

## **Effectiveness of different extension methods used by KVKs beneficiaries**

### **Abstract**

Krishi Vigyan Kendra's (KVKs) in India play an important role in transfer of Agricultural technologies (Jiyawanet *al.*, 2012). Presently, the Krishi Vigyan Kendra's (KVKs) have been recognized as an effective link between agricultural research and extension systems in the country. KVK scientists give the necessary information, train individuals to enhance their skills and attitudes towards a particular subject. Effectiveness of different extension methods used by KVKs was studied in terms of perception of beneficiaries. The effectiveness of teaching methods included major aspects - Convincing ability, imparting knowledge, skills and changing attitude of the farmers. The 'farm and home visit' was perceived as the most effective individual contact method in changing the attitude of KVK beneficiaries. The adaptive of mini kit trial and farm clinic were also perceived as very effective and ranked second and third by the respondents.

**Keywords:** - Attitude, Knowledge, Perception, Skill, Effectiveness

### **Introduction**

Agriculture is the backbone of Indian economy which provides food and nutritional securities as well as employment and livelihoods to rural areas. In India agriculture plays a vital role in employment generation, with more than 65% of the population directly or indirectly dependent on agriculture and allied activities for their livelihood (Ranjan et al., 2019). Over the years, Indian agriculture has made tremendous progress due to the contributions of agricultural science through the development of improved seeds and planting material, pre and post-harvesting technologies, disease control and plant protection, irrigation and soil conservation techniques and the use of machinery in agriculture. The Government of India through Indian Council for Agricultural Research (ICAR) has established a wide network of Krishi Vigyan Kendra's (KVKs) in all the rural districts of the country. These KVKs under the aegis of the National Agricultural Research and Education System are the real carriers of front-line technologies and they impart knowledge and critical input support to the farmers (Ranjan *et al.*, 2019). Krishi Vigyan Kendra's (KVKs) in India play an important role in transfer of Agricultural technologies (Jiyawanet *al.*, 2012). Presently, the Krishi Vigyan Kendra's (KVKs) have been recognized as an effective link between agricultural research and extension systems in the country. KVK scientists give the necessary information, train

individuals to enhance their skills and attitudes towards a particular subject, and offer appropriate counsel to resolve any issues people may have with agriculture and related themes.

The use and type of contact of the extension techniques is one approach to categorise them. To put it another way, whether they are used to contact people one-on-one, in groups, or in large numbers, they are separated into individual, group, and mass-contact approaches depending on the type of contact.

### **Material and methods**

Study was conducted in Chitrakoot and Banda district of Uttar Pradesh. A sample of 210 farmers was selected to represent different areas. Semi-structured interview questions were used to gather the study's data, which were then categorized, tabulated, and evaluated in order to come to relevant conclusions. The study's goals were taken into consideration while creating the interview schedule. The data were analyzed using statistical techniques such as frequency, percentage, mean score, mean weighted score, and rank. The study employed a sample of 210 farmers. Through a structured survey, data was collected on the effectiveness of different extension methods used by KVKs beneficiaries. The data was analyzed to identify the most prevalent and significant extension methods, allowing for a comprehensive understanding of the challenges faced by respondents in this context.

### **Results and Discussion**

Effectiveness of different extension methods used by KVKs was studied in terms of perception of beneficiaries. The effectiveness of teaching methods included four major aspects - 1) Convincing ability of extension teaching method, 2) Effectiveness in terms of imparting knowledge to the farmers, 3) Effectiveness in terms of imparting skills to the farmers; and 4) Effectiveness in terms of changing attitude of the farmers.

