



Usefulness of Fisheries Technical Skills in Fish Business Management: Lessons Learned Through Krishi Vigyan Kendra, South Tripura

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Abstract— This study aimed at analyzing the practical usefulness of fisheries technical skills acquired by the participants while attending the fisheries training programmes conducted by Krishi Vigyan Kendra, South Tripura during last decade. The entrepreneurs who received training were categorized under three group viz. Farmers, Rural Youths and Farm women. Response regarding usefulness of fisheries technical skills was recorded in five point ordinal scale using telephonic interview and text messaging with randomly selected entrepreneurs. The Kruskal-Wallis non parametric test showed that there was significant difference in at least two groups with respect to the usefulness of fisheries technical skills gained from training during the period under study. We further proceeded for post hoc test through pair wise comparison of average mean ranks of entrepreneurs under all the groups viz. Farmers (Male), Rural Youths and Farm women. It was observed that the usefulness of fisheries technical skills gained from training conducted by KVK, South Tripura was higher for farm women as compared to that of trained farmers and rural youths. The usefulness of fisheries technical skills by farmers and rural youths were also ranked good, but post hoc test and pairwise comparison did not show significant difference between two. Scope exists for KVK, South Tripura to make the skill development programmes more useful by improving training content as well as by creating suitable situation for the trainees to use the acquired skills properly.

Keywords— Training, KVK, Kruskal-Wallis test, Tripura

I. INTRODUCTION

Training on scientific management of identified activities is the key for skill development. Training is a crucial and continuous requirement for agricultural development (Medhi et al., 2017). Training consists of well-organized opportunities for the participants to acquire necessary understanding and skill (Lynton and Pareek, 1990). Training plays an important role in advancement of human performance in a given situation. It provides a systematic improvement of knowledge and skills which in turn helps the trainees to function effectively and efficiently in their given task on completion of the training. In agricultural extension, trainings are conducted at various

levels for which the programmes are designed based on clientele problems and needs. The training programmes are idealistically designed and conducted for inducing changes in the durable aspects of persons, changes in relationships and changes in action. The training strategies vary depending upon the learning outcome the trainer seeks to achieve among their trainees. The training may be for improving the proficiency in the task performed or learning a process. Venkatasubramanian (2008) describes training as a process of acquisition of new skills, attitudes and knowledge in the context of preparing for entry into a vocation or improving ones productivity in an organization or enterprise. Training essentially aimed to provide attitude, knowledge and skills required for employment in a

particular occupation or a group of occupations for exercising a function in any fields of economic activity. Effective training requires that you have a clear picture of how the trainees will need to use information after training. This also requires that people practice what they have learnt before they apply it after training. Training is a powerful tool in the hands of extension professionals to develop competence in their clients. Training not only may affect declarative knowledge or procedural knowledge, but also may enhance strategic knowledge, defined as knowing when to apply a specific knowledge or skill (Kozlowski *et al.* 2001, Kraiger *et al.* 1993). Trainings organized by KVKs are helping to ameliorate the poor socio-economic conditions of the farmers, farm women and rural youths in rural India by raising the level of farm productivity, income and employment with the application of agricultural innovation generated at the research station (Dubey *et al.* 2008). Normally KVKs have conducted different types of trainings. Training is one of the mandated activities of KVK. One of the important duties of extension professionals is to communicate the research findings, innovation and new technologies to the farmers and needy people (Venkatasubramanian 2008) to provide required knowledge and skills for adopting the suggested technologies, training is unavoidable component of extension service. There, training is essential component of successful dissemination and adoption process of agricultural technologies. But such training programs are of limited use if proper evaluation is not carried out and effectiveness in terms of change in knowledge and the usefulness of the gained knowledge through training is not studied. With this background about the importance of training towards skill development and the contribution of KVK for the same, this study aimed at analyzing the practical usefulness trainings for skill development and business management on different thematic areas under fisheries conducted by KVK, South Tripura. The study was conducted across three different strata of entrepreneurs viz. Farmers (Male), Rural Youths and Farm Women.

II. MATERIAL AND METHODS

Locale of the study and data:

The study was conducted at South district of Tripura State. The district has significant bearing on the agricultural performance at the state level. Productivity level of many major crops is at par with or even more than national average. The district's agriculture has a paramount role to play in the food production and food security of the state. South Tripura is a promising district as per fisheries sector is concern and it contributes nearly 13 % to the total state fish production from culture fisheries sector. Presently, fish production from both culture and capture fisheries resources of South Tripura district is 10030.19 MT (Culture fish production, 9832.56 MT and Capture fish production is 194.43 MT) from water resources of 3600.95 ha (Culture fisheries, 3410 ha and Capture fisheries, 191 ha). For this study, we have used the database of entrepreneurs who had participated in different skill development training programmes conducted by krishi vigyan Kendra, South Tripura during 2014-15 to 2023-24. Table 1 provided the descriptive illustration of the number of participants attended fisheries related skill development trainings conducted during these years across different thematic areas under fisheries. The total number of participants is the population under study and each category indicates a separate population. A total of 150 trainees who have been doing fish business as entrepreneur were selected using stratified random sampling method covering three categories as mentioned in table 1. We have conducted telephonic survey (both voice calls as well as text messaging) to collect the response of those randomly selected trainees regarding the usefulness or utility of the fisheries knowledge that they had gained while attending the training programme conducted by KVK, South Tripura during the period under study. Out of 150 samples, 21 samples were discarded as their mobile number was not in working condition. Among the responded entrepreneurs under survey, 57 respondents were farmers, 42 respondents were rural youths and 30 respondents were farm women. The data collection was carried out during April-May, 2024. The response was used for analysis to know the level of usefulness of fisheries technical skills that was gained by the respondent while attending the training at KVK. Further, the study extended the analysis to know if there is any significant difference existed in the utility of training-gained fisheries technical skills among the three categories of entrepreneurs.

Table 1: Number of participants attended fisheries trainings during 2014-15 to 2023-24

Category	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Total
Farmers (Male)	217	235	268	190	197	267	96	242	209	236	2157
Rural Youths	114	166	129	112	103	137	36	152	176	232	1357
Farm Women	81	86	65	62	98	74	24	78	98	88	754
Total	412	487	462	364	398	478	156	472	483	556	

Method of analysis:

We have collected the data on usefulness of fisheries technical skills gained through training that was organized by KVK, South Tripura. The measurement of usefulness was done using five point ordinal scale, where 'very useful' (Score = 5), 'useful' (Score = 4), 'moderately useful' (Score = 3), 'less useful' (Score = 2), 'Not useful' (Score = 1). The measurement of usefulness of fisheries knowledge was carried out across three different target groups of participants for whom the trainings were conducted. Three groups of participants were: Farmers (F), Rural Youths (RY), and Farm Women (FW). It is to be noted that we used these abbreviations (i.e. F, RY and FW) in the following sections to indicate three groups of entrepreneurs under study. Mean score and average mean scores were used to summarize the level of usefulness of fisheries technology for different thematic areas within the groups.

As our study specified the objective to know the usefulness of fisheries technical knowledge for different types of entrepreneurs, a non-parametric test to compare the dependent variable among three groups would fit best. Considering this, we selected Kruskal-Wallis H test for this study which is considered as alternative non-parametric approach for one-way ANOVA.

The Kruskal-Wallis test (Kruskal and Wallis 1952) is the nonparametric equivalent of a one-way ANOVA and is used for testing whether samples originate from the same distribution. This test is basically an extension of the Wilcoxon-Mann-Whitney two sample test (Wilcoxon 1945, Mann and Whitney 1947) for more than two independent samples. Kruskal-Wallis test can be used to determine if there are statistically significant differences between two or more groups of an independent variable on a continuous or

ordinal dependent variable. It is considered the nonparametric alternative to the one-way ANOVA. It is important to realize that the Kruskal-Wallis H test is an omnibus test statistic and cannot tell you which specific groups of your independent variable are statistically significantly different from each other; it only tells you that at least two groups were different. Since we have three groups in your study design, determining which of these groups differ from each other is important. For this, we used post hoc test.

With this background, we structured the Null Hypothesis as 'there was no difference in the usefulness of fisheries knowledge gained from training during the period under study', whereas the alternative hypothesis as, 'there was significant difference in at least two groups with respect to the usefulness of fisheries knowledge gained from training during the period under study'. The Kruskal-Wallis test for our study was carried out using 'Statistical Package for the Social Sciences 21' (SPSS 21) software.

The test statistic is given by:

$$H = (N - 1) \frac{\sum_{i=1}^g n_i (\bar{r}_i - \bar{r})^2}{\sum_{i=1}^g \sum_{j=1}^{n_i} (r_{ij} - \bar{r})^2} \text{ Where,}$$

