P-ISSN: 2618-0723
E-ISSN: 2618-0731

NAAS Rating (2025): 5.04
www.extensionjournal.com

International Journal of Agriculture Extension and Social Development

Volume 8; Issue 9; September 2025; Page No. 155-161

Received: 02-06-2025
Accepted: 05-07-2025

Indexed Journal
Peer Reviewed Journal

# First-line agricultural extension system of ICAR: An analytical study on the attitude of beneficiaries of Rajasthan

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**DOI:** https://www.doi.org/10.33545/26180723.2025.v8.i9c.2391

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**Abstract**

The Indian public agricultural extension system is one of the largest knowledge and information dissemination institutions in the world. The attitude of an individual has a significant and direct relationship with the behaviour towards the object. The present study has been conducted to study the attitude of the beneficiary farmer and farm women towards the agricultural extension system of ICAR. The research was conducted in all the ten agro-climatic zones of Rajasthan in total covering 300 beneficiaries' farmers and farm women using random sampling techniques. Scale constructed by Pandey *et al.* (2020) was used for measuring the attitude of the beneficiary. Finding of the study denotes that 45.30 per cent of the farmers and half of the farm women had a favourable attitude towards the extension system of ICAR. More number of farmers (14.70%) had the most favourable attitude whereas only 2.7 per cent farm women fall in the category of most favourable attitude. Agro climatic zone wise, no significant difference was found in the attitude of the respondents towards the extension system of ICAR.

**Keywords:** Farmer's attitude, extension system, ICAR, farmers, farm women

## Introduction

Technology plays a key role as a vehicle for change in many disciplines (Feder *et al.*, 1985) [4]. The increasing rate of technological advancement across various disciplines and in particular the agricultural sector, has resulted in increased efficiency and productivity (Ugochukwu and Phillips, 2018) [12] and Indian agriculture is no exception to it. To make informed decisions, farmers need verified scientific information from various trusted sources and need help to integrate such information. Farmers are presently receiving such information from extension sources most of which focus on the technologies generated at research stations and passed on to extension (Rasheed, 2000) [9]. In this regard, the Indian public agricultural extension system is one of the largest knowledge and information dissemination institutions in the world.

The public agricultural extension system in India mainly comprises the first-line extension system of the Indian Council of Agricultural Research (ICAR) institutes and State Agricultural Universities (SAUs); and the extension system of the Ministry of Agriculture and the State Department of Agriculture. The ICAR agricultural extension system in a state mainly comprises State Agricultural Universities (SAUs) and Krishi Vigyan Kendras (KVKs). They organize diversified extension education activities *viz*., farm trials, demonstrations, meetings, discussions, conventions, training programmes, farmer's field school, field days, farmer's fairs, exhibitions, campaigns, educational tours, exposure visits, diagnostic visits and farm advisory services. They play a vital role in conducting on-farm testing to identify location-specific agricultural technologies and demonstrating the production potential of newly released varieties of the crop in farmers' fields through frontline demonstrations. They also conduct need-based training programmes for the benefit of farmers and farm women, rural youth and extension personnel to update their knowledge and skills and to orient them in the frontier areas of technology development.

The agricultural extension system of ICAR is the first line extension system, it has the major responsibility for the transfer of front-line technologies. The ICAR institutes and KVKs of SAUs are responsible for the training of master trainers and subject matter specialists from various line departments, NGOs, other organizations and agencies so that they can, in turn, disseminate the technology among the farming community. Thus, the ICAR's front-line extension system plays a catalytic and supportive role by the development of extension methodology, refinement and transfer of front-line technologies and by providing feedback to scientists.

Attitude denotes a favourable or unfavourable evaluative reaction toward something or someone, exhibited in one's beliefs, feelings, or intended behaviour (Myers, 2010) [6]. Attitude is not an enduring personal disposition (p. 639) but rather it is an evaluative judgment that is made in the situation based upon currently accessible information

(Schwarz, 2007) [11]. With the ICAR being a front line extension system of the country, there is an urgent need to evaluate the attitude of the farmers and farm women towards transfer of technology approaches and services of the system. This is the time to critically review the present extension system from the viewpoint of extension personnel as well as the farming community.