#### **1. Awareness of the KVK beneficiaries about extension methods**

Prior to assess the perceived effectiveness of the extension methods, farmers' awareness about various extension teaching methods used by KVKs was studied. The result of which is presented in table 1. The extension teaching methods are generally categorized into three types

##### **a. Individual Contacts**

b. Group Contacts

c. Mass Contacts

**1. Awareness of KVK beneficiaries about extension teaching methods n=210**

| Sl. No.  | Extension Teaching Methods        | Yes  |        | No     |        |
|----------|-----------------------------------|------|--------|--------|--------|
|          |                                   | F    | %      | F      | %      |
| <b>1</b> | <b>Individual Contacts</b>        |      |        |        |        |
|          | Farm and Home Visits              | 198  | 94.29  | 12     | 5.71   |
|          | Farmers' calls                    | 120  | 57.14  | 90     | 42.86  |
|          | Telephone calls                   | 143  | 68.10  | 67     | 31.90  |
|          | Personal letters                  | 27   | 12.86  | 183    | 87.14  |
|          | Flag method                       | 71   | 33.81  | 139    | 66.19  |
|          | Adaptive or Mini kit Trail        | 210  | 100.00 | 0      | 0.00   |
|          | Farm Clinic                       | 147  | 70.00  | 63     | 30.00  |
| <b>2</b> | <b>Group Contacts</b>             |      |        |        |        |
|          | Method demonstration              | 210  | 100.00 | 0      | 0.00   |
|          | Leader training meetings          | 210  | 100.00 | 0      | 0.00   |
|          | Lecture methods                   | 210  | 100.00 | 0      | 0.00   |
|          | Conference and discussion meeting | 23   | 10.95  | 187    | 89.05  |
|          | Meeting at result demonstration   | 147  | 70.00  | 63     | 30.00  |
|          | Tours                             | 165  | 78.57  | 45     | 21.43  |
|          | Field Day                         | 158  | 75.24  | 52     | 24.76  |
|          | Result demonstration              | 210  | 100.00 | 0      | 0.00   |
|          | Brain storming                    | 0    | 0.00   | 210    | 100.00 |
|          | Group discussion                  | 162  | 77.14  | 48     | 0.00   |
| <b>3</b> | <b>Mass Contact</b>               |      |        |        |        |
|          | Bulletins                         | 210  | 100.00 | 0      | 0.00   |
|          | Leaflets                          | 133  | 63.33  | 77     | 36.67  |
|          | News letters                      | 121  | 57.62  | 89     | 42.38  |
|          | Circular letters                  | 102  | 48.57  | 108    | 51.43  |
|          | Radio                             | 0    | 0.00   | 210    | 100.00 |
|          | Television                        | 210  | 100.00 | 0      | 0.00   |
|          | Exhibits                          | 71   | 33.81  | 139    | 66.19  |
|          | Posters                           | 136  | 64.76  | 74     | 35.24  |
|          | Literature                        | 169  | 80.48  | 41     | 19.52  |
|          | Audio cassettes                   | 0    | 0.00   | 210    | 100.00 |
|          | Video tape                        | 0    | 0.00   | 210    | 100.00 |
|          | Slides/Projectors                 | 210  | 100.00 | 0      | 0.00   |
|          | Agricultural shows                | 76   | 36.19  | 134    | 63.81  |
|          | Internet                          | 210  | 100.00 | 0      | 0.00   |
| Cinema   | 0                                 | 0.00 | 210    | 100.00 |        |

The study reveals that under the category of individual methods, KVKs applied seven methods, namely Farm and Home Visits, Farmers' calls, Telephone calls, Personal letters, Flag method, Adaptive or Mini kit Trial and Farm Clinic. It is evident from the table 1 that almost all the respondents were aware of Farm and Home Visit method (94.29%) and Adaptive or Mini kit Trial methods (100%) in this category. Majority of the respondents were also aware of Farmers' calls (57.14%), Telephone calls (68.10%) and Farm Clinic (70.00 %). Least of the respondents were aware about Personal letters (12.86%) and Flag method (33.81%). The traditional methods of Personal letter and flag method have been less used methods by KVKs. This might be the reason for such findings.

Under the group contact methods, there were ten common methods used by the KVKs. As group methods are more frequently used methods, the better observations were recorded in terms of respondents' awareness about these methods. All the respondents expressed that they were aware about the methods of 'method demonstration', 'leader training meetings', 'lecture methods' and 'result demonstration'. More than half of the respondents were aware about the methods of 'Meeting at result demonstration' (70.00%), 'Tours' (78.57%), 'Field Day' (75.24%) and 'Group discussion' (77.14%). However, it was observed that only 23 per cent of the respondents were aware about 'conference and discussion meetings' method. It was also highlighted that none of the respondent was aware of the method of 'brain storming'.

