



Socio-Economic and Psychological Profile of KVK Adopted Farmers of West Garo Hills District on Improved Rice Cultivation Practices and their Constraints and Suggestive Measures

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ABSTRACT

The study on socio-economic and psychological profile of the KVK adopted farmers of improved rice cultivation practices was conducted in West Garo Hills district of Meghalaya with 120 sample size from the adopted villages. Data collection from the selected respondents was made with the help of pre-tested structured schedule through personal interview method. The study reveals that majority of the respondents in adopted villages belonged to middle age category and medium level of education, nuclear family type and medium size of family with medium level of social participation. They engaged farming as primary occupation and had operational land holding size upto 1 hectare with income level ranging from Rs. 25,900.00-Rs. 1,65,067.00. Most of the beneficiary farmers had farming experience of 18-38 years, received medium level of trainings, financial credit facility from government sources. The beneficiary had medium level of economic motivation, information seeking behaviour, decision making ability, innovation proneness and attitude towards KVK with high level of market orientation and risk orientation. The study further indicates that among the various problems identified by the respondents, inadequate availability of quality seed at proper time was highlighted as the major problem by the rice cultivators.

1. Introduction

Agriculture sector comprising of crops and livestock enterprises has been playing a vital role in reducing rural as well as aggregate poverty, socio-economic advancement and sustainable economic development in the country through the gradual improvement of rural economy. Over 58% of the rural households in the country depend on agriculture as their principal means of livelihood. Agriculture, along with fisheries and other livestock sectors, is one of the largest contributors to the GDP. As per estimates by the Central

Statistics Office (CSO), the share of agriculture and allied sectors (including agriculture, livestock, forestry and fishery) was 16.1% of the Gross Value Added (GVA) during 2014-15 at 2011-12 prices and the gross capital formation in agriculture, which was 18.3% of agri-GDP in 2012-13 has fallen to 14.8% in 2014-15 (Economic Survey, 2015). In North East Region, agriculture along with its allied sectors such as animal husbandry and fisheries is the largest sector of the rural economy and is the main source of livelihood and income security of the rural population. Agriculture provides livelihood support to 70% of region's population in the region which produces only 1.5% of country's food grain production and continues to be a net importer of food grains even for its own consumption. Agricultural land including fallow in the

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region is 22.20% (varying between 37.43% in Assam and 4.40% in Arunachal) as against 54.47% in India. Cultivators (41.61%) and agricultural labourers (13.07%) together constitute the majority of the workforce as against 31.65% and 26.55% respectively in India. Land distribution is mostly egalitarian rooted in the principle of community way of living and sharing. However, the area available under cultivable land for agriculture in the region also continues to decrease due to the rapid economic development, which occupies more agricultural land mainly for housing, business and industrial purposes. The region suffers from weaknesses such as subsistence agriculture with poor infrastructure like roads and markets. The high vulnerability to natural calamities like floods, submergence, landslides, soil erosion, *etc.* has resulted in low and uncertain agricultural productivity. The low utilization of modern inputs in agriculture has further reduced the ability of the farm households to cope with high risks in production and income. Past studies recognise that unique socio-economic, personal and psychological characteristics of the farmers have significant influences towards adoption of any agricultural technology in different farming systems. Their key environmental and socio-economic factors have significant influence towards adoption and diffusion of agriculture technologies (Lestrelin *et al.*, 2012).

The socio-economic characteristics of farmers and farm are important for better policy options (Tani Net 2nd Report, 2000). Generally the socioeconomic approach focuses on identifying the adaptive capacity of individuals or communities based on their internal characteristics such as, education, gender, wealth, health status, access to credit, access to information and technology, formal and informal (social) capital, political power, and so on (Alam *et al.*, 2010). Variations of these factors are responsible for the variations in socio-economic characteristics of farmers. It influences the accessibility to the resources, livelihood pattern, food and nutritional security *etc.* (Roy *et al.*, 2013). Any farming or non-farming activity is interdependent with the socio-economic status of the individual and it could be considered both the cause and effect of farming (Kumar *et al.*, 2007). Therefore, understanding of the socio-economic and personality traits of the farmers who are engaging improved practices of both crops and livestock enterprises and their problems in meaningful adoption of the practices in their farming systems will certainly help in accelerating the process of effective transfer of technology as because it largely affects the adoption process.

