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

NAAS Rating: 5.04
www.extensionjournal.com

International Journal of Agriculture Extension and Social Development

Volume 7; SP-Issue 10; October 2024; Page No. 31-34

Received: 22-07-2024
Accepted: 26-08-2024

Indexed Journal
Peer Reviewed Journal

Assessing farmers' awareness of agro-advisories through Annapurna Krishi Prasar Seva at KVK Palem, Telangana state

[1]Dr. B Rajashekar, [2]M Rajashekhar, [5]Dr. T Prabhakar Reddy, [3]Dr. M Jagan Mohan Reddy, [6]K Ramakrishna, [1]Dr. O Shaila, [7]Dr. Adi Shankar, [8]E Jyoshna and [4]Dr. M Malla Reddy

[1, 5-8] Krishi Vigyan Kendra, Palem, Institute of Biotechnology, Rajendranagar, Delhi, India

[2]Institute of Biotechnology, Rajendranagar, Telangana, India

[3]Extension Education Institute, Palem, Telangana, India

[4]Regional Agricultural Research Station, Palem, Telangana, India

DOI: https://doi.org/10.33545/26180723.2024.v7.i10Sa.1222

Corresponding Author: Dr. B Rajashekar

Abstract

Agriculture remains a critical sector in developing countries like India, where a significant portion of the population depends on it for their livelihoods. Traditionally, many farmers have relied on conventional agricultural practices over the years. In this context, the integration of Information and Communication Technology (ICT) into agricultural extension systems has emerged as a powerful tool for enhancing the economic status of rural communities. ICT platforms facilitate the delivery of need-based, location-specific information in a timely and efficient manner, playing a crucial role in improving rural livelihoods. ICT applications now serve a wide range of purposes, including agriculture, business, and social development activities. In agriculture, ICT supports the dissemination of information on crop production technologies, marketing strategies, and the development of both forward and backward linkages for agricultural produce. In the present study, it was found that 47.50% of respondents fell into the medium category, followed by 30.00% in the high category, 13.33% in the low category, and 9.17% in the very low category with respect to their utilization of agro-advisories provided through the Annapurna Krishi Prasar Seva (AKPS). This was Furthermore, most farmers, regardless of the crops they cultivated, demonstrated a high level of knowledge on best management practices. The study also revealed that the knowledge levels of farmers were influenced by the types of seasonal crops they had grown.

Keywords: ICTs, Agriculture, AKPS, Knowledge and Information

Introduction

Indian farming is mostly subsistence in nature, where farming community is confronted with the no of issues in increase the yield of efficiency. The farming community faces numerous challenges in maximizing crop productivity; during this process, they have encountered numerous difficulties in terms of production, processing, marketing, and profit generation, etc. They have come to the realization that, in order to achieve higher yields, location-specific need based information is more crucial than farm inputs. However, the adoption of information and communication technologies (ICT) in the agricultural sector has led to a number of modifications to the extension system methodologies. Since the early 21th century, information and communication technology including radio, TV, newspapers, telephones, and magazines have played a significant part in the growth of agriculture. An information revolution has now been sparked by modern information and communication technologies (ICTs), such as smart phones and laptops. The extension system has yet to exploit the full potential of the ICT tools and other communication techniques (Hage Manty, 2011) [1]. Now a day's mobile phone usage has been drastically increased for various activities including to get the need based accurate information on agri-allied sectors. Due to advances in communication technology even the remote rural areas were also brought under the mobile phone network. Further, mobile phone is becoming an all-time partner to all the individuals and farmers were also now-a-days having mobile phones. Sending information to the mobile is easy and scalable and reducing cost, time and money.

