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Participatory analysis of Micro Farming Situation: A Strategic Intervention for Sustainable Productivity in Boro Rice Cultivation

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Abstract—*Technologies are often introduced as blanket recommendations to cover a wide agro-ecological zone, overlooking the micro-environmental diversity and the economic consequences of the innovation. A serious discussion of farm policy needs to recognize the heterogeneity of the sector. Farmers' classifications of micro farming situations may be a way to understand the farm heterogeneity in a more subjective and functional fashion to identify the farmers' own production environments. On a particular stretched field keeping the crop and varietal duration constant (boro rice), the farmers, on the basis of their indigenous knowledge and experience classified the land in 7 micro farming situations. A comparative data generation was undertaken and it was found that significant association exists between the micro farming situation and each of the variables. Weed diversity count and collection of information about cost of land was done as a validity test of the farmers' classification and identification of micro farming situations. It is concluded that farmers' classification is valid in the zone and if major micro farming situations can be identified from the area, recommendation domain can be selected and particular package of practices can be suggested. The criteria of classifying micro farming situation may be established as universally logical. Major micro farming situations can be pointed out and the package of practices for that situation can be developed or can be taken to the farmers after a detailed study on this topic.*

Keywords*: Recommendation Domain, Micro Farming Situation, Farmers' Classification, Validation of Indigenous Classifications*

1. INTRODUCTION:

In the past several years following the advent of the green revolution, concerted efforts to raise food production resulted in substantial increments in global food output. The distribution of the increase was heavily skewed towards the more developed nations while other regions of the globe realized less than impressive increments. This is because climatic conditions are often not as favorable (i.e., too much or too little rainfall and limited amounts of irrigation), soils are generally poor, production environments are very heterogeneous and poor, and the input and output markets are poorly developed. Farmers knowledge of agriculture and natural resources management are recognized to be more eco-friendly and sustainable. This knowledge is based on many gene-rations of insights gained through close interaction within natural and physical micro-environments (Rajasekaran *et al*., 1991 and Kolawole, 2001). Indigenous knowledge (IK) is dynamic, changing through indigenous mechanisms of creativity and innovativeness and contact with other local and international knowledge systems (Warren, 1991). The diversity of Indigenous knowledge deals with the trial and error problem solving approach. It is influenced by the adaptive skills of local people, usually derived from many years of experience (Thrupp, 1989), time tested practices in nature, strategies and techniques developed by the local people to cope with changes in their socio-cultural and environmental conditions and accumulated by farmers through constant experimentation and innovation (Rajasekaran,1993).

Local people use many categories in different parts of the world to describe types of soil (Dialla, 1993), lands (Ettema, 1994), landscapes, crops, wild plant species (Berlin, 1992) and other natural resources. The categories and names used by them usually differ from those used by scientists. In addition the criteria of classification are usually functional, that is related to use, unlike the standard categorization criteria derived from physical sciences (Chambers *et al*., 1989). The scientists' classification is based on a set of predetermined criteria which are validated in terms of scientific principles. But it requires lots of time and resources. Still, this may miss criteria which are experienced by the common people. On the other hand, farmers' classification is subjective, functional and never claims validity outside their own context. It is quick, resource saving and more empowering if targeting of technology is done on the basis of farmers' classification (Basu *et al*., 2009). The criteria, on the basis of which a particular micro farming situation is constructed of (or distinguished from another micro farming situation), is strictly subjective and goes with the perception and individual

construct of the farmers. Local people use many categories in different parts of the world to describe types of lands, landscapes, crops, wild plant species and other natural resources. The categories and names used by them usually differ from those used by scientists.

Farmers are not only good at classifying the farming situation where they operate; they are good at classifying themselves in terms of a whole gamut of criteria which may be as diverse as socio-economic, ecological, infrastructural and even political. With the revolution of participatory appraisal techniques like RRA, PRA and PLA there are now a good set of tools to classify farmers and their farming situation. Farmers use the rationale getting originated at the cognitive level (of course those do have empirical basis, i.e. experience) to make decisions regarding farm-related activities. These activities may be as varied as crop selection, variety selection, sowing, harvesting, intercultural operation, cropping sequence, manure and fertilizer application, drainage, irrigation scheduling, pest problem etc.