## Materials and Methods

The study was conducted in Rajasthan state. Based on agro-climatic conditions Rajasthan has been divided into ten agro-climatic zones *viz*., IA-Arid Western plain, IB-Irrigated North-Western plain, IC-Hyper arid partial irrigated plain, IIA- Internal drainage dry plain, IIB- Transitional Plain of Luni Basin, IIIA- Semi-Arid Eastern Plain, IIIB-Flood Prone Eastern Plain, IVA-Sub Humid Southern, IVB-Humid Southern plain and V- Humid Southern Eastern Plain (Hussain, 2015) [5]. All the agro-climatic zones were covered in this study.

There are a total of 42 KVKs spread across these agro-climatic zones. Out of these 42 KVKs, 33 are managed by SAUs, 06 by Non- Government Organizations (NGOs)/Other Educational Institutes (OEIs) and 03 by ICAR Research Institutes (As on August 2016). To have representation from all ten agro-climatic zones, one KVK from each agro-climatic zone was selected randomly. Thus, in total 10 KVKs representing all the agro-climatic zones of Rajasthan were selected. The selected KVKs were KVK, Danta, Barmer (zone IA); KVK, Sangaria, Hanumangarh (zone IB); KVK, Beechwal, Bikaner (zone IC); KVK, Athiyasan, Nagaur (zone IIA); KVK, Sirohi (zone IIB); KVK, Tabiji, Ajmer (zone IIIA); KVK, Kumher, Bharatpur (zone IIIB); KVK, Badgaon, Udaipur (zone IVA); KVK, Borvat, Banswara (zone IVB) and KVK, Borkhera, Kota (zone V). From each of the selected KVKs a list of previously adopted villages was made and from that list one village from each KVK was selected randomly. The selected villages were Daruda, Jhandwala Sikhaan, Benisar, Mundwa, Jhankar, Leedi, Sitara, Khedi, Gamdi, Arjunpura

From each selected village beneficiary farmers and farm women list was prepared and from the list 15 farmers and 15 farmers were selected. Thus the total sample of the study comprises 150 farmers and 150 farm women. An attitude scale constructed using Thurston equidistance method and interview technique was employed to collect response from farmers and farm women. The respondents were contacted in their home and farm. Total 20 statements were chosen for measuring the attitude of farmers, of which 10 were positive and 10 were negative statements. These statements were weighted on a five-point continuum and results have been presented in this section.

## Results and Discussion

Attitude is a social orientation - an underlying inclination to respond to something either favourably or unfavourably. The attitude of an individual has a significant and direct relationship with the behaviour towards the object (Ajzen and Fishbein, 1980) [1]. Hence by keeping in mind the following relationship, the attitude of farmers and farm women towards the extension system of ICAR has been studied. Table-1 shows that a total 20 statements were chosen for measuring the attitude of farmers, of which 10 were positive and 10 were negative statements. These statements were weighted on a five-point continuum and results have been presented under the following heads-

### a. Attitude of the farmers towards agricultural extension system of ICAR in Rajasthan

Critical analysis of Table 1 clearly shows that around two-thirds of the farmers agreed to the statement that regular contact with the scientists of KVK motivates farmers to adopt scientific practices related to agriculture and animal rearing (MWS 3.55). Farmers reported that after coming in contact with scientists they have adopted scientific practices like the hybrid seed, line sowing of wheat, appropriate seed rate, balanced use of urea, soil testing, water testing, etc. Around 62 per cent of the farmers disagreed with the negative statement that KVK does not conduct activities as per the needs of the farming community while one-third of the respondents agreed with the same statement. Farmers reported that activities of KVK focus mainly on crop production while ignoring the post-harvest and marketing aspect. More than half of the farmers (53.40%) agreed with the statement that KVK helps farmers in establishing linkages with other agencies and organizations like banks, agriculture and line departments, cooperatives and input dealers (MWS 3.19). While 41.30 per cent of the farmers disagreed with the same statement. Furthermore, the majority of the farmers (46.70%) disagreed with the negative statement that KVK scientists do not provide solutions to all the technical problems of farmers relating to agriculture and allied subjects. With MWS 3.97 farmers believed that SMS of KVK have solutions to all of their problems related to farming and animal rearing. There were more than two-thirds of the farmers who either agreed or strongly agreed with the statement that farmers' fair organized by the KVK is a good platform for getting latest technologies related to agriculture with MWS of 3.54. As these respondents had participated in the farmers fair organized by KVK at village or district level. Some of the farmers also visited state level and national level farmers fair organized by ICAR institutes.

