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Impact evaluation of integrated fish farming vocational trainings on knowledge gain by trainees

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Abstract

The study was conducted to determine the effectiveness of vocational training programme on knowledge gain among the participants on integrated fish farming at Krishi Vigyan Kendra, Barnala. It was found that majority of respondents joined the training course to adopt integrated fish farming as an occupation. The data revealed that just after completion of training, most (52.38%) of trainees were having high level of knowledge regarding integrated fish farming followed by 38.10% trainees having medium level of knowledge. The results clearly indicate that vocational training on integrated fish farming was effective in enhancing the knowledge gain of trainees.

Keywords: Knowledge, training, trainees, fish farming, integrated, gain

Introduction

Agriculture and livestock farming practices are considered as the backbone of Indian economy. It is more popular in rural areas as livelihood of people depends on these practices. However, due to inflation, it is difficult for the farmers to survive using conventional farming practices. In order to update rural farmers with knowledge, skills and new scientific techniques of farming, the farm science centres known as “Krishi Vigyan Kendras (KVK)” plays an integral role. Modern cultural practices such as Integrated farming is considered as sustainable farming practice, which leads to increase productivity with greater efficiency in resources utilization, reducing risk by crop diversification for small scale farming households (Ayyappan *et al.*, 2011) [2]. Integrated fish farming is sequential linkage between fish farming and agriculture or animal husbandry with fish farming as major commodity (Ayyappan *et al.*, 2011) [2]. Integrated fish farming practices are cost efficient as by-products of one farming practice are used as nutritional supplements for other. Thus, reduces labour and transportation cost of waste disposal in one practice and feed cost in other. Fish farming practice can be integrated with agri-aquaculture based systems (paddy cum fish farming, horticulture cum fish farming, mushroom cum fish farming, seri cum fish farming, vermicompost cum fish farming) and livestock-fish based farming system (cattle cum fish farming, pig cum fish farming, goat or sheep cum fish farming, poultry cum fish farming, duck cum fish farming) practices with fish farming as a major component (Ayyappan *et al.*, 2011) [2].

Training is the easiest method to transfer or gain knowledge as individual of any age irrespective of gender and educational status can participate in training programmes. Training helps the farmers in raising awareness about new agriculture technologies and bridges the gaps between production and productivity. The Krishi Vigyan Kendra often organise the on-campus and off-campus vocational trainings that help the trainees in raising knowledge, skills and change their perception towards recommended improved farm technologies which can increase self-employment opportunities among rural farmers (Shankara *et al.*, 2014) [11]. The present study was conducted to evaluate the impact of three vocational trainings on knowledge gained by the trainees at Krishi Vigyan Kendra, Barnala on integrated fish farming.

Materials and Methods**Location of the study and sampling plan:**

The study was conducted in three batches on all sixty-three trainees who attended the vocational training at Krishi Vigyan Kendra, Barnala to access the knowledge acquired by trainees on integrated fish farming. Trainees comprising of farmers, labourers, unemployed

youth, students and businessmen. The socio- demographic profile of trainees varies from urban to rural, primary to graduates, landless to land holders and different categories with age less than 30 years and more.

Research design and data collection

A knowledge test comprising of ten objective type questionnaires was framed to determine the impact of training programmes before and after the training. Quantitative technique was used to assign marks for each answer of the respondents. Individual participant knowledge score was calculated by assigning one credit for correct answer and no credit for incorrect answer. Thus, maximum score in test was ten. Data for the study was stored as hard copy of answered questionnaires by each participant. Later, the data was calculated and stored as soft copy.

Analysis of Data

The gain in knowledge was assessed by calculating the difference between the knowledge acquired on integrated fish farming practices by the trainees before and after the vocational trainings. The data for knowledge gain was tabulated and analysed through frequency and percentage using the following standard formula given by Ansari and Chandargi (2000) [1].

$$\text{Gain in knowledge} = \frac{\text{Posttrainingtest} - \text{Pretrainingtest}}{\text{Pretrainingtest}} \times 100$$

The knowledge scores are further assessed by classifying the trainees into three categories as low (0 to 30%), medium (31 to 60%) and high (more than 60%) level of knowledge.

