of rice cultivation. The possible reason might be that majority of farmers can read and write so they get information on new technology through mass media and also because of their high social participation. Further, Stepwise Regression analysis showed that all the selected independent variables put together explained about 54.20 percent of variation in extent of opportunities during rice cultivation among the rice growers coming from the variables like mass media exposure, sources of information and attitude towards pesticide used, were positively and significantly associated with extent of opportunities among the rice growers of Lohit district of Arunachal Pradesh.

Key words: Extent of opportunities, Rice growers, Step wise regression analysis.

INTRODUCTION

Agricultural sector provides livelihoods for more than 50 per cent of the population in India and it contributes 18 per cent to the country's GDP (India Economic Survey-2017-18). It plays an important role in economic development of the country. Rice is the most important and extensively grown crop in India and it is staple food for more than half of the population. Among the Indian states Arunachal Pradesh is one of the agrarian states where more than 70 per cent of the population depends on agriculture for their livelihood. Therefore, agriculture continues to be central to all strategies for planned socio-economic development of the state. Rapid growth of Agriculture is essential to achieve self-reliance and also to ensure household food security and to bring about equity in distribution of wealth and income resulting in rapid reduction in poverty levels (Department of Agriculture, Government of Arunachal Pradesh). Besides technology advancement in state, schemes released by central government for the state such as soil health card, Pradhan Mantri Krishi Sinchai Yojana, Pradhan Mantri Fasal Bima Yojana, National Mission on Sustainable Agriculture, Rastriya Krishi Vikas Yojana and National Food Security Mission, and schemes released by state government such as Chief Ministers Agriculture Farm Mechanization Programme, State Food security Mission and State Agriculture Research and Extension Programme plays great role in agricultural development. Whereas opportunity is defined as a favorable time or situation for doing something (oxford dictionary). Thus opportunity for the farmers can be said as a chance for advancement, progress or profit or a favorable circumstance avail to increase their income by using advance agricultural technology. Opportunities like benefit or facility directly or indirectly obtained from the government services and Non-Governmental Organizations (NGO) but not the benefit from natural sources. Indian government carries out domestic price support, procurement, and the distribution program in rice. It also provides subsidies provision through implementation of several policies to boost rice production, Subsidies on agricultural inputs to keep farm low cost and increase production. Different loan opportunities are made available to the farmers where farmers can draw cash loans for crop as well as for domestic needs, within the sanctioned limit.

However, it is observed that recommended rice production technology is not adopted by the farmers due to some technological, economical and psychological constraints which lead to low productivity of the crop. In this context, the primary objective of this paper is to quantify the level and spread of subsidies, inputs and other opportunities provided to rice growers by Central

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Government, State Government and Non-Governmental Organizations (NGOs) in Lohit District of Arunachal Pradesh, India. A wide variation exists in distribution of the inputs across the blocks in Lohit district. it is important to study the extent of opportunities made available to the rice grower.

MATERIALS AND METHODS

The present study was carried out in Lohit district of Arunachal Pradesh, which was purposively selected. The district is divided into two blocks: Sunpura and Tezu. Sunpura block was selected randomly for the present study because it is one of the rice growing district around 70-80 per cent of population are rice cultivators and dependent on rice for their living. Three gram sabha were selected namely; Yealiang Gram Sabha, HatiDuba Gram Sabha, and Chailiang Gram Sabha. Under each Gram Sabha segment 1(ward) and segment 2 (ward) was selected. Different number of household was selected from each segment (ward) through stratified proportional random sampling method, 54 and 31 number of household from segment-1 and segment-2 respectively from Yealiang Gram Sabha. Also 7 and 19 number of household from segment-1 and segment-2 respectively from HatiDuba Gram Sabha and 24 and 15 number of household from segment-1 and segment-2 respectively from Chailiang Gram Sabha. In this way 150 farmers were selected, which form the sample of the study.