Hence, it was felt imperative to study the socio-economic and psychological status of the farmers in the region in order to have a holistic approach for the agricultural development of the villages, ultimately leading to the socio-economic development of the farming community in the region.

Location of the study: West Garo Hills district was purposively selected for the study. Six adopted villages were selected purposively from two blocks having the maximum number of trained farmers under KVK West Garo Hills, Meghalaya.

Selection of farmer respondents: A complete list of trainee farmers who had participated in at least five training programmes conducted by Krishi Vigyan Kendra, West Garo Hills, was prepared in consultation with the staff of the KVK. Selection of trainees from each selected and adopted villages was done proportionately. From each selected village, respondents were selected proportionately, thus constituted 120 as the final size of the sample.

Data base and methodology: The study was conducted in West Garo Hills district of Meghalaya during the year 2016-17 by the researchers as part of the M. Sc. (Agril. Extension) degree programme under College of Post-Graduate Studies of Central Agricultural University, Imphal, Umiam, Meghalaya. The selected respondents were personally approached and interviewed at their place of residence/ field by the investigators along and their responses were carefully recorded in the schedule. The independent variables such as Age, Education, Family Size, Family type, Social participation were measured with the help of scales developed by Trivedi and Pareek (1964), structured schedule and social participation scale developed by Sulthana (2001) with slight modification. The socio-economic variables size of operational land holding, annual income of family, credit facility, farming experience and training received were measured with the help of schedules structured for the purpose. The psychological variables namely; economic motivation, market orientation, information seeking behavior, decision making ability, risk orientation and innovation proneness were measured with the scales developed by Singha (1991), Samantha (1997) followed by Moulasab (2004), Singha (2000), Singha (1991), Gajendra (2012) and Parvathamma (2012) respectively. To measure the attitude towards KVK procedure followed by Dubey *et al.* (2008) was used. Simple statistical tools like frequency, percentage, mean and standard deviation were used for analysis and interpretation of data. The respondents were divided into low, medium and high categories on the basis of mean and standard deviation as adopted by Dasgupta (1989).

2. Results and Discussion

A. Personal characteristics

Age: It is noticed that, 52.50 per cent of trained farmers belonged to the middle age group ranging from 36-50 years, followed by old age (42.50%) with age from 51-72 years and young age group (5.00%) with age from 27-35 years. This indicates that middle and old age farmers preferred more than young farmers in rice farming activities. The youth in general were interested in government jobs, business and other occupation compared to farming activities. The findings are in conformity with that of studies conducted by Shashidhara (2006) and Mangala (2008).

Education: With regard to level of education, majority respondents (43.33%) had medium level of formal education attaining either, high school or secondary standard. This was followed by high level (31.67%) with graduate diploma or above and low level (23.33%) in standards of primary or middle school. Only 1.67 per cent respondents were found to have no education from any of the formal educational institution. This indicates that farmers, by and large, in study area were found having medium to high level of education, possibly due to realization of importance of formal education by the respondents' parents and the increase importance of literacy and facilities available. The other factors attributed to this were availability of good numbers of school in nearby towns with transportation and communication facilities. The findings are supported by that of Gohain (2006).

Family size: Majority of the trainee respondents were from medium family group (70.00%) with 4-6 members followed by large family group (21.67%) with 7 members and above and small family group (8.33%) with up to 3 members only. The findings are in conformity with that of study conducted by Beerannarai (1995).

Family type: It is noticed that, 56.67 per cent of the trained farmers belonged to nuclear family category. Whereas, 43.33 per cent belonged to joint family category. This might be due to changing value of family system and modernization. The results are in line with the findings reported by Deshmukh and Mane (1999) and Sridhara (2002).

