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Knowledge Test for Extension Personnel on Rashtriya Krishi Vikas Yojana

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ABSTRACT

Rashtriya Krishi Vikas Yojana is one of the massive agriculture development pan Indian programmes unleashed by Government of India requiring collective effort in unison from different agricultural line departments. The standard operating procedures and other nitty gritties of the programme should be clear to the department personnel implementing the same for its efficient reach. The study attempted to develop a Knowledge test comprising 21 items to measure knowledge level of Extension Personnel on Rashtriya Krishi Vikas Yojana during 2021-2022. The knowledge test was pretested on 30 extension personnel from other than the study area. The items with difficulty index ranging from 0.2 to 0.8, discrimination index above 0.1 and point biserial correlation which was significant at 5% level of significance were selected. The reliability of the test was measured by using split half method and was found to be 0.8. Eventually, 21 items were selected for the Knowledge test for extension personnel on Rashtriya Krishi Vikas Yojana.

INTRODUCTION

Rashtriya Krishi Vikas Yojana is designed to attain 4 per cent annual growth in the agricultural sector. The primary goals of this programme are to encourage States to increase public investment in agriculture and related sectors, to grant States flexibility and autonomy in planning and implementing agriculture and related sector schemes, to ensure that plans are prepared for the districts and States based on agro-climatic conditions, availability of technology, and the availability of natural resources, to ensure that local needs/crops/priorities are better reflected, and to achieve the goal of reducing the yield gaps in important crops, through focused interventions, to maximize returns to the farmers. Quereshi et al., (2015) opined that programmes of this manner are quintessential for attaining food and nutritional security. Gulati et al., (2021) claimed positive social–economic transformation through RKVY programmes in the State of Uttar Pradesh. The efforts unleashed by department personnel in achieving the objectives of this programme are commendable yet there are variations in the target achievements and performance trajectory. Hence it is pertinent to assess the knowledge of the department personnel who are the kingpins of the programme.

METHODOLOGY

The knowledge test on Rashtriya Krishi Vikas Yojana (RKVY) was developed by employing the standard methodology. A question (items) bank was created culminating in a thorough scrutiny of the items done with the aid of subject matter specialists to test the knowledge level of extension personnel on the Rashtriya Krishi Vikas Yojana. A total of 35 knowledge items were constructed for the relevancy test as followed by Vijayan et al., (2022). The item statements were subjected to scrutiny by an expert panel of judges to determine the relevancy and screening for inclusion in the final test (Kline, 1986).

For this, the 35 items were sent to a panel of 100 judges and 30 judges, experts in the field of extension education finally responded to the request to critically evaluate each item for its

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relevancy to measure the knowledge level of extension personnel on RKVY. The relevancy score of each item was established by adding the scores on the rating scale for all the judges' responses. From the data three types of tests *viz*., relevancy percentage, relevancy weightage and mean relevancy scores were worked out for all the items. The items satisfying the standard criterion (Relevancy % >70, Relevancy weightage >0.70 and Mean relevancy score >3.0) were selected. A total of 27 items were selected. The items collected for the construction of the knowledge test were in objective form. The items were multiple choices as well as a few yes/ no questions also. The 27 items selected were again subjected to thirty respondents who were from outside the locale of data collection. The respondents were asked to indicate their responses to each item in the knowledge test, and the correct answers were assigned a score of '1' and incorrect answers a score of '0. The total knowledge score for each item was calculated by summing up the scores given by all the respondents to the item. Based on this, the difficulty index and discrimination index were calculated.

The item difficulty index P, was worked out as the percentage of respondents giving correct responses to an item.

$$P = \frac{NC}{N} \times 100$$

Where, P = Difficulty index, NC = Number of respondents who answered correctly and N is the total number of respondents. The range was from 0 to 100 per cent. The higher the value easier is the item. P values above 80 are very easy items and these are not test-worthy. P values below 20 indicate difficult items and should be reviewed for possible corrections and alterations. The optimum difficulty level is 50 for maximum discrimination between high and low levels of knowledge. In the present study, the items having P values between 20 and 80 were considered and 25 items were included in the final knowledge test.

The items which were answered correctly by everyone or the one which is not answered by anyone in the sample had no discrimination value. Therefore, only those statements with high power to discriminate the respondents who varied in the level of knowledge were included in the final list. The discrimination power of all the items was worked out using the E1/3 method to find out the item discrimination (Ghoush et al., 2022). In this method, those 30 respondents were divided into six equal groups, each having five respondents and they were arranged in descending order of the magnitude of their knowledge scores as obtained from them. The middle two groups were eliminated. Only four extremes groups i.e. the groups with the highest and lowest scores were considered to calculate the 'Discrimination Index'. It was calculated by the following formula:

$$E1/3 = \frac{(S1 + S2) - (S5 + S6)}{N/3}$$

Where, N = Total number of respondents to whom the items were administered, S1 and S2 are the frequencies of correct answers of the highest and higher scores, respectively, S5 and S6 are the frequencies of correct answers of lower and lowest scores, respectively. Items with a discrimination index above 0.1 are selected in the final knowledge test.

A correlation between a continuous and a dichotomous variable is known as the point-biserial correlation. Point biserial is a product-moment correlation that is capable of showing the predictive power an item has contributed to the prediction by estimating the correlation between each item and the total test score of all the examinees. To check the internal consistency of an item, and its relationship with the total score when it was found to be a dichotomised answer to a given item, point biserial correlation was computed (Kumar et al., 2016)

$$Rp\ bis = \frac{Mp - Mq}{Sigma} \times \sqrt{pq}$$

Where, Rp bis is the point biserial correlation, Mp is the mean of the total score of the respondents who answered an item correctly, Mq is the mean of the total score of the respondents who answered an item incorrectly, Sigma is the standard deviation of the entire sample, p is the proportion of the respondents giving the correct answer to an item, q is the proportion of the respondents giving an incorrect answer to an item, The calculated point biserial correlation values were statistically tested with n-2 degrees of freedom. 21 Items having point bi serial correlation value which was significant at a 5% level of significance were selected as final items of the knowledge test.

RESULTS AND DISCUSSION

Table 1 depicts the knowledge items together with the point biserial correlation proving its validity. As evident from Table 1, a total of 21 items were finalized for the knowledge test of the department personnel. For the knowledge test, items having a reliability coefficient above 0.78 were selected. The content validity of the knowledge test was ensured by purposively selecting items in consultation with various subject matter specialists The domains from which the items were selected include, crop diversification, agripreneurial opportunity, farmer producer organisations, crops specific to Rashtriya Krishi Vikas Yojana and transfer of technology components of RKVY. The reliability of the knowledge test was determined using the split-half method (Kerlinger, 2004). Reliability was found to be 0.78, which indicates the high reliability of the test. The knowledge items, having difficulty index value within 0.2 to 0.80 and discrimination index value above 0.1 and point biserial correlation value which was significant at a 5 per cent level of significance were selected as final items of the knowledge test, as followed by Anshidha et al., (2022). Eventually, 21 items were selected for the knowledge test on Rashtriya Krishi Vikas Yojana, which would distinguish the well-informed personnel from the less informed ones.

Distribution of department personnel implementing RKVY based on Knowledge scores

The knowledge scores obtained by the department personnel implementing *Rashtriya Krishi Vikas Yojana* were calculated using the cube root frequency method to categorize the personnel based on their knowledge test scores. Table 2 depicts the percentage

