

Impact of Training on Paddy Production Technology

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Abstract

This study was conducted in Bhandara district of Eastern Vidarbha Zone. Training programmes conducted by KVK, Bhandara on production technology of paddy were evaluated to assess the impact of these programmes. For this evaluation forty trainees were randomly interviewed and data collected for socio-economic and psychological characteristics as well as dimensions of training and developmental parameters. In case of independent variables, most of the respondents were found in the middle age group, with good educational status, possessed small land holding, were having medium type of land and temporary sources for protective irrigation. Most of the respondents were early adoptors and early majority of innovativeness. Scientific orientation and economic motivation of respondents were low. In case of intervening variables, majority of the respondents were having low level of knowledge, less favourable attitude, low to moderately motivated, less confident with low extent of adoption of paddy cultivation technology. Impact analysis reveals that level of knowledge, skills, attitude, motivation, confidence and adoption increased after the training programmes. Similarly, an increase in the developmental parameters viz. area under technology, production, productivity, family employment and annual income were recorded. Overall vertical impact of the training programmes on the farmers was about 30 per cent.

Introduction

Initially the main emphasis of Krishi Vigyan Kendra was on vocational training to farmers / rural youth. It was a very successful attempt made through the KVK. Later on the demand increased for additional functions to be operated through KVK. Likewise, the activities of the KVK were tailored as per the demand and front line demonstrations and on farm testing were being conducted by the KVK. However, training remains an important mandate of KVK. As per the needs

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of the farming community, training courses are planned for increasing the knowledge and skills of the people which helps to increase the adoption of improved technology by the farmers. Since establishment, KVK, Bhandara has conducted a number of training programmes especially on production technology of paddy crop. Bhandara is mainly a paddy growing District where paddy is the sole crop in the Kharif season as well as a major irrigated area of the District is covered by paddy in summer also. KVK, Bhandara conducted very intensive on-farm and off-farm training programmes for the farmers. After a three year period, it was felt necessary to evaluate the effectiveness of those training programmes. Hence, an impact assessment of the training programmes was planned with the following objectives.

- i. To study the socio-economic and psychological characteristics of paddy growers.
- ii. To study the impact of training programmes on knowledge, skills, attitude, motivation, confidence and adoption of paddy technology by the farmers.
- iii. To study the impact of training programmes on area under technology, production, productivity, family employment and annual income of paddy growers.
- iv. To study the relationship between socio-economic, psychological characteristics of farmers with impact indicators of training and developmental parameters.

Methodology

The present study was conducted in Bhandara District of Eastern Vidarbha Zone of Maharashtra which is the operational area of Krishi Vigyan Kendra, Sakoli under Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola. In production technology of paddy, the KVK had been covering the technologies, such as Field preparation, Varieties and their selection, Seed and seed treatment, Nursery management, Paddy cultivation methods, Puddling, Green manuring and use of bio-fertilizers, Transplanting, Fertilizer management, Water management, Intercultural operations, Disease and pest management, Weed management, Harvesting and threshing.

The training courses with the above components were conducted by the KVK in different batches for about a period of three days and seven days. Most of the training was on-campus, but some of the components were conducted off-

campus where suitable sites were available. The training programmes of the previous three years were evaluated with the help of ex-post facto research design. Forty respondents were selected by random sampling method from the list of trainees. A pre-tested interview schedule was used to collect the data for evaluation of the training programmes. The data was collected for independent, intervening and dependant variables. Socio-economic characteristics were measured by their status whereas; psychological variables were measured with the help of a standardized scale. Dimensions of training and developmental parameters were measured before and after the training programmes. Training elements were measured mostly by developing the test for this study and indexes were calculated. Relational analysis was done with the help of Pearson Correlation formula.

Results and Discussion

Socio-economic and Psychological Profile of Paddy Growers

The socio-economic and psychological profile of paddy growers who have undergone training on production technology of paddy at Krishi Vigyan Kendra, Sakoli, district Bhandara are presented in Table 1.