Social participation: Among the sampled farmers studied, 54.16 per cent of them had medium level of social participation followed by 33.33 per cent with high level and 12.50 per cent of the farmers having low level of social participation. This is due to the reason that farmers understood the importance of social life and activities to build them up in a society. So they actively participated in extension programmes and activities organized at the village. It was found that majority of the farmers with medium and high level of social participation when informed actively participated in training programmes, nokma meetings and even clan meetings. The findings are in conformity with the findings of Arathybalakrishnan (2006)

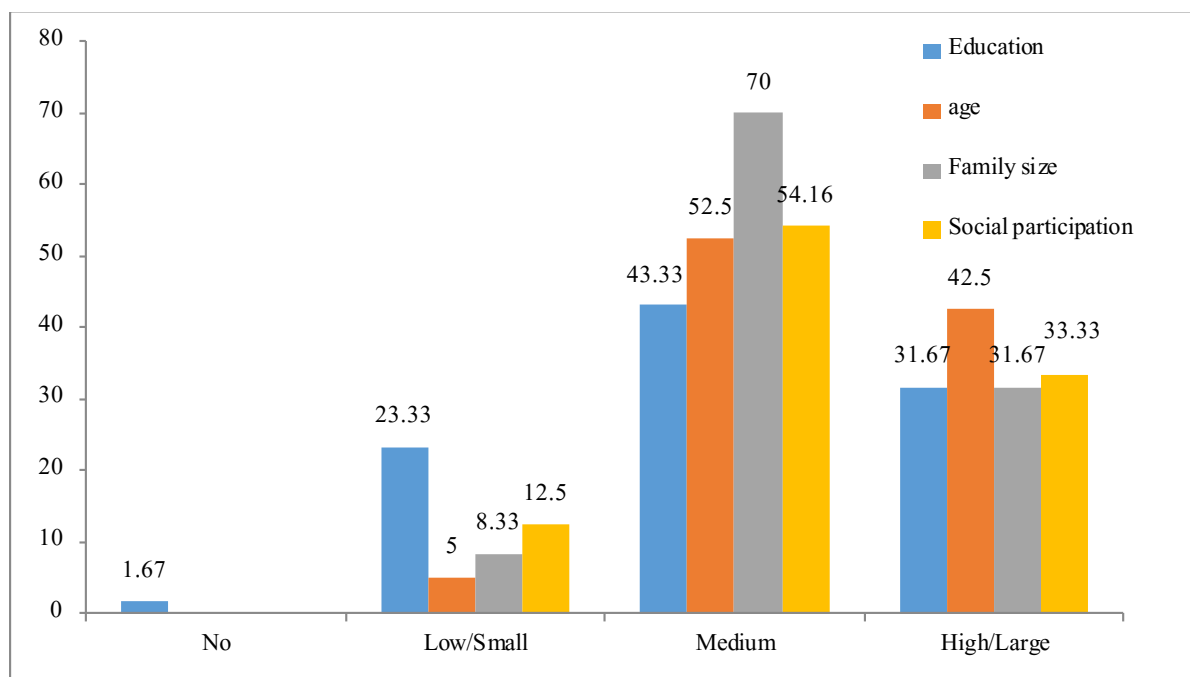


Figure 1. Diagrammatic presentation of respondents according to their socio-personal characteristics

Table 1. Distribution of respondents according to their socio-personal characteristics

Sl. No.	Socio personal variables				n=120	
A.	Age					
	Category	Frequency (f)	Percentage (%)	Mean	S.D.	
1.	Young (27-35 years)	6	5.00	50.20	9.06	
2.	Middle (36-50 years)	63	52.50			
3.	Old (51-72 years)	51	42.50			
B.	Education					
1.	No education (0-1)	2	1.67	3.53	1.25	
2.	Low (1-3)	28	23.33			
3.	Medium (3-5)	52	43.33			
4.	High(5-6)	38	31.67			
C.	Family size					
1.	Small (Up to 3 members)	10	8.33	2.13	0.54	
2.	Medium (4-6 members)	84	70.00			
3.	Large (7 members and above)	26	21.67			
D.	Family type					
1.	Joint	52	43.33	1.56	0.49	
2.	Nuclear	68	56.67			
E.	Social participation					
1.	Low (9-11)	15	12.50	15.57	4.64	
2.	Medium (12-20)	65	54.16			
3.	High (21-27)	40	33.33			
	Total	120	100			

3. Economic Characteristics

Size of operational land holding: The data presented in Table 2 show that majority (70.83%) of the respondents were marginal farmers possessing land holding size of up to 1.0 hectare with the prevailing cultural/traditional norms of distribution of the parental land property among the sons followed by small farmers (27.50%) with land holding between 1.01 to 4.0 hectares. Only 1.67% respondents belonged to the high category of land holding size (above 4.0 ha). The results were in line with the results of Arathybalkrishnan (2006).

