ORIGINAL RESEARCH PAPER

Agricultural Economics

KEY WORDS: Krishi Vigyan Kendra (KVK), Constraints Analysis, Garrett's Ranking Technique, Farmers and Agricultural Extension

AN ANALYSIS OF CONSTRAINTS ENCOUNTERED BY FARMERS AMONG KRISHI VIGYAN KENDRA (KVK) BENEFICIARIES IN WOKHA DISTRICT USING GARRETT'S RANKING TECHNIQUE

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ABSTRACT

The present study attempts to identify the constraints faced by the farmers of the Krishi Vigyan Kendra (KVK) in the Wokha district of Nagaland using Garrett's ranking technique. A total of 80 samples were purposively selected from the four villages of the KVK Wokha district. Primary data were collected using a structured questionnaire survey on the production, institutional, financial, and technological constraints faced by the farmers. The data were analyzed using Garrett's ranking technique to convert the data into scores and identify the relative severity of the constraints. The study identified the major constraints faced by the farmers of the study area and highlighted the need for improving extension services, input supply systems, and market access for the proper utilization of the extension services provided by the KVK and for the development of the farmers of the region.

INTRODUCTION

Agriculture is one of the major contributors to rural livelihoods in India, especially in areas like Nagaland, where most of the population is dependent on agricultural activities. Despite numerous policy interventions and developments in agricultural technology, farmers continue to face numerous problems and limitations that restrict agricultural development and income generation. In this regard, agricultural extension plays an important role in bridging the gap between research and practical knowledge transfer.

Krishi Vigyan Kendra (KVK) is one of the major agricultural extension systems established by the Indian Council of Agricultural Research (ICAR) to transfer location-specific technologies to farmers. KVK plays an important role in bridging the gap between research and practical knowledge transfer to farmers through better agricultural practices and skill development for rural livelihoods. KVKs undertake numerous activities and training sessions for farmers and rural youth to improve agricultural development through better integration of indigenous technical knowledge and scientific knowledge (Aprilhrin et al., 2023). KVKs are one of the major contributors to agricultural modernization and rural development.

However, agricultural interventions through KVKs are often affected by numerous limitations and constraints faced by beneficiary farmers. The limitations and constraints can be of different types, including technological, institutional, economic, infrastructure, and socio-cultural factors. Understanding and identifying these limitations and constraints is very important for better policy interventions and effective agricultural extension services. For better analysis and quantification of agricultural limitations and constraints, Garrett's Ranking Technique is one of the major techniques used in agricultural research to identify and rank limitations and constraints based on farmers' perception.

A significant body of literature has been devoted to the importance of agricultural extension services and the challenges faced by farmers. In this regard, Anderson and Feder (2004) emphasized that agricultural extension services play a vital role in improving agricultural productivity but are often handicapped by resource constraints and poor linkages. Likewise, Swanson and Rajalahti (2010) emphasized the need for a pluralistic approach to agricultural extension services that are responsive to the needs of farmers.

Literatures that have focused on KVKs have also shown that KVKs have a significant impact on farmers' knowledge levels and income. However, the studies also emphasized the challenges faced by farmers. In this regard, Kumar et al. (2014) emphasized that KVKs are handicapped by poor access to quality inputs, lack of technical support, and lack of follow-up support. Likewise, Meena and Singh (2017) emphasized that KVK beneficiaries face a number of challenges, including financial constraints, lack of proper market infrastructure, and lack of awareness. In a similar way, Chand et al. (2012) emphasized that small and marginal farmers face difficulties in adopting recommended technologies due to resource constraints.

Garrett's Ranking Technique has been widely used in agricultural studies to identify the constraints faced by farmers. Garrett and Woodworth (1969) developed the technique to transform ordinal rankings into actual scores to prioritize the importance of the constraints. This technique has been widely used in agricultural studies to identify the constraints faced by farmers. In this regard, Kumar et al. (2014), Meena and Singh (2017), and other studies have shown that availability of inputs, access to credit facilities, and market linkages are some of the most important constraints faced by farmers.