Results and Discussion

Socio-demographic characteristics of trainees

As per the data illustration on Table 1, the socio-demographic characteristics of trainees were assessed through age group, educational status, gender, land holding, etc. Considering the age as factor, trainees were classified into three divisions that are upto 30 years, 31-40 years and above 40 years. It was evident that maximum numbers of trainees were from age 31-40 years followed by up to 30 years and above 40 years with percentage of 47.62, 26.98 and 25.40, in order. All the trainees were male and these findings are similar to findings of Singh *et al.*, (2013) [14]. On further inspecting the data it was vivid that trainees from different caste participated in these vocational trainings out of total 39.68 percent belong to schedule caste, 6.35 percent were from backward caste and 53.97 percent were others. Assessment of trainees in relation to educational qualification reveals that 50.79 percent of trainees studied up to senior secondary followed by matriculate (26.98%), graduate (12.70%), middle school (6.35%) and primary level (3.18%). Further exploring the data, it was clear that approximately 60% of participants have their own land whereas 40 percent were landless. Based on occupation, data revealed that majority of trainees were farmers (52.38%) in concordance with those of Kaur, 2016 [7] showed keen interest in integrated fish farming followed by labourers (20.63%), businessmen (15.87%), unemployed youth (7.94%) and the students (3.18%). Majority of trainees (84.13%) came from rural areas to learn about integrated fish farming. These findings are in accordance with the study of

Singh *et al.*, (2010) [13].

Table 1: Socio-demographic characteristics of trainees (n=63)

Sr. No.	Characteristics of trainees	Frequency	Percentage
1.	Age		
	Up to 30 years	17	26.98
	31-40 years	30	47.62
	Above 40 years	16	25.40
2.	Caste		
	Scheduled Caste	25	39.68
	Backward Caste	04	6.35
	Others	34	53.97
3.	Education		
	Primary	02	3.18
	Middle level	04	6.35
	Matriculate	17	26.98
	Senior Secondary	32	50.79
	Graduate	08	12.70
4.	Occupation		
	Farming	33	52.38
	Business	10	15.87
	Unemployed	05	7.94
	Laborers	13	20.63
	Students	02	3.18
5.	Landholding		
	Landless	25	39.68
	<1 ha	09	14.29
	1-2 ha	12	19.05
	>2 ha	17	26.98
6.	Gender		
	Male	63	100
	Female	0	0
7.	Residence		
	Urban	10	15.87
	Rural	53	84.13

Previous knowledge assessment

The data from Table 2 depicts the knowledge trainees had about integrated fish farming before attending vocational trainings. It is evident that majority of trainees had low level of knowledge (0-30%) with 85.7 percent in consonance with Belakeri *et al.*, (2017) [5] and around 14.29 percent participants had medium level knowledge (31 to 60%). However, no trainee had knowledge more than 60 percent. These three findings of low, Medium and high level of knowledge are in same line with the study of Pandey *et al.*, (2017) [9] and Singhand Tanwar (2018) [12]. This clearly indicates that farmers, unemployed youth, businessmen and even students do not have enough knowledge prior to training about integrated fish farming practices.

Table 2: Pre-training knowledge score of trainees

Knowledge Level	No. of trainees (N=63)	Percentage
Low level (0 to 30%)	54	85.71
Medium level (31 to 60%)	9	14.29
High level (more than 60%)	0	0

Increase in level of knowledge

The Table 3 reveals about the knowledge trainees had on integrated fish farming practices before and after the trainings at Krishi Vigyan Kendra, Barnala. The gain in knowledge was calculated by subtracting the post-training and pre-training percentage.