Ex-post facto research design was employed for conducting the study. The data were collected by using a well-structured and pre-tested interview schedule. The extent of opportunities for rice cultivation practices of farmers were determined by summing up the scores from schedule developed. The Schedule consists of 17 statements. The statements were rated in 3 point response categories as Always, Sometimes and Never with the score 3, 2 and 1 respectively. The score ranged from 17 to 59. On the basis of their scores, the farmers were categorized under low, medium and high group. The information regarding the extent of opportunities in rice cultivation were gathered scored, quantified, categorised, tabulated and arranged using statistical methods like mean, median, standard deviation, correlation and stepwise regression.

RESULTS AND DISCUSSION

• **Extent of opportunities in rice cultivation practices:** 50 per cent of rice farmers responded that they are well aware of Krishi Vigyan Kendra (KVK) functions and they also took part in training program organized by KVK. The possible reason might be due to the majority of respondents were literate and take active part gaining more knowledge and the trainings conducted by KVK is able to bring about significant socio-economic status and level of knowledge among the trainee. This finding was more or less similar to that of Shankara *et al*.,(2014) and Dubey *et al*., (2008).

The study also found that 45 per cent of farmers are aware of ATMA activities. The possible reason might be due to small loan provided to poor and marginal farmers to encourage them to increase agriculture production, especially to women farmers as shown in Table 1. This finding was more or less similar with Singh and Singh (2014).

Table 1 reveals that majority of farmers (37%) responded in the 'Sometime' category. The possible reason might be, not all the farmers were provided with tractor or power tiller. Since the machine are given as assistance not as subsidies i.e. Chief Minister will provide 40 per cent of the cost and rest 60 per cent of cost has to be borne by farmer himself.

Table 1: Extent of opportunities in rice cultivation practices.

Opportunity	Always (%)	Sometimes (%)	Never (%)	Mean score	Mean	Rank
Krishi Vigyan Kendra	50	39	11	358	2.38	**III**
Agricultural Technology Management Agency	45.	37	18	341	2.27	**V**
Chief Minister Farm Mechanization	37	48	15	333	2.22	VI
State Agriculture research and extension programme	25	18	57	251	1.67	XV
National Food Security Mission	27	44	29	297	1.93	X
State Food Security Mission	23	28	49	261	1.74	XIV
Kishan Credit Centre	64	15	21	366	2.44	**I**
Stree Shakti tractor loan	24	36	40	276	1.84	XIII
Pradhan Mantri Mudra Yojana	24	44	33	285	1.90	XI
Attendance in training programme for the last 5 years.	45	30	25	329	2.19	VIII
Attendance in farmer's exhibition for the last 5 years.	55	29	16	360	2.40	**II**
Attendance in farmer's field day tour in last 5 years.	23	14	63	241	1.60	XVI
Receiving farm literature from agricultural department.	39	33	28	318	2.12	IX
Contact with extension personnel through farm and home visit in last 5 years.	47	25	28	330	2.20	VII
Getting facilities from Kisan Call Centre in last five years.	29	28	43	278	1.85	XII
Mobile clinic facility in last five years.	17	8	75	212	1.41	XVII
Access to telephonic / mobile talk facility for farm practices in last 5 years.	51	26	23	342	2.28	**IV**

As found in the Table 1 that 57 per cent of respondents were unaware of state agriculture and extension program. The possible reason might be that the institute is located in capital of state. And few respondents were aware of it due to their active participation agricultural program held in the Sunpura block.

Majority (44%) of the respondents have responded in the category 'Sometime' as found in the Table 1. The possible reason might be that the fund provide by NSFM is in district headquarter and then it is provided in different blocks of district which leads to less people to obtain the benefit provided such as rice variety.

It is found in Table 1, that 49 per cent of respondents were not aware and 50.67 per cent were aware of benefit provided by State Food Security Mission. The possible reason might be that some of the schemes like Chief Minister Farm mechanization and NFSM fall under SFSM. As mentioned before not all the farmers could be the beneficiaries in Chief Minister Farm Mechanization.

