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Study the effect of training programmes in terms of gain in knowledge and extent of adoption of recommended rice production technology conducted by KVKS of UBVZ of Assam

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Abstract
Rice, being the principal cereal crop in the UBVZ of Assam is the most important topic covered under training in KVK. Integrated Nutrient Management (INM) and Integrated Pest Management (IPM) are the most important among training programmes as far as rice production technology is concerned. KVKs have been effective in case of transfer of technologies to farmers. The present study was conducted in Assam at 5 different districts of KVKs. A purposive and random sampling design was followed for the selection of the KVK and respondents. Majority of respondents (58.75%) had medium level of knowledge and 52.80 per cent had medium extent of adoption of the selected technology practices that were imparted in the training conducted by the KVKs.

Keywords: Integrated nutrient management (INM), integrated pest management (IPM), purposive random sampling, rice production technology, level of knowledge, extent of adoption

1. Introduction
As we know India being a developing country, is still poor in many sectors like in agriculture as compared to other countries due to gap in the latest technology known and the technology being used by the farmers. The resources are not utilized properly by the people because of the ignorance about many scientific innovations. To raise the level of improvement, it requires the assistance of properly trained extension workers. In other words, it can be said that the training needs to communicate 1) what to extend, i.e., the knowledge of technical subject, 2) how to extend, i.e., Knowledge of Extension education, including method of extension or communication. Without such knowledge, the extension worker cannot do this job properly, it helps to improve their skill, power of intelligence and develop in them the desired attitude and values required for their work.

The history of the development of agriculture shows that training has special significance in the field of agricultural development, since the very essence, these programmes is to train rural people to solve most of their problems individually in groups and it also shows that it was because of trained extension workers, the gap between the technologies known and the technologies used by the farmers apparently removing, The training programmes help in uplifting the knowledge of the trainees.

The Union cabinet chaired by the Prime Minster, Shri Narendra Modi recently gave approval for the continuation, strengthening and establishment of Krishi Vigyan Kendras with an outlay of more than five thousand crores. The scheme will have benefits such as assessment and demonstration of technologies and capacity development of farmers and extension personnel. KVKs will work as knowledge and resource centres of agricultural technologies and produce critical quality technology products such as seed, planting material, livestock strains, fingerlings and bio-products for availability to farmers.

Since establishment of KVK by ICAR, more than 800 KVKs have been established till date. In Assam also, a total of 22 KVKs are presently functioning covering most of the districts. Since inception, KVKs have played a critical role in transfer of technology programmers and thereby enhancing production and generating part time employment for farming community. The KVKs offer a very good opportunity to farmers by organizing trainings to work closely with trainees in developing a more skilled and educated workforce. KVK has to develop and adopt both on-campus and off-campus trainings. The training purpose of KVK is a multipurpose one to cover not only the varied needs of a person but also the entire needs of village and community It covers agricultural technology, home crafts, childcare, family welfare, cooperation, animal rearing and management, fisheries, beekeeping, cottage industries etc

depending upon the needs of an area and the people. KVKs impart trainings and education with a view to raise the level of knowledge, attitudinal changes and testing and transferring of recommended improved farm technologies so as to bridge the gap between production and productivity and also to increase self-employment opportunities among the farming community. The training programmes (on-or off-campus) of KVKs are being conducted for fulfilling the K VK mandate.

Sohi and Katoch (1990) [14] revealed that majority of the rice growers were in average category of adoption. Tharkar and Patel (1991) [15], Kumar (2010) [9], revealed that majority of rice growers were in medium level of adoption followed by low and high level of adoption.

Chandranaik (1993) [3] conducted a study on Integrated Programme of rice development, its impact on knowledge and adoption behaviour of beneficiaries and non-beneficiaries and reported that non-beneficiaries of Integrated Programme for Rice Development have mostly adopted the simple and non-cash practices, while complex and costly practices were partially adopted.

Present study was carried out with following objective.

- To study the effect of training programmes in terms of gain in knowledge and extent of adoption of recommended rice production technology.

2. Materials and Methods

The present study was conducted in Assam state during 2015-2016. A purposive and random sampling design was followed for the selection of the KVK and respondents. Five well-functioning Krishi Vigyan Kendras (K.V.K.s) under Assam Agricultural University, *viz*., Krishi Vigyan Kendra Jorhat located at Teok in Jorhat district, Krishi Vigyan Kendra, Golaghat located at Khumtai in Golaghat district, Krishi Vigyan Kendra, Sivasagar located at Rohdoi in Sivasagar district, Krishi Vigyan Kendra, Dibrugarh located at Romai in Dibrugarh district and Krishi Vigyan Kendra, Tinsukia located at Gelapukhuri in Tinsukia district were selected purposively for the present study. Out of four different categories of trainees in KVK, practicing farmers were selected as respondents. From this, samples of 25 respondents from each KVK were selected by using random sampling method. This made the final size of respondents as 125.