Table 1. Personal, Socio-economic and Psychological Profile of Paddy Growers

S.No.	Characteristic	Level	N=40	Percentage
1	Age	Young (Upto 35)	15	37.50
		Middle (36 - 50)	18	45.00
		Old (Above 50)	07	17.50
2	Education	Illiterate	01	02.50
		Primary School	07	17.50
		Middle School	08	20.00
		High School	08	20.00
		College & Above	16	40.00
3	Land Holding	Small	27	67.50
		Medium	13	32.50
		Large	00	00.00
4	Type of Land	Light	12	30.00
		Medium	26	65.00
		Heavy	02	05.00

5	Source of Protective Irrigation	No Source	16	40.00
		Temporary Source	24	60.00
		Permanent Source	00	00.00
6	Innovativeness	Innovators	03	07.50
		Early Adopters	15	37.50
		Early Majority	12	30.00
		Late Majority	10	25.00
		Laggards	00	00.00
7	Scientific Orientation	Low	05	47.50
		Medium	16	40.00
		High	19	12.50
8	Economic Motivation	Low	06	52.50
		Medium	13	32.50
		High	21	15.00
9	Training Effectiveness	Effective to some extent	10	25.00
		Moderately Effective	06	60.00
		Highly Effective	24	15.00
10	Training Satisfaction	Satisfied to limited extent	11	27.50
		Moderately Satisfied	09	50.50
		Fully Satisfied	20	22.00

Majority of the respondents (45%) belonged to 36 to 50 age category followed by 37.5 per cent respondents up to the age of 35 years. This implies that a majority of respondents belonged to middle to young age category. In the educational category only 2.5 per cent were illiterate and the remaining were literate. Among the literates, majority of the paddy growing respondents (40%) were having college education and above. Among the respondents, 67.5 per cent were having small land holding while the remaining were medium land holding farmers. None of the respondents had a large size of land holding i.e. above 4 ha. Majority of respondents i.e. medium (65%) followed by small farmer respondents (30%) belong to medium and light type of soils.

In paddy, protective irrigation is very important especially during the second dry spell as per the recent trend of rainfall. Hence, a source of protective irrigation which may help the farmers in adoption of improved technology was studied.

Sixty per cent of the respondents recorded temporary source of protective irrigation but not assured to be available as and when required. The remaining 40 per cent of the respondents were not having any source of protective irrigation. Innovativeness as referred to an individual implies relatively early in adopting improved paddy cultivation practices than other members of his social system. In this study, 37.5, 30 and 25 per cent of the respondents were found to be early adopters, early majority and late majority, respectively. No one was found in the category of laggards. A majority i.e. 47.5 per cent followed by 40 per cent of the respondents were found in low and medium level of scientific orientation, respectively. This indicates that a majority of paddy growers who had undergone training at KVK, Sakoli were not really oriented towards the use of the scientific method of paddy cultivation. In the category of economic motivation the same trend was observed i.e. a majority of the respondents were found in low category (52.5%) followed by medium category (32.5%).

It is revealed from Table 1 that a majority of the respondents i.e. 60 per cent who had undergone training at KVK, Sakoli recorded medium level of training effectiveness. This implies that, required topics were covered to some extent, were somewhat useful to the respondents, helped them to gain knowledge to some extent, did not fully improve their skills, fulfilled mediocre level of expectations of trainees with partial quality of training imparted by the faculty. Regarding training satisfaction of trainees, it is observed that 50.5 per cent of respondents were found at the level of moderate satisfaction, where as 27.5 and 22 per cent respondents were found satisfied to some extent and fully satisfied, respectively. This indicates that technical competencies, facilities provided, resources available and communication mode provided by KVK, Sakoli was partially fulfilling the level of satisfaction.

Distribution of Respondents according to Intervening Variables

Intervening variables viz. knowledge, skill, attitude, motivation, confidence and adoption are the important dimensions of training. Distribution of these variables is given in Table 2.

