https://doi.org/10.48047/AFJBS.6.12.2024.4486-4494

African Journal of Biological Sciences

Journal homepage: http://www.afjbs.com

Research Paper Open Access

Knowledge level of the farmers about pea production technology and its association with selected independent variables

Anurag Shankar Singh[1], N. R. Meena[2], R. K. Doharey[3], Amrit Warshini[4], Gaurav Kumar[5], