ISSN: 2278-5213

RESEARCH ARTICLE

# A study on the knowledge level and extent of adoption of selected technology by rural youth trained in KVKs of AAU in Assam

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## Abstract

Krishi Vigyan Kendras (KVKs) under Assam Agricultural University situated at Napam, Gossaigaon, Arunachal, (Silchar) and Khumtai were selected for the study on the knowledge level and extent of adoption of selected technology by rural youths purposively as they are oldest and represent separate agro climatic zones. Out of various trainees in KVKs, rural youth and trainers were selected as respondents, making a total sample size of 100. Frequency, percentage, mean, standard deviation, co-efficient of variance, co-efficient of correlation and 't' test were the statistical techniques used for analysis of collected data. Majority of respondents 52% had medium knowledge level and 68.75% had medium extent of adoption of the selected technology practices that were imparted in the training conducted by the KVKs. While designing training programmes and distance learning courses, such findings may be considered for better adoption of technologies as a result of higher gain in the knowledge level of trainees.

**Keywords:** Krishi vigyan kendras, knowledge level, rural youth, statistical techniques, training programmes.

## Introduction

At present a great efforts are on to modernize agriculture and maximize levels of production and farm income. The goal can only be achieved when new scientific innovations are effectively adopted by a large number of farmers but some are slow to adopt. The variation in adoption may be due to sociological, economic, physiological and situational factors of the farmers. The Indian Council of Agricultural Research (ICAR) initiated a chain of Krishi Vigyan Kendras (KVKs) which were established all over the country. The KVKs are devoted to vocational training of the practicing farmers, farm women, rural youth, school drop-outs and field level of extension functionaries. The aim of KVKs is to reduce the time lag between generation of technology at the research institution and its transfer to the farmer's field for increasing production and income from the agriculture and allied sectors on a sustained basis.

Rao (1961) observed that farmer's training is an intensive learning activity for a group of selected farmers, assisted by competent trainers to understand and practice the skills required in adoption of new technology, at a place where appropriate facilities exist and at a time and duration considered suitable for the farmers. Manjunatha (1982) conducted a study to assess the impact of training on the trained farmers in relation to their level of knowledge about soil and water management and hybrid maize cultivation practices, and adoption behaviour with respect to hybrid maize under irrigation. A total of 176 respondents consisting 88 trained and 88 untrained match farmers were selected from the 8 villages of Ghataprabha command area. The study revealed that trained farmers had higher knowledge level and adoption behaviour compared to untrained farmers. Therefore, as it is necessary that the training programmes particularly for the youth that are being conducted by KVKs are evaluated, hence this study was conducted with the following objectives:

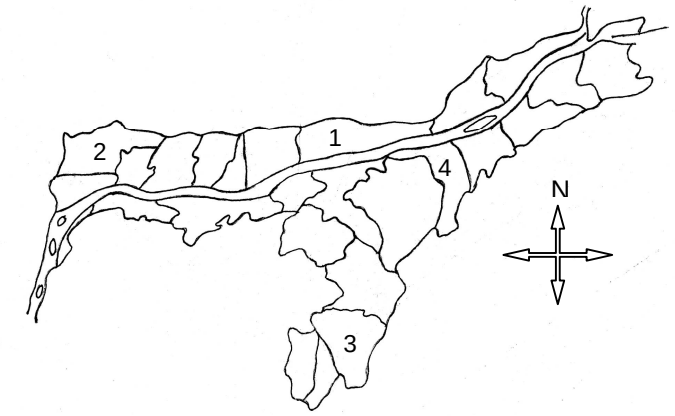
1. To study the knowledge level of rural youth trained in selected technology imparted under training programmes in Krishi Vigyan Kendras.
2. To study the extent of adoption of selected technology imparted under training programmes in KVKs.

## Materials and methods

The study was carried out in the state of Assam. A purposive and random sampling design was followed for selection of Krishi Vigyan Kendra and respondents. Four KVKs under Assam Agricultural University, namely KVK, Napam in Sonitpur district, KVK, Gossaigaon in Kokrajhar district, KVK at Arunachal, Silchar of Cachar district and KVK, Khumtai in Golaghat district were selected purposively for the study as they are the oldest and represent different agro climatic zones of the state (Fig. 1). KVKs have four different categories of trainees viz., Practicing Farmer, Farm Women, Rural Youth and Extension Workers. The respondents were selected from amongst the rural youth as well as trainers. From this, a total of 20 rural youth and 5 trainers from each KVK were selected by using random sampling technique. This will made the final size of rural youth as 80 and trainers as 20.