Table-1 further reveals that the majority of the farmers disagreed with the statement that extension personnel of KVK do not have a good rapport with farmers (4.03 MWS). Respondents stated that SMS of KVK had a good rapport with them and they are in continuous contact with the farmers through mobile phone services and also personal visits. Majority of the farmers agreed with the statement that KVK uses multiple teaching methods in training with MWS 3.81. The respondents stated that various teaching methods like lecture, demonstration, presentation, films, discussion and visits are used in training. The hands-on experience has also been provided to the farmers in these training sessions. Similarly, a positive attitude toward the KVK training programme was reported by Dubey *et al.* (2008) [3]. Around two-thirds of the farmers showed their disagreement with the negative statement that the information provided by KVK scientists has no practical application (MWS 3.45). Respondents reported that information provided by the SMSs/experts has a practical use, much can be applied in their daily life. While one-third of the respondents reported that information does not have practical applicability due to personal and economic constraints of the farmers. The same

number of farmers reported that KVK helps in providing livelihood security to the farming community (MWS 3.45) by imparting knowledge about improved agricultural practices and developing skills for other entrepreneurial activities through vocational training. Activities of KVK like training, demonstration, *kisan goshties*, meetings help in developing human capability thereby helping in promoting livelihood security. Further, the majority of the farmers either disagreed or strongly disagreed with the negative statement that food and lodging facilities in on-campus trainings are not good with MWS of 4.35. This may be due to the fact that almost all the KVKs now have well-established infrastructure including farmers hostel and cafeteria.

Data further show that 68 per cent of the farmers approved that the training of KVK is very useful for developing skills with a MWS of 3.51. KVK provides training to farmers on a variety of areas like crop production, horticulture, soil health and fertility management, livestock production and management, agricultural engineering, plant protection, fisheries, capacity building and group dynamics, production of inputs and agroforestry. These training not only provide scientific information but also provide practical exposure thus helps in developing skills among farmers. Similar findings were also reported by Sharma *et al.* (2013) [10]. Less than half of the farmers (47.30%) either agreed or strongly agreed with the negative statement that front line demonstrations are confined to a few crops only (MWS 2.91). This may be due to the reason that KVK conducts FLD on crops as approved under the action plan under NFSM and NMOOP and in a particular cropping season, FLD is organised in a village on one crop only. More than half of the farmers (55.40%) agreed or strongly agreed to the statement that crop production has substantially increased due to activities of KVK in the adopted village with MWS of 3.25. After taking part in FLD, training, field days and other extension activities farmers learnt scientific practices of crop production and adoption of these practices resulted in improved crop production. Most of the farmers disagreed with the negative statement that information received from KVK is not accurate (MWS 4.35). This may be due to the fact that KVK disseminates authentic information generated from the research system of the university and ICAR institute. Similarly, the majority of the farmers possessed a positive attitude towards the statement that KVK has highly qualified and trained manpower (4.42 MWS). Less than half of the farmers disposed of favourable attitudes toward the statement that the income of farmers in adopted villages is more compared to other villages with an MPS of 3.10. Respondents reported that the cost of production also increased while adopting scientific practices. So despite an increase in production, the net income from crop production remains the same.

Majority of the farmers had a positive attitude towards the statement that transfer of technology is fast in adopted villages of KVK and FLD helped them in adoption of the recommended package of practices with MWS of 3.92 and 4.13, respectively. This may be due to the intensive efforts made by KVK for transfer of technologies in the adopted village for three years. KVK conducts several activities like FLD, OFT, training, demonstration, field visit, field days, farmers-scientist interaction, farmers fair, soil health campaign, animal health camps, etc. in the adopted village. Prasad (2011) [8] also reported similar results that 65 per cent of the beneficiary farmers had a favourable attitude towards FLDs.

Perusal of Table-1 further reveals that farmers showed their agreement towards the statement that vocational training of KVK are not sufficient to start a sound economic activity with MWS of 2.94. The reason for the same was that after completion of vocational training the trainees face constraints like lack of finance, unavailability of raw material, lack of market for selling product, etc. which hinders in starting an economic activity. Also, the majority of the farmers (82.70%) either agreed or strongly agreed with the statement that FLD helps the farmer in the adoption of the recommended package of practices with MWS 4.13. Because participation in FLD helps respondents in learning step by step methods of scientific crop production. Data further portray that 56.60 per cent of the farmers showed their disagreement toward a negative statement that KVK activities focus more on farmers than farm women. They stated that most of the extension activities are organized for farmers as well as farm women but due to lack of awareness, family responsibilities and social barriers participation of farm women is comparatively less in extension activities.

