Adoption of Improved Paddy Cultivation Practices by Farmers in Kohima District of Nagaland

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Abstract:

The present study entitled "ADOPTION OF IMPROVED PADDY CULTIVATION BY FARMERS IN KOHIMA DISTRICT OF NAGALAND" was conducted in Kohima district of Nagaland to find out the extent of adoption of improved paddy cultivation practices One hundred twenty farmers were selected from 6 villages, twenty respondents from each village. Data was collected by using pre-tested schedule and analyzed using appropriate statistical tools. It was found that majority of respondents were having medium level of socio-economic profile. On analyzing the knowledge level, highest number of respondents i.e. 51.6 per cent were having medium level of knowledge followed by 45 per cent having high and 3.33 per cent having low levels. In case of adoption level it was found that most of the respondents 60.83 per cent have medium adoption level followed by 5 per cent having low, 34.16 per cent having high level. The major constraints faced were lack of technical knowledge among rice growers, lack of credit facility at the time, Lack of Hybrid seed, Lack of proper market facilities, Lack of training programme related with improved practices, Lack of proper information at, Unavailability of electricity, Lack of proper resource and capital, Non-performance of visit by agricultural personnel and Costly critical inputs (seed and fertilizer).

Keywords: Socio economic, adoption, paddy growers

Introduction:

Rice (Oryza sativa L.) is a plant belonging to the family of grasses, Graminae. There are three major food crops (wheat, rice, maize) of world and rice is one of the foremost cereal crops feeding over more than half of the world's population. It is grown in more than a hundred countries, with a total cultivated area of about 156 m. ha, producing more than 680 mt grains annually. About 90 per cent of the rice in the world is grown in Asia. Rice provides 27 per cent of dietary energy supply and 20 per cent of dietary protein intake in the developing world.

Rice is staple food of Nagaland with about 86 per cent of the cultivable area in the state under jhum and terrace rice cultivation systems. Traditional rice varieties are grown in altitude ranging from 300 to 2500 metres. But of late, farmers are shifting to cash crops putting cereal production under stress. High intensity farming of rice and pulses, promoted under several schemes, has not been sustainable.

Climate change has added a new stress factor. In the last 100 years, Nagaland has experienced increase in average annual temperature from 1.4 degree to 1.6 degree. "The projected increase in average annual temperature is 1.6 degree to 1.8 degree between 2021 and 2050," pointed out Dellirose M Sakhrie, secretary of the state Department of Science and Technology. The rainfall is also expected to increase in intensity by 20 per cent. The number of extremely dry and wet days will increase during 2021-2050**. (Nagaland post)**

Research Method:

Descriptive research design was used for the present study. Descriptive research design describes the characteristics of the population or phenomenon that is being studied. It focuses more on the "what" of the research subject rather than the "why" of the research subject. The major purpose of descriptive research is description of the state of affairs as it exists at present. Primary data was collected through personal interview with the help of pre-tested interview schedule. Secondary data was collected from available reports, journals etc. Kohima District of the state Nagaland state were selected purposively for the present study because the researcher are conversant with the language, geography, agriculture and other aspect of the area. Out of 7 blocks, one block namely Kohima was selected purposively for the present study because

adequate number of farmers were involved in improved paddy cultivation. Among these total villages of the district, 6 villages will be selected randomly for the present study. From each selected village a list of farmers cultivating of paddy was prepared. And 120 paddy farmers were selected randomly for the present study.

Objectives of the study:

1. To access the socio-economic status of the respondents.
2. To find out the extent of adoption of improved paddy cultivation practices by the respondents

Results and Discussion:

Table 1. Socio-economic profile of the respondents.