Fig. 1. Map of Assam state showing the study area.




1-KVK Napam in Sonitpur district; 2-KVK Gossaigaon in Kokrajhar district; 3-KVK Arunachal, Silchar in Cachar district; 4-KVK Khumtai in Golaghat district.

*Construction of knowledge test:* The knowledge level of respondents in the present study was measured with the help of a knowledge test constructed and standardized by Barman (1998) for the purpose. While administering the final knowledge test, respondents score '1' was assigned for a correct answer and score '0' (zero) was assigned for an incorrect answer. Thus, the total score on the test had a theoretical range of 0 to 33. On the basis of score obtained by the respondents they were categorized into 3 following categories by following cumulative cube root (3√F) method.

| Category | Score range |
|---|---|
| Low | 14-19 |
| Medium | 19-24 |
| High | 24-29 |

*Extent of adoption:* The extent of adoption of recommended *Sali* rice cultivation practice by respondents was measured by using a scale developed by Sangle (1984). The procedure is described in the following paragraphs. A structured schedule was constructed based on the practices covered in the training programmes. Then, set of questions were screened through trainers of the training programmes. Thus the structured schedule was constructed which constituted the recommended practices of *Sali* rice cultivation covered in the training programmes.

The extent of adoption score of each practice of the selected *Sali* rice cultivation practices was calculated out as follows. First, the area in which the practice has been followed by a respondent in last/preceding season was expressed as percentage of the total area in which *Sali* rice can be grown. This percentage was converted to extent of adoption score of the practice for the respondent.

| Percentage of area under a practice | Score |
|---|---|
| Up to 10% | 1 |
| Up to 20% | 2 |
| Up to 30% | 3 |
| Up to 40% | 4 |
| Up to 50% | 5 |
| Up to 60% | 6 |
| Up to 70% | 7 |
| Up to 80% | 8 |
| Up to 90% | 9 |
| Up to 100% | 10 |

Thus, the total obtainable adoption scores for each practice could range from 0 to 10. In order to classify the practices, the mean adoption score for each practice was calculated out and then based on mean scores the practices were categorized into 3 levels as follows.

| Category | Mean adoption score range |
|---|---|
| Low | 1.00-3.33 |
| Medium | 3.34-6.66 |
| High | 6.67-10.00 |

The summation of extent of adoption scores of all practices of the *sali* rice cultivation for a respondent was taken as his extent of adoption score on overall recommended practices of *sali* rice. Based on the extent of adoption scores obtained on the scale, respondents were classified into three categories using cumulative cube root (3√F) method as shown below.

| Category | Score range |
|---|---|
| Low | 15-35 |
| Medium | 36-56 |
| High | 57-77 |

The technique adopted for data collection was the interview method. The main tool used for collecting data from the respondents in the present study was a structured schedule. It consisted a total of three parts. The first part of the schedule was associated with the collection of general information, personal and socio-economic variables of the respondents. The second and third part was regarding knowledge level and extent of adoption of selected recommended *sali* rice cultivation practice.

## Results and discussion

The findings of the study and relevant discussion there on are presented below under the following headings.

*Knowledge level of trainees on selected technology imparted under training programme:* Knowledge level of the respondents were studied in relation to 29 aspects of 11 recommended practices of the selected technology of the training programmes, the frequency and percentages of trained rural youth respondents having correct knowledge were calculated aspect-wise and are presented in Table 1.

Table 1. Frequency and percentage of respondents according to their knowledge level on recommended Kharif (*Sali)* rice cultivation (n = 80).