Table 2. Distribution according to Intervening variables

S.No.	Characteristic	Level	N=40	Percentage
1	Knowledge	Low	23	57.50
		Medium	12	30.00
		High	05	12.50
2	Skill	No skill	13	32.50
		Basic skill	16	40.00
		Partial skill	07	17.50
		Full skill	04	10.00
3	Attitude	Unfavourable	02	05.00
		Less Favourable	22	55.00
		Moderately Favourable	12	30.00
		Highly Favourable	04	10.00
4	Motivation	Not Motivated	05	12.50
		Less Motivated	18	45.00
		Moderately Motivated	17	42.50
		Highly Motivated	00	00.00
5	Confidence	Not Confident	13	32.50
		Less Confident	19	47.50
		Moderately Confident	08	20.00
		Highly Confident	00	00.00
6	Adoption	Low	22	55.00
		Medium	10	25.00
		High	08	20.00

It is revealed from Table 2 that 57.5 per cent respondents expressed low level of knowledge gain after the training on production technology of paddy. It was followed by 30 and 12.5 per cent of the respondents who recorded medium and high level of knowledge, respectively.

Regarding skills of improved practices, 40 per cent respondents were found in the category of basic skills received after the training. It appears that a majority of the respondents only observed the techniques demonstrated by the resource person during the training, but did not perform the same themselves nor were asked to perform the same. This is followed by 32.5 per cent of the respondents having no skills of doing improved practices of paddy cultivation. It is likely that in some of the training programmes, practical sessions may not have been conducted where demonstrations are given and participants are also asked to perform. Around 17.5 per cent of the respondents expressed having partial skills of improved techniques and only 10 per cent of the respondents recorded full skills of improved practices of paddy cultivation.

Even after attending the training programme 55 per cent of the respondents had less favourable attitude towards improved practices, followed by 30 per cent respondents having a moderately favourable attitude. This was plausibly because the heterogeneous group of trainee farmers did not understand the technology properly which they needed and/or trainers were unable to impart the need based technical knowledge in an understandable manner which affected the attitude of the respondents.

When studying the motivational level of the respondents, it is observed that 45 per cent and 42.5 per cent respondents were less motivated and moderately motivated, respectively. Regarding confidence level, it is observed from Table 2 that 47.5 per cent respondents expressed having less confidence towards adoption of improved cultivation practices and 32.5 per cent respondents had no confidence after attending the training programme. This was plausibly because the trainees were not much involved in the practical sessions which help to understand the techniques and improve their confidence.

Even after participating in the training programmes, majority of respondents (55%) have not adopted the improved cultivation practices of paddy. About 25 and 20 per cent respondents have reported medium and high level of adoption of improved practices.

From Table 2 it is observed that knowledge, attitude and adoption of the respondents were found to be low. Even after intensive training the lower adoption behaviour was recorded probably due to the participation of some tribal respondents from the newly adopted village of the KVK. The six tribal respondents with lower socio-economic status and oriented towards forest related activities were probably not enthused to obtain the knowledge of improved technology hence, the adoption behaviour in total was perhaps found lower.

Impact of Training Programmes on Intervening Variables

Table 3 indicates the impact of training programmes on knowledge, skill, attitude, motivation, confidence and adoption of paddy growers who have undergone training at KVK, Bhandara.

Table 3. Impact of Training

S.No.	Intervening Variables	Mean		Per cent increase
		Before	After	
1	Knowledge	14.47	23.77	64.27
2	Skill	08.07	12.46	54.40
3	Attitude	17.72	21.35	20.48
4	Motivation	15.33	17.85	16.44
5	Confidence	13.60	15.65	15.07
6	Adoption	12.95	17.35	33.98
	Total Impact			34.11

Table 3 indicates, mean index of intervening variables before and after the training programme and per cent change in the variables after the training programme. Knowledge, skill, attitude, motivation, confidence and adoption index of all variables show an increase in their levels after the training programmes. The highest increase is recorded in knowledge level i.e. 64.27 per cent, followed by increase in skills and adoption by 54.40 and 33.98 per cent, respectively. Some psychological variables like attitude, motivation and confidence show less increase i.e. 20.48, 16.44 and 15.07 per cent, respectively. Vikram Singh *et. al.* (2009) reported similar findings that training programmes help to achieve higher level of motivation, develop personality and self confidence on the personal front and increase in knowledge, skills and attitude on the professional front. Akilesh Kumar and Shrivastava (2007) have reported that after the training from the KVK, farmers increased their knowledge and adoption of improved technology of wheat. Meena and Bhati (2010) found that trainings were effective and significantly increased the knowledge of farmers about cotton production technologies and 25-30 per cent adoption increased over the pre training.