n_i is the number of observation in the group i

r_{ij} is the rank/ score (among all observations) of observation j from group i

N is the total number of observations across all the groups

\bar{r}_i is the average rank or score of all the observations in group i

\bar{r} is the average of all the r_{ij}

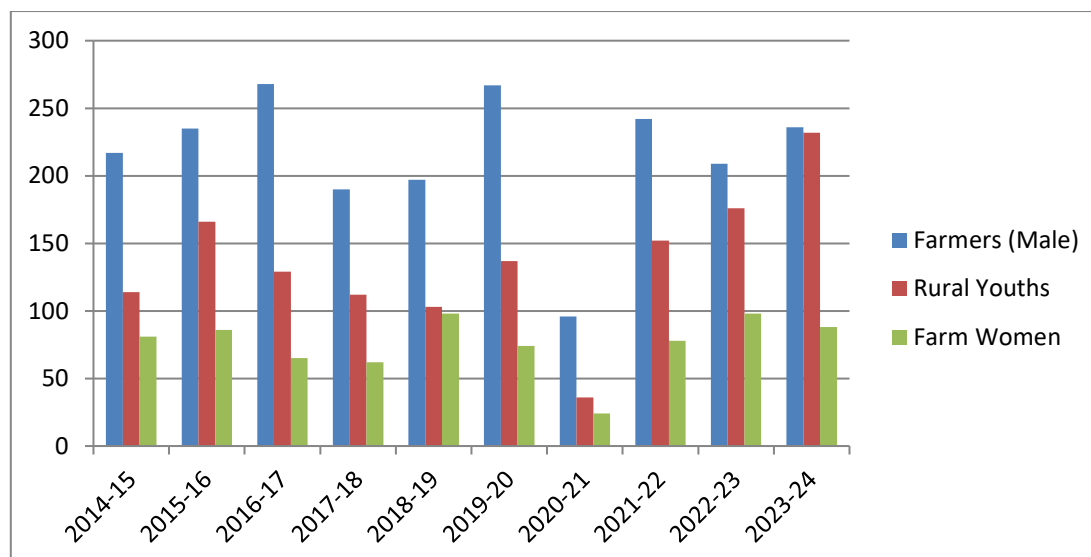


Fig 1: Number of participants attended fisheries trainings during 2014-15 to 2023-24

III. DISCUSSION

The number of farmers (Male), Rural Youths and Farm Women received training on different areas of fisheries during 2014-15 to 2023-24 was summarized and presented in Table 1. Fig 1 showed the graphical representation of participants in training during the period under study. After estimating the mean values from these tables, It was observed that the average numbers of farmers per year trained were 216, 136 and 75 for Farmers (Male), Rural Youths (RY) and Farm women (FW) were respectively. All together 4268 participants attended the fisheries training for skill development at KVK, South Tripura during last ten years and among the trained participants 2157 were farmers (Male), whereas 1357 and 754 were rural youths and farm women respectively. Out of 4268 participants, 526 farmers (Approximately 12.32 %) were found to be engaged in fish business as entrepreneur. Among these 526 entrepreneurs, investigation of usefulness of fisheries technical skills gained through these training was the objective of this study. From these entrepreneurs, 129 entrepreneurs were finalized (finalized from 150 numbers as mentioned in data section) selected randomly, to investigate the level of usefulness of skills learned from training at KVK in five

rating scale as mentioned in the data section. The responses were collected across three different group of entrepreneurs' viz. Farmers (Male), Rural Youths (RY) and Farm women (FW).

Table 2 presented the results of Kruskal-Wallis test against the hypothesis as mentioned in data section. Level of significance in table 2 indicates that we can reject null hypothesis at 1 % level of significance and hence, we are able to state that there was significant difference in at least two groups with respect to the usefulness of fisheries skills gained from training during the period under study. We further proceeded for post hoc test (Table 3) through pair wise comparison of average mean ranks of all the groups viz. Farmers (Male), Rural Youths and Farm Women. It was observed that the usefulness of fisheries skills gained from training conducted by KVK, South Tripura was higher for Farm Women as compared to that of trained farmers and rural youths. In other words, Farm women found the fisheries skills most useful. The usefulness of fisheries skills by farmers and Rural youths were also ranked good, but post hoc test and pairwise comparison did not show significant difference between two.

Table 2: Kruskal-Wallis Test

Variable	Groups	N	Mean Rank	Chi-square	df	Asymp. Sig.
Usefulness of fisheries Skills for Business	Farmers (Male)	57	51.67	25.787	2	< 0.001
	Rural Youths	42	64.14			
	Farm Women	30	91.53			

Table 3: Post Hoc Test (Pair wise comparison among different groups under study)

Comparison	Test statistic	Standard Error	Adj. Significance
Farmers (Male) - Rural Youths	-12.476	7.083	0.235
Farmers (Male) – Farm Women	-39.867	7.856	< 0.001
Rural Youths – Farm Women	-27.390	8.326	0.003