In spite of this increasing body of literature, a lack of region-specific studies has been identified, especially regarding the limitations faced by KVK beneficiaries in Nagaland, specifically Wokha district. With the agro-climatic conditions and socio-economic characteristics being unique for this region, it is important to undertake region-specific studies to understand better the limitations faced by farmers.

In this context, this study attempts to analyze the limitations faced by farmers among the KVK beneficiaries in Wokha district using Garrett's Ranking Technique. The results of this study will help policymakers and researchers to better address the needs of farmers to enhance the effectiveness of KVK activities for promoting sustainable agriculture development in this region.

Methodology

Study Area and Sampling Design

The current study was undertaken in the Wokha district of Nagaland, and the study focused on the farmers' community who are the beneficiaries of the Krishi Vigyan Kendra (KVK), Wokha. A purposive sampling technique has been used to select the villages, namely Koio village, Yanthamo village, Elumyo village, and Wokha village. From these selected villages, a total of 80 respondents were chosen as the sample size. The respondents comprised farmers who had actively

participated in KVK training programmes and extension activities.

Data Collection

The study is based on the primary data collected during the agricultural year 2023-2024. The information was collected from the respondents using a structured questionnaire method. The questions were designed to cover a wide range of constraints faced by the farmers, which include technological, financial, institutional, and marketing-related constraints. Personal interviews were held to ensure the accuracy and reliability of the information obtained from the respondents.

Analytical Tool: Garrett's Ranking Technique

In order to find and rank the constraints, Garrett's Ranking Technique has been used. Garrett's technique converts the ranks obtained from respondents into percentage ranks and further into scores based on Garrett's conversion table. The technique helps to find out the importance of each constraint in a quantitative manner.

The procedure involves the following steps:

1. Ranking of Constraints:

Respondents were asked to rank the identified constraints based on their severity.

2. Conversion of Ranks into Percentage Position:

The ranks given by each respondent were converted into percentage positions using the formula:

$$Percent\ Position = \frac{100((R_{ij} - 0.5)}{N_j}$$

Where:

- (R_{ij}) = Rank given for the i-th constraint by the j-th respondent
- (N_j) = Total number of constraints ranked by the j-th respondent

3. Conversion into Garrett Scores:

The percentage positions were then converted into Garrett scores using Garrett's conversion table.

4. Calculation of Mean Scores:

The scores obtained for each constraint from all respondents were summed and divided by the total number of respondents to obtain the mean score.

5. Ranking of Constraints:

The constraints were finally ranked based on their mean Garrett scores. The constraint with the highest mean score was considered the most severe.

Justification of the Method

The ranking technique of Garrett is appropriate for this study as it converts ordinal data into quantitative data, which helps in precise comparison and prioritization of the constraints. This technique is appropriate for deriving policy recommendations and identifying the important areas that need to be intervened for the effectiveness of the KVK programmes in the Wokha district.

Results and Discussion

From the study's findings, it is revealed that insufficient financial support, lack of storage facilities, and inadequate follow-up of trainings are identified as major constraints for KVK beneficiaries in Wokha. Infrastructural and technological limitations are also identified as major hindrances to the adoption of improved practices. However, the alignment of KVK activities with the needs of the people is found to be satisfactory. Financial aid, extension follow-up, and infrastructure development are to be strengthened for better efficiency in the programme activities.

Table 1. Constraints faced by KVK Beneficiaries

Sl.no.	Constraints	Mean Score	Total G Score	G Rank
1	Activities of KVK are not related with the local needs	30.01	2401	XV
2	Lack of trainings facilities.	47.31	3785	VIII
3	Lack of trained, field-oriented and experienced staff.	31.64	2531	XIV
4	Lack of knowledge about soil testing, insects and diseases	52.65	4212	V
5	Lack of availability of agricultural technology after the training is over.	50.45	4036	VI
6	Lack of agro based and rural industries for income generation and employment.	46.24	3699	IX
7	Lack of information on training program and policies.	37.40	2992	XI
8	Problem of marketing.	49.28	3942	VII
9	Lack of storage facility.	58.90	4712	II
10	Lack of awareness about KVK programs.	35.21	2817	XII
11	Lack of transportation facilities.	55.43	4434	IV
12	Insufficient financial support from KVK.	63.08	5064	I
13	Inadequate follow up of training.	57.75	4620	III
14	Trainers have poor knowledge of recommended agricultural technology.	32.20	2576	XIII
15	Inadequate and untimely supply of production inputs.	45.19	3615	X

Source: Primary Data

Table 1 presents the constraints faced by Krishi Vigyan Kendra (KVK) beneficiaries in Wokha district of Nagaland. The analysis is done using Garrett's Ranking Technique. From the study's findings, it is clear that relative severity is identified for different constraints based on the mean Garrett scores and ranks assigned to different constraints.