In case of mass contact methods, fifteen methods were listed, which are commonly used by the KVKs for reaching a wide range of audience/ clients. Table1 reveals that 100 per cent of the respondents were aware of Bulletins, Television, Slides/Projectors and Internet. Besides this, the majority of respondents were aware about the methods of Leaflets (63.33%), Newsletters (57.62%), Posters (64.76%) and Literature (80.48%). These methods are the regularly and frequently used methods by the KVKs. The least awareness was observed in case of the methods of Circular letters (48.57%), Exhibits (33.81%) and Agricultural shows (36.19%). It is also indicated in the study that none of the respondents were aware about the methods of Radio, Audio cassettes, Video tape and Cinema as all of these methods have been lacking their relevance in the times of social media. So, these methods are rarely used by the KVKs.

## **2. Convincing ability of extension methods**

**Table: 2. Convincing ability of extension teaching methods as perceived by KVK beneficiaries**

n=210

| Sl. No.  | Extension Methods                 | V Much |       | Much  |       | Not at al |        |
|----------|-----------------------------------|--------|-------|-------|-------|-----------|--------|
|          |                                   | f      | %     | f     | %     | f         | %      |
| <b>1</b> | <b>Individual contacts</b>        |        |       |       |       |           |        |
|          | Farm and Home Visits              | 153    | 72.86 | 57    | 27.14 | 0         | 0.00   |
|          | Farmers' calls                    | 83     | 39.52 | 97    | 46.19 | 30        | 14.29  |
|          | Telephone calls                   | 72     | 34.29 | 101   | 48.10 | 37        | 17.62  |
|          | Personal letters                  | 13     | 6.19  | 29    | 13.81 | 168       | 80.00  |
|          | Adaptive or Mini kit Trail        | 124    | 59.05 | 86    | 40.95 | 0         | 0.00   |
|          | Flag method                       | 0      | 0.00  | 0     | 0.00  | 210       | 100.00 |
|          | Farm Clinic                       | 106    | 50.48 | 73    | 34.76 | 31        | 14.76  |
| <b>2</b> | <b>Group Contact</b>              |        |       |       |       |           |        |
|          | Method demonstration              | 167    | 79.52 | 43    | 20.48 | 0         | 0.00   |
|          | Leader training meetings          | 148    | 70.48 | 62    | 29.52 | 0         | 0.00   |
|          | Lecture methods                   | 137    | 65.24 | 72    | 34.29 | 1         | 0.48   |
|          | Conference and discussion meeting | 0      | 0.00  | 0     | 0.00  | 210       | 100.00 |
|          | Meeting at result demonstration   | 97     | 46.19 | 113   | 53.81 | 0         | 0.00   |
|          | Tours                             | 68     | 32.38 | 142   | 67.62 | 0         | 0.00   |
|          | Field Day                         | 153    | 72.86 | 57    | 27.14 | 0         | 0.00   |
|          | Result demonstration              | 149    | 70.95 | 61    | 29.05 | 0         | 0.00   |
|          | Brain storming                    | 0      | 0.00  | 0     | 0.00  | 210       | 100.00 |
|          | Group discussion                  | 101    | 48.10 | 109   | 51.90 | 0         | 0.00   |
| <b>3</b> | <b>Mass Contact</b>               |        |       |       |       |           |        |
|          | Bulletins                         | 86     | 40.95 | 124   | 59.05 | 0         | 0.00   |
|          | Leaflets                          | 103    | 49.05 | 107   | 50.95 | 0         | 0.00   |
|          | News letters                      | 81     | 38.57 | 129   | 61.43 | 0         | 0.00   |
|          | Circular letters                  | 73     | 34.76 | 137   | 65.24 | 0         | 0.00   |
|          | Radio                             | 0      | 0.00  | 0     | 0.00  | 210       | 100.00 |
|          | Television                        | 62     | 29.52 | 148   | 70.48 | 0         | 0.00   |
|          | Exhibits                          | 134    | 63.81 | 76    | 36.19 | 0         | 0.00   |
|          | Posters                           | 89     | 42.38 | 121   | 57.62 | 0         | 0.00   |
|          | Literature                        | 129    | 61.43 | 81    | 38.57 | 0         | 0.00   |
|          | Audio cassettes                   | 0      | 0.00  | 0     | 0.00  | 210       | 100.00 |
|          | Video tape                        | 0      | 0.00  | 0     | 0.00  | 210       | 100.00 |
|          | Slides/Projectors                 | 84     | 40.00 | 126   | 60.00 | 0         | 0.00   |
|          | Agricultural shows                | 37     | 17.62 | 173   | 82.38 | 0         | 0.00   |
|          | Internet                          | 72     | 34.29 | 138   | 65.71 | 0         | 0.00   |
| Cinema   | 41                                | 19.52  | 169   | 80.48 | 0     | 0.00      |        |