Majority of farmers (64%) were aware of Kisan Credit Card (KCC) loan, as found in Table 1. Many respondents have applied KCC loan from SBI branch of Lohit district. The possible reason might be that their income was low which is not enough to take up new technology available and to increase their production and the scheme has full of good thoughts, it not only made availability of credit easier but also made simple to get and operate. This finding was more or less similar to Dhanabhakyam and Malarvizhi (2012).

As found in Table 1, that 40 per cent of respondents were unaware of Stree Shakti Loan. The possible reason might be that to obtain this loan the eligibility required is minimum net annual income of 1.50 lacs whereas majority of farmer's income was below 80'000 rupees.

It is found in Table 1, that 44 per cent of respondents were well aware of Pradhan mantra Mudra Yojana. The possible reason might be due to the main motto of the scheme i.e. 'fund the unfunded'. The scheme does not have any eligibility requirement as Stree Shakti Tractor Loan.

As found in Table 1, that majority (45%) of respondents agreed that they have attended the training program conducted at least once in the last 5 years. It may be due to their interest in learning more on rice production technology, increase their production and farm income.

Majority (55%) of respondents agreed that they have attended farmer's fair exhibition once or more than once in last 5 years as found in Table 1. The possible reason might be that due to less fund availability in organizing farmers fair, it is combined with other exhibition carried out on Independence Day, Republic day and Statehood day where farmers make sure to attend the program.

As found in Table 1, that 63 per cent of respondents fell under the category 'Never'. The possible reason might be that most of the training programs were organized without the Farmers Field Day Tour.

It is found in Table1, that 39 per cent of respondents have agreed on getting farm literature at least once in last 5 years. The possible reason might be that majority of farmers have attended training program which provide farm literature like Leaflets and bulletins.

Table 1, reveals that majority (47%) of respondents contact Extension Personels (Village Level Extension Worker) through farm and home visit more than once in last 5 years. The possible reason might be that Extension Personel stay in the same area where farmers reside and it also easy to communicate in local language removing the language barrier.

Table 1 reveals that only 29 per cent of farmers have dialed Kisan Call Centre at least once in last 5 years. The possible reason might be that every farmers has own mobile and Kisan Call Centre has a toll free number which enables farmers to easy access but because of language barrier less rice growers of Sunpura block in Lohit district of Arunachal Pradesh make less use of facility provided by Kisan Call Centre. This finding was more of less similar to that of Das (2016).

Table 2: Distribution of respondents based on their overall extent of opportunities in rice cultivation practices scores.

	Respondents	
Category	**Frequency**	**Percentage**
Low	33	22
Medium	90	60
High	27	18
Total	**150**	**100**

Table 3: Association(coefficient of correlation) between extent of opportunities of rice cultivation practices and independent variables.

Variables	Characteristics	Correlation coefficient (r)
1	Age	-0.129
2	Land holding	0.320 **
3	Annual income	-0.086
4	Education	0.457 **
5	Extension contact	0.435 **
6	Mass media exposure	0.559 **
7	Adoption of rice production	0.306 **
8	Attitude towards improved agricultural technology	0.513 **
9	Sources of information	0.703 **
10	Social participation	0.532 **
11	Attitude towards pesticides used	0.458 **

**correlation is significant at the 0.01 level of probability
*correlation is significant at 0.05 level of probability

Table 4: Stepwise Regression analysis of independent variables with extent of opportunities in rice cultivation practices.

Sl. No.	Characteristics	Beta	Regression Co-efficient	Standard error	't' value
X_6	Mass media exposure	0.485	0.209	0.159	3.053**
X_9	Source of information	1.146	0.527	0.150	7.655**
X_{11}	Attitude towards pesticide used	0.260	0.140	0.118	2.196*
			R^2= 0.542	F= 59.78	

**Significant at 0.01 level of probability
*Significant at 0.05 level of probability

It is found in Table 1, that 75 per cent of respondents negatively on mobile clinic facility. This might be due to lack of time and poor transportation facility which led to poor establishment of mobile clinic facility.