The present study was undertaken to classify the micro-farming situations of the study area according to farmers' perception and to compare the rice cultivation practices of farmers across these identified micro-farming situations. The significant difference of *boro* rice growing practices among the identified micro farming situations will validate the farmers' classification of *boro* rice farming situation. The study was undertaken with the following objectives:

2. OBJECTIVES:

- To classify the farming situations of the study area according to farmers' criteria;
- To delineate the rice cultivation practices in different micro farming situations;
- To estimate the differential characteristics among the farming situations.

3. METHODOLOGY:

The study area required major rice growing villages having rice fields at one stretch. In Bijra village the study was conducted. The village is under Haringhata block of Nadia district, West Bengal. On the basis of findings of pilot study, a structure of interview schedule was prepared for different *Boro* rice cultivation practices with the help of literature survey, discussion with the experts from relevant fields of agriculture and by the assistance of chairman and members of Advisory Committee.

Preparation of Micro Farming Situation map:

A number of group of farmers were met in different gathering spots of the farmers. The spots were identified during the pilot survey and with the help of key informants. At evening time the tea stalls were the main gathering spots where at a time a good number of farmers spent their leisure time. The other important spots were a grocery shop, a big tree shade on the bank of a pond and the mosque. Sitting with the farmers, by PRA technique, Micro Farming Situation map of the continuous rice field of Bijra village was prepared marking on the revenue map.

Characteristics of farming situations on the basis of which farmers classified the 7 micro farming situations:

- Land situation (up/medium/low)
- Fertility status
- Water Holding Capacity of the soil
- Cropping intensity
- Irrigation facility
- Soil type (sandy/clay/Loamy)
- Productivity
- Slope
- pH of soil
- Submergence

Necessary statistical tools were used for statistical analysis as per objectives of the study.

4. RESULTS AND DISCUSSION:

General description of Micro Farming Situations:

7 micro farming situations were found throughout the stretched *boro* rice field of Bijra village. The classification and identification of the situations were done by the farmers of the village who have been cultivating on the field for years. They identified the characters of different situations from their experience and accordingly classified the farming situations. Here in the image of the Mouza map, sheet No. 1, the situations are marked with numbers 1-7. The general description of the micro farming situations is given below:

Table 1: Characters of 7 Micro farming Situations according to farmers view

Characters	MFS 1	MFS 2	MFS 3	MFS 4	MFS 5	MFS 6	MFS 7
Land Situation	Up	Medium	Low	Medium	Up	Low	Medium
Fertility status					Low	Moderate	Low
WHC	Low	Medium	High	High	Low	Medium	High
Cropping Intensity	300%	200%	100%	200%	300%	200%	200%

Irrigation	Shallow tube-well	Shallow tube-well	Shallow tube-well	Shallow tube-well	Mini deep tube-well available	Problematic	Mini deep tube-well available
Soil type	Loamy	Loamy	Clay Loam	Clay-loam	Clay	Clay	
Productivity	Medium				Medium		
Slope		Sloppy		Sloppy			
pH				Acidic			
Submergence			Submerged				

Seven (7) Micro Farming Situations: Comparative analysis of Cultivation Practices:

Table 2: Percentage distribution (%) of plots in 7 Micro Farming Situations on the basis of Variety

	Banshkathi	**GS 1**	**GS 2**	**Shatabdi**	**Nera**	**Nayanmani**	**Ganga-kaveri**
MFS 1	24.2	27.3	9.1	9.1	30.3	0	0
MFS 2	0	11.1	0	**51.9**	18.5	0	18.5
MFS 3	0	0	7.7	**46.2**	7.7	38.5	0
MFS 4	0	9.4	25.0	31.2	18.8	0	15.6
MFS 5	0	0	0	32.0	**44.0**	24.0	0
MFS 6	0	0	0	**60.9**	13.0	26.1	0
MFS 7	0	0	0	**55.6**	11.1	33.3	0
Chi-square Test	**Association between MFSs and Varieties**			**FET value**		**0.000**	

