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DEVELOPMENT OF SCALE TO MEASURE FARMERS' ATTITUDE TOWARDS EXTENSION ACTIVITIES OF KRISHI VIGYAN KENDRA, VENKATARAMANNAGUDEM

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ABSTRACT

Indian Council of Agricultural Research (ICAR) Krishi Vigyan Kendras (KVKs) serve as crucial first-line extension networks, facilitating the dissemination of agricultural technologies tailored to the specific needs of agricultural and allied sectors. These institutions serve to accelerate farm productivity and ensure overall development of the farming community. The perception and disposition of farmers towards the Krishi Vigyan Kendra of the Indian Council of Agricultural Research (ICAR) significantly impacts the operational effectiveness of the institution. An instrument was developed with the purpose of assessing the farmers' attitude towards the agriculture and allied sector extension activities implemented by the Krishi Vigyan Kendra by employing the Thurston and Chave equal appearing interval approach of scale construction. The final scale comprised of 20 statements, evenly divided into ten positive and ten negative statements. The determination of the scale's dependability was assessed using the reliability coefficient, namely the Cronbach alpha. The scale's validity was assessed using the expert evaluations. The scale's reliability and validity are indicative of the consistency and precision of its results. The present scale possesses the capability to assess the attitudes of farmers towards the Krishi Vigyan Kendra of the Indian Council of Agricultural Research (ICAR).

Keywords: Farmer, Equal appearing interval method, Attitude scale construction, Reliability.

INTRODUCTION

Krishi Vigyan Kendras (KVKs) are the cornerstone of the frontline extension system of the Indian Council of Agricultural Research (ICAR). Functioning at the district level, KVKs possess a vast network that serve as a critical link between agricultural research institutions and the farming community. Their primary mission is to disseminate scientific knowledge and innovations in agriculture and allied sectors to a broad audience, including farmers, farm women, rural youth, and extension workers at the grassroot level. KVKs act as a bridge, bringing the latest advancements in agricultural technologies developed by research institutions to farmers' fields. This encompasses areas like crop production practices, improved varieties, pest and disease management, and resource conservation techniques. These institutions also conduct field trials and demonstrations under real-world farming conditions. This allows for the assessment of a technology's suitability and effectiveness within a specific agro-climatic zone and to recommend refinements to ensure optimal adaptation for local contexts. Organising need-based training programmes and workshops for farmers and extension workers with latest innovative technologies and best practices empowers them to make informed decisions regarding their agricultural endeavours. By spearheading these initiatives, KVKs play a significant role in bridging the gap between research and application, ultimately contributing to improved agricultural productivity, farm income, and rural livelihood security.

Recognizing the influence of attitudes on individual choices and responses to services, incentives, and challenges, the research presented here aims to develop a scale for measuring farmer attitudes towards various aspects of technology transfer and extension services offered by the KVK for enhancing participation and improving the effectiveness of KVK extension activities.

MATERIALS AND METHODS

Attitude is defined as a predisposition or tendency to respond favorably or unfavorably towards a particular concept, object, individual, or situation (Pandey *et al*., 2020). Kerlinger (1973) defined a construct as a concept based with additional meaning for a specific scientific purpose. Attitudes, as intangible attributes, cannot be directly measured but can be assessed through observable indicators or manifest variables. In this context, The study focused on the attitude of farmers towards the KVK at Venkataramannagudem. The construct of farmer attitudes towards the KVK was further delineated by identifying major dimensions. These dimensions encompassed factors related to the KVK's extension

activities, the services it offers, and the facilities it provides to farmers. The scale itself was constructed through a collection and refinement process. The statements representing each dimension were initially gathered. These items, pertaining to farmer attitudes towards the KVK, were compiled through a review of relevant literature and consultations with subject matter experts from State Agriculture/Veterinary Universities and KVKs. Following this process, a preliminary list of 65 statements were drafted, ensuring their applicability to the local context. The collected statements then underwent a meticulous editing stage based on criteria outlined by Edwards (1957). Particular attention was paid to ensuring that each statement accurately measured the intended construct. This editing process resulted in selection of 51 statements for the attitude scale.