Annual income: It can be observed from the table that as many as 87.50 per cent respondents belonged to medium category of annual income from all sources which ranged from Rs. 33,281 to Rs. 1,65,066. This was followed by high category (10.00%) with income above Rs. 1,65,066 and low (2.50%) with income less than Rs. 33,281 per year. It is learnt that most of the farmers in the study area engaged in different non-farm activities as per their occupation more than agricultural activities for ensuring regular employment and income. The results were in conformity with the results of the studies conducted by Raghavendra (2005) and Reddy (2006).

Farming experience: It is revealed from the table that, 52.00 per cent of trained farmers belonged to medium experience category, followed by high experience (40.00%) and low experience category (8.00%). Majority of the trained farmers belonged to marginal land holding category *i.e.* land holding (up to 1.0 ha) and also majority of the trained farmers were educated up to middle school therefore, majority of the respondents belonged to medium experience category. The findings were in conformity with the findings of Gopalswamy and Anbarashan (2011).

Training received: From the table it can be seen that most of the respondents had medium level of training (64.17%) followed by low (35.83%) and no respondents were found in the high level category. Most of the respondents had medium level of education and medium level of attitude towards KVK training; this might be the probable reason for medium level of training by majority of the trained farmers.

Credit facility: Table indicates that 68.33 per cent of the respondents' got financial assistance from government for rice cultivation, while 44.16 per cent, 12.50 per cent and 25.84 per cent of the rice growers took credit from various formal and non-formal sources like bank, money lenders and friends/relatives, respectively.

Table 2. Distribution of respondents according to their economic characteristics

Sl. No.	Socio-economic variables n=120				
A. Size of operational land holding					
	Category	Frequency (f)	Percentage (%)	Mean	S.D.
1.	Marginal (Up to 1.0 ha)	85	70.83	1.11	0.87
2.	Small (1.01-4 ha)	33	27.50		
3.	Big (above 4 ha)	2	1.67		
B. Annual Income					
1.	Low (Rs. 25,900- Rs. 33,280)	3	2.50	99,174	65,892
2.	Medium (Rs. 33,281-Rs. 1,65,066)	105	87.50		
3.	High (Above Rs. 1,65,067)	12	10.00		
C. Farming experience					
1.	Low (up to 17 years)	10	8.00	28.76	10.99
2.	Medium (between 18 to 38 years)	62	52.00		
3.	High (39 years and above)	48	40.00		
D. Training received					
1.	Low (Up to 5)	42	35.00	7.06	2.04
2.	Medium (6-8)	70	58.33		
	High (More than 8)	8	6.66		
E. Credit facility received					
Sl. No.	Sources	Frequency (f)	Percentage (%)		
1.	Government	82	68.33		
2.	Commercial institutions/banking	53	44.16		
3.	Money lenders	15	12.50		
4.	Friends/relatives	31	25.84		

