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Impact of Krishi Vigyan Kendra on Knowledge of Integrated Crop Management Practices

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Abstract—*Training constitutes a basic concept in human resource development. Technical break-through in agricultural research in recent years has provided with immense opportunities to increase agricultural production will depend on our ability to involve a large number of farmers and to impart them with the knowledge and skills. To assist these huge masses, innovative programme related to transfer of technology were launched in our country. Krishi Vigyan Kendra (KVK) is the important instrument of transfer of technology at grass-root level. The KVK being an educational institution it organises trainings trainees in developing more skills. The gap between the farmers and the research level will be fulfilled by the trainings. Keeping in this view, the study was focussed and an attempt has been made to know the overall knowledge and practice wise knowledge of recommended practices given by KVK. The study was taken up in Sivagangai district of Tamil Nadu. A total of 120 trainees were selected as respondent using proportionate random sampling technique. The study revealed that majority of the respondents (80.00 per cent) had medium to high level of knowledge for the recommended ICM practices in paddy crop and 20.00 per cent of the respondents fell under low level of knowledge in recommended practices. Eight technologies were studied under practice wise knowledge. Among the eight technologies forty recommended practices were taken for the study. Majority of the trainees possessed knowledge on practices like recommended varieties, recommended seed rate, hand weeding, practising Stubble incorporation, summer ploughing, raising pest and disease resistant varieties with higher percentage.*

Keywords*: Training, Knowledge, Impact, KVK.*

1. INTRODUCTION

Training is a fundamental concept in human resource development and it refers to the teaching, learning activities. It also helps the members of an organisation in attaining knowledge and skills.

An agricultural invention and innovation continuum in all facets of agriculture and allied activities with its effective diffusion helps in increasing the production and productivity. The lab to land transfer of technology is very much important in the fruitfulness of every innovation; hence Krishi Vigyan Kendra (KVK) was launched to impart knowledge to grass root level. Sivagangai is an important district in Tamilnadu where the majority of farmers depend on dry land agriculture. KVK is located at Kundrakudi and is fully funded by ICAR. This vocational training centre acts as a bridge for transfer of advanced technology from lab to land and acts as a source of hope to the rural farming and allied communities. Considering the developing nature of the district, the study was conducted to analyse the knowledge level of KVK trainees.

2. METHODOLOGY

The study was taken up in Sivagangai district of Tamil Nadu. The sivagangai district comprises of eight taluks namely, Sivagangai, Manamadurai, Ilayankudi, Devakottai, Karaikudi, Thirupathur, Thiruppuvanam and Kalayarkovil. Among the eight taluks, Ilayankudi, Thirupathur and Kalayarkovil were selected based on the trainees list obtained from the KVK. A list of total villages were collected from Krishi Vigyan Kendra, Kundrakudi. From the list, four villages namely Kallankuthu, Kalayarkovil, Ammanendal and Salaikiramam were selected purposively because of the maximum numbers of trainees participated in the topic Integrated Crop Management practice. The Integrated Crop Management topic was purposely selected as the study focussed on Agriculture. A list of trainees who attend the training on Integrated Crop Management on paddy was obtained. To know the impact of training programmes organised by KVK a sample size of 120 respondents were selected purposively for the study. The numbers of respondents for each village were selected using proportionate random sampling technique. In this study, knowledge level of paddy farmers in respect of recommended cultivation practices, a teacher made test was developed following the procedure used by [2](1973) and it was used for the study. The test included 40 items relating to selected ICM in paddy technologies. The items were collected from review of literature and based on discussion conducted with the specialists and officials of Krishi Vigyan Kendra, Kundrakudi. The data were collected with the help of well-structured and pre-tested interview schedule and suitable statistical tools were used to analyse the data. The respondents were classified into low, medium and high category. Percentage analysis was

computed to study the practice-wise knowledge of the respondents.

3. RESULTS AND DISCUSSIONS

The knowledge of an innovation is a pre requisite for adoption. A higher knowledge of technical nature of improved practices will lead to a higher adoption. KVK is playing an important role in increasing the knowledge of improved agricultural practices through its various extension education activities like demonstrations, training, field camps etc. The main focus of the study is to assess the impact of KVK on acquiring the knowledge of recommended practices.