In Micro farming situation 1 condition, the varieties cultivated were Nera, in 30.3% plots; GS 1 in 27.3% plots; Banshkathi, in 24.2% plots; GS 2, in 9.1% plots and Shatabdi, in 9.1% plots. In Micro farming situation 2 the varieties cultivated were Shatabdi, in 51.9% plots; Nera, in 18.5% plots; Ganga-kaveri, in 18.5% plots and GS 1, in 11.1% plots. In farming situation 3, the varieties cultivated were Shatabdi, in 46.2% plots and Nayanmani, in 38.5% plots. Two other varieties, GS 2 and Nera were cultivated in very few plots (7.7% land for each variety) in this situation. The varieties cultivated in situation 4 were GS 1 (in 9.4% plots), GS 2 (in 25% plots), Shatabdi (in 31.2% plots), Nera (in 18.8% plots) and Ganga-kaveri (in 15.6% plots). Only 3 varieties were cultivated in situation 5. Nera was cultivated in 44.0% plots. Shatabdi and Nayanmani were cultivated in 32% and 24% plots respectively. In farming situation 6 the cultivated varieties were Shatabdi, cultivated in 60.9% of total plots studied. Nayanmani and Nera were cultivated in 26.1% and 13% plots. In Micro farming situation 7, Shatabdi was cultivated in 55.6% plots, Nayanmani was cultivated in 33.3% plots and Nera was cultivated in 11.1% plots.

From this data it can be found that Banshkathi was cultivated only in situation 1. Farmers' point of view was this variety gives a good yield in upland situation, where water stagnation does not occur. Only Shatabdi and Nera were cultivated throughout the 7 situations. This is because, these two varieties are of medium height, can tolerate storm and the taste is good. Shatabdi was preferred mostly in situations 6, 7, 2 and 3. Nera was preferred in situation 5. The choice of variety in situation 5, 6 and 7 was same though the degree varied for different varieties situation wise.

To test the association between Micro farming situation and choice of varieties Chi-square test was done followed by Fisher's Exact Test was done. The FET value shows that significant association exists in between Micro farming situations and choice of rice varieties for cultivation.

Table 3: Percentage distribution of plots in 7 Micro Farming Situations on the basis of sowing time

	Nov-1st	**Nov-2nd**	**Nov-3rd**	**Nov-4th**	**Dec-1st**	**Dec-2nd**	**Dec-3rd**
MFS 1	0	27.3	**63.6**	9.1	0	0	0
MFS 2	0	**51.9**	33.3	7.4	7.4	0	0
MFS 3	0	0	**61.5**	0	38.5	0	0
MFS 4	0	31.2	25.0	6.2	18.8	18.8	0
MFS 5	0	12.0	24.0	8.0	16.0	8.0	32.0
MFS 6	21.7	0	**60.9**	17.4	0	0	0
MFS 7	0	**88.9**	11.1	0	0	0	0
Chi-square Test	**Association between MFSs and Time of Sowing**			**FET value**		**0.000**	

For 63.6% plots of farming situation 1 seed was sown in 3rd week of November. For 27.3% plots it was done in 2nd week of November and for 9.1% of the plots seed was sown in last week of November. Among the plots in situation 2, in most of the plots (51.9%) seed was sown in 2nd week of November. For 33.3% plots 3rd week of November, for 7.4% plots last week of November and for 7.4% plots 1st week of December was the sowing time. In situation 3, for most of the plots (61.5%) seed was sown in 3rd week of November. For the rests seed was sown on 1st week of December. In micro farming situation 4, in 2nd week of November for 31.2% of the plots, in 4th week of November for 6.2%, in 3rd week of November for 25%, 1st week of December for 18.8% and for another 18.8% in 2nd week of December was the sowing time. In situation 5 for some of the plots (12.0%) seed sowing was started in 2nd week of November whereas, for some (32.0%) it started in 3rd week of December. In the 4 weeks in-between seed was sown for 24%, 8%, 16% and 8% of plots respectively. In farming