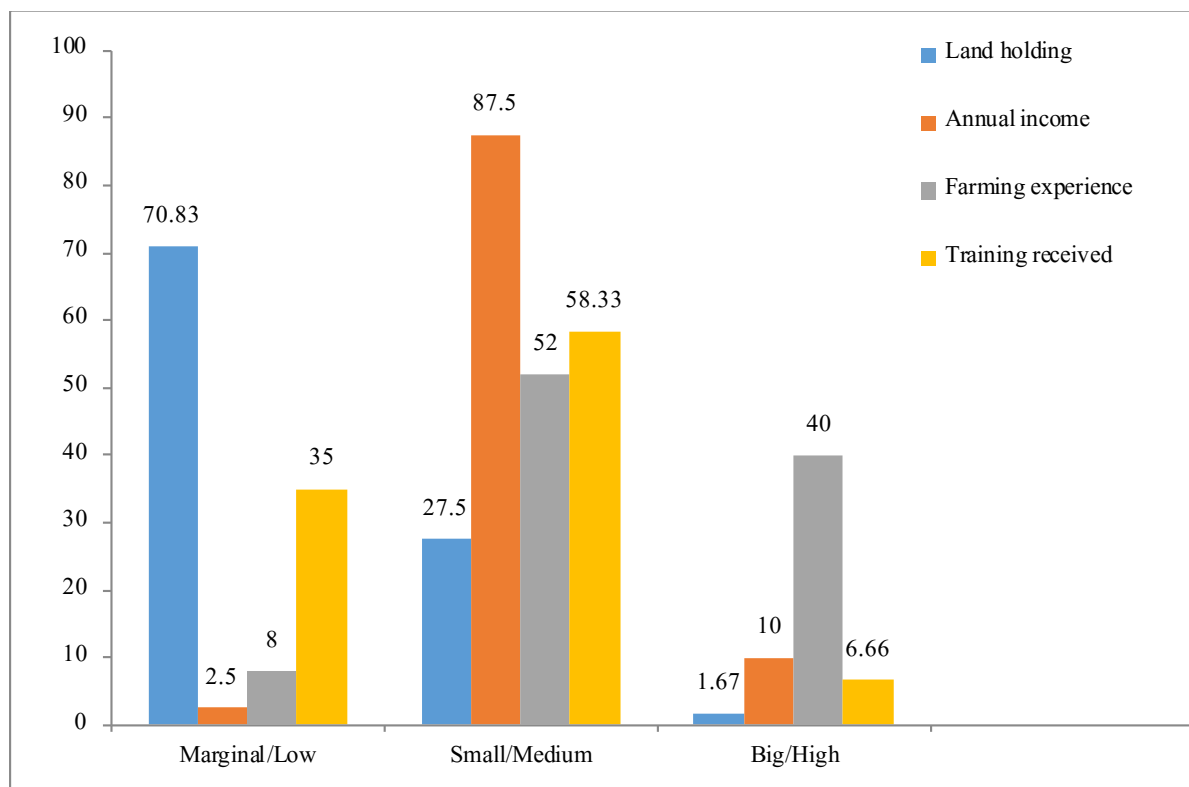


Figure 2. Diagrammatic presentation of respondents according to their economic characteristic

4. Psychological characteristics

Economic motivation: The Table 3 shows that half of the respondents (50.00%) had medium level of economic motivation. This was followed by high (25.83%) and low (24.17%) categories. The corresponding mean score of 24.60 indicates that the sample farmers, by and large, has medium to high level of economic motivation. The findings are in accordance with the findings of Raghavendra (2005), Arathybalkrishnan (2006), Shashidhara (2006) and Kumar (2009).

Table 3. Distribution of respondents according to economic motivation (n=120)

S1. No.	Category	Frequency (f)	Percentage (%)	Mean	S.D.
1.	Low (7-20)	29	24.16	24.6	5.01
2.	Medium (21-30)	60	50.00		
3.	High (31-35)	31	25.84		
	Total	120	100		

Market orientation: The table 4 shows that average score of respondents' in market orientation is mean (24.02). Majority of the rice growers' had high level of market orientation (45.00%) followed by medium (38.33%) and low (16.67%). This indicates that the sample farmers had high to medium level of market orientation.

Table 4. Distribution of respondents according to market orientation (n=120)

S1. No.	Category	Frequency (f)	Percentage (%)	Mean	S.D.
1.	Low (6-22)	20	16.67	24.02	1.92
2.	Medium (23-24)	46	38.33		
3.	High (25-30)	54	45.00		

Information seeking behaviour: The table 5 indicates that 100.00 per cent of rice growers' took information from only one credible source namely Krishi Vigyan Kendra for rice cultivation, while 83.33 per cent, 56.66 per cent, 10.00 per cent and 5.00 per cent of the rice growers' took information from various formal and informal sources like representative of input agencies or dealers, radio, friends and farmers of the other villages, respectively. Depending on the information seeking behaviour, respondents were categorised into three categories.

Table 5. Distribution of respondents according to their Information seeking behavior (n=120)

S1. No.	Sources	Frequency (f)	Percentage (%)
1.	Field officer (Agr. Dept.)	0	0.00
2.	SMS (Krishi Vigyan Kendra)	120	100.00
3.	Representative of input agencies/dealers	100	83.33
4.	Radio	68	56.66
5.	Friends	12	10.00
6.	Farmers of other villages	6	5.00

(n=120)

S1. No.	Category	Frequency (f)	Percentage (%)	Mean	S.D.
1.	Low (1-2)	54	45.00	3.18	1.38
2.	Medium (3-4)	60	50.00		
3.	High (5-6)	6	5.00		
	Total	120	100		

Decision making ability: Table 6 shows that average score of respondents' in decision making ability was mean (33.62). Majority of the rice growers' had medium level of decision making ability (83.33%), followed by high (10.00%) and low (6.66%) respectively. This indicates that the sampled farmer had medium to high level of decision making ability. The findings are in conformity with the findings of Ahmed *et al.* (2011).

Decision making ability: Table 6 shows that average score of respondents' in decision making ability was mean (33.62). Majority of the rice growers' had medium level of decision making ability (83.33%), followed by high (10.00%) and low (6.66%) respectively. This indicates that the sampled farmer had medium to high level of decision making ability. The findings are in conformity with the findings of Ahmed *et al.* (2011).

Table 6. Distribution of respondents according to their decision making ability (n=120)

S1. No.	Category	Frequency (f)	Percentage (%)	Mean	S.D.
1.	Low (8-30)	8	6.66	33.62	2.68
2.	Medium (31-35)	100	83.33		
3.	High (36-40)	12	10.00		
	Total	120	100		

Risk orientation: Table 7 indicates that most (45.00%) of the respondents were found to have high risk bearing ability followed by 36.67 per cent having medium risk bearing ability while 18.33 per cent were found to have low risk bearing ability. Good level of risk bearing ability was due to good education, high level of innovation proneness and better economic condition of the respondents. This shows that they do not like situations and commitments where the chance of desired outcome is very low. The results were in conformity with the results of Kolar (2007).

Table 7. Distribution of respondents according to their risk orientation (n=120)

Sl. No.	Category	Frequency (f)	Percentage (%)	Mean	S.D.
1.	Low (6-17)	22	18.33	23.3	5.9
2.	Medium (18-28)	44	36.67		
3.	High (29-30)	54	45.00		
	Total	120	100		

Innovation proneness: It is evident from Table 8 that majority (50.00%) of the respondents belonged to medium innovation proneness category followed by high (28.34%) and low (21.66%) respectively. Better income, majority of them belonging to middle age category and good contact with the extension personnel are the reasons for their medium and high innovation proneness. The results were in line with the result of Reddy (2005) and Pottappa (2008).

Table 8. Distribution of respondents according to their innovation proneness (n=120)

Sl. No.	Category	Frequency (f)	Percentage (%)	Mean	S.D.
1.	Low (5-15)	26	21.66	19.23	4.47
2.	Medium (16-22)	60	50.00		
3.	High (23-25)	34	28.34		
	Total	120	100		

Attitude towards KVK: From the table 9, it is seen that 70.00 per cent of the respondents had medium level of attitude towards KVK training followed by high attitude (23.33%) and low attitude (6.67%). The calculated mean score of 34.78 indicates that farmers, on an average, had medium to high level of attitude towards KVK training programmes. The findings of the study were in agreement with the results obtained by Maraddi (2006).

Table 9. Distribution of respondents according to their attitude towards KVK (n=120)

Category	Frequency	Percentage	Mean	S.D.
Low (Up to 20)	8	6.67	34.78	3.87
Medium (Between 20 to 40)	84	70.00		
High (Above 40)	28	23.33		
Total	120	100		

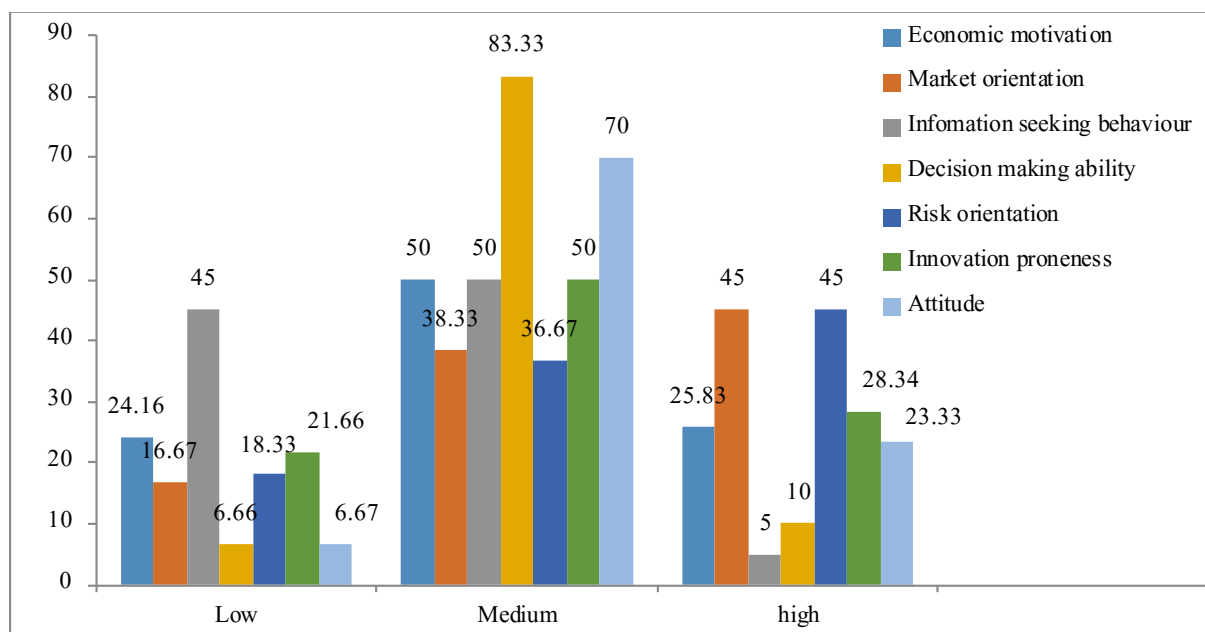


Figure 3. Diagrammatic presentation of respondents according to their psychological characteristics

5. Constraints faced by the respondents

In the present study constraints refers to the limitation or hindrances perceived by the trained farmers in adoption of improved technology in their farming system. An attempt was made to find out the constraints faced by the respondents. The frequency along with the percentage indicating each of the constraints was taken into account. The highest percentage so obtained among the constraints was considered as the most important constraints accordingly. For the present study those constraints which are expressed by more than 50 per cent of the respondents is considered as the major constraints faced by the trained rice grower. Among the various problems identified by the respondents, Inadequate availability of quality seed at proper time (95.83%), Lack of knowledge about scientific cropping pattern and cropping system and their method of application (92.50%), Non-availability of improved implements and other critical inputs such as FYM/organic fertilizers *etc.* (87.50%), Low price of product in local market (76.67%), Lack of storage and marketing facilities (75.00%), Lack of guidelines about seed treatment (74.16%) were considered as the major problems as indicated by its corresponding frequency. The other problems associated were Lack of credit facilities (64.16%), High cost and risk to adopt improved agricultural practices (61.67%), Irregular supply of electric power (62.50%), Unawareness of various developmental programs of the government (56.67%), Training time was not convenient (55.83%), Lack of self employment opportunities (54.17%),

Lack of proper demonstration (52.50%), Lack of transportation facilities (52.50%), Non – availability of subject material at hand (51.67%) respectively.

6. Suggestive measures

In the present study, the various suggestions as expressed by the respondents were collected and arranged according to their frequency and percentage. For the present study those suggestions which are expressed by more than 60 per cent of the respondents is considered as the suggestions to solve the problems. From the table, it can be clearly seen that the main suggestions expressed by the respondents were Strong extension network for effective transfer of latest technologies, Improvement of credit and market facilities and crop insurance are required, Organising as many as awareness and training programme towards improved practices covering more village in the district, To encourage the integrated pest management approach for effective control of pests and diseases by emphasizing the need based application of pesticides. The other suggestion as expressed by the respondents to solve the problems are Development activities are required to be strengthened suitably achieving growth in rice productivity and production, Conduct group discussion/meetings, demonstration, and on-farm testing on different rice cultivation practices, Establish more storage and marketing facilities and line sowing in upland rice areas through suitable seeding devices is required to be made popularized for desired plant population respectively.