Levels of these parameters increased after the training programmes but not much impact was observed because of the participation of some tribal farmers in the training programmes. Their socio-cultural and psychological factors could be the reason for less impact on the whole. It clearly indicates that tribals need to be treated separately, considering their psychological characteristics, customs, beliefs and other social values.

Very low skill index (08.07) before training increased just up to 12.46 skill index after the training which shows a false impression of high increase of 54.40 per cent. High gap is found between percentage increase in knowledge and adoption. Increase in knowledge was 64.27 per cent and increase in adoption was only 33.98 per cent. This gap is plausibly because skill and psychological variables like attitude, motivation and confidence affects the adoption of improved cultivation practices by the respondents.

Total impact on summation of six intervening variables is found to be 34.11 per cent.

Impact of Training Programmes on Developmental Parameters of Paddy Growers

Developmental parameters studied are area under technology, production, productivity, family employment and annual income of paddy growers. Impact on these parameters is presented in Table 4.

Table 4 : Impact on Developmental Parameters of Paddy Growers

S.No.	Developmental Parameter	Mean		Per cent increase
		Before	After	
1	Area Under Technology (ha.)	00.13	00.59	353.85
2	Production (q.)	34.20	44.98	31.52
3	Productivity (q/ha.)	25.94	31.51	21.47
4	Family Employment (man days/yr.)	151.5	172.9	14.25
5	Annual Income (Rs.)	37453	49645	32.55

From Table 4 it is revealed that area of respondents under improved technology before the training programme was only 0.13 ha. which increased up to 0.59 ha. Area under technology before the training programme was negligible; a small increase in the area after the training programme shows a very high per cent increase in the area, which creates a false impression of high increase. As an effect of the training programme, production, productivity and family employment of the respondents increased by 31.52, 21.47 and 14.25 per cent, respectively. Due to the positive effect on the above parameters, annual income of respondents increased by 32.55 per cent i.e. from Rs.37,453/- to Rs.49,645/-.

Total impact on developmental parameters

Due to the false impression of per cent increase in area under technology (353.85%), total impact on developmental parameters was 90.73 per cent. If the abnormal increase in percentage of area is dropped from the calculation, the total impact of training programmes on the respondents would be 24.95 per cent.

Overall impact of Training Programmes on Paddy Growers

The overall impact is the mean of total impact of intervening variables and total impact of developmental parameters. The overall impact calculated is 29.53 per cent, which implies that the impact of training programmes conducted by KVK Bhandara on paddy technology is about 30 per cent. This is the vertical impact of training programmes.

Table 5. Relationship of Socioeconomic and Psychological variables with Training Elements as Impact Indicators

S. No.	Variables	Knowledge	Skills	Attitude	Motivation	Confidence	Adoption
1	Age	0.4098**	0.0513	-0.0443	0.1298	0.0159	0.2516
2	Education	-0.1879	0.0165	0.2553	0.3854*	0.2469	-0.0964
3	Land Holding	0.1962	0.0894	0.1704	0.1893	0.0974	0.1330
4	Type of Land	-0.2045	0.4322**	0.4743**	0.2536	0.4412**	0.1065
5	Source of Protective Irrigation	0.0875	0.3853*	0.0740	-0.0649	0.1895	0.1656
6	Innovativeness	0.3134*	0.3568*	0.2352	0.2791	0.4467**	0.1345
7	Scientific Orientation	0.0878	0.2427	0.1830	0.1835	0.1412	0.2242
8	Economic Motivation	0.0717	0.3721*	0.4519**	0.2427	0.5748**	0.3391*
9	Training Effectiveness	0.3928*	0.2833	0.1839	-0.0520	0.2033	0.3730*
10	Training Satisfaction	0.2357	0.2642	0.3470*	0.1136	0.3446*	0.3329*