From the study's findings, it is revealed that insufficient financial support from KVK is identified as the major constraint for farmers and has secured first rank with the highest mean score of 63.08 and a total Garrett score of 5064. Financial support is critical for farmers to adopt improved technologies and practices. The second major constraint identified is the lack of storage facilities with a mean score of 58.90. The third major constraint identified is poor follow-up of training programmes is identified with a mean score of 57.75.

Further, the factors of lack of transportation facilities (mean score = 55.43) and lack of knowledge about soil testing, insects, and diseases (mean score = 52.65) ranked fourth and fifth, respectively. These factors indicate the limitations in physical access and knowledge of the farmers. In the same context, the factors of lack of availability of agricultural technology after training (VI), and marketing problems (VII) also indicate the challenges faced by the farmers.

The moderate constraints identified by the study are the

factors of lack of training facilities (VIII), lack of agro-based and rural industries (IX), and inadequate and untimely supply of production inputs (X). These factors indicate the systemic limitations in rural development and the input delivery mechanisms.

The constraints of the lower severity scale identified by the study are the factors of lack of information on training programmes and policies (XI), lack of awareness about KVK programmes (XII), knowledge of the trainers about the recommended technologies (XIII), and the lack of trained and experienced staff (XIV). The least severe constraint identified by the study is the factor of activities of KVK not being related to local needs (XV, mean score = 30.01). This indicates that the KVK programmes are well related to the local needs.

It can be concluded that the analysis of the study reveals that financial, infrastructural, and communication-related constraints are the major constraints faced by the KVK beneficiaries, and the institutional and awareness-related constraints are of less severity. Therefore, these critical constraints need to be addressed through proper financial support, storage and transportation facilities, and follow-up action for the effectiveness of the KVK programmes in the study area.

Chart 1 depicts the rank-wise distribution of the constraints faced by the KVK beneficiaries in the Wokha district of Nagaland in the context of mean Garrett scores. As evident from the chart, the major constraints are the lack of financial support provided by the KVK, followed by the lack of storage facilities and communication aspects like inadequate follow-up. This reveals that the financial support and extension follow-up provided by the KVK are the major factors that restrict the utilization of the KVK services by the farming community.

Chart – 1 Rank-wise Distribution of Constrains Faced by KVK Beneficiaries (Most Severe at Top)

The medium-level constraints, like transportation facilities, the lack of technical knowledge, the availability of post-training technologies, and marketing facilities, reveal the infrastructural and knowledge-related problems faced by the farming community in utilizing the KVK services. In contrast, the less severe constraints are the lack of awareness, knowledge of the trainer, and the availability of trained staff. The least severe constraint is the incompatibility of the KVK activities with the needs of the farming community, which reveals that the KVK activities are quite relevant in the context of the farming scenario.

CONCLUSION

The study has concluded that farmers among KVK beneficiaries in Wokha district face significant constraints in using extension services effectively. In this regard, Garrett's Ranking method has identified that lack of financial support, lack of storage facilities, and inadequate follow-up of trainings are significant constraints faced by farmers in the study area. In addition to the above constraints, infrastructural constraints, lack of access to post-training technology, and marketing constraints have also been identified to be influencing the adoption of improved agricultural practices by farmers.

KVK programs have been found to be consistent in meeting local needs in the Wokha district of Nagaland. However, the presence of financial constraints and infrastructural constraints limits the overall impact of KVK programs. Therefore, strengthening financial support to farmers, providing storage facilities, and providing timely support by extension personnel are significant to ensure the overall effectiveness of KVK programs in the study area.

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