The Professor Jayashankar Telangana Agricultural University (PJTSAU) has its agricultural extension wing steering the frontline extension efforts in agriculture across the state at district level through Krishi Vigyan Kendras (KVKs) and District Agricultural Advisory and Transfer of Technology Centres (DAATTCs) is aiming at assessment, refinement and dissemination of the location specific technologies. The use of Annapurna Krishi Prasar Seva (Information interactive dissemination system) in extension system is a new ICT initiative to meet the information needs and expectations of the farmers. It has developed as an alternative ICT model to meet the information needs of Indian farmers. It was successfully pilot tested in Andhra

Pradesh and Telangana states of India. The major subject areas of AKPS are Crop production, Plant protection, Horticulture, Animal science, Home science, Dairy, etc. Advantages of AKPS are farmers can get location specific information with free of cost, provide information in the form of text and voice in vernacular (local) language and cost effective (Punnarao, *et al*., 2017) [2]. So, keeping those points the present study focusing mainly to find out the knowledge level of farmers on advisories disseminated through AKPS by the respondents of Nagar Kurnool district.

Materials and Methods

Ex-Post facto research design was followed using a structured interview schedule. Ex-post facto research is a systematic empirical enquiry, in which the researcher does not have direct control on influencing (independent) variables because their manifestations have already occurred. Influence about relations among variables are made without direct intervention, but from concomitant variation of independent (influencing) and dependent (consequent) variables. Knowledge level of farmers on agro advisories disseminated through AKPS was studied. The Annapurna krishi prasara seva one of the flagships programme of Krishi Vigyan Kendra, Palem to disseminate the need based and location specific information to the farmers of erstwhile Mahaboobnagar dist. since from 2014-15 year with toll free no 1800-425-3141. The study was conducted with registered farmers of four divisions of i.e., Nagarkurnool, Kollapur, Achampet and Kalwakurthy divisions in Nagarkurnool district and four villages selected randomly from each division. Ten respondents were selected randomly from each village thus the total sample size is 120. A primary source of the data was collected from the registered farmers and secondary data was collected from the AKPS official records of KVK-Palem and Annapurna Krishi Prasara Seva (IIDS) data base. Thirty one statements were prepared with consulting of experts of various subject matter specialist, scientist and other officials for sent to the respondents and assess information seeking behavior of the respondents on agro advisories. The advisories mainly focused on crop cultivation information like crop varieties, weed management, nutrient management, pest and disease management, weather and other related information. In this study knowledge test was developed to measure the knowledge levels of respondents on agro advisories. A structured schedule was prepared to measure the knowledge level of the farmers.

Knowledge test development

Due to the non-availability of a standardized scale to measure the knowledge of farmers on agro advisories in major crops it was thought necessary to construct a test for the purpose and an attempt was made to develop a test for measuring knowledge level of farmers on agro advisories disseminated through AKPS in major crops. Pertinent items were collected covering all aspects of crop cultivation information like crop varieties, weed management, pest and disease management, weather and other related information. After getting jury's opinion on the items index of item difficulty, index of item discrimination and index of item validity were worked out. To administer the knowledge test a respondent was given one mark for each correct answer and zero for each wrong answer. Thirty-one items were finally selected from out of 65 items.

Collection of items: Initially 65 items were prepared related on various aspects of crop cultivation information like crop varieties, weed management, pest and disease management, weather and other related information in major crops. Experts in the field of agriculture *viz* agronomists, scientists of KVKs, RARS, SAUs and private officials working at the field level were consulted to prepare the above 65 items. After screening fine tuning and editing based on the opinion of the concerned scientists 42 items were left. These 42 items were subjected to item analysis to screen some more items based on the opinion of the respondents in non-sample area (Rajashekar, 2017) [3].

Item analysis: The item analysis was carried out in terms of three indices *viz* item difficulty index, item discrimination index and point biserial correlation. The index of item discrimination provides information on how well an item discriminates in agreement that is whether an item really discriminates a well-informed respondent from a poorly-informed respondent. Whereas item difficulty index indicates the extent to which an item is difficult. The point biserial correlation provides information on how well item measures or discriminates in agreement with the rest of the test. Pretesting of the items was done as suggested by Conrad (1948) [4]. The items were revised and administered to 60 selected respondents for pretesting. Following the pretest, 31 items that showed significant validity were finalized and administered to the study sample. The following formulas were used for data analysis.

