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Lokendra Singh Kishnawat
Ph.D. Student, Department of
Extension Education, College of
Agriculture, PAU, Ludhiana,
Punjab, India

Banwari Lal
Assistant Professor, Department
of Extension Education,
Agriculture University Jodhpur,
Rajasthan, India

Ekta
Ph.D. Student, Department of
Extension Education and
Communication Management,
College of Community Science,
PAU, Ludhiana, Punjab, India

Kamlesh Gurjar
MSc Student, Department of
Extension Education,
Agriculture University, Jodhpur,
Rajasthan

Corresponding Author:
Lokendra Singh Kishnawat
Ph.D. Student, Department of
Extension Education, College of
Agriculture, PAU, Ludhiana,
Punjab, India

Knowledge level of farmers regarding recommended cultivation practices of landraces

Lokendra Singh Kishnawat, Banwari Lal, Ekta and Kamlesh Gurjar

Abstract

To explore the knowledge level of farmers regarding recommended cultivation practices of landraces, this study was conducted in year 2021 in Rajasthan state. Four villages from two tehsils of Jodhpur and Barmer districts were purposively selected, with a sample size of 113 respondents. The results revealed that more than half of the respondents were having medium level of knowledge whereas 35.40 per cent and 13.27 per cent were having high and low knowledge level. Farmers possessed maximum knowledge regarding Sowing of seed, Spacing and Harvesting. The investigation also revealed that farmers possessed minimum knowledge about Fertilizer application and Seed treatment cultivation practices of landraces.

Keywords: Knowledge, cultivation practices, recommended, respondents

Introduction

Knowledge is a body of comprehended facts regarding the suggested set of practices that farmers should follow. It is the extent to which a person is made aware of innovation and acquires the understanding required to make effective use of it. An individual's adoption behavior is largely determined by his or her level of familiarity with the practices or technologies that they intend to adopt. Institutions that are playing a major role in the dissemination of technologies in India are ICAR, State Agriculture Universities (SAUs), State Agricultural Departments, KVKs, NGOs, etc. Among these agencies, State agricultural universities (SAUs) are the key functionaries, responsible for the dissemination of new techniques by providing area-specific recommendations, on and off-farm research, and by suggesting various packages of practices (POPs). State Agricultural Universities are facing a lot of problems in performing their duties because of shortage of manpower along with limitations of funds but projects funded by national and international organizations are vitally contributing to the spread of new technologies.

Agriculture University Jodhpur implementing many research projects which are helping in the dissemination of recommended package of practices and developing area-specific interventions for well-being of the farming community out of them one project entitled "Mainstreaming agricultural biodiversity conservation and utilization in the agricultural sector to ensure ecosystem services and reduce vulnerability" funded by UN Environment-Global Environment Facilities (GEF) is being implemented by Agriculture University, Jodhpur with the collaboration of CAZRI and GRAVIS (Gramin Vikas Vigyan Samiti) under the guidance of ICAR, New Delhi. The project's primary goals are to mainstream agricultural biodiversity conservation and use for agricultural resilience, sustainable production to enhance livelihoods, and access to farming communities' advantage-sharing capability. Agriculture University, Jodhpur expected that the selected techniques under the project will improve soil fertility, crop production, human health, and simultaneously with overall environmental facts. The main perception of this project is to encourage crop diversity for strong agriculture and to enhance local crop varieties and landraces for sustainable agricultural biodiversity. This project emphasizes traditional cultivation practices and indigenous knowledge. Additionally, the project includes actions to improve livelihoods through value-adding, the creation of distinctive products from locally grown crops, and their mainstreaming.

Farmers use different traditional seeds but they didn't recognize by the scientific community due to this factor the farmers do not understand the importance of these varieties as well as not being able to describe their importance to others. Therefore, such traditional seeds are not accepted by farming communities but these seeds are good for the soil, long-term productivity,

human health, and sustainable livelihood. They know that the cultivation of traditional and local landraces secures the natural modules in soil and improves soil fertility and plant health. In this type of farming, agrochemicals like pesticides and fertilizers are not used, thus the product is completely natural and organic. Hybrid seeds and pesticide residues in agricultural products can be very bad for health as well as for the richness of the soil.