situation 6 for 21.7% of the plots it was done in 1st week of November. For 60.9% plots it was done in 3rd week of November. Latest in 4th week of November for 17.4% plots seed was sown. In micro farming situation 7 for almost all the plots (88.9%) seed was sown in 2nd week of November. For only 11.1% plots it was sown in 3rd week of November.

From this data it can be found that, for micro farming situation 6, sowing time was earliest. In 2nd week of November maximum sowing was done for farming situation 2 and 7. In 3rd week of November for farming situation 1, 3 and 6 sowing was done. For micro farming situation 5, the range of sowing time was widest. In 2 sides of this high land there are low land and medium land. That's why the sowing time varied throughout this situation.

To test the association between Micro farming situation and time of sowing Chi-square test followed by Fisher's Exact Test was done. The FET value shows that significant association exists in between Micro farming situations and time of sowing.

Table 4: Comparative study of 7 Micro Farming Situations on the basis of seed rate

Practice	MFS							f	Sig.
	1	2	3	4	5	6	7		
	Mean	Mean	Mean	Mean	Mean	Mean	Mean		
Seed rate	29.59	29.72	30.58	35.51	33.57	32.61	29.78	6.836	0.000

From the table it can be observed that in micro farming situation 4, highest seed rate was followed.

The ANOVA was done to test the association between Micro farming situation and seed rates used in different plots of different situations. The result shows that significant association exists between micro farming situations and the seed rates.

Table 5: Percentage distribution of plots in 7 Micro Farming Situations on the basis of seed treatment chemicals

	Dithane M-45	Emision-6	Bagalal-6	Saltwater	Dithane M-45 + Emision-6	Dithane M-45 + Saltwater	Treated seed used
MFS 1	0	6.1	0	0	0	24.2	69.7
MFS 2	0	40.7	0	0	0	0	59.3
MFS 3	0	0	0	0	0	0	**100**
MFS 4	28.1	18.8	9.4	0	25.0	0	18.8
MFS 5	24.0	0	0	32.0	0	0	44.0
MFS 6	0	0	0	0	0	17.4	**82.6**
MFS 7	0	44.4	0	0	0	0	55.6
Chi-square Test	**Association between MFSs and Chemicals for seed treatment**			**FET value**			**0.000**

For the farming situation 1, for 69.7% plots previously treated seed was used. For 24.2% plots with Dithane M-45 and Salt water, for 6.1% plots with Emision-6 seed treatment was done before sowing. For the farming situation 2, for 59.3% plots previously treated seed was used. In 40.7% plots before seed sowing seed was treated with Emision-6. For the farming situation 3, in all the plots previously treated seed was used. In case of farming situation 4, for 18.8% of the plots already treated seed was used. For sowing in 28.1% of the plots with Dithane M-45, for 18.8% of the plots with Emision-6, for 9.4% of the plots with Bagalal-6 and for rest 25% plots with both Dithane M-45 and Emision-6 seed was treated. In case of farming situation 5, for 44% of the plots already treated seed was bought. For 32% of the plots with only saltwater and for 24% of the plots with Dithane M-45 seed treatment was done before sowing. In case of farming situation 6, for 82.6% plots already treated seed was sown. In rest of the plots seed was treated with Dithane M-45 and saltwater after buying. For the farming situation 7, for 44.4% of the plots seed was treated with Emision-6 was sown and for rest of the plots already treated seed was used.

To test the association between Micro farming situation and chemicals used for seed treatment Chi-square test followed by Fisher's Exact Test was done. The FET value shows that significant association exists in between Micro farming situations and Chemicals used for seed treatment.