Table 1. Knowledge test for the department personnel implementing RKVY

S.No.	Items	Point Biserial Correlation (Rpbis)
1	The RKVY- Rashtriya Krishi Vikas Yojana, has been renamed as RKVY- Remunerative Approach for Agriculture and Allied sector Rejuvenation – T/F	0.26*
2	The funding pattern (in percentage) of RKVY-RAFTAAR is (Centre: State) 90:10 (North Eastern and the Hilly States), 100 (Union Territory), 60:40 (Other States) – T/F	0.18*
3	Entrepreneurship is promoted in RKVY-RAFTAAR – T/F	0.66*
4	The state-level screening committee will be constituted by each state for screening RKVY project proposals which will be headed by Agriculture Production Commissioner or Officer nominated by Chief Secretary– T/F	0.45*
5	50% percent of the annual allocation will be released as the first instalment to the state – T/F	0.53*
6	Under RKVY – Infrastructure growth states fund projects related to the Development of cold storage and Agricultural Marketing– T/F	0.27*
7	Beneficiary farmers are selected from Small and Marginal farmers, the Weaker section and Women – T/F	0.32*
8	For online monitoring of projects under RKVY-RAFTAAR, RKVY-MIS & RKVY, Geo-tagging has been developed– T/F	0.12*
9	Flexi-funds in RKVY-RAFTAAR refer to 20% (of 70%) of regular RKVY-RAFTAAR outlay – T/F	0.09*
10	Shifting from the traditional Rice-Wheat system to commercially viable but less water-intensive crops are covered under only the Crop Diversification Programme – T/F	0.30*
11	The major sub-schemes under RKVY-RAFTAAR are Bringing Green Revolution to Northern India (BGREI), Additional Fodder Development Programme (AFDP), Crop Diversification Programme (CDP) – T/F	0.15*
12	Twenty-five percent (25%) of the projects sanctioned by the state each year under RKVY (Production growth) only– T/F	0.23*
13	Entrepreneurship is promoted in RKVY-RAFTAAR under the strengthening of existing agribusiness incubators for integrated rejuvenation and development and setting up new ones, R-ABI (RKVY-RAFTAAR Agribusiness Incubators)–T/F	0.44*
14	Farmer Producer Organisation is supported in RKVY-RAFTAAR under Vegetable Initiative for Urban Clusters (VIUC) only– T/F	0.70*
15	The implementing agency of RKVY-RAAFTAR is the Nodal Agency- State Agricultural Department or Agency identified by the State Department for effective implementation of a specific project– T/F	0.58*
16	PPPIAD (Public Private Partnership for Integrated Agriculture Development) under RKVY has been conceived to engage corporates to propose integrated agricultural development projects across the spectrum of agriculture–T/F	0.11*
17	RKVY-Special Schemes consist of Schemes based on national priorities as notified by Central Government only– T/F	0.05*
18	Under RKVY-Production growth, states can take up any project related to Animal Husbandary, Training and Skill Development (crop) and Dairying and Fishing – T/F	0.17*
19	Additional Fodder Development Programme is implemented mainly in District/Blocks declared as drought affected – T/F	0.33*
20	Targetting Rice Fallow programme under RKVY-RAFTAAR incorporates mainly Pulses only– T/F	0.06*
21	Monitoring and Evaluation of the project should be done by both Department personnel only– T/F	0.61*

Table 2. Percentage distribution of department personnel implementing RKVY based on Knowledge scores

Knowledge Level (Range of Scores)	Uttar Pradesh (n1=40)(%)	Karnataka (n2=40)(%)
High (>11.05)	65.00	72.50
Medium (3.66-11.05)	25.00	15.00
Low (>3.66)	10.00	12.50

distribution of department personnel belonging to each category. It was seen that 65 per cent of the department personnel were in the category of high knowledge level, followed by 25 per cent in the medium category and 10 per cent in the low category with respect to Uttar Pradesh. In the case of Karnataka department personnel, 72.5 per cent belonged to the high knowledge level category, followed by 15 per cent in the medium category and 12.5 per cent in the low category. 65 per cent of the department personnel were in the category of high knowledge level, followed by 25 per cent in the medium category and 10 per cent in the low category vis-à-vis Uttar Pradesh Department Personnel. While in the case of Karnataka department personnel, 72.5 per cent belonged to the high knowledge level category, followed by 15 per cent in the medium category and 12.5 per cent in the low category. The scores were obtained by the cumulative cube root frequency method. The higher knowledge scores of department staff may be attributable to stronger capacity development training, same was opined by Vishnu et al., (2018) and on-the-job experience. The results are consistent with those of James & Laxminarayan (2018), who found that extension employees ranked highly in terms of knowledge of how to use information communication tools.

CONCLUSION

The Rashtriya Krishi Vikas Yojana initiative, which grants the states a great deal of flexibility and autonomy, is responsible for developing and carrying out programmes to encourage investment in agriculture. This plan was effective in raising the agricultural state's domestic product. Thus those spearheading this programme should be well-equipped with multiple knowledge dimensions. The positive results elicited from the study are an indicator that

the programme is spearheaded in a functionally apt way. The knowledge test can be used for assessing the knowledge level of line department personnel implementing Rashtriya Krishi Vikas Yojana pan India with suitable modifications.

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