Hence, as a step towards assessing the knowledge level of recommended practices by the respondents with regard to forty practices, the study was taken and the salient findings are presented in Table 1.

Table 1: Distribution of respondents according to their knowledge Level

(n=120)

S. No	Category	Number	Per cent
1.	Low	24	20.00
2.	Medium	58	48.33
3.	High	38	31.67
	Total	120	100.00

The results in the Table 1 indicate that around fifty per cent of the respondents (48.33 per cent) had medium level of knowledge about recommended practices given by KVK followed by 31.67 per cent and 20.00 per cent of the respondents with high and low levels of knowledge, respectively. Hence it may be concluded that majority of the respondents (80.00 per cent) had medium to high level of knowledge on recommended practices imparted by KVK. The findings on profile of the respondents revealed that majority of them were middle aged with formal education and had 10-20 years of farming experience. They were found to be medium in most of the profile characteristics *viz.,* social participation, extension agency contact, mass media exposure, scientific orientation, risk orientation and innovativeness. Such a condition would have helped them to attend the training programmes with better orientation towards technical information imparted during training sessions. This inturn would have led to gain medium to high level of knowledge. This finding is in line with the findings of [6] (2016) who also reported that respondents had medium to high level of knowledge on recommended practices.

Practice wise knowledge level of farmers about the recommended practices

In order to have an in-depth idea about knowledge level of the respondents, a practice wise knowledge level of respondents was also worked out and the results are given in Table 2.

It may be seen from the Table 2 that eight major categories and 40 practices were selected for assessing the knowledge level of the respondents.

3.1. Varieties

It could be observed from the Table 2 that majority of the respondents (91.66 per cent) had knowledge on recommended varieties. As varieties are most important aspects for getting higher yield, the knowledge about the varieties might have been gained through the mass media, and through the extension agency contact.

The farmers were already aware of the recommended varieties for their tract through some information sources. This prior knowledge level would have helped the respondents to perceive and retain the knowledge better. This finding is in line with the findings of [3].

3.2. Seed rate

It could be observed from the Table 2 that 83.33 per cent knowledge score was observed against seed rate. As the technological dimension is simple and easy to remember, farmers would have gain knowledge about seed rate.

3.3. Seed treatment

Under the practice of seed treatment, the mean knowledge percentage obtained by the respondents was 63.12 per cent. Three fourths (75.00 per cent) of the respondents had more knowledge on bio fertilizers for seed treatment followed by 70.83 per cent of the respondents had knowledge on recommended quantity of bio fertilizers for seed treatment. It is therefore suggested that KVK may organize more training programmes particularly on seed treatment with bio-fertilizers, which are equally important for increasing production, productivity and farm income.

More than fifty per cent of the respondents (54.16 per cent) had knowledge about seed hardening with KCL solution, followed by 52.50 per cent of the respondents had knowledge on seed treatment with *pseudomonas fluorescens.*

This might be due to the reason that the respondents were not interested in knowing about the importance of KCL solution *ie.,* to induce the drought tolerance as well as promoting good germination percentage and the usage of *pseudomonas fluorescens* in controlling the soil borne pathogens

3.4. Land preparation

It may be seen from the Table 2 that majority of the respondents (91.66 per cent) had knowledge about summer ploughing. This may be due to their more experience in farming activities.

As summer ploughing is not a complex practice and it is easy for the farmers to understand the concept of summer ploughing, which would have resulted in higher knowledge. This finding is in line with the findings of [8].

3.5. Integrated weed management

In the area of weed management the mean percentage score obtained by the respondents was 66.66 per cent. The sub knowledge items like recommended time for hand weeding known among 93.33 per cent of the respondents. Most of the respondents had knowledge about the name of pre-emergence herbicides (71.66 per cent) and 81.66 per cent of the respondents had knowledge on recommended quantity of pre-emergence herbicides for weed management. Less than fifty per cent of the respondents possessed knowledge on name of post emergence herbicides (45.00 per cent) and recommended quantity of post emergence herbicides (41.66 per cent) for weed management. Half the proportion of the respondents were not aware of applying post emergence herbicide. This finding is in line with the findings of [1, 7]**.**

The respondents revealed that they learnt more about pre-emergence herbicides and their method of application as it is the prime step to avoid the occurrence of the weeds in the field. Hence, they might have concentrated more on these dimensions during training rather than post-emergence herbicides for which they have not given importance.