Table 3: Gain in knowledge after acquiring training with respect to different operational parameters. n=63

Sr. No.	Parameters	Pre-evaluation (%)	Post-evaluation (%)	Gain in knowledge
1.	Selection of fish species	28.57	76.19	47.62
2.	Preparation/construction of pond	22.22	60.31	38.09
3.	Balance feeding	22.22	65.07	42.85
4.	Stocking density of fish species	17.46	53.96	36.50
5.	Integrated fish cum agriculture	22.22	74.60	52.38
6.	Integrated fish cum Pig farming	23.80	84.12	60.32
7.	Integrated fish cum Poultry farming	22.22	77.77	55.55
8.	Integrated fish cum Duck farming	15.87	61.90	46.03
9.	Water quality management	12.69	52.38	39.69
10.	Fish marketing	7.93	49.20	41.27

Exploring the pre-training data from tabular chart 3 reveals that trainees had minimum knowledge regarding fish marketing (7.93%). Further, pre training knowledge in relation to preparation of pond, fish integration with agriculture and poultry was 22.22 per cent. However, knowledge about integration of fish with pig was slightly more that is 23.80 percent. Furthermore, previous knowledge of candidates regarding fish cum duck farming and water quality management were 15.87 and 12.69 percent, respectively.

By comparing pre and post evaluation of training data from Table 3 it was evident that the trainees had 22.22 and 60.31 per cent of knowledge with respect to preparation of pond in pre and post evaluation of training, respectively. These findings were in concordance with Barua, 2010 [4] and Laxmi *et al.*, 2015 [8]. The trainees had 28.57 and 22.22 per cent of knowledge about selection of fish and balance feeding before the training. However, after the training, knowledge was 76.19 and 65.07 per cent, in order. These findings were closely related to Laxmi *et al.*, 2015 [8]. The trainees had 17.46 and 53.96 per cent of knowledge with respect to stocking density of fish in pre and post evaluation of training, respectively. The data was in the same line with Barua, 2010 [4]

Further scrutinizing the data, it is vivid that significant gain in knowledge regarding integrated fish farming was noticed in candidates after attending the vocational trainings. The percentage of knowledge gain in integration of fish with agriculture, pig, poultry and duck was 52.38, 60.32, 55.55 and 46.03 percent, consecutively. The minimum percentage (36.50) of knowledge gain was observed with stocking density of fish species. Gain in knowledge regarding construction of pond, water quality management, fish marketing and balance feeding was almost same with 38.09, 39.69, 41.27 and 42.85 percent. Although knowledge acquired about fish selection after training was 47.62 percent higher as compare to pre-training knowledge.

The findings of the study revealed that trainees gained knowledge ranging from 36.50% per cent with respect to stocking density of fish species to 60.32 per cent with respect to integrated fish cum pig farming after attending trainings on Integrated Fish Farming. The overall results show significant increase in knowledge gain from pre to post training evaluation data. These findings were in agreement with Singh and Tanwar (2018) [12], Laxmi *et al.*, 2015 [8], Islam and Nath (2015) [6], Pordhiya *et al.* 2017[10], Singh *et al.*, 2010 [13] and Baraiya and Baraiya (2016) [3] having similar results with increase in knowledge level after attending the training programmes.

Extent of knowledge

The data presented in Table 4 shows that after the training programs on integrated fish farming, majority of the trainees had high level of knowledge (52.38%) followed by medium level of knowledge (38.10%) and low level of knowledge (9.52%). These findings were synonyms to the findings of Belakeri *et al.*, (2017) [5].

Table 4: Post-training knowledge score of trainees

Knowledge Level	No. of trainees (N=63)	Percentage
Low level (0 to 30%)	6	9.52
Medium level (31 to 60%)	24	38.10
High level (more than 60%)	33	52.38

Conclusion

The above findings clearly indicate that vocational trainings conducted by Krishi Vigyan Kendra, Barnala were helpful in disseminating modern sustainable farming practices at ground level. Most participants in these training programs were farmers and labourers which upon using this knowledge can find self-employment and reduce the gap in production and productivity which will further support the economy of the country.

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