The GEF project is being implemented in three districts of Rajasthan namely; Barmer, Jodhpur, and Jaisalmer with Gramin Vikas Vigyan Samiti (GRAVIS), Jodhpur. The seeds of the landraces were collected from across the state and distributed to champion farmers of each selected village. The champion farmers cultivated the seeds of landraces on their farms under the technical guidance of Agriculture University, Jodhpur to evaluate the performance in the selected area. Performance of the landraces is evaluated based on the different preferences of the farmers and their productivity. This project is improving the knowledge of the farmers and due to the special quality of seeds, farmers are attracting to adopt these seeds. These seeds are proving their worthiness and are emerging as an alternative to hybrid seeds.

Materials and Methods

The area for present investigation was Jodhpur and Barmer districts of Rajasthan state, specifically one tehsil from each district was selected on the basis of project implementation area, which was Osian (Jodhpur) and Chohtan (Barmer). Further, from each tehsil two villages were purposively selected namely; Mansagar and Govindpura - Osian, Jodhpur and Dhok and Dhirasar - Chohtan, Barmer, as the project was implemented there. From a comprehensive list of project beneficiaries, 113 respondents were selected on the basis of their engagement year with the project and the crops they were growing i.e., only kharif crop growers were selected.

Data for the study was gathered through in-person interviews carried out in accordance with a meticulously planned interview schedule in 2021. An outside population that was not part of the sample was used for the pre-testing of the interview schedule. Pre-testing was used to determine what changes were necessary. In accordance with the investigation's goals, it was created with provisions for all pertinent variables. To make sure they understood the questions correctly, the study's objectives were clearly explained to them in their dialect prior to the interview schedule being administered.

To measure knowledge level of the respondents about recommended cultivation practices, a well-developed knowledge test was used with some modifications. Nine major recommended packages of practices of Mungbean, Mothbean, Sesame, and Pearl millet production were included in the knowledge test. Each selected practice was further divided into sub-questions to find out the existing knowledge level of respondents about selected crops.

Every sub-question assigned one for each correct answer and zero for the wrong response. Consequently, the highest knowledge score that could be attained was 55. After the respondents' responses were tallied, a mean percent score (MPS) was generated. The following formula was used to determine each respondent's knowledge index:

$$KI = \frac{K}{P} \times 100$$

Where,

KI = Knowledge index

K = Knowledge score obtained per practices

P = Possible maximum score per practice

To categorize the knowledge of these respondents into distinct groups, the mean and standard deviation of each respondent's knowledge score were calculated. The respondents were divided into three knowledge level categories—low, medium, and high—based on their mean knowledge score and standard deviation.

Results and Discussion

Knowledge level of farmers regarding recommended cultivation practices of landraces

An understanding of information is a body of knowledge. It's been regarded as a need for technology adoption in all fields. An individual's adoption behaviour is largely determined by his or her level of familiarity with the practices or technologies that they intend to adopt. Therefore, the purpose of this section is to evaluate farmers' knowledge regarding suggested landrace cultivation techniques. Based on the computed mean and standard deviation of the knowledge scores that the respondents had provided, the farmers were divided into low, medium, and high knowledge groups to obtain an overview of their level of knowledge. The right answer received a score of one, and the wrong answer received a score of zero.

Practice wise knowledge level of respondents regarding recommended cultivation practices of landraces

Table 1 presents the farmers' level of practice-specific knowledge regarding recommended landrace cultivation practices. The knowledge test was designed to evaluate respondents' level of knowledge regarding nine distinct cultivation practices. Each practice's mean percent score (MPS) was determined, and ranks were given in accordance.