Table 6: Percentage distribution of plots in 7 Micro Farming Situations on the basis of different forms of fertilizers applied in seed bed

	Direct	Complex	Direct + Complex	Organic + Direct	Organic + Complex	Organic + Direct + Complex
MFS 1	39.4	33.3	12.1	3.0	6.1	6.1
MFS 2	55.6	0	0	29.6	7.4	7.4
MFS 3	53.8	0	23.1	23.1	0	0
MFS 4	62.5	34.4	0	3.1	0	0
MFS 5	48.0	0	20.0	32.0	0	0
MFS 6	26.1	43.5	30.4	0	0	0

MFS 7	44.4	33.3	11.1	0	11.1	0
Chi-square Test	**Association between MFSs and fertilizer type in seed bed**			**FET value**		**0.000**

In micro farming situation 1, for 39.4% plots only direct fertilizer was used in seed bed. For 33.3% plots only complex fertilizer was used, for 12.1% plots both direct and complex fertilizer were used, for only 3% plots both FYM and direct fertilizers were used, for 6.1% plots both FYM and complex fertilizers were used and for another 6.1% plots all the FYM, direct and complex fertilizers were used in seed bed. In micro farming situation 2, for 55.6% plots direct, for 29.6% plots FYM and direct, for 7.4% plots FYM and complex and for rest 7.4% plots FYM, direct and complex fertilizers were used in seed bed. In micro farming situation 3, for 53.8% plots direct, 23.1% plots combination of direct and complex fertilizers, for rest 23.1% plots FYM and direct fertilizers were used in seed bed. In situation 4, for 62.5% plots direct, for 34.4% plots complex and for 3.1% plots FYM and direct fertilizers were used in seed bed. In situation 5, for 48% plots direct, 20% plots combination of direct and complex and for 32% plots FYM and direct fertilizers were used in seed bed. In situation 6, for 26.1% plots direct, for 43.5% plots complex and for 30.4% plots combination of direct and complex fertilizers were used in seed bed. In micro farming situation 7, for 44.4% plots direct, for 33.3% plots complex, for 11.1% plots both direct and complex and for 11.1% plots FYM and complex fertilizers were used in seed bed.

To test the association between Micro farming situation and fertilizer type used in seed bed for different plots Chi-square test followed by Fisher's Exact Test was done. The FET value shows that significant association exists in between Micro farming situations and fertilizer type used in seed bed.

Table 7: Percentage distribution of plots in 7 Micro Farming Situations on the basis of pesticides applied in seed bed

	No protection	**Regent**	**Kitap**	**Phorate**	**Furadan**	**Bavistin**	**Thiamate**
MFS 1	60.6	30.3	9.1	0	0	0	0
MFS 2	3.7	29.6	0	66.7	0	0	0
MFS 3	0	0	0	61.5	38.5	0	0
MFS 4	53.1	0	0	9.4	0	37.5	0
MFS 5	24.0	24.0	0	32.0	0	0	20.0
MFS 6	26.1	17.4	0	56.5	0	0	0
MFS 7	0	0	0	11.1	0	77.8	11.1

Chi-square Test	**Association between MFSs and chemicals for plant protection in seed bed**	**FET value**	**0.000**

From the data it can be found that except for the micro farming situation 3 and 7 all situations have some plots for which no chemicals was used in seed bed for plant protection. For situation 1 and 4 less chemicals were used in seed bed. Kitap was preferred for least number of plots. Phorate was used in seed beds for maximum number of plots followed by Regent.

To test the association between Micro farming situation and chemicals for plant protection in seed bed Chi-square test followed by Fisher's Exact Test was done. The FET value shows that significant association exists in between Micro farming situations and plant protection chemicals used in seed beds.