The table2 demonstrates that 'farm and home visit' and 'adaptive or mini kit trial' methods were reported the most convincing individual contact methods by the respondents. Altogether 72.86 per cent of the respondents agreed that 'farm and home visit' method was

‘very much convincing’, whereas, 59.05 per cent perceived ‘adaptive trial method’ as the ‘very much convincing’. However, ‘personal letters’ and ‘flag method’ were found least convincing and not at all convincing, respectively. Other methods including ‘farmers’ call’, ‘telephone call’ and ‘farm clinic’ were also observed as ‘much convincing’ by majority of the respondents.

In case of group contact methods, the most convincing method reported by the respondents was ‘method demonstration’ with 79.52 per cent indicating it as very much convincing. Hence, method demonstration received the highest convincing element in the area of group contact. The other group contact methods with the higher degree of convincing ability were field day (72.86%), result demonstration (70.95% and leader training meetings (70.48%). These methods are able to convince the clients to a great extent. The lecture and group discussion were also found convincing methods as perceived by the KVK beneficiaries. The brain storming and conference had no significant convincing strength in rural areas, particularly.

Out of 15 mass contact methods, audio cassettes and video tapes were found not at all convincing by the respondents. These two methods have been obsolete due to advance communication technologies and are not in use in present. Hence, they were reported as irrelevant by all the respondents. Radio was also found not convincing, due to the fact that no KVK under study has its presence on radio. The ‘exhibits’ and ‘literature’ were found the most convincing mass contact methods with 63.81 and 61.43 per cent responses, respectively. The methods, like, leaflets, posters, projectors, bulletins were also perceived as having better convincing ability in comparison to other methods. Agricultural shows, circular letters, television were reported as having lower extent of convincing ability.

### 3. Imparting knowledge to the KVK beneficiaries

**Table 3: Effectiveness of extension teaching methods in imparting knowledge to KVK beneficiaries**  
n=210

| Sl. No. | Teaching Methods               | Rank     | Score     |
|---------|--------------------------------|----------|-----------|
| 1       | <b>Individual Contacts</b>     |          |           |
|         | <b>i. Farm and Home Visits</b> | <b>1</b> | <b>83</b> |
|         | ii. Adaptive or Mini kit Trial | 2        | 76        |
|         | iii. Farmers calls             | 3        | 63.8      |
|         | iv. Personal letters           | 4        | 52        |
|         | v. Farm Clinic                 | 5        | 51        |
|         | vi. Telephone calls            | 6        | 43.6      |

|           |                                      |          |             |
|-----------|--------------------------------------|----------|-------------|
|           | vii. Flag method                     | 7        | 24          |
| <b>2</b>  | <b>Group Contacts</b>                |          |             |
|           | <b>i. Method demonstration</b>       | <b>1</b> | <b>79</b>   |
|           | ii. Group discussion                 | 2        | 73          |
|           | iii. Result demonstration            | 3        | 66.1        |
|           | iv. Leader training meetings         | 4        | 62          |
|           | v. Field day or Farmers Day          | 5        | 55.8        |
|           | vi. Conference & Discussion meetings | 6        | 49          |
|           | vii. Lecture meetings                | 7        | 42.7        |
|           | viii. Study Tours or Tours           | 8        | 40          |
|           | ix. Meetings at result demonstration | 9        | 37          |
|           | x. Brain Storming                    | 10       | 16          |
| <b>3</b>  | <b>Mass Contact</b>                  |          |             |
|           | <b>i. Internet</b>                   | <b>1</b> | <b>82.3</b> |
|           | ii. Agricultural Shows               | 2        | 84          |
|           | iii. Television                      | 3        | 81.2        |
|           | iv. Slides                           | 4        | 76.36       |
|           | v. Literature                        | 5        | 72          |
|           | vi. Leaflets                         | 6        | 69          |
|           | vii. News letters                    | 7        | 66.2        |
|           | viii. Circular letters               | 8        | 54          |
|           | ix. Exhibits                         | 9        | 51.9        |
|           | x. Posters                           | 10       | 48.7        |
|           | xi. Video tape                       | 11       | 46.3        |
|           | xii. Radio                           | 12       | 42          |
|           | xiii. Audio cassettes                | 13       | 40.1        |
|           | xiv. Bulletins                       | 14       | 35.3        |
| i. Cinema | 15                                   | 21       |             |