**Table 1:** Statement wise distribution of the beneficiaries by their attitude towards the agriculture extension system of ICAR n=300

| S. No. | Statements | Farmers f (%) | | | | | MWS | Farm women f (%) | | | | | MWS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | SA | A | UD | DA | SDA | | SA | A | UD | DA | SDA | |
| 1. | Regular contact with a scientist of KVK motivates farmers to adopt scientific practices. | 31 (20.70) | 65 (43.30) | 19 (12.70) | 25 (16.70) | 10 (06.70) | 3.55 | 23 (15.3) | 75 (50) | 09 (6) | 33 (22) | 10 (6.7) | 3.45 |
| 2. | KVK does not conduct activities as per the needs of the farming community. | 09 (6.00) | 40 (26.70) | 09 (6.00) | 59 (39.30) | 33 (22.00) | 3.45 | 34 (22.7) | 64 (42.7) | 04 (2.6) | 34 (22.7) | 14 (9.3) | 2.53 |
| 3. | KVK helps the farming community to develop linkages with other agencies and organizations. | 25 (16.70) | 55 (36.70) | 8 (5.30) | 48 (32) | 14 (9.30) | 3.19 | 21 (14) | 57 (38) | 11 (7.3) | 37 (24.7) | 24 (16) | 3.09 |
| 4. | KVK's scientists do not provide solutions to all technical problems of the farming community about agriculture and allied activities. | 06 (4.00) | 18 (12.00) | 03 (2.00) | 70 (46.70) | 53 (35.30) | 3.97 | 06 (4) | 31 (20.7) | 10 (6.7) | 69 (46) | 34 (22.7) | 3.63 |
| 5. | Farmer's fair organized by KVK is a good platform for getting the latest technologies related to agriculture. | 33 (22.00) | 69 (46.00) | 3 (2.00) | 36 (24.00) | 09 (6.00) | 3.54 | 52 (34.7) | 70 (46.7) | 05 (3.3) | 21 (14) | 02 (1.3) | 3.99 |
| 6. | Extension personnel of KVK do not have a good rapport with the farming community. | 08 (5.30) | 12 (8.00) | 02 (1.30) | 75 (50.00) | 53 (35.30) | 4.03 | 13 (8.7) | 24 (16) | 07 (4.6) | 66 (44) | 40 (22.7) | 3.64 |
| 7. | KVK use multiple teaching methods in training. | 33 (22) | 84 (56) | 09 (6.00) | 19 (12.70) | 05 (3.30) | 3.81 | 47 (31.3) | 55 (36.7) | 23 (15.3) | 20 (13.3) | 05 (3.3) | 3.79 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8. | Information provided by KVK scientists has no practical application. | 16 (10.70) | 32 (21.30) | 03 (2.0) | 66 (44) | 33 (22) | 3.45 | 18 (12) | 41 (27.3) | 10 (6.7) | 46 (30.7) | 35 (23.3) | 3.26 |
| 9. | KVK helps in providing livelihood security to the farming community. | 29 (19.3) | 61 (40.7) | 20 (13.3) | 29 (19.7) | 11 (7.3) | 3.45 | 12 (8) | 67 (44.7) | 08 (5.3) | 54 (36) | 09 (6) | 3.13 |
| 10. | Food and lodging facilities in on-campus training are not good. | 03 (2.0) | 05 (3.30) | 04 (2.70) | 67 (44.7) | 71 (47.3) | 4.34 | 09 (6) | 24 (16) | 05 (3.3) | 78 (52) | 34 (22.7) | 3.69 |
| 11. | Trainings of KVK are very useful for developing skills. | 30 (20) | 72 (48) | 09 (6) | 23 (15.3) | 16 (10.7) | 3.51 | 20 (13.3) | 74 (49.3) | 08 (5.3) | 34 (22.7) | 14 (9.3) | 3.35 |
| 12. | Front line demonstrations are confined to a few crops only. | 27 (18) | 44 (29.30) | 10 (6.7) | 53 (35.3) | 16 (10.7) | 2.91 | 31 (20.7) | 42 (28) | 04 (2.7) | 44 (29.3) | 29 (19.3) | 2.99 |
| 13. | Crop production has substantially increased due to activities of KVK in the adopted village. | 28 (18.7) | 55 (36.7) | 13 (8.7) | 33 (22) | 21 (14) | 3.25 | 34 (22.7) | 65 (43.3) | 17 (11.3) | 31 (20.7) | 03 (2.0) | 3.64 |
| 14. | Information received from KVK is not accurate. | 00 (00) | 02 (1.3) | 00 (00) | 93 (62) | 55 (36.7) | 4.34 | 00 (00) | 00 (00) | 01 (0.7) | 104 (69.3) | 45 (30) | 4.29 |
| 15. | The income of farmers in adopted villages is more compared to other villages. | 25 (16.7) | 47 (31.3) | 19 (12.7) | 35 (23.3) | 24 (16) | 3.10 | 21 (14) | 59 (29.3) | 27 (18) | 29 (19.3) | 14 (9.3) | 3.29 |
| 16. | KVK does not have highly qualified and trained manpower. | 00 (00) | 01 (0.7) | 00 (00) | 85 (56.7) | 64 (42.7) | 4.42 | 04 (2.7) | 12 (8) | 06 (4) | 91 (60.7) | 37 (24.6) | 3.97 |
| 17. | Transfer of technology is fast in the adopted villages of KVK. | 66 (44) | 46 (30.7) | 07 (4.7) | 24 (16) | 07 (4.7) | 3.94 | 17 (11.3) | 75 (50) | 20 (13.3) | 19 (12.7) | 19 (12.7) | 3.35 |
| 18. | Vocational training of KVK is not sufficient to start a sound economic activity. | 33 (22) | 38 (25.3) | 05 (3.3) | 53 (35.3) | 21 (14) | 2.94 | 12 (8) | 53 (35.3) | 10 (6.7) | 50 (33.3) | 25 (16.7) | 3.15 |
| 19. | FLD helps the farmer in the adoption of a recommended package of practice. | 81 (54) | 43 (28.7) | 01 (0.7) | 14 (9.3) | 11 (7.3) | 4.13 | 21 (14) | 75 (50) | 03 (2) | 35 (23.3) | 16 (10.7) | 3.33 |
| 20. | KVK activities focus more on farmers than farm women. | 27 (18.0) | 36 (24) | 02 (1.3) | 62 (41.3) | 23 (15.3) | 3.12 | 46 (30.7) | 70 (46.7) | 00 (00) | 26 (17.3) | 08 (5.3) | 2.20 |