Table 8: Percentage distribution of plots in 7 Micro Farming Situations on the basis of different forms of fertilizers

	Direct	**Complex**	**Direct + Complex**	**Organic + Complex**	**Organic + Direct + Complex**
MFS 1	60.6	0	33.3	0	6.1
MFS 2	92.6	0	0	0	7.4
MFS 3	100	0	0	0	0
MFS 4	100	0	0	0	0
MFS 5	44	24.0	0	32.0	0
MFS 6	39.1	13.0	47.8	0	0
MFS 7	88.9	0	11.1	0	0
Chi-square Test	**Association between MFSs and fertilizer type in main bed**		**FET value**		**0.000**

In micro farming situation 1, in 60.6% plots direct fertilizer was used. In 33.3% plots combination of direct and complex fertilizers were used. In 6.1% plots FYM, direct and complex fertilizers were used. In case of micro farming situation 2, in 92.6% plots direct fertilizer and in rest 7.4% plots FYM was applied during land preparation and then both direct and complex fertilizers were applied. Throughout the micro farming situation 3 and 4 only direct fertilizers were applied. In micro farming situation 5, in 44% plots direct fertilizer, in 24% plots complex fertilizer and in 32% plots FYM and complex fertilizers were used. In case of micro farming situation 6, in 39.1% plots direct fertilizer, in 13% plots complex fertilizer and in 47.8% plots combination of direct and complex fertilizers were used. In case of micro farming situation 7, in 88.9% of the plots direct fertilizer were used where as only in 11.1% plots both direct and complex fertilizers were used.

To test the association between Micro farming situation and fertilizer type in main bed Chi-square test followed by Fisher's Exact Test was done. The FET value shows that significant

association is there in between Micro farming situations and fertilizer type in main bed.

Table 9: Percentage distribution of plots in 7 Micro Farming Situations on the basis of date of transplanting

	Dec-2nd	Dec-3rd	Dec-4th	Jan-1st	Jan-2nd	Jan-3rd	Jan-4th
MFS 1	18.2	12.1	66.7	3.0	0	0	0
MFS 2	0	0	81.5	11.1	0	7.4	0
MFS 3	0	0	23.1	38.5	0	38.5	0
MFS 4	3.1	25.0	31.2	3.1	0	34.4	3.1
MFS 5	0	0	12.0	32.0	24.0	0	32.0
MFS 6	13.0	8.7	30.4	30.4	17.4	0	0
MFS 7	0	77.8	11.1	0	11.1	0	0
Chi-square Test	**Association between MFSs and date of transplanting**			**FET value**		**0.000**	

The range of date of transplanting was maximum in case of situation 4. Earliest transplanting was done in some plots of situations 1, 4 and 6. Latest transplanting was done in some plots of situations 4 and 5.

To test the association between Micro farming situation and date of transplanting Chi-square test followed by Fisher's Exact Test was done. The FET value shows that significant association exists in between Micro farming situations and date of transplanting.

Table 10: Percentage Distribution of plots in 7 Micro Farming Situations on the basis of Spacing

	15cm X 15cm	15cm X 10cm	15cm X 11.5cm	13cm X 11.5cm
MFS 1	84.8	0	15.2	0
MFS 2	59.3	0	11.1	29.6
MFS 3	38.5	0	61.5	0
MFS 4	50.0	18.8	31.2	0
MFS 5	68.0	32.0	0	0
MFS 6	100.0	0	0	0
MFS 7	22.2	77.8	0	0
Association between MFSs and Spacing	**Chi-square Test**		**FET value**	**0.000**

In micro farming situation 1, higher spacing (15 cm X 15 cm) was maintained in most of the plots (84.8%). In rest of the plots (15.2%) 15 cm X 11.5 cm spacing was maintained. In micro farming situation 2, 15cm X 15cm spacing was maintained in 59.3% plots. 15cm X 11.5cm spacing was maintained in 11.1% plots and 13cm X 11.5cm spacing was maintained in 29.6% plots. In farming situation 3, in 38.5% plots 15cm X 15cm spacing was maintained and in 61.5% plots it was 15cm X 11.5cm. In farming situation 4, 50% of the plots cultured 15cm X 15cm spacing. In 31.2% plots spacing was 15cm X 11.5cm and in 18.8% plots 15cm X 10cm spacing was maintained. In most of the plots (68.0%) under micro farming situation 5, 15cm X 15cm spacing was maintained and in rest of the plots (32.0%) 15cm X 10cm spacing was maintained. In micro farming situation 6, all the plots maintained 15cm X 15cm spacing. In situation 7, 77.8% plots had a spacing of 15cm X 10cm whereas rest 22.2% plots had 15cm X 15cm spacing.