| Sl. No | Knowledge item of practices | Frequency and Percentage |
|---|---|---|
| a. | High yielding variety<br>a. Name of normal HYV *sali* rice<br>b. Name of late HYV *Sali* rice | <br>70(88.50)<br>55(68.75) |
| b. | Seed selection procedure | 72(90.00) |
| c. | Size of nursery bed preparation | 9 (11.25) |
| d. | Seed rate | 62(77.50) |
| e. | Sowing time<br>a. Normal *Sali*<br>b. Late *Sali* | <br>72(90.00)<br>64(80.00) |
| f. | Transplanting of seed<br>a. Depth of planting<br>b. Numbers of seedling per hill<br>i. Normal *Sali*<br>ii. Late *Sali* | <br>53(66.25)<br><br>63(78.75)<br>55(68.75) |
| g. | Age of seedling<br>a. Normal *Sali*<br>b. Late *Sali* | <br>36(45.00)<br>43(53.75) |
| h. | Line transplanting and spacing<br>a. Spacing plant to plant<br>b. Spacing row to row<br>c. How should maintain line transplanting | <br>45(56.75)<br>41(51.25)<br>65(81.25) |
| i. | Gap filling<br>a. Time of gap filling<br>b. Age of fresh seedling | <br>70(87.50)<br>73(91.25) |
| j. | Dose and method of fertilizer<br>a. Basal application<br>i. Name of fertilizer<br>ii. Dose per bigha<br>b. Split application<br>i. Name of fertilizer<br>ii. Dose per bigha | <br><br>73(91.25)<br>33(41.25)<br><br>65(81.25)<br>43(53.75) |
| k. | Plant protection measures<br>a. Pest<br>i. Name of pest (s)<br>ii. Stage(s) of attack<br>iii. Name of chemical(s)<br>iv. Dose per bigha<br>b. Disease<br>i. Name of disease(s)<br>ii. Stage(s) of attack<br>iii. Name of chemical(s)<br>iv. Dose per bigha | <br><br>55(68.75)<br>45(56.25)<br>47(58.75)<br>33(41.25)<br><br>27(33.75)<br>22(27.50)<br>22(27.50)<br>19(23.75) |

Table 1 reveals that more than 80% respondents had correct knowledge on 9 aspects of 6 practices i.e. 'name of normal HYV *sali* rice' (88.5%), 'seed selection procedure' (90%), 'time of sowing of normal *Sali'* (90%), 'time of sowing of late *Sali'* (80%), 'maintain line transplanting' (81.25%), 'time of gap filling' (87.5%), 'age of fresh seedling' (91.25%) and 'name of fertilizer for basal application and split application' 91.25% and 81.25% respectively. Regarding 12 aspects of 7 practices, 50 to 80% had correct knowledge. Less than 25% trained rural youth respondents possessed correct knowledge on only 2 aspects of 2 practices *viz*. 'size of nursery bed preparation' (11.25%) and 'dose per bigha of chemical against diseases' (23.75%).

*Distribution of respondents according to their knowledge level on recommended practices of Kharif (Sali) rice cultivation:* It is evident from the Table 2 that majority of trained rural youth respondents (58.75%) had medium level of knowledge on selected technology practices, while 23.75% and 17.5% of trained rural youth respondents had high and low level of knowledge respectively. The mean score of knowledge level of the respondent were 21.38 while the standard deviation and co-efficient of variation were 2.85 and 13.34 respectively.

*Extent of adoption of the trained rural youth on selected technology:* In this study, the extent of adoption of

selected technology practices of *Sali* rice cultivation were analysed and discussed in two ways.

Table 2. Distribution of respondents according to their knowledge level on recommended practices of kharif (*Sali)* rice cultivation.

| Category | Score range | Frequency and Percentage | Mean | S.D. | C.V. |
|---|---|---|---|---|---|
| Low | 14-19 | 14(17.50) | | | |
| Medium | 19-24 | 47(58.75) | 21.38 | 2.85 | 13.34 |
| High | 24-29 | 19(23.75) | | | |

Table 3. Frequency and percentage of respondents according to their extent of adoption of selected technology.

| Knowledge item of practices | Frequency | Percentage |
|---|---|---|
| HYV *sali* rice variety | 64 | 80.00 |
| Seed selection procedure | 73 | 91.25 |
| Nursery bed preparation | 10 | 12.50 |
| Seed rate | 67 | 83.75 |
| Sowing time | 71 | 88.75 |
| Transplanting of seedlings | 67 | 83.75 |
| Line transplanting | 49 | 61.25 |
| Spacing | 47 | 58.75 |
| Gap filling | 51 | 63.75 |
| Basal application of fertilizer | 63 | 78.75 |
| Split application of fertilizer | 55 | 68.75 |
| Plant protection measure against pest | 44 | 55.00 |
| Plant protection measure against diseases | 19 | 23.75 |

Table 4. Distribution of respondents according to their extent of adoption of overall recommended practices of *sali* rice cultivation.

| Category | Score range | Frequency and Percentage | Mean | S.D. | C.V. |
|---|---|---|---|---|---|
| Low | 15-35 | 16(20.00) | | | |
| Medium | 36-56 | 43(53.75) | 48.75 | 16.14 | 33.11 |
| High | 57-77 | 21(26.25) | | | |

Frequencies and percentages of adopters amongst the respondents of each selected practices were calculated and the distribution pattern of respondents were calculated on the basis of extent of adoption of overall recommended practices of selected technology.