SA- Strongly Agree, A- agree, UD- Undecided, DA- Disagree, SD- Strongly disagree

**b. Attitude of the farm women towards agricultural extension system of ICAR in Rajasthan**

Perusal of Table 1 highlights that majority of the farm women agreed with statement that information received from KVK is accurate (MWS 4.29), farmers fair organised by KVK is a good platform for getting latest technology related to agriculture (MWS 3.99), KVK has highly qualified and trained staff (MWS 3.97) and KVK use multiple teaching methods in training (MWS 3.79). When the reason was discussed with the farm women, they stated that scientists of the KVK are educated and they provide scientific information through lecture, discussion, meetings, demonstration, visits, etc. Information is also provided in trainings through charts, posters, pictures, videos and movies which makes learning interesting and helps in retaining more information. Further, respondents did not have a positive attitude towards the statement that KVK conducts activities as per the needs of the farming community (MWS 2.53). Farm women showed their agreement to negative statements like front line demonstrations are confined to few crops (MWS 2.99) and activities of KVK focus more on farmers than farm women (MWS 2.20). The respondents expressed that farm women are mostly involved in training conducted by SMS (Home Science) and their involvement in FLD, OFT is negligible. Farm women have contact only with the SMS Home Science in the KVK. They further reported that training is planned by the scientists without taking into account their problems and needs and sometimes these training sessions are repetitive in nature.

More than 70 per cent of the respondents disagreed or strongly disagreed with the negative statement that food and lodging facilities in on-campus trainings are not good (MWS 3.69). Respondents reported that almost all KVKs had a separate farm women hostel which is equipped with basic amenities like drinking water, bedding, mess area, electricity, fan, toilets, etc. Nearly two-thirds of the respondents had a favourable attitude towards the statement that KVK scientists provide solutions to all technical problems of the farming community about agriculture and allied activities (MWS 3.63) and scientists of KVK have a good rapport with the farming community (MWS 3.64).