* Significant at 5% level of probability

** Significant at 1% level of probability

It is evident from Table 5 that among the socio-economic and psychological profile of farmers, age, innovativeness and training effectiveness were found positively correlated with knowledge. Age was highly significant while innovativeness and training effectiveness were significantly correlated with the knowledge of paddy technology at 1 per cent level of probability. Kharatmol (2006) had also found positive and significant relationship between innovativeness

and knowledge of trained farmers. In case of skills, attitude and confidence, the type of land was found highly significant. This might be due to the fact that good quality land itself assured better returns; after the training programmes this indicator helped to make the attitude favourable towards paddy production. The type of land might have encouraged trainee farmers to use knowledge of paddy technology effectively and rapidly in execution of performance that consequently helped to increase the confidence of farmers. Economic motivation, a psychological characteristic was found to be significantly correlated with attitude and confidence of farmers at 1 per cent level of probability. This indicates that better relative value of farmers at the economic end/economic front can make their attitude favourable towards paddy technology, that can also increase the level of their confidence about the use of paddy production technology. This is the reason why economic motivation is found significantly related with the adoption of paddy production technology at 5 per cent level of probability. Economic motivation also had a part in competent execution of knowledge, hence the relationship of economic motivation and skills of farmers was found significant at 5 per cent level of probability. Effective training can satisfy the training needs of farmers. In the present study, satisfied trainee farmers had a favourable attitude and more confidence in paddy technology, consequently favourable attitude and confidence can motivate the farmer to use the technology on his own farm. It was justified because the relationship of training satisfaction of farmers with attitude, confidence and adoption was significant at 5 per cent level of probability.

Table 6. Correlation matrix of Dimensions of Training Programmes

S.No	Dimensions	Knowledge	Skills	Attitude	Motivation	Confidence	Adoption
1	Knowledge	1.0					
2	Skills	-0.1800	1.0				
3	Attitude	0.3856*	0.0304	1.0			
4	Motivation	0.4125**	0.1205	0.6036**	1.0		
5	Confidence	0.4277**	0.2986	0.7231**	0.7106**	1.0	
6	Adoption	0.4344**	0.0737	0.2334	0.2631	0.3998*	1.0

* Significant at 5% level of probability

** Significant at 1% level of probability

In the present study, six dimensions were selected for assessing the impact of training programmes as dependent variables. In relational analysis, correlation matrix was calculated within these dimensions and presented in Table 6. It is observed that attitude is positively and significantly correlated with knowledge at 5 per cent level of probability, whereas motivation, confidence and adoption

were highly correlated with knowledge. Kharatmol (2006) has revealed the same that relationship of knowledge and adoption by trained farmers was highly significant. It clearly indicates that when knowledge of farmers about production technology of paddy increases, favourable attitude, motivation, confidence level and extent of adoption increases. It was also seen that when attitude was positive, farmers became motivated and when farmers became motivated their confidence level towards the use of paddy technology increased. Once confidence in paddy technology increased, adoption of improved paddy technology by the farmers became easier. This is proved in the correlation matrix table where attitude is significantly related with motivation and confidence at 1 per cent level of probability. Motivation was highly significant with confidence and confidence was significantly correlated with adoption at 5 per cent level of probability.

Conclusion

Skills, attitude, motivation and confidence played an important role in the adoption decision process. Therefore, it is concluded that in the curriculum of the training programme more practical sessions need to be incorporated and must follow the principal of learning-by-doing. Adoption of technology was also influenced by psychological variables, therefore it is necessary to conduct the sessions during training to bring about a change in the farmers' attitude, motivation and confidence level favourably for farmers to adopt improved cultivation practices.

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