

RESEARCH NOTE

Knowledge Empowerment of Tribal Farmers Through Participatory Extension Programme in East Siang District of Arunachal Pradesh

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ABSTRACT

The present study was initiated to assess the impact of farmers' participatory skill development training and demonstration on Fish Farming technology on the knowledge level of fish growing tribal farmers under rainfed based farming system in East Siang district of Arunachal Pradesh. Three major parameters of Fish Farming viz., a) improved pond management practices, b) improved feeding management practices, and c) improved method of integration of aquaculture with other enterprises; were investigated to study the knowledge level of the farmers. It was observed that there was remarkable change in the level of knowledge and attitude of the fish growing farmers in all the three aspects of aquaculture after the extension programmes conducted by KVK. The mean knowledge level was increased from 29.8 per cent (pre-exposure) to 67.2 per cent (after exposure) indicating a change of 32.9 per cent in the overall knowledge level of the farmers about Fish Farming technologies. The present study was carried out in 15 villages of East Siang district of Arunachal Pradesh. A total of 145 tribal farmers were interviewed using structure schedule and group discussion.

Key words: *Fish farming; Farmers participatory; Knowledge level; Skill development;*

Arunachal Pradesh is the largest state in the North Eastern Hill Region of India dominated by tribal population. East Siang district where the study was conducted is located between 27.300° to 29.420° North latitude and 94.420° to 95.350° East longitude with an altitude of 133m in Ruksin to 752m in Riga and mostly inhabited by the *Adi* tribe which comprises of a large number of tribal groups viz. *Minyongs, Padams, Shimongs, Milangs, Pasis, Karkos, Ashings, Pangis, Tangmas* and *Boris* (*Yumnam and Tripathi, 2013*). In the North Eastern states of India, most rural communities depend on the wild resources including wild plants, fishes, animals and birds to meet their food needs in period of food crisis, as well as for additional food supplements. *Sundriyal et al (1998)* reported that besides growing a few crops, people frequently collect wild edible plants for food and other natural products from natural habitats to meet their subsistence needs. They traditionally practice shifting and terrace cultivation

in the hills and wet rice cultivation in the valleys. Major (76.66%) geographical area of the district is under forest cover (*FSI, 2009*) and the mighty river Siang and its tributaries run across the district. East Siang district receives ample rain water during the monsoon period, during which rice culture is the major activity of the tribal community (*Sen et al, 2012*). The livelihood of the population inhabiting in the villages mainly depends on shifting cultivation and forest for their food and other requirements. Hunting and fishing are the part and partial of their lifestyle. Even though fish is an integral part of their diet, the aquaculture practice is not common among the tribal farmers due to lack of awareness and knowledge. Therefore, it is essential to evolve suitable location specific good aquaculture management practices that are environment friendly, economically viable and socially acceptable. In this context, farmers' participatory skill development training and demonstration on different aquaculture practices in

rained ecosystem of East Siang district of Arunachal Pradesh were conducted to increase the farmers' access to aquaculture technology and to test the suitability/viability of the technologies on farmers' fields. Therefore, a study was conducted with the objective to access the impact of skill development training and demonstration on the knowledge level of participating farmers about the aquaculture technology and to document the benefits of good management practices in aquaculture as perceived by the farmers.

METHODOLOGY

The study was carried out in 15 different villages of East Siang District, Arunachal Pradesh of North eastern hill region of India where a diverse group of households thrives adopting different farming systems. In the present study knowledge was conceptualized as the sum total of farmers' knowledge about different components of good management practices in fish farming. Out of total adopted farmers for skill development training and demonstration programme, samples of 145 respondents were randomly selected for this study from 15 villages of East Siang district. Primary information was collected for the reference period 2014-2016 on different management practices by using pre-tested structured schedule. In each survey, information was collected from individual interaction or in a group by personal interview using open ended as well as closed structured schedule through Focus Group Discussion (FGD). Fifty questions were framed including open ended and close-ended questions. A score '1' was awarded for each correct answer and '0' for wrong answers. Thus, the minimum and maximum score that an individual could obtain was '0' and '50', respectively. The pre-knowledge level of the respondents was tested by using the Participatory Rural Appraisal (PRA) tools prior to implementation of farmers' participatory extension programmes. The information collected during the pre knowledge survey provided the basic idea about the existing knowledge level of the target farmers. After completion of the farmers' participatory skill development training and demonstration programme, again the knowledge level of the respondent farmers was evaluated through PRA methods.

RESULTS AND DISCUSSION

Analysing the Table 1 it is observed that Subject

Matter Specialists from Krishi Vigyan Kendra, East Siang were the major source of information relating to good management practices in aquaculture as reported by all the respondents followed by Fish Seed & Feed Dealers and Traders (75.2%); Fishery Extension Officer (70.3%); Personal Experiences (68.3%) and village level agricultural workers (66.2%), neighbouring farmer (40.0 %) and Mass media (35.2 %) respectively. It was observed that farmers were getting very little information from print mass media. The reason behind major sources of information by KVK among the farmers was since the farmers' participatory participatory skill development training and demonstration programme were directly carried out by the Kendra. The results obtained are inconformity with the earlier work done by *Pathak et al, 2009*. The farmers used to exchange their views, ideas and experiences more informally and frequently

Table 1. Distribution of the respondents according to their sources of information relating to good management practices in aquaculture (N=145)