The table further reveals that around two-thirds of the farm women possessed a positive attitude towards the statement that regular contact with the scientists of KVK motivates them to adopt scientific practices with MWS 3.45. Farm women stated that they learned scientific practices related to food preservation, inclusion of pulses and vegetables in the diet, tailoring, menstrual hygiene, immunization of children and pregnant women, nutrition gardening, etc. Further, a similar number of respondents agreed or strongly agreed with the statement that crop production has substantially increased due to activities of KVK in the adopted area (MWS 3.64). The reason stated for that was the adoption of scientific practices like improved varieties of crops, soil testing, disease and insect pest management, etc. Besides this, more than 60 per cent of the respondents with MWS of 3.35 agreed or strongly agreed to the statement that training of KVK is very useful for developing skills among farm women in areas like tailoring, value addition, food preservation, nutrition gardening, etc. More than half of the respondents (52.70%) favourably disposed to the statement that KVK helps in providing livelihood security to the farming community. The equal number of respondents accepted that KVK helps the farming community to develop linkages with other agencies and organizations with MWS of 3.09. Respondents justified that after coming in contact with KVK scientists' interested farm women were organised into SHGs which were linked to the banks and now they can pool money in an account and can get a loan from the same. The respondents displayed their agreement towards the statement that the income of farmers in adopted villages is

more compared to other villages (MWS 3.29) and Information provided by KVK scientists has practical application (MWS 3.26). They further stated that farm women in adopted villages who learned tailoring, food preservation and macramé work through KVK training are able to earn some money.

The findings in Table 1 further highlight that 43.30 per cent of the respondents agreed or strongly agreed to the negative statement that vocational training of KVK are not sufficient to start a sound economic activity. While a similar number of respondents disagreed with the same statement. Besides this, more than 60 per cent respondents had a favourable attitude towards the statement that transfer of technology is fast in adopted villages of KVK (MWS 3.35) and FLD helps the farmer in the adoption of the recommended package of practices (MWS 3.33). FLD helps farmers in learning scientific practices under the guidance and supervision of a concerned scientist, which in turn helps in the adoption of a package of practices.

**c. Overall attitude of respondents towards the agricultural extension system of ICAR-**

On the basis of overall scores, the respondents were categorised into various categories. Data in Table 2 regarding attitudes denotes that 45.30 per cent of the farmers and half of the farm women had a favourable attitude towards the extension system of ICAR. More number of farmers (14.70%) had the most favourable attitude whereas only 2.7 per cent farm women fall in the category of most favourable attitude. It was saddening that only a few of the farm women who were in regular touch with SMS (Home Science) through mobile had the most favourable attitude. Around a similar number of farmers (22%) and farm women (21.30%) belong to the neutral attitude category. While 16.70 per cent of the farmers and 26 per cent of the farm women had an unfavourable attitude. Only a few farmers (1.30%) had the most unfavourable attitude and none of the farm women had the most unfavourable attitude towards the extension system of ICAR. The favourable attitude was found among the farm women who had attended more training, farmers fair and meetings. The most favourable attitude was found among the farm women who were in regular touch with SMS (Home Science) and were participating in KVK training as master trainers.

Majority of the farmers had a positive attitude, this may be due to involvement of farmers with KVK scientists in activities like FLD, farmers fair, training, meetings, field days, etc. The most favourable attitude was found among the farmers who had continued links with the KVK scientists. This link was found in the form of mobile calls, Whatsapp messages, farmers visit to KVK and farmers fair. The findings are in line with results of Vohra (2016) [13] who also reported 59.16 per cent of the farmers with a favourable attitude towards KVKs. Whereas, results of Alimul *et al.* (2019) [2] slightly differ as they reported that 03 per cent KVK trainees had a low level of attitude and 67 per cent had a medium level of the attitude, 30 percent trainees had a high level of the attitude toward KVK activities.

The mean attitude score of 3.38 denotes that overall farm women had a favourable attitude towards the extension system of ICAR. The mean attitude score of 3.62 reflects that most of the farmers were satisfied with the activities and services provided by the KVK. This may be due to the continued efforts made by KVK scientists for transfer of technology in the adopted village for three years.