Item difficulty index (P)
Item difficulty index formula

$$MQ = \frac{\text{Sum total of X- Sum total of Y}}{\text{Total number of wrong answers}}$$

Item discrimination index (E 1/3): The item discrimination index indicated by 'E 1/3' was calculated by the formula:

$$E\ 1/3 = \frac{(S1 + S2) - (S5 + S6)}{N/3}$$

Point biserial correlation (rpbis): The main aim of calculating point biserial correlation was to work out the internal consistency of the items i.e the relationship of the total score to a dichotomized answer to any given item. In a way the validity power of the item was computed by the correlation of the individual item of preliminary knowledge test calculated by using the formula suggested by Garret (1966) [5] as follows:

$$r_{pbis} = \frac{MP-MQ}{SD} \times \sqrt{pq}$$

r_{pbis} = Point biserial correlation.
MP = Mean of the total scores of the respondents who

answered the item correctly.

$$MP = \frac{\text{Sum total of x y}}{\text{Total number of correct answers}}$$

MQ = Mean of the total scores of the respondents who answered the item incorrectly.

$$MQ = \frac{\text{Sum total of x - Sum total of x y}}{\text{Total number of wrong answers}}$$

SD = Standard deviation of the entire sample.
P = Proportion of the respondents giving correct answer to the item.

$$P = \frac{\text{Total number of correct answers}}{\text{Total number of respondents}}$$

Test-retest reliability: The test was administered to 25 respondents separately with an interval of 15 days. The two sets of knowledge scores obtained by the farmers were correlated. The correlation coefficient (r= 0.83) was highly significant indicating a high degree of dependability of the instrument for measuring knowledge of the farmers.

Validity: The validity of the test items was tested by the method of point biserial correlation (rpbis). The items with highly significant correlation coefficients either at 1 or at 5 per cent level indicated the validity of the items of the knowledge test designed.

Content validity: The content validity of the knowledge test was derived from a long list of test items representing the whole universe of agro advisories collected from various sources as discussed earlier. It was assumed that the score obtained by administering the knowledge test of this study measured what was intended to. Thus, the knowledge test developed in the present study measured the knowledge level of farmers on agro advisories as it showed a greater degree of reliability and validity. The finally 31 items were selected for the final to measure study on knowledge levels of the farmers on agro advisories disseminated through AKPS.

Scoring and categorization

A schedule was developed with 31 items comprising various advisories related to the crop varieties, weed management, pest and disease management, weather and other related information.

The response of respondents on each item was measured on three point continuum that is fully known, partially known and unknown with the scoring of 3, 2 and 1 respectively. The maximum and minimum possible scores were 93 and 31 respectively. The maximum and minimum obtained scores were 63 and 23 respectively. Based on adoption scores obtained, the respondents were classified into following three categories by using exclusive class interval method. The results were expressed in the form of frequencies and percentages.

Results and Discussion

Table 1: Distribution of respondents according to their knowledge level (N=120)

S. No	Category	Class Interval	Frequency	Percentage
1	Very low	23-33	11	09.17
2	Low	33-43	16	13.33
3	Medium	43-53	57	47.50
4	High	53-63	36	30.00

From Table 1 it was evident that, majority of 47.50 per cent of the respondents were grouped under medium category of knowledge level followed by high (30.00%), low (13.33%) and very low (09.17%) respective categories on agro advisories disseminated through AKPS (Raghuprasad *et al*., 2013) [6].

Table 2: Ranking assessed category wise

S. No	Category	Weighted Mean Score	Rank
1	Crop varieties	2.417	III
2	Weed management practices	2.325	IV
3	Pest & disease management	2.508	I
4	Crop management technologies	2.458	II
5	Other	2.233	V

The category wise analysis of knowledge level of farmer on agro advisories offered through AKPS more than half of the respondents expressed that fully known on pest and disease management, crop management technologies followed by crop varieties, weed management practices and other information.