Table 10. Constraints faced by the trained farmers in rice cultivation practices

Sl. No	Constraints	Frequency (f)	Percentage (%)
1.	Inadequate availability of quality seed at proper time	115	95.83
2.	Lack of knowledge about scientific cropping pattern and cropping system and their method of application	111	92.50
3.	Non-availability of improved implements and other critical inputs such as FYM/organic fertilizers <i>etc.</i>	105	87.50
4.	Low price of product in local market	92	76.67
5.	Lack of storage and marketing facilities	90	75.00
6.	Lack of guidelines about seed treatment	89	74.16
7.	Lack of credit facilities	77	64.16
8.	High cost and risk to adopt improved agricultural practices	74	61.67
9.	Irregular supply of electric power	75	62.50
10.	Unawareness of various developmental programs of the government	68	56.67
11.	Training time was not convenient	67	55.83
12.	Lack of self employment opportunities	65	54.17
13.	Lack of proper demonstration	65	52.50
14.	Lack of transportation facilities	63	52.50
15.	Non – availability of subject material at hand.	62	51.67

Table 11. Suggestions as expressed by the respondents to solve the problems

Sl. No	Suggestions	Frequency (f)	Percentage (%)
1.	Strong extension network for effective transfer of latest technologies	115	95.83
2.	Improvement of credit and market facilities and crop insurance are required	112	93.33
3.	Organising as many as awareness and training programme towards improved practices covering more village in the district	105	87.50
4.	To encourage the integrated pest management approach for effective control of pests and diseases by emphasizing the need based application of pesticides	101	84.16
5.	Development activities are required to be strengthened suitably achieving growth in rice productivity and production	95	79.16
6.	Conduct group discussion/meetings, demonstration, and on-farm testing on different rice cultivation practices.	88	73.33
7.	Establish more storage and marketing facilities	84	70.00
8.	The line sowing in upland rice areas through suitable seeding devices is required to be made popularized for desired plant population	82	68.33

7. Conclusion and implications

Krishi Vigyan Kendra is considered as the knowledge and resource center of the local areas at district level to meet the requirements of the local agro-climatic conditions. These institutions were set up to enhance the level of technical knowledge among farmers. Prof. M. S. Swaminathan aptly coined the word 'technical ability' to mean 'ability of rural people (although illiterate, otherwise) in understanding and using technical knowledge of farm science'. Such technical literacy would be imparted through work experience and farmers' training through 'learning by doing'. This calls for conscious consideration and take care on the part of extension worker and other concerned departments on training and proper management of technology in agriculture for further progress and development in rural areas.

The major findings of the present study have a measure of implications for extension workers, agricultural scientists, planners, policy makers and administrators. Some of the important implications are given below.

1. Different training programmes followed by field demonstration should be organised and imparted so that farmers develop confidence in them to take up improved methods to increase their productivity and improve their socio-economic condition.
2. Allocation of budgets under contingency head should be increased for trainings leading to increase in dimensions and numbers of KVK trainings under different thematic areas of agriculture and allied sectors.

3. Since some of the specific practices under different major practices although very much necessary in rice cultivation were not adopted by any of the farmer under study because of socio and economic problems. Necessary technical guidance through specific training programmes followed by other extension efforts may be taken up by the, KVK, concerned line departments and other organisations on such non-adopted practices.
4. The findings also indicate that the variables such as decision making ability, risk orientation, innovation proneness, attitude towards KVK training, education, age, farming experience, training received and land holding had significant impact on rural society, there is a call for extension agencies and other departments to manipulate these crucial factors through different extension efforts and programmes.
5. The KVK staff should try to improve their job efficiency especially in ensuring that the rural youth within the KVK district could take up self-employment venture for sustainable income generation.
6. Establishment of ICT facilities for effective dissemination of information to different stakeholders including farmers may be encouraged.
7. Publication of regular and reliable farm magazine should be made available for the benefit of the farming community.
8. Non-availability of improved implements, inadequate availability of quality seeds at proper time and other critical inputs in the study area suggested that government should create adequate infrastructure facilities and arrange to supply these inputs to farmers at cheapest rates by offering stores in the villages so that farmers find them accessible at the lean period.

9. The study covered only one district of the state and therefore, its findings could be expanded to other districts of Meghalaya. Similar studies should be planned for other hill districts of the state, so that the findings of both could be used effectively for drawing generalisation of training programme on other improved agricultural practices.

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