S.no	Independent Variables	Category	Frequency	Percentage
1.	Age	**Young (20-30)**	**23**	**19.17**
		Middle Age (31-50)	**57**	**47.50**
		Old (Above 50)	**40**	**33.33**
2.	Education	**Illiterate**	**29**	**24.17**
		Primary	**22**	**18.33**
		Secondary School	**14**	**11.67**
		Intermediate	**27**	**22.50**
		High School	**17**	**14.16**
		Graduate	**9**	**7.50**
		Post Graduate	**2**	**1.67**
3.	Type of family	**Nuclear Family**	**77**	**64.16**
		Joint Family	**43**	**35.84**
4.	Size of family	**Small (less than 5 members)**	**70**	**58.33**
		Large (More than 6 members)	**50**	**41.67**

5.	Type of house	Hut		30	25.00
		Cemented		47	39.17
		Semi-cemented		43	35.83
6.	Occupation	Agriculture		61	50.83
		Agriculture + business		39	32.50
		Agriculture + other		20	16.67
7.	Annual Income	Low(30,000-50,000)		51	42.50
		Medium(51,000-70,000)		43	35.83
		High(70,000-90,000)		26	21.67
8.	Total Land Holdings	Marginal (2.5)		57	47.50
		Small (2.51-5)		33	27.50
		Medium (5-10)		24	20.00
		High (above 10)		17	14.17
9.	Farming experience	Below 10 years		26	21.67
		10-20 years		41	34.17
		Above 20 years		53	44.16
10.	Extension contact	Low		75	62.50
		Medium		24	20.00
		High		21	17.50
11.	Mass media exposure	Radio	Daily	4	3.33
			Occasionally	20	16.66
			Never	96	80.00
		Television	Daily	37	30.84
			Occasionally	35	29.17
			Never	48	40.00
		Newspaper	Daily	12	10.00
			Occasionally	49	40.84
			Never	59	49.17

		Mobile	**Daily**	**93**	**77.5**
			Occasionally	**10**	**8.30**
			Never	**17**	**14.17**
		Computer/internet	**Daily**	**2**	**1.60**
			Occasionally	**37**	**30.80**
			Never	**81**	**67.60**
		Magazines/Journals	**Daily**	**0**	**0**
			Occasionally	**5**	**4.10**
			Never	**115**	**95.90**
13.	Sources of information	**Progressive Farmers**	**Frequently**	**80**	**66.67**
			Sometimes	**25**	**20.84**
			Rarely	**15**	**12.50**
		Neighbours	**Frequently**	**35**	**29.17**
			Sometimes	**65**	**54.17**
			Rarely	**20**	**16.67**
		Relatives	**Frequently**	**15**	**12.50**
			Sometimes	**77**	**64.17**
			Rarely	**28**	**23.34**
		Friends	**Frequently**	**67**	**55.84**
			Sometimes	**47**	**39.17**
			Rarely	**6**	**5.00**

From Table 1, it is found that majority of the respondents belong to middle age group. Majority of the respondents were Illiterate, majority of the families were nuclear families and majority had about 5 family members.

Majority of the respondents have cemented house. Majority of the respondents earn their income only through farming. Most of the respondents were having low level of income. Majority had low land holdings and majority had farming experience above 20 years. Maximum number of the respondents were having low level of extension contact.

Majority of the respondents never use the radio, majority never use the television, majority never read the newspaper, and majority use mobile phone on a daily basis. It was found that majority never use the computer and never read journals or magazines.

It was also found that majority of the respondents get their source of information from frequent interaction with the progressive farmers, majority frequently interact with their neighbours, majority sometimes interact with their relatives and majority of the respondents frequently interact with their friends.

Table 2. Distribution of the adoption level of the respondents about recommended paddy cultivation practices:

S. No.	Statements	Adoption		
		Fully adoption F. %	**Partially adoption F.%**	**Not adoption F.%**
1.	Recommended varieties of paddy for cultivation	92 (76.66)	28 (23.33)	0 -
2.	Nursery sowing time	34 (28.33)	82 (68.33)	4 (3.33)
3.	Sowing time	40 (33.34)	75 (62.5)	5 (4.16)
4.	Seed rate	38 (31.66)	68 (56.66)	14 (11.66)
5.	Seed treatment	64 (53.33)	48 (40)	8 (6.66)

6.	Field preparation	88 (73.33)	32 (26.66)	0 -
7.	Method of sowing	73 (60.83)	40 (33.33)	7 (5.83)
8.	Recommended quantity of FYM to be applied area	30 (25)	84 (70)	6 (5)
9.	Spacing Row to row Plant to plant	33 (27.5)	82 (68.33)	5 (4.16)
10.	Fertilizer per acre	40 (33.33)	65 (54.16)	15 (12.5)
11.	Inter cultivation	35 (29.16)	70 (58.33)	15 (12.5)
12.	Irrigation and irrigation method	94 (78.33)	26 (21.66)	0 -
13.	Weed management	33 (27.5)	77 (64.16)	10 (8.33)
14.	Pest control	30 (25)	81 (67.5)	9 (7.5)
15.	Disease control	41 (34.16)	70 (58.33)	9 (7.5)
16.	Yield per ha.	38 (31.66)	77 (64.16)	5 (4.16)