Independent-Samples Kruskal-Wallis Test

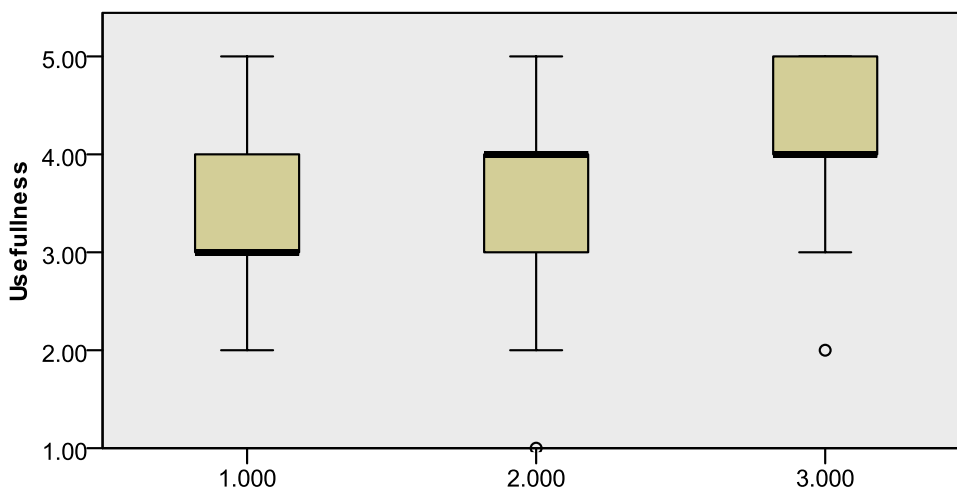


Fig 1: Box Plot of scores on usefulness of fisheries knowledge gained from training
(1= Male Farmers, 2 = Rural Youths, 3 = Farm Women)

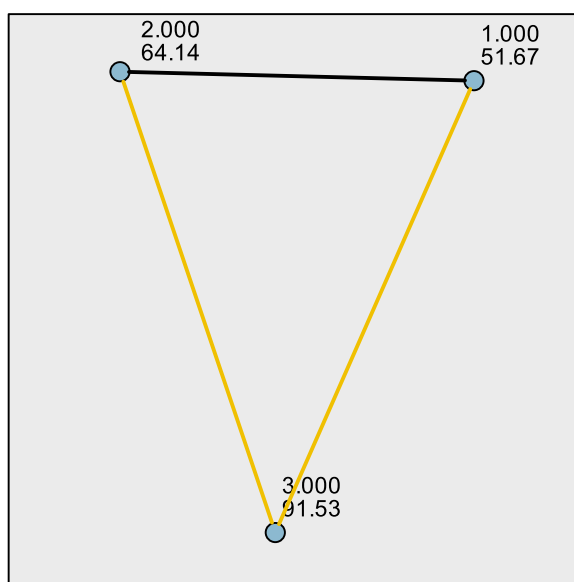


Fig 2: Pair wise comparison: sample average ranks of different groups
(1= Male Farmers, 2 = Rural Youths, 3 = Farm Women) under study

A look towards the thematic areas for training, Rural youths and farm women were trained especially on freshwater prawn farming and composite fish culture. Scope exists to explore other possibilities to train rural youths of south Tripura district in other income generating entrepreneurial aspects of fisheries. Few studies found capacity building programmes in the form of training and demonstration were very useful in KVK system. Kaur (2016) undertook a study to find out knowledge gain by the participants and suggestions from the trainees in order to bring improvement in the coming training courses. Kaur and Aulakh (2015) conducted a study to assess the knowledge level of farm women who had acquired trainings from Krishi Vigyan Kendra, Ferozepur on preparation of cleaning agents. Thakur et al. (2016) found that Capacity building of farmers is an effective tool to augment poultry production and such trainings should be organized at regular interval to sustain the enterprise. Overall, a positive impact of training can be identified in many studies including ours, though the usefulness of the knowledge and skills gained from training varies according to the target group.

IV. CONCLUSION

Scope exists for KVK, South Tripura to make the training knowledge and skills more useful by improving training content as well as by creating suitable situation for the trainees to use the acquired knowledge properly. Medhi et al (2017) found that trainings conducted by one of the KVK of Meghalaya were effective in increasing the knowledge of trainees about improved rice farming practices. Many KVK training programmes end up without evolving adequate impact because of lack of adequate follow up support to the trainees. The trainees require repeated persuasion, guidance and support put into practical application of newly acquired skills. Linking up with the financial institutions, state departments, rural development institutions, marketing agencies etc., is a must for trainees to sustain themselves in the field. Most of the time we can see the trainees could not succeed practically because of lack of financial assistance or continued technological support or marketing support. Such field level constraints need to be addressed carefully by KVKs by providing them with adequate post training support as per their needs.

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