Table 1 reveals that 51 per cent of respondents have shown positive response on mobile talk facility available for farm practices. The possible reason might be because all the respondents have mobile which helps them contact extension personel easily, this also saves time and money of farmers.

• **Overall extent of opportunities in rice cultivation practices:** Table 2 reveals that majority (60%) fell under medium category which implies that average farmers agreed on availability of opportunities of rice cultivation, followed by low (22%) and high (18%) category. The possible reason might be that majority of farmers were literate who could read and write, contact with other source of information to gain knowledge on new technology available.

• **Coefficient of correlation between extent of opportunities of rice cultivation practices(y) and selected independent variables (x_1....x_n):** There exist highest significant association between sources of information and extent of opportunities in rice cultivation of rice growers. The findings of the analysis are presented in the Table 3. It is logically true that higher the source of information, greater is the extent of opportunities in rice cultivation practices since they will have more knowledge and be aware of new benefits available for rice growers. This finding more or less agreed with the study done by Kacharo (2007).

Mass media exposure was found to have highly significant association with extent of opportunities in rice cultivation among the rice growers of Lohit district of Arunachal Pradesh. It is likely that mass media carry information on different extent of opportunities for rice growers that were launched and sponsored by Government of India, state govt. and Non-Government Organization. Respondents get detail information on latest technology operation method, their benefits and cost involved.

There exist highly significant between social participation and the extent of opportunities in rice cultivation among rice growers. It may be due to the fact that rice growers who participate in more training programs and social gathering will have higher knowledge on different available opportunities on rice cultivation and latest technology available. This finding was found more or less similar with the study of Baba *et al*. (2010).

• **Stepwise Regression analysis: opportunities in rice cultivation practices and set of causal /funtionalvariables:** All the eleven independent variables along with the dependent variable i.e. 'Extent of opportunities in rice cultivation practices' were further taken into account for regression analysis through stepwise regression method. The findings of the analysis are presented in the Table 4. Among the eleven independent variables fitted in the regression analysis, it was found that three variables namely mass media exposure, source of information and attitude towards pesticide used were significant at 0.01, 0.01 and 0.05 level respectively to the prediction of extent of opportunities in rice cultivation practices. These three variables may be termed as the good predictors of participation. Sources of information and Mass media exposure emerged as the most significant characteristics with the beta value (b) of 1.146 and 0.485 respectively, followed by Attitude towards pesticide used (b=0.260). The R^2 value being 0.542, it could be suggested that all the eleven independent variables contributed towards 54 per cent towards the variation in the participation of rice cultivation practices. The F value (59.78) was also found to be significant at 0.01 level of probability.

CONCLUSION

The result of this study shows that 60 per cent of the respondents were well aware of the extent of opportunities available for the rice farmers in Sunpura block of Lohit district of Arunachal Pradesh. It was also observed that the government assistance was mistaken as subsidies which has been perceived as inputs and farm machinery will be provided free of cost whereas due to low annual income, many farmers could not obtain the assistance provided by Government agencies and State agencies. Therefore, there is a need to form at least one farmer's organization in a village that would benefit the farmers by obtaining assistance provided by Central Government, State Government and NGOs. This farmer's organization should monitor and maintain the farm equipments and provide farmers when in need. The existing policies concentrate on generating awareness on latest technologies and benefit provided by Government and NGOs. To increase the innovation capacity

of farmers policies are needed to increase their exposure to not only technical but scientific know-how of rice cultivation through continuous trainings and workshops which will make them implement the principles according to their own sufficiency. It was found that there is only one Village level extension workers (VLEWs) present in each block as an extension worker, there is a need of two or more number of village level extension worker in a village to increase dissemination of innovation and increase number of adopters in rice cultivation practices. Since the VLEWs are working at the village level, attention should be paid to increase their competence by giving more training in rice cultivation practices and increase skill in operating latest available technology. There is also need to identify the varying problems faced by the farmers in obtaining different extent of opportunities in rice cultivation practices made available by Government agencies and NGOs and more research in the remote areas should be encourage as it can assist the Government officials or NGOs in making sound decision while implementing any new programmes.

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