Table3 reveals the effectiveness of various extension methods in imparting knowledge to KVK beneficiaries. In case of individual contact methods, it was observed that ‘Farm & home visit’ and ‘Adaptive or mini kit trial’ were ranked first and second, respectively with the corresponding mean score of 83 and 76. The methods of ‘farmers call’, ‘personal letters’ and ‘farm clinic’ were also perceived as good by the beneficiaries in imparting knowledge, the Garrett ranking score of which were recorded as 63.3, 52 and 51 respectively. However, ‘telephone calls’ and ‘flag method’ were considered as not so effective in providing knowledge to the target learners.

From the perusal of table no.3, 'method demonstration' was ranked first with the score of 79 and was perceived as best method for imparting knowledge of relatively complex processes. The second, third and fourth rank were given to 'group discussion', 'result demonstration' and 'leader training meetings', respectively. It was also reported that the methods of 'field day' and 'conference, discussion meetings' were found moderately effective and ranked as the fifth (55.8) and sixth (49). The brain storming did not considered as an important tool for imparting knowledge during the study.

Under the category of mass contact methods, internet was considered as the most effective method in imparting knowledge with the score of 86.3. the findings of the study indicates that the 'agricultural shows', 'television', 'slides' and 'literature' were also perceived as good in delivering the knowledge to the beneficiaries with the Garrett ranking of second, third, fourth and fifth, respectively. The 'leaflets' and 'newsletters', were also found to be considered as moderately effective for imparting the knowledge in the mass contact method. The other methods like radio, audio-cassettes and cinema had lose their significance indicating their Garrett ranking scores as 30.8, 25.2 and 15 respectively.

Overall it can be seen that due to technological advancement in communication media, some of the traditional audio-visual aids have been outdated and obsolete. These aids were found no more relevant in the current scenario. Also, the face to face contact methods are still the most effective extension teaching methods.

#### 4. Imparting skills to the farmers

**Table 4: Effectiveness of extension teaching methods in imparting skills to KVK beneficiaries n=210**

| Sl. No.         | Extension Methods                 | Marks       | Rank     |
|-----------------|-----------------------------------|-------------|----------|
| <b>1</b>        | <b>Individual contacts</b>        |             |          |
|                 | <b>Farm and Home Visits</b>       | <b>83.7</b> | <b>1</b> |
|                 | Adaptive or Mini kit Trail        | 80.3        | 2        |
|                 | Farm Clinic                       | 79.2        | 3        |
|                 | Farmers' calls                    | 76.9        | 4        |
|                 | Telephone calls                   | 72.4        | 5        |
|                 | Personal letters                  | 68.3        | 6        |
|                 | Flag method                       | 64.2        | 7        |
| <b>2</b>        | <b>Group Contact</b>              |             |          |
|                 | <b>Method demonstration</b>       | <b>86.4</b> | <b>1</b> |
|                 | Result demonstration              | 84.5        | 2        |
|                 | Group discussion                  | 79.8        | 3        |
|                 | Lecture methods                   | 78.4        | 4        |
|                 | Leader training meetings          | 74.5        | 5        |
|                 | Conference and discussion meeting | 71.3        | 6        |
|                 | Field Day                         | 70.1        | 7        |
|                 | Meeting at result demonstration   | 69.2        | 8        |
|                 | Tours                             | 66.7        | 9        |
|                 | Brain storming                    | 62.3        | 10       |
| <b>3</b>        | <b>Mass Contact</b>               |             |          |
|                 | <b>Internet</b>                   | <b>80.2</b> | <b>1</b> |
|                 | Agricultural shows                | 80.0        | 2        |
|                 | Television                        | 77.2        | 3        |
|                 | Exhibits                          | 75.6        | 4        |
|                 | Literature                        | 72.3        | 5        |
|                 | Radio                             | 70.4        | 6        |
|                 | Video tape                        | 69.2        | 7        |
|                 | Slides                            | 67.2        | 8        |
|                 | Bulletins                         | 67.2        | 9        |
|                 | Leaflets                          | 67.4        | 10       |
|                 | News letters                      | 66.4        | 11       |
|                 | Circular letters                  | 64.3        | 12       |
|                 | Posters                           | 59.0        | 13       |
| Cinema          | 52.0                              | 14          |          |
| Audio cassettes | 42.0                              | 15          |          |