3.6. Integrated nutrient management

The mean percentage knowledge score for integrated nutrient management was 65.41 per cent. Most of the respondents (85.00 per cent) had knowledge about stubble incorporation. This may be due to the long years of experience and might have known about the purpose of this practice.

More than eighty per cent of the respondents (83.33 per cent) possessed knowledge on the recommended quantity of FYM used for better enrichment of soil. As this is the traditional practice, it is quite natural that the farmers would have gained knowledge on application of FYM.

More than three fourths (81.66 per cent) of the respondents had knowledge about recommended quantity of Zinc sulphate to minimize the zinc deficiency. They might have known the effectiveness of using the zinc sulphate. The farmers revealed that they were shown with the symptoms of zinc deficiency and the packets of micronutrient mixture during the demonstration sessions of training programme. As the procedure of zinc sulphate application was dealt in a step by step manner, it was possible for them to receive the information in complete and understandable form. This in turn would have led to higher knowledge on zinc sulphate application.

Seventy per cent of the respondents (71.66 per cent) had knowledge on the recommended quantity of N,P and K followed by 65.00 per cent of the respondents had knowledge about the recommended quantity of phosphorus used as basal application per acre. More than half of the respondents (54.16 per cent) had knowledge about recommended split doses of application of N, P and K fertilizers. The fertilizer calculations were quantitative and quite complex to understand and require repeated exposure to information. Hence, farmers were not able to perceive and retain the information.

Less than fifty per cent of the respondents possessed knowledge on name of the bio-fertilizer recommended (41.66 per cent) and recommended quantity of bio-fertilizers applied to the main field respectively. This might be due to their lack of awareness about these practices. The respondents revealed that the names of bio-fertilizers were difficult to remember and recollect and hence would not have gained much knowledge.

The knowledge about the integrated nutrient management might have been gained through the regular contact with KVK staffs, exposure of mass media and contact of extension personnel helps in possessing the mean percentage score to greater extent.

3.7. Integrated pest management

It may be observed from Table 2 that among the 17 selected items relating to integrated pest management practices, 76.67 per cent of the respondents had knowledge on ‘identification of the major pest’. This might be due to their more experience in paddy cultivation.

Cultural practices

The mean knowledge score for cultural practices on IPM was found to be high (94.16 per cent). Cent per cent of the respondents had knowledge on trimming and plastering of bunds. Maintenance of weed free environment was known to majority of the respondents (98.33 per cent).

Majority of the respondents (91.66 per cent) had correct knowledge on summer ploughing. More than eighty-five per cent (87.50 per cent) of the respondents had knowledge on selection of right time for sowing.

The cultural practices for paddy crop were very easy to understand and retain in the memory as revealed by the respondents. This would have resulted in better knowledge.

Mechanical practices

Under the mechanical practices of integrated pest management, a mean knowledge percentage score of 62.49 was found. Three-fourth of respondents (75.00 per cent) had knowledge on removal and destruction of pests in the infected plants.

The use of rat trap / tanjore kitty was known to less than seventy per cent (68.33 per cent) of the respondents. Use of bird perches was known to 65.00 per cent of the respondents. Whereas, less than sixty per cent of the respondents (58.33 per cent) were found to have knowledge on use of light traps. Less than fifty per cent (45.83 per cent) of the respondents possessed knowledge on the use of yellow sticky traps.

For imparting knowledge on recommended practices like rat traps, bird perches, light traps and yellow sticky traps, the

trainers should make use of the models of the same to enhance better understanding. As these models were almost similar, the respondents felt difficulty in differentiating the components of each method and hence could have gained less knowledge. They felt that they wanted to have repeated exposure to gain better knowledge on mechanical practices.

Biological practices

The mean knowledge score for biological practices of integrated pest management was 62.49 per cent.

Most of the respondents (81.66 per cent) had more knowledge on use of Neem and Pungam for pest control. This might be due to their awareness about the use of Neem and Pungam extract to control pests. Moreover the use of Neem and Pungam in the form of leaf extract, oil, kernel extract is the traditional wisdom of farmers and hence it would have enabled them to gain knowledge when they have attended training programmes organized by KVK.