Table 1: Practice wise knowledge level of respondents about recommended cultivation practices of landraces

(n=113)			
S. No.	Package of practices	MPS	Rank
1	Soil and field preparation	73.42	5
2	Seed treatment	55.00	9
3	Sowing of seed	86.50	1
4	Spacing	82.50	2
5	Fertilizer application	55.66	8
6	Weed management	62.77	7
7	Plant protection measures	69.16	6
8	Harvesting	78.00	3
9	Storage	75.33	4

From the findings of Table 1 it was evident that all the farmers were having highest knowledge about "Sowing of seed" (86.50 MPS), followed by "Spacing" (82.50MPS) and "Harvesting" (78.00MPS), this might be due to the fact that these practices are easy to understand and most common cultivation practices. As the result shows that knowledge level of farmers was high regarding these practices is due to the various activities conducted under the project were focused on these certain practices and efforts of project staff were made through organizing different trainings, demonstrations and exposure at research stations. The same effect of the above project interventions was reflected on the practices such as "Storage" (75.33 MPS) and "Soil and field preparation"

(73.42 MPS).

The farmers had low knowledge level about “Seed treatment” (55.00 MPS) and “Fertilizer application” (55.58 MPS). It shows that these practices were not under the prime objective of the project because the traditional cultivation practices were emphasized due to climatic and environmental condition of the study area and moreover because the study was related to landraces. It might also be due to not properly understanding the instruction for use and lack of resources to use certain practices.

These findings are in conformity with the findings of Jat (2011) ^[1] and Singh and Sharma (2005) ^[5].

Overall knowledge level of respondents regarding recommended cultivation practices of landraces

Table 2's results showed that the majority of farmers (51.33 percent), had a medium level of knowledge about the recommended landrace cultivation practices. This was likely due to the fact that the majority of farmers were literate (59.92 percent were primary to graduate students), which allowed them to read literature about the recommended landrace cultivation practices.

The literate farmers were using a variety of information sources. Farmers were also fairly involved in social organizations, which allowed them to share their experiences and problems with group leaders and other farmers, potentially gaining additional knowledge through discussion of specific practices. The other reason of fair knowledge level of farmers was because of the fact that majority of farmers were belonged to middle aged category (69.91 per cent) due to which they had a good experience of farm practices.

Table 2: Overall knowledge level of respondents about recommended cultivation practices of landraces

(n=113)

S. No.	Level of knowledge	Frequency	Percentage
1	Low (score below 34.66)	15	13.27
2	Medium (score from 34.66 to 40.80)	58	51.33
3	High (Score above 40.80)	40	35.40

$X = 37.73$, $\sigma = 3.07$

Illustrated findings of Table 2 also depicted that 35.40 per cent farmers had high level of knowledge, these were the farmers who had a good extent of social participation they also motivated and helped others to gain knowledge and were actively engaged in dissemination of knowledge about recommended cultivation practices of landraces. This is also due to the various trainings, demonstrations and other activities organized under the project. The rest of 13.27 per cent farmers fell under low knowledge level category.

Analogous findings were reported by Sharma and Khedkar (2020) ^[3] and Patodiya *et al.* (2013) ^[4].

Conclusion

This study revealed that majority of the respondents were possessing medium knowledge level, whereas 35.40 per cent and 13.27 per cent were having high and low knowledge level about recommended cultivation practices of landraces. The study indicated that farmers possessed maximum knowledge regarding Sowing of seed, Spacing and Harvesting. The investigation also revealed that farmers possessed minimum knowledge about Fertilizer application and Seed treatment cultivation practices of landraces. Since majority of the

farmers were fell into category of medium knowledge level. Though the project is emphasized on traditional cultivation practices but still there is a need to arrange trainings as well as resources regarding the practices such as seed treatment, fertilizer application, and herbicide application etc. in order to increase their knowledge regarding these practices. Agricultural quiz programme, educational tours, farmer's fairs, demonstration activities can be more frequently arranged by project staff so that their knowledge level may change from existing level to the higher ones.

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