Extension teaching methods are considered to be the most important tools for improving skills of the target clients. Effectiveness of such methods determines the extent to which the learners have acquired the skills. Under the study an effort was made to assess the strength of different extension methods in imparting skills among the target

group. The perception of KVK beneficiaries was observed and analysed through Garrett Ranking method. The findings are reported in table 4.

The table 4 depicts that the perceived effectiveness of various extension teaching methods in terms of its ability in imparting skills to the beneficiaries. The ‘farm and home visit’ method was found the most effective method and ranked first with the score of 83.7 and method of ‘adaptive or minikit trial’ was ranked second with 80.3. In the same way, ‘personal letter’ and ‘flag method’ were reported as the least effective in imparting skills to the beneficiaries. These methods were ranked 6<sup>th</sup> and 7<sup>th</sup>, respectively. In case of group extension methods, table 4.2.3 reveals that the method demonstration was found to be the best method for imparting skills among all the ten group contact methods. It was ranked first with 86.4 points. The result demonstration and group discussion methods were ranked second and third followed by lecture methods, leader training meetings, conference and discussion meeting, field day and meeting at result demonstration, which were ranked fourth, fifth, sixth, seventh, and eighth, respectively. The least effective methods were tours and brain storming with the score of 66.7 and 62.3, respectively.

Under the category of mass contact methods, the KVK beneficiaries responded that internet was the most effective mass contact methods as it provided the desired information in the forms of videos, text or visuals. The respondents were having easy access to internet. Agricultural shows, television and exhibits were also reported as very effective methods in imparting skills among the beneficiaries. These methods were ranked as second, third and fourth with the score of 80.0, 77.2 and 75.6, respectively. Other methods like literature, radio, video tapes, slides, bulletins and leaflet were perceived as moderately effective with the score ranging between 67 and 72.3. posters, cinema and audio cassettes were reported as the least effective mass contact methods as far as imparting skills is concerned.

## 5.Changing the attitude of farmers

**Table 5: Effectiveness of extension teaching methods in changing the attitude of KVK beneficiaries**

| Sl. No. | Extension Methods           | Marks       | Rank     |
|---------|-----------------------------|-------------|----------|
| 1       | <b>Individual contacts</b>  |             |          |
|         | <b>Farm and Home Visits</b> | <b>87.9</b> | <b>1</b> |
|         | Adaptive or Mini kit Trail  | 85.5        | 2        |
|         | Farm Clinic                 | 84.3        | 3        |