Information sources	No.	%*	Rank
Neighboring farmers	58	40.0	VI
Fishery extension officer	102	70.3	III
Experts from KVK	140	96.6	I
Mass media	51	35.2	VII
Personal experiences	99	68.3	IV
Fish seed & feed dealers and traders	109	75.2	II
Village level agriculture workers	96	66.2	V

Table 2. Benefits of participatory skill development training and demonstration programme as perceived by the farmers (N=145)

Management practices	No.	%*	Rank
Time of stocking	135	93.1	II
Method of pre stocking mgt. of ponds	125	86.2	IV
Fish based integrated farming system	121	83.4	V
Size of the fish seed during stocking	142	97.9	I
Method of fish seed transportation	129	89.0	III
Method of stocking of fish seed	119	82.1	VI
Method of feeding	118	81.4	VII
Method of pond mgt. after stocking	109	75.2	IX
Regular monitoring	85	58.6	XII
Fish growth observation	99	68.3	X
Fish harvesting and selling	116	80.0	VIII
Post harvest mgt. of farm produce	80	55.2	XIII
Reduced cost of cultivation	89	61.4	XI
Mgt. practices in poultry & pig farming	79	54.5	XIV

* The added percentage is more than 100 since multiple responses were allowed.

Table 3. Distribution of respondents according to their mean knowledge level before and after exposure to extension programmes.

Areas	Range of score	Pre-exposure mean knowledge	Post-exposure mean knowledge	Change in mean knowledge
Improved pond management practices	0-25	6.1 (24.4)	15.6 (62.4)	9.5 (38.0)
Improved feeding management practices	0-15	5.0 (33.3)	10.9 (72.7)	5.9 (39.4)
Improved method of integration of aquaculture with other enterprises	0-10	3.8 (38.0)	7.1 (71.0)	3.3 (33.0)
Over all knowledge level	0-50	14.9 (29.8)	33.6 (67.2)	18.7 (32.9)

Figures in the parentheses indicate percentage

with the KVK. Conducting farmers' participatory skill development training, method demonstration in the field proved to be very effective for creating awareness and acceptance of improved aquaculture practices among farmers and ultimately getting relative advantages by adopting the improved practices. By evaluating Table 2 it was observed that awareness on the size of the fish seed to be stocked was perceived as the top most benefit of method demonstration by all the respondents. Prior to the awareness programme on quality fish seed stocking farmers were stocking very small size seed due to which they were getting frequent failures. Besides, size of the fish seed during stocking, time of stocking and method of fish seed transportation were other important benefits of the extension programme which were perceived by 97.9 per cent, 93.1 per cent and 89 per cent respondents, respectively. A few other benefits including method of pre stocking management of ponds (86.2%), fish based integrated farming system (83.4%), method of stocking of fish seed (82.1%) and Method of feeding (81.4%) were also perceived by the respondents. The knowledge levels of the respondents about good management practices in aquaculture were studied before and after exposure to farmers' participatory extension programme to study the impact of these extension programmes. Perusing the data presented in Table 3 indicated that there was a remarkable change in overall knowledge level of the farmers (32.9%) about good management practices in aquaculture. In the feeding management practices, the mean knowledge level increased from 33.3 per cent (pre-exposure) to 72.7 per cent (post-exposure) indicating the highest change of 39.4 per cent. Moreover, in pond management practices and method of integration of aquaculture with other enterprises, the pre-exposure mean knowledge level increased from 24.4 per cent (pre-exposure) to 62.4 per cent (post-exposure)

Table 4. Distribution of respondents according to their increase in knowledge level in pre and post stocking pond management after implementation of extension programmes.

Management practices	No.	%	Rank
Identification of fish species	145	100.0	I
Method of liming	120	82.8	IV
Method of application of fertilizer	130	89.7	III
Feeding management	140	96.6	II
Application of agro chemicals	110	75.9	V

and from 38 per cent (pre-exposure) to 71 per cent (post-exposure) showing a change of 38 per cent and 33 per cent, respectively. Similar type of observation has been reported by *Sakib et al (2014)* that very big majority of the respondents (90.90%) had medium to high knowledge on recommended dose of lime application into the pond for betterment of water quality. The increase in knowledge level of participants was also studied with regards to five major areas of pond management. It was clearly indicated that the maximum number of respondents (100%) expressed gain in knowledge in identification of fish species to be stocked (Table 4). Subsequently, 96.6 per cent of the respondents expressed an increase in knowledge level in the area of feeding management followed by method of application of fertilizer (89.7%), method of liming (82.8%) and application of agro chemicals (75.9%), respectively. Similarly, *Nagarajaiah et al (2005)* opined that scientific orientation through innovative proneness was giving direct effect on the knowledge level of farmers.

CONCLUSION

Measurable changes in knowledge level of the farmers about good management practices in aquaculture after exposure to farmers' participatory skill development training and demonstration programme was observed. These positive changes of knowledge level

of the farmers can be attributed to different reasons like diagnostic visit, frequent contacts with KVK and other extension personal, exposure visit to different institutions, awareness cum training on improved management practices and field day aquaculture

technology. Therefore, emphasis on participatory extension programme in the grass root level is very essential for creating awareness and acceptance of improved aquaculture production technologies for upliftment of agriculture scenario of the state.

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