*Frequency and percentage of adopters of the selected technology by the trained rural youth:* It is evident from Table 3 that percentages of adopters of the respondents were high in relation to all the 13-selected recommended practice. The percentages of adopters of the respondents were more than 80% in 5 practices *viz.* 'HVY *sali* rice' (80%), 'seed selection procedure' (91.25%), 'sowing time' (88.75%), 'seed rate' (83.75%) and 'transplanting of seedling' (83.75%). While the percentage of adopters were in the range of 50 to 80% for 6 practices *viz*. 'line transplanting' (61.25%), 'spacing' (58.75%), 'gap filling' (56.25%), 'basal application of fertilizer' (78.75%),'split application of fertilizer' (68.75%) and 'plant protection measures against pest' (55%). The percentage of adopters were below 30% of the respondents adopting two practices *viz*. 'nursery bed preparation' and 'plant protection measure against diseases'.

*Distribution of respondents according to their extent of adoption of overall recommended practices of Sali rice cultivation:* It is evident from Table 4 that majority of the trained rural youth respondents (53.75%) had medium level of extent of adoption on selected technology practices, while 26.25% and 20% of trained rural youth respondents had high and low level of extent of adoption on selected technology practices respectively. The mean score of knowledge level of the respondent were 48.75%, while the standard deviation and co-efficient of variation were 16.14 and 33.11% respectively.

## Discussion

It was found that majority of the respondents (52%) had medium knowledge level and 68.75% had medium extent of adoption of the selected technology practices that were imparted in the training conducted by the KVKs. In a similar study conducted by Thakrar and Kher (2003), they reported that education of the farmers does not influence the knowledge level of the farmers about well recharging practice. Whereas the age, social participation, motivational sources and attitude of farmers towards well recharging practice influence the knowledge level of farmers about well recharging practices.

Further in the study, it was found that majority of the respondents i.e. 68.75% had medium extent of adoption of the selected technology practices that were imparted in the training programmes conducted by the KVKs. Das (1991) in his study conducted in Assam also found that socio-economic status, scientific orientation, knowledge level on agricultural technology, attitude towards improved practices, perceived cost of technology, perceived physical compatibility and perceived cultural compatibility together could explain 81% of the variation in the extent of adoption of agricultural technology. Kumar (1992) in his comparative study of adoption of rice cultivation technology by farmers of Manipur and Assam, also found that 13 variables, viz., education, farm size, income, extension contact, risk preference, economic motivation, decision making ability, perceived availability of HYV seeds and perceived availability of fertilizer could explain 61% and 71% variation of extent of adoption of the farmers of Manipur and Assam, respectively.

## Conclusion

Quality of training programmes was assessed among trained rural youth respondents in relation to two variables viz. knowledge level and extent of adoption of selected technology which were covered in the training programmes. As per the results of the measurement of knowledge level of the trainees in relation to 29 aspects of 11 recommended practices of the selected technology imparted in training programmes in the KVKs, it may be concluded that there was considerable gain in the knowledge level which indicates a good quality of the training provided. The percentages of adopters of the respondents were high in relation to all the 13 selected recommended practices. The percentages of adopters of the respondents were more than 80% in 5 practices, while in the range of 50 to 80% for 6 practices. At a time when the Government and all concerned are laying emphasis to encourage entrepreneurship among youth by promoting the agro-based enterprises and improved agricultural technology, it is essential that more stress is laid on the training effectiveness of KVK's training programmes to facilitate improved knowledge gain among the trainees to subsequently promote higher adoption among the trainees who get training exposure in KVKs and similar training institutions.

## Acknowledgements

The cooperation and support of the Dept. of Extension Education, farmers, trainers and authorities of KVKs and their administrative authorities at AAU, Jorhat in conducting this study is gratefully acknowledged.

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