|                 |                                   |             |          |
|-----------------|-----------------------------------|-------------|----------|
|                 | Farmers' calls                    | 81.2        | 4        |
|                 | Telephone calls                   | 77.5        | 5        |
|                 | Personal letters                  | 74          | 6        |
|                 | Flag method                       | 65.3        | 7        |
| <b>2</b>        | <b>Group Contact</b>              |             |          |
|                 | <b>Method demonstration</b>       | <b>85.3</b> | <b>1</b> |
|                 | Result demonstration              | 84.8        | 2        |
|                 | Group discussion                  | 84.8        | 2        |
|                 | Lecture methods                   | 83          | 3        |
|                 | Leader training meetings          | 82.2        | 4        |
|                 | Conference and discussion meeting | 79          | 5        |
|                 | Field Day                         | 77.9        | 6        |
|                 | Meeting at result demonstration   | 76          | 7        |
|                 | Tours                             | 74.8        | 8        |
|                 | Brain storming                    | 66.3        | 9        |
| <b>3</b>        | <b>Mass Contact</b>               |             |          |
|                 | <b>Agricultural shows</b>         | <b>87.4</b> | <b>1</b> |
|                 | Television                        | 86.9        | 2        |
|                 | Internet                          | 85.4        | 3        |
|                 | Exhibits                          | 84.4        | 4        |
|                 | Literature                        | 83.6        | 5        |
|                 | Radio                             | 82.6        | 6        |
|                 | Cinema                            | 80.6        | 7        |
|                 | Slides                            | 81.8        | 8        |
|                 | Bulletins                         | 78.5        | 9        |
|                 | Leaflets                          | 77.5        | 10       |
|                 | News letters                      | 76.2        | 11       |
|                 | Circular letters                  | 75.8        | 12       |
|                 | Posters                           | 74.4        | 13       |
|                 | Video tape                        | 73.2        | 14       |
| Audio cassettes | 69.7                              | 15          |          |

The one of the major function of the extension teaching methods is to persuade the target beneficiaries to accept the change. It is impossible without bringing out the desirable change in attitude of the beneficiaries. Hence, the effectiveness of various extension teaching methods in changing the attitude of KVK beneficiaries, an effort was made during the study. The results are shown in table 5.

It is clear from the table that farm and home visit was considered the most effective extension teaching methods in changing the attitude of KVK beneficiaries towards farm innovations/ practices. The adaptive of mini kit trial and farm clinic were also perceived as very effective and ranked second and third by the respondents. However, telephone call, personal letter and flag methods were not found so effective as these methods have lack of face-to-face interaction.

In the category of group contact methods, method demonstration was ranked first with 85.3 score on Garrett ranking method. Both of the methods, result demonstration and group discussion were scored 84.8 and ranked as second. Lecture method and leadership training method were scored 83.0 and 82.2, respectively. However, brain storming method was perceived as the least effective and ranked as ninth among the selected ten group contact methods.

On the perusal of table 5, it was revealed that the agricultural shows were considered as the most effective mass contact methods in molding the attitude of KVK beneficiaries. Along with that, television and internet were also found very effective by the respondents. Due to accessibility and improved communication infrastructure, internet has become one of the most important tools of mass communication even in the rural area. Agricultural exhibits also helped in simulating the learning of the respondents and improved their understanding of any subject. The leaflet, newsletter, circular letter, posters, video tape and audio cassettes were found to lose its significance as perceived by the selected respondents during the course of study.

### **Conclusion**

In conclusion, the findings demonstrate a high level of awareness and effectiveness of various extension methods among KVK beneficiaries. Almost all respondents were familiar with individual contact methods such as 'Farm and Home Visit' and 'Adaptive or Mini Kit Trial,' with these methods also being highly convincing and impactful in imparting knowledge and skills. Group contact methods like 'Method Demonstration,' 'Leader Training Meetings,' and 'Result Demonstration' emerged as the most effective for both knowledge dissemination and skill development, particularly for complex agricultural processes. Mass contact methods such as 'Bulletins,' 'Television,' and 'Internet' also garnered high awareness, with 'Internet' being especially effective in imparting knowledge and 'Agricultural Shows' influencing attitude changes significantly. However, certain methods like 'Conference and Discussion Meetings' and 'Brainstorming' showed limited awareness, indicating potential areas for strengthening outreach efforts. Overall, the study highlights the importance of tailored extension approaches, with a clear preference for methods that provide direct, practical engagement with farmers.

Disclaimer (Artificial intelligence)

Option 1:

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

Option 2:

Author(s) hereby declare that generative AI technologies such as Large Language Models, etc. have been used during the writing or editing of manuscripts. This explanation will include the name, version, model, and source of the generative AI technology and as well as all input prompts provided to the generative AI technology

Details of the AI usage are given below:

- 1.
- 2.
- 3.

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