Further, an effort was made to find out the significance of the difference between the mean attitude scores of farmers and farm women regarding the extension system of ICAR. The Z value was found significant at the 5 per cent level of significance which means that there was a significant difference between the attitude of farmers and farm women regarding the extension system of ICAR. This difference was due to the more involvement of farmers in the all the extension activities including FLDs, OFTs and due to regular contact with the SMS through phone calls, Whatsapp and KVK visits whereas farm women participate less in FLDs, OFTs and don't remain in regular touch through phone/Whatsapp.

Distribution of the beneficiaries on the basis of their overall attitude in the graph denotes that near about 40 per cent farmers and farm women had neutral or unfavourable attitudes. Which clearly indicate their dissatisfaction with the extension system which may be due to the reason of top to down approach of services, lack of participation of beneficiaries in design of activities, poor quality of services, delay in services, impractical nature of advice rendered and economical or other constraints of the extension personnel.

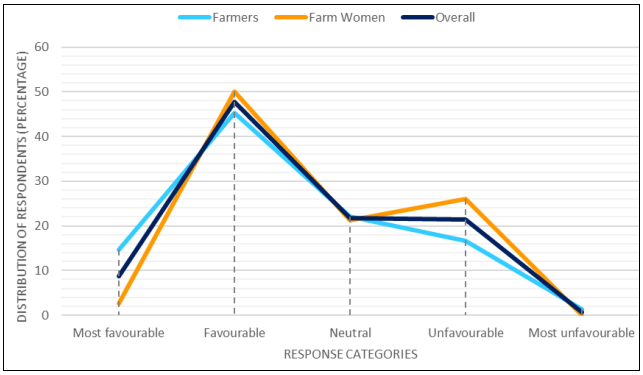


**Table 2:** Distribution of the beneficiaries by their attitude towards agricultural extension system of ICAR in Rajasthan n=300

| S. No. | Attitude Categories | f (%) | |
|---|---|---|---|
| | | Farmers $n_1$= 150 | Farm women $n_2$= 150 |
| 1. | Most favourable | 22 (14.70) | 04 (02.70) |
| 2. | Favourable | 68 (45.30) | 75 (50.00) |
| 3. | Neutral | 33 (22.00) | 32 (21.30) |
| 4. | Unfavourable | 25 (16.70) | 39 (26.00) |
| 5. | Most unfavourable | 02 (01.30) | 00 (00) |
| Overall Mean Attitude Score | | 3.62 | 3.38 |
| Z value | | 2.341* | |

* Significant at 5% level of significance

Table 3 shows the agro-climatic zone wise mean attitude score of the respondents. It can be seen from the F value that zone wise no significant difference was found in the attitude of the respondents towards the extension system of ICAR. The attitude of farmers and farm women was similar across all the agro-climatic zones. This may be due to the uniformity of extension services provided, activities organized and methods used by the extension system in all the agro-climatic zones.

**Table 3:** Agro-climatic zone wise significance of difference in the attitude of the farmers and farm women n= 300

| S. No. | Agro-climatic zone | Mean Attitude Score | |
|---|---|---|---|
| | | Farmers $n_1$= 150 | Farm women $n_2$= 150 |
| 1. | I A | 3.64 | 3.3 |
| 2. | I B | 3.6 | 3.74 |
| 3. | I C | 3.94 | 3.1 |
| 4. | II A | 3.28 | 3.15 |
| 5. | II B | 3.69 | 3.46 |
| 6. | III A | 3.63 | 3.6 |
| 7. | III B | 3.65 | 3.67 |
| 8. | IV A | 3.75 | 3.41 |
| 9. | IV B | 3.47 | 3.13 |
| 10. | V | 3.55 | 3.33 |
| F value | | 0.5855 NS | 1.1142 NS |

NS - Non-Significant

To find out the significance of difference in the attitude of respondents about extension system of ICAR between categories [i.e. farmers ($c_1$) and farm women ($c_2$)] and across agro-climatic zones [i.e. zone IA ($z_1$), zone IB ($z_2$), zone IC ($z_3$), zone IIA ($z_4$), zone IIB ($z_5$), zone IIIA ($z_6$), zone IIIB ($z_7$), zone IVA ($z_8$), zone IVB ($z_9$) and zone V ($z_{10}$)], F and CD value were computed. Data in Table 4 indicate that there was no significant difference in the attitude of the respondents in different agro-climatic zones. This may be due to the uniformity of extension services, activities organized and extension methods used by the extension system in all the agro-climatic zones. Further, the table reveals that category wise there was significant difference in the attitude of the respondents towards the extension system of ICAR as indicated by CD value (3.89) which was found significant at 5 percent level of significance. The farmers had a more favourable attitude towards the extension system as compared to farm women. The favourable attitude of the farmers was due to their greater involvement in all the extension activities including FLDs than farm women, and also due to regular contact with the SMS through phone calls, Whatsapp and KVK visits.