The knowledge on use of beneficial insects was known among more than fifty per cent (54.16 per cent) of the respondents followed by use of pheromone traps (45.00 per cent). The knowledge on beneficiary insects is comparatively low. To impart knowledge on beneficial insects, the farmers must be shown with the real specimens of those insects, so that they can gain in-depth knowledge about the same. Their but the trainees were shown with only visual aids contains the pictures of insects as revealed by the respondents. This would have resulted in difficulty in understanding about the names and morphology of various beneficial insects. This in turn would have lead to poor knowledge.

The poor knowledge on pheromone traps may be discussed as follows, The KVK personnel have got pheromone traps from TNAU and State Department of Agriculture for demonstrating to the trainees. As this is a complex technological dimension, the farmers may need repeated for exposure on this to gain knowledge. As the trainees could not had the opportunity for further exposure on pheromone traps, which would have resulted in poor knowledge.

Chemical practices

The mean knowledge score of 68.60 per cent was observed against the chemical practices of integrated pest management.

Most of the respondents (71.66 per cent) were having knowledge on use of recommended dose of insecticides. As the paddy crop is severely infected by the various pests, the farmers had to seek information on its immediate control. This would have necessitated the farmers to gain correct knowledge on dose of insecticides for various pests affecting paddy crop. This finding is in line with the findings of [3].

Whereas less than seventy per cent (68.33 per cent) of them had knowledge on application of fertilizers based on the soil test recommendation. More than sixty per cent of the respondents (65.83 per cent) had knowledge on ETL recommendation for spraying pesticides. This finding is in line with the findings of [5].

The farmers were trained on soil testing and ETL of various pests affecting paddy crop. As the ETL calculation is complex, which was not able to follow by the respondents. The respondents who were not possessed knowledge may require proper attention and repetition of message during training programmes will helps in acquiring better knowledge.

3.8. Disease management

The mean knowledge score for disease management was found to be 55.27 per cent. The knowledge sub-items namely, identifying the major diseases and list out the major diseases were known by 60.00 per cent and 54.16 per cent of the respondents. More than half of the respondents (51.66 per cent) had knowledge about recommended fungicide to control diseases.

This is due to lack of awareness and complete information on the practice of disease management. The identification of symptoms of diseases is rather complex than pest symptoms as revealed by the farmers. In addition, it was quite difficult to remember the names and doses of fungicides recommended for disease control. The farmers felt that they need repeated training on diseases management so as to enrich their knowledge on this dimension.

It may be concluded that the training programmes organised by KVK made a significant impact among the respondents to gain knowledge on various recommended practices for paddy crop and also created awareness and knowledge which helps in motivating the other farmers to adopt new technologies. Follow-up trainings are to be organised for the same respondents so as to enable them to have further exposure on all those practices. This would help the respondents to enrich their knowledge and skill dimensions by better repetition. Overall it can be concluded that KVK trainings were helpful to trainees in gaining knowledge which ultimately increased the adoption level of farmers in ICM technologies.

Table 2: Distribution of respondents according to their practice wise knowledge on recommended practices given by KVK

S. No	Recommended practices	Number	Per cent
I	Varieties		
1.	Recommended variety	110	91.66
II	Seed rate		
1.	Recommended seed rate	100	83.33
III	Seed treatment		
1.	KCL solution recommended for seed hardening	65	54.16
2.	Pseudomonas fluorescens recommended for seed treatment	63	52.50