The data compiled in table 2 showed the adoption behaviour of respondents according to adoption level of recommended package of paddy recommended practices identifies for paddy production and these are categorized into low, medium and high adoption categories.

Table 3. Distribution of the respondents according to their level of adoption:

S.N.	Category	Frequency	Percentage
1.	Low(<7.67)	6	5
2.	**Medium(7.67-21.76)**	**73**	**60.83**
3.	High(21.76)	41	34.16
	Total	120	100.00

From the above table 3, showed that most of the respondents 60.83 per cent medium adopted the cultivation practices followed by 5 per cent of respondents belonged to low Adopted category whereas 34.16 per cent fell in high adopted category.

Similar findings were also reported by **Sadanshiv, K.S. (2015)** and **Ravishankar, H.S. (2010)**

Relationship between socio-economic Characteristics and adoption behaviour of paddy farmers:

Sl. No.	Characteristics	"r" value
1.	Age	0.761NS
2	Gender	0.091**

3	Marital status	0.785NS
4	Family type	0.433NS
5.	Education	0.025*
6	Occupation	0.281*
7	Family size	0.597*
8	Land holding	0.061**
9	Annual income	0.179NS
10	Extension Participation	0.025*
11	Social participation	0.036*

* = Significant at p = 0.05, NS= Non Significant, **= Significant at 10%

The result of correlation analysis in above table 4.16 revealed that characteristics namely Education (0.295*), family size (0.597*), occupation (0.281*) participation in extension activities (0.025*) and social participation (0.036*) were positively significant at 5 per cent related to extent of adoption about paddy farmers respectively.

Thus, it can be concluded that all above characteristics of the respondents were found to be positively significant with extent of adoption of paddy, indicating that higher in frequency of socio-economic characteristics of the respondents results higher extent of adoption about paddy.

The characteristics namely gender (0.091**) and land holding (0.061**) were significant at 10% related to extent of adoption about paddy farmers

The socio-economic characteristics namely Age (0.761NS) marital status (0.785N.S), family type (0.433NS) and annual income (0.179NS) were found to positive but non-significant related to extent of adoption of the respondents respectively.

Thus, it can be concluded that all above mentioned characteristics of the respondents were found to positive but non-significant with extent of adoption, indicating that higher in frequency of socio-economic profile of respondents result higher the extent of adoption of respondents but non-significant..

Conclusion:

It was concluded that the majority of respondent's socio-economic status was medium level.

- It was found that (47.50 %) of the respondents belonged to the middle age group.
- Majority (56.66 %) of the respondents were Christian Religion.
- Majority (58.33 %) of the respondents were schedule tribes caste.
- It was found that (24.17%) of the respondents were illiterate.
- Majority (58.33%) of the respondents belonged to the family size.
- It was found that (50.84 %) of the respondents were cemented type of house.
- Majority (64.16 %) of the respondents were nuclear type of family.
- It was found that (50.83%) of the respondents were engaged in agriculture as main occupation.
- It was found that (42.5%) of the respondents were having low (30000-50000) annual income.
- Maximum number of the respondents 47.50% had marginal size of land holding (less than 2.5 ha.)
- It was found that (44.16%) of the respondents had high (above 20 year) farming experience.
- Majority (70 %) of the respondents were having low social participation.
- Majority (62.50%) of the respondents were having low level of extension participation.

Majority of the respondents had medium level of adoption about recommended production practices of Rice growers. In respect of the correlation analysis, the variables like Age, Marital status, Annual income and family type were found to have non-significant relationship with adoption, whereas the variables like education, occupation, size of family, social participation and extension contact were found to be positive and significantly correlated with adoption at 0.05 per cent level of significance. Whereas land holding and gender were found to be significantly correlated with adoption at 10% level of significance.

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