Further to study the combined effect of agro-climatic zone and category on the attitude of the respondents, F value of interaction was calculated and it was found non-significant. It denotes that the attitude of the respondents towards the extension system of ICAR across agro-climatic zones was at par. It may be due to the reason that there was uniformity of extension services for farmers/farm women across agro-climatic zones.

**Table 4:** Significance of difference in attitude towards the extension system of ICAR among agro-climatic zones and categories of respondents n=300

| Mean of attitude scores | | | | | |
|---|---|---|---|---|---|
| Agro-climatic zones $\underline{Z}$ | | Categories $\underline{C}$ | | Interaction between agro-climatic zone and category $\underline{ZC}$ | |
| $\underline{Z}_1$ | 69.37 | $\underline{C}_1$ | 72.38 | $\underline{Z_1C_1}$ | 72.80 |
| $\underline{Z}_2$ | 73.37 | $\underline{C}_2$ | 67.77 | $\underline{Z_1C_2}$ | 65.93 |
| $\underline{Z}_3$ | 70.43 | | | $\underline{Z_2C_1}$ | 71.93 |
| $\underline{Z}_4$ | 64.23 | | | $\underline{Z_2C_2}$ | 74.80 |
| $\underline{Z}_5$ | 71.50 | | | $\underline{Z_3C_1}$ | 78.80 |
| $\underline{Z}_6$ | 72.23 | | | $\underline{Z_3C_2}$ | 62.07 |
| $\underline{Z}_7$ | 73.23 | | | $\underline{Z_4C_1}$ | 65.53 |
| $\underline{Z}_8$ | 71.57 | | | $\underline{Z_4C_2}$ | 62.93 |
| $\underline{Z}_9$ | 66.00 | | | $\underline{Z_5C_1}$ | 73.80 |
| $\underline{Z}_{10}$ | 68.83 | | | $\underline{Z_5C_2}$ | 69.20 |
| | | | | $\underline{Z_6C_1}$ | 72.53 |
| | | | | $\underline{Z_6C_2}$ | 71.93 |
| | | | | $\underline{Z_7C_1}$ | 73.00 |
| | | | | $\underline{Z_7C_2}$ | 73.47 |
| | | | | $\underline{Z_8C_1}$ | 74.93 |
| | | | | $\underline{Z_8C_2}$ | 68.20 |
| | | | | $\underline{Z_9C_1}$ | 69.40 |
| | | | | $\underline{Z_9C_2}$ | 62.60 |
| | | | | $\underline{Z_{10}C_1}$ | 71.07 |
| | | | | $\underline{Z_{10}C_2}$ | 66.60 |
| SEM ± | 3.14 | | 1.40 | | 4.43 |
| CD (P=0.05) | NS | | 3.89 | | NS |

NS- Non-significant

From the findings, it can be inferred that the majority of the respondents had a positive attitude towards the extension system of ICAR as depicted by overall mean attitude score of 3.62 and 3.38 for farmers and farm women, respectively. This was mainly due to continued efforts of KVK scientists in a single village for transfer of scientific information/practices through various activities like FLDs, training, demonstration, field visits, farmer-scientist interface, farmers fair, animal health camps, awareness campaigns, group meetings, etc.

## Conclusion

It is concluded that more than half of the farmers and farm women beneficiaries had a positive attitude towards the extension system of ICAR. The agro-climatic zone wise no significant difference was found in the attitude of the respondents towards the extension system of ICAR. The attitude of farmers and farm women was similar across all the agro-climatic zones. More farmers had a favourable attitude than farm women. There is a need to make farm women more aware about the services and activities of KVKs as they had less favourable attitudes when compared to farmers. There is also a need to make the extension approach more participatory so that the attitude of the beneficiary can become more favourable and to achieve effective transfer of agricultural technologies.

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