3.	Bio-fertilizers recommended for seed treatment	90	75.00
4.	Quantity of bio-fertilizers / acre for seed treatment	85	70.83
	Mean percentage		63.12
IV	Land preparation		
1.	Summer ploughing	110	91.66
V	Integrated weed management		
1.	Recommended time for hand weeding	112	93.33
2.	Name of the pre emergence herbicide	98	81.66
3.	Recommended quantity of the pre emergence herbicide	86	71.66
4.	Name of the post emergence herbicide	54	45.00
5.	Recommended quantity of the post emergence herbicide	50	41.66
	Mean percentage		66.66
VI	Integrated nutrient management		
1.	Recommended quantity of FYM per/ acre	100	83.33
2.	Knowledge about stubble incorporation	102	85.00
3.	Name of the bio-fertilizer recommended	50	41.66
4.	Recommended quantity of bio- fertilizer	49	40.83
5.	Recommended quantity of NPK per/ acre	86	71.66
6.	Recommended quantity of phosphorus for basal application per acre	78	65.00
7.	Split doses recommended	65	54.16
8.	Recommended quantity of zinc sulphate / acre	98	81.66
	Mean percentage		65.41
VII	Integrated pest management		
1.	Identification of the major pest	92	76.67
A.	Cultural practices		
1.	Summer ploughing (recommended tillage operation)	110	91.66
2.	Selection of right time for sowing season	105	87.50
3.	Selection of pest and diseases resistant varieties	112	93.33
4.	Maintenance of weed free environment	118	98.33
5.	Trimming and plastering of bunds	120	100.00
	Mean percentage		94.16
B.	Mechanical practices		
1.	Removal and destruction of pests in the infected plants	90	75.00
2.	Use of light traps	70	58.33
3.	Use of yellow sticky traps	55	45.83
4.	Use of bird perches	78	65.00
5.	Use of rat trap / Tanjore kitty	82	68.33
	Mean percentage		62.49
C.	Biological practices		
1.	Use of beneficial insects	65	54.16
2.	Use of pheromone traps	54	45.00
3.	Use of neem and pungam for pest control	98	81.66
	Mean percentage		60.27
D.	Chemical practices		
1.	Use of recommended dose of insecticides	86	71.66
2.	Application of fertilizer based on the Soil test recommendation	82	68.33
3.	Following ETL recommendation for spraying pesticides	79	65.83
	Mean percentage		68.60
VIII	Disease management		
1.	Identifying the major diseases	72	60.00
2.	List out the major diseases	65	54.16
3.	Recommended fungicide for controlling diseases	62	51.66
	Mean percentage		55.27

REFERENCES

[1] Bhosale Priyanka Vasant, "Paddy Production Technology Followed by The Farmers", *Unpublished M.Sc. (Ag.) Thesis***,** 2012., College of Agriculture, Kolhapur, Maharashtra.

[2] Ernest, R.S., "A study on communication utilization behaviour of small and big farmers and its implication to communication strategy", *Unpublished Ph.D Thesis*, 1973, Indian Agricultural Research Institute, New Delhi.

[3] Manjunath, T., "A Study on Knowledge and Adoption of Plant Protection Measures by Paddy Growers of Raichur District", *Unpublished M.Sc.,(Ag.) Thesis*, 2010, University of Agricultural Sciences, Dharwad.

[4] Pankajkumar Bhagvandas, "A Study On Knowledge And Extent Of Adoption of Recommended Paddy Production Technology by The Paddy Growers in Khambhat Taluk of Anand District", *Unpublished M.Sc. (Ag.) Thesis*, 2006, Anand Agricultural University, Anand.

[5] Praveen Babu, R., "A Study on Knowledge and Adoption Levels of Paddy Farmers in East Godavari District of Andhra Pradesh", *Unpublished M.Sc. (Ag.) Thesis***,** 2014, Acharya N.G. Ranga Agricultural University, Rajendranagar, Hyderabad.

[6] Roopa, T., Malabasari and Uma Hiremath, S., "Effect of Training Programmes on Knowledge and Adoption of Home Science and Agricultural Technologies", *Journal of Farm Science***,** 2016, pp. 251-256.
[7] Siddeswari, G.K., "Impact of Farmer Field Schools (FSS) on the Rice Farmers In Nellore District of Andhra Pradesh", *Unpublished M.Sc.,(Ag.) Thesis*, 2015, Acharya N.G. Ranga Agricultural University, Rajendranagar, Hyderabad.
[8] Singh, N.K., Sanjeev Kumar, Wazid Hasan and Anand Kumar, "Impact of Frontline Demonstration of KVK on the Yield of Paddy (Sahbhagi dhan) in Nalanda District of Bihar, India", *Int.J.Curr.Microbiol.App..Sci***.,** 2018, pp. 3606-3610.