The knowledge level of the respondents in the present study was measured with the help of a knowledge test followed by knowledge statements. While administering the knowledge test, score 1 was assigned for a correct answer and score 0 was assigned for an incorrect answer. On the basis of the scores obtained by the respondents, they were categorized into 3 categories by cumulative cube root (3√F) method.

The extent of adoption of the IPM of *Sali* rice cultivation practices by respondents were measured by using the Adoption Index given by Das (1991) [5]. Adoption indices for individual respondents were calculated for each of the selected practices by using the following formula:

$$AI=A/P \times 100$$

Where,

AI=Adoption index

A=Adoption scores obtained by the respondents

P=possible maximum scores for all improved varieties

3. Results and Discussion

The findings of the present study have been discussed in the following heads.

3.1 Knowledge level of the respondents on selected technology

In the present study, the knowledge level on selected technology of IPM were observed in two ways (i) frequency and percentage of the respondents possessing correct knowledge on different aspects of recommended practices were calculated and (ii) the distribution pattern of respondents were calculated based on the basis of knowledge level on recommended practices of IPM.

3.1.1 Frequency and percentage of the respondents according to their Knowledge level on different aspects of recommended practices selected technology

Knowledge level of the respondents was studied in relation to 30 aspects of 11 recommended practices of the selected technology of the training programmes. The frequency and percentages of trained farmers having correct knowledge were calculated aspect-wise are presented in the fig and Table 3.1 (a) The table 3.1(a) reveals that in relation to all the 27 aspects of 22 practices, the percentage of respondents having correct knowledge of IPM practices. More than 80 per cent respondents had correct knowledge on 9 aspects *i.e*., 'ploughing time of normal Sali rice'(88.50%), 'Proper seed rate'(90.00%), 'time of sowing of normal Sali'(90.00%), 'use of clean seed' (87.20%), 'leveling and preparation of field'(81.60%), 'plant to plant spacing'(81.60%), 'plant to plant spacing'(81.60%)'row to row spacing'(80.00%), 'use of light trap'(86.40%)Regarding 12 aspects of 7 practices,50 to 80 per cent had correct knowledge. Less than 30 per cent respondents possessed correct knowledge on 5 aspects *viz*, 'use of botanical pesticides'(25.60%)and 'identification of natural bio control agents'(29.60%), 'mass trapping with pheromone'(28.00%),'concept of panchagavya'(8.80%),' preparation of botanical pesticides'(14.00%).

3.1.2 The distribution pattern of respondents were calculated based on the basis of knowledge level on recommended practices of IPM

The table 3.1(b) reveals that majority of the respondents (58.75%) had medium level of knowledge on selected technology practices, while 23.75 per cent and 17.50 per cent of respondents had high and low level of knowledge on selected technology practices respectively. The mean score of knowledge level of respondents were 21.38 while the standard deviation and co efficient of variance were 2.85 and 13.34 respectively. The findings is in conformity with the results of Chutia (1992) [4], Pathak and Sasmal (1992) [11], Das (1991) [5], Thakar and Patel (1991) [15], Bora (1990) [1], Gogoi and Gogoi (1989) [6], Katarya (1989) [8], Singh (1988) [13].

3.2 Extent of adoption of the respondents on selected technology

In the present study, the extent of adoption of selected technology practices of IPM technology were analyzed and discussed in two ways-(i) frequencies and percentages of adopter amongst the respondents of each selected practices were calculated and (ii) the distribution pattern of respondents were calculated on the basis of extent of adoption of overall recommended practices of selected technology.

3.2.1 Frequency and percentage of adopters of the selected technology by the respondents

The table 3.2(2) reveals that that percentage of adopters of the

respondents was high in relation to all the 22 selected recommended practice. The percentages of adopters of the respondents were more than 80 per cent in 6 practices *viz.*' Adjusting sowing time'(85.60%), 'use of proper seed rate'(90.00%),'use of clean seed'(87.20%), 'leveling and preparation of field(81.60%), 'using proper spacing'(80.00%), and 'use of light traps'(86.40%).

While the percentage of adopters were in the range of 50 to 80 percent for 9 practices *viz.*, 'early ploughing'(79.20%), 'raising of healthy nursery'(73.60%), 'balanced use of fertilizers'(58.40%), 'destruction of stubbles and crop residue'(59.20%), 'removal of weeds'(68.80%), 'collection of egg masses'(63.20%), 'clipping off leaf tips'(65.60%), 'fixing perch'(55.20%), 'sun drying' (62.40%), The percentage of adopters were below 30 per cent of the respondents were of two practices *viz*., 'use of botanical pesticides'(25.60%), 'mass trapping with pheromone'(28.80%).

3.2.2 Distribution of respondents according to their extent of adoption of overall recommended practices of IPM technology

The table 3.2(2) reveals that that that majority of the respondents (52.80%) had medium level of extent of adoption on selected technology practices, while 28.8 per cent and 18.4 per cent of respondents had high and low level of extent of adoption on selected technology practices respectively. The mean score of extent of adoption were 48.75 while the standard deviation and co efficient of variation were 16.14 and 33.11 respectively. The findings is in conformity with the results of Hussain (1982) [7], Jaiswal and Sharma (1990), Sohi and Katoch (1990) [14], Meti and Hanchinal (1994) [10], Balasubramani (1997) [2], Pandey (2000), Sharma *et al*. (2000) [12].

Table 3.1a: Frequency and percentage of the respondents according to their Knowledge level on different aspects of recommended practices selected technology (N=125)

S No.	Knowledge Item of practices	Frequency & percentage
1.Soil testing	(a) soil sample collection area (b) Depth of sampling soil for analysis (c) Number of soil sample required for analysis	70(56.00) 56(44.80) 72(57.60)
2. Early Ploughing	(a)Ploughing time of Normal sali (b)Ploughing time of late sali	111(88.50) 99(79.20)
4	Seed rate	113(90.00)
5	Use of clean seed	109(87.20)
6	Levelling and preparation of field	102(81.60)
7.	Raising of healthy nursery	92(73.60)
8	Balanced use of fertilizers	73(58.40)
9.	Destruction of stubbles and crop residue	74(59.20)
10.Spacing	a)Plant to plant spacing b)Row to row spacing	102(81.60) 100(80.00)
11	Removal of weeds	86(68.80)
12.	Crop rotation	56(44.80)
13.	Collection of egg masses or larvae	79(63.20)
14.	Clipping off leaf tips	82(65.60)
15.	Fixing Perch	69(55.20)
16.	Mass trapping with pheromone	35(28.00)
17.	Use of Light trap	108(86.40)
18.	Sun drying	78(62.40)
19.	Use of resistant variety	61(48.80)
20.	Identification of natural bio control agents	37(29.60)
21 Use of botanical pesticides	a)Name of botanical pesticides b)Preparation of botanical pesticides c)concept of panchagavya	32(25.60) 18(14.40) 11(8.80)
22	Treatment of storage	53(42.40)

Table 3.1b: The distribution pattern of respondents were calculated based on the basis of knowledge level on recommended practices of IPM. (N=125)

S No	Category	Score range	Frequency and percentage	Mean	S.D	C.V
1	Low	14-19	27(21.3)			
2	Medium	19-24	73(58.75)	21.38	2.85	13.34
3	High	24-29	25(19.95)			

Table 3.2a: Frequency and percentage of adopters of the selected technology by the respondents (N=125)

S. No.	Item of Practices	Frequency	Percentage
1.	Soil testing	56	44.80
2.	Early Ploughing	99	79.20
3	Adjusting Sowing time	107	85.60
4	Use of proper Seed rate	113	90.00
5.	Use of clean seed	109	87.20
6.	Levelling and preparation of field	102	81.60
7	Raising of healthy nursery	92	73.60
8	Balanced use of fertilizers	73	58.40
9.	Destruction of stubbles and crop residue	74	59.20

10.	Using proper spacing	100	80.00
11.	Removal of weeds	86	68.80
12.	Crop rotation	56	44.80
13.	Collection of egg masses or larvae	79	63.20
14.	Clipping off leaf tips	82	65.60
15.	Fixing Perch	69	55.20
16.	Mass trapping with pheromone	36	28.80
17.	Use of Light trap	108	86.40
18.	Sun drying	78	62.40
19.	Use of resistant variety	61	48.80
21	Use of botanical pesticides	32	25.60
22.	Treatment of storage	53	42.40

Table 3.2b: Distribution of respondents according to their extent of adoption of overall recommended practices of IPM technology (N=125)

S. No.	Category	Score range	Frequency& percentage	Mean	S.D	C.V
1	Low	15-35	23 (18.40)			
2	Medium	36-56	66 (52.80)	48.75	16.14	33.11
3	High	57-77	36 (28.8)			

4. Conclusion

The study would reveal a clear picture about knowledge level and extent of adoption by respondents regarding IPM and thereby giving evidences of the effect of training programme. The findings will help the KVK or others concerned in planning and formulating in future an effective and efficient training programme to result in higher knowledge gain, adoption and solve the problems of farmers in attending training programmes.

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