Form the data it can be found that highest spacing was maintained mainly in situation 1 and 6. Plant to plant distance was kept lowest in most of the plots of situation 7.

Table 11: Percentage distribution plots in 7 Micro Farming Situations on the basis of weeding practice

	2 Manual	3 Manual	1 Manual + Herbicide	2 Manual + Herbicide
MFS 1	63.6	12.1	0	24.2
MFS 2	22.2	0	40.7	37.0
MFS 3	0	0	76.9	23.1
MFS 4	75.0	0	25.0	0
MFS 5	48.0	0	20.0	32.0
MFS 6	43.5	0	30.4	26.1
MFS 7	88.9	0	11.1	0
Association between MFSs and Weeding	**Chi-square Test**		**FET value**	**0.000**

In micro farming situation 1, in 63.6% plots 2 manual weeding was done, in 12.1% plots 3 manual weeding was done. In rest 24.2% plots 2 manual weeding was done besides application of Herbicide. In micro farming situation 2, in 22.2% plots 2 manual weeding was done. In 40.7% plots 1 manual weeding and herbicide application was done. In 37% plots 2 manual weeding was done in accordance with herbicide application. In micro farming situation 3, in all plots herbicide was applied. In 76.9 plots 1 manual weeding was done and in 23.1% plots 2 manual weeding was done. In farming situation 4, in 75% plots only 2 manual weeding was done. In rest 25 plots 1 manual weeding was done and herbicide was applied. In farming situation 5, in 48% plots 2 manual weeding was done. In 20% plots 1 manual weeding was done and herbicide was applied. In 32% plots 2 manual weeding was done and herbicide was applied. In micro farming situation 6, in 43.5% plots manual weeding was done twice. In 30.4% plots single manual weeding was done with application of herbicide and in 26.1% plots 2 manual weeding was done with application of herbicide. In micro farming situation 7, in 88.9% plots 2 times manual weeding was done and in 11.1% plots 1 manual weeding was done and herbicide was applied.

To test the association between Micro farming situation and weeding Chi-square test was done followed by Fisher's Exact Test. The FET value shows that significant association exists in between Micro farming situations and weeding techniques.

5. CONCLUSION:

In micro-farming situation, the variations amongst different niche areas lay the foundation for agro-ecosystem analysis and competency building amongst the participating farmers to

augment productivity and sustainability. The distribution of topography invites ecological variability and ecological variability demands a situation sensible package of practices to be followed by a solitary farmer. Farmers' classification of micro farming situations may be a way to identify the farmers' own production environments. Farmers' indigenous knowledge is the support behind the logic of this kind of classifications. Testing the validation of this classification shows the efficiency of farmers' indigenous knowledge. So, the present study on Farmers' Classification and Validation of Participatory Farming System Identification may play an important role in Farming System Research.

While carrying the new and developed technologies to the farmers, extension scientists and extension workers should be aware of the Recommendation Domain and be careful about the particular situation. Similar micro farming situation may exist in locality. Based on the similar characteristics, if the micro farming situations can be identified, specific suggestions could be recommended for the area. The micro farming situation, in this sense, is determinant of a recommendation domain; where a technology or research outcome can successfully be diffused (or decided to be adopted). The decision making of farmers and researchers or policy makers, hence, has to get a common interface in the face of this crisis. Otherwise the researches drawing on huge fund and time are going to be non-functional or even aborted and another group of scientists/researchers will go on to find out the correlation between non-adoption of a technology and farmers ignorance/resistance to change.

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