RESULTS AND DISCUSSION

Judges evaluation of attitude scale statements

The judges (n = 40) consisted of extension specialists, educationalists, and officials from the Directorate of Extension Education (DEE). Each judge received a complete set of the 51 statements accompanied by a five-point continuum ranging from "most unfavourable" to "most favourable." A request letter outlining the judgment procedure was also included. The judges were asked to judge the degree of favorableness or unfavorableness of feeling expressed by each statement towards the KVK on the five-point continuum. Additionally, they were encouraged to identify and remove redundant statements and suggest any necessary modifications to the scale itself. A response rate of 87.5 per cent was achieved, with 35 judges returning their evaluations.

Calculating Scale and Q Values

Thurston and Chave equal-appearing interval method was utilized to determine the scale values for each of the 51 statements. This method relies on the median value of the judges' ratings as the scale value for a particular statement. The semi-interquartile range (Q) was then computed to assess the dispersion of statements within the scale. The objective was to achieve a final scale with a minimal number of statements that were evenly distributed across the continuum. A larger Q value indicated ambiguity or uncertainty in the meaning of a statement, and statements with such high Q values were subsequently excluded (Thurstone and Chave 1929).

$$S = l + \left(\frac{.50 - \sum p_b}{p_w}\right) i$$

where S = Median or scale value of statement

I = Lower limit of interval in which median falls

Σpb = Sum of proportions below interval in which median falls

pw = Proportion within interval in which median falls

i = Width of interval and is assumed to be equal to 1.0

To determine the value of Q, two other point measures i.e. the 75th centile and the 25th centile were calculated using the following formulae:

$$C_{25} = l + \left(\frac{.25 - \sum p_b}{p_w}\right) i$$

$$C_{75} = l + \left(\frac{.75 - \sum p_b}{p_w}\right) i$$

where C_{25} and C_{75} = 25th centile and 75th centile

l = the lower limit of interval in which 75th centile falls

Σpb = the sum of proportions below interval in which 75th centile falls

pw = the proportion within interval in which 75th centile falls

i = the width of the interval and is assumed to be equal to 1.0

The inter-quartile range is a measure of the spread of the middle 50 per cent of judgments. The inter-quartile range or Q value was calculated as under:

$Q = C_{75} - C_{25}$

The scale value and Q value for each of the 51 statements were thus calculated according to the above-mentioned formulae.

Finalizing the attitude scale and selecting the statements

Agreement among judges regarding the favourableness of a statement determined its Q value. Lower Q values indicated greater agreement and higher confidence in the statement's clarity. Based on this criterion, along with ensuring representation of the entire spectrum of opinions on KVK extension activities and achieving an even distribution of favourable and unfavourable statements, a final selection of 20 statements was made for the attitude scale.

Scale format and scoring

The chosen 20 statements were randomly ordered to minimize response bias. Each statement was accompanied by a five-point continuum ranging from "strongly agree" (5) to "strongly disagree" (1). Favourable statements were scored with a weight of 5 for "strongly agree" and decreasing by 1 for each subsequent category. Conversely, unfavourable

statements were scored in reverse order, with "strongly disagree" receiving a weight of 5.

Validity and Reliability of the scale

The developed scale underwent a two-pronged standardization process to assess its validity and reliability.

Validity: The validity of a test depends upon fidelity with which it measures what it is expected to measure (Kerlinger, 1987). Content validity was ensured by selecting statements that comprehensively so that they covered the intended domain (Waltz *et al.,* 2005). This was achieved through a review of relevant literature and consultation with subject matter experts from various departments. Additionally, the statements were evaluated by a panel of ten judges for clarity and comprehensiveness using a jury validity approach (Pandey *et al*. 2020). Statements achieving a 70-80 per cent agreement rate among the judges were retained in the final scale.

Reliability: To measure the reliability of the attitude scale, "Cronbach's alpha" method was used. The developed attitude scale was administered to the group of 30 respondents (farmers and farm women) other than the respondents included in the sample. Cronbach's alpha was calculated as follows:

$$\alpha = \frac{K}{K-1}\left[1 - \frac{\sum \sigma^2_{yi}}{\sigma^2_y}\right]$$

K represents the number of items in the measure

σ^2_{yi} the variance associated with each item i

σ^2_y the variance associated with the total scores

The scale obtained an alpha coefficient of 0.82 which was deemed to be good (Hair *et al*., 2006). Pandey *et al*., (2020) reported reliability coefficient of 0.93 while calculating reliability of the scale in his study.

Scale administration

The finalized 20-statement scale is designed to measure farmers' attitude towards the agricultural and allied sector extension activities of the KVK. The scale can be administered on a five-point continuum viz., strongly agree, agree, undecided, disagree and strongly disagree with a score of 5,4,3,2 and 1, respectively for positive statements and reverse scoring for negative statements.

Scoring and Potential Applications

Range of scores

The total possible score on the attitude scale for an individual respondent

Table 1. Final attitude scale statements with their respective 'S' and 'Q' values

S. No.	Statement	S value	Q value
1.	The success stories of fellow farmers who benefited from the KVK interventions motivate other farmers	4.77	0.94
2.	KVK demonstrations are not useful in motivating farmers to adopt improved agriculture and animal husbandry practices*	4.80	0.76
3.	KVK helps in tapping market linkages	4.14	1.77
4.	Vocational trainings of KVK are not sufficient to start an income generating enterprise*	4.09	1.39
5.	KVK serves as a catalyst for livestock development in this region	4.32	1.22
6.	KVK helps in providing livelihood security to the farming community	4.50	1.31
7.	Farmers find answers to their problems from trainers of KVK	4.59	1.05
8.	Trainers of KVK won't spare sufficient time for discussion during training*	4.16	1.22
9.	KVK is not successful in disseminating information through farmer field schools*	4.41	1.29
10.	Campaigns organized by KVK are not beneficial to farmers*	4.42	1.13
11.	The income of farmers in KVK adopted villages is more compared to non-adopted villages	4.25	1.32
12.	KVK conduct programmes on value addition of commodities to enhance income opportunities	4.40	1.37
13.	Trainings of KVK are not useful for developing skills*	4.68	1.01
14.	Field days organized by KVK are not useful in solving problems right in the field situation*	4.74	0.92
15.	KVK play important role in developing strong functional linkage with ATMA for capacity building of farmers	4.39	1.42
16.	KVK training programmes play a significant role in boosting agricultural and related enterprise productivity.	4.64	1.18
17.	Farmers will not get all sort of technical help from KVK scientists*	4.14	1.45
18.	KVK follow bias approach in selection of farmers for technical programmes*	4.30	1.42
19.	KVK acts as a hub for knowledge exchange within farming community	4.70	0.97
20.	Adoption of precision farming techniques was not increased due to activities of KVK*	4.33	1.26

falls between 20 and 100. Higher scores indicate a more favourable attitude towards the agricultural and allied sector extension activities offered by the KVK.

Applicability of the scale

This scale was developed with the specific context of Andhra Pradesh. However, due to the uniformity of services, activities, and approaches employed by the ICAR extension system nationwide, the scale can potentially be administered to a broader population of farmers to gain a wider perspective on their attitudes towards the system.

CONCLUSION

The results obtained from employing this scale can serve valuable purposes. Firstly, they can guide the planning and direction of future extension efforts. Secondly, they can contribute to improved participation from farmers and farm women, ultimately enhancing the effectiveness of the entire KVK extension system.

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