The responses of the respondents on agro advisories of crop varieties, weed management, pest and disease management, weather and other related information were categorized and ranked based on knowledge level scores. The rank assigned to crop varieties category indicated that majority of the respondents had high knowledge level on 'RNR-15048 in Paddy is suitable under late transplanted conditions with less irrigation water requirements(I), 'WGG-42 Green gram variety suitable for all seasons (II), and 'low in PCH-111 Castor variety suitable for Rabi season. Under weed management practices 'cono weeder in machine transplanted rice' had high knowledge level followed by 'Application of petrialchlor @ 1.2 liter per acre as a post emergence herbicide 3-5 DAT to control the weeds in Paddy. Whereas pest & disease management aspects majority of the respondents had high knowledge level on 'Whorl application of Emamectin benzoate @ 0.5 grams per liter of water to manage the fall army worm in Maize (I), 'Erection of pheromone traps 4 per acre for monitoring and management of the pink boll worm in Cotton (II), and 'low in Protective clothing is must be used to avoid the ill effects of the spray fluid formulation'. Under crop management technologies category majority of the respondents reported that had high knowledge levels on 'Farm pond helps to store the rain water and facilitate and to irrigate the crops under dry spells to maintain stability in the yields (I), **'**Practicing of IFS in Rainfed agriculture for income sustainability (II), and 'low incorporation with daincha and sun hemp in soil its leads to enhance soil fertility by reducing soil salinity (Suprava and Siddhartha, 2020) [7].

Relationship between profile and extent of adoption of agro advisories

The relationship between knowledge levels of respondents with profile characteristics was tested by applying correlation technique and drawing relevant null and empirical hypothesis.

Null hypothesis

There will be no significant relationship between knowledge of respondents and their profile characteristics. Both of these are independent.

Empirical hypothesis

There will be significant relationship between knowledge of respondents and their profile characteristics. Both of these are dependent.

Table 3: Relationship between the profile characteristics of the respondents and knowledge level farmers on agro advisories

S. No	Independent variables	Coefficient correlation
1	Age	0127NS
2	Education	0.446**
3	Farm size	0.083NS
4	Farming experience	0.336*
5	Training	0.502**
6	Extension contacts	0.371*
7	Information seeking behavior	0.359*
8	Socio-political participation	-0.129NS
9	Risk orientation	0.206NS
10	Innovativeness	0.535**

*Significant at 0.05 level of probability
**Significant at 0.01 level of probability
NS - Non significant

It is revealed from the Table 3 that, calculated "r" values between knowledge level of respondents and education, experience, information seeking behaviour and extension contact were greater than table "r" values at 0.05 level of probability, whereas, the calculated "r" value of the variable's education, training and innovativeness is greater than table "r" value at 0.01 level of probability.

Therefore, it can be concluded that there was a positive and significant relationship between knowledge level of respondents on agro advisories and variables *viz*. education, farming experience, training, extension contact, information seeking behaviour, and innovativeness. Hence for these variables, null hypothesis was rejected and empirical hypothesis was accepted.

On the other hand the calculated "r" values between knowledge level and farm size and risk orientation less than table "r" value. Some of the independent variable i.e., age was negative and non-significant relationship with knowledge level. Hence null hypothesis accepted and empirical hypothesis was rejected. Therefore, it can be concluded that there was no significant relationship between above characteristic and knowledge level of famers.

The probable reason for this trend might be, majority of the respondent's young aged with high formal education having high enthusiastic towards acquiring of modern agriculture practices, more interest on attending training programme with high information acquiring behavior to get firsthand knowledge of the new practices and had high innovativeness on adopting new agriculture practices in farming.

Summary and Conclusion

Most of the respondents irrespective of the crop had high level of knowledge. It was also found that the knowledge level of the farmers changed with what they had been gown seasonal crops. At the same times higher education, training and innovativeness was a factor which led to more acquisition of new things in farming which helps to adopt new agriculture practices in farming to increase the socio-economic condition of the farmers.

Acknowledgement

The authors are thankful to PJT Agricultural University and The Indian council of Agricultural research (ICAR) for providing funds along with Director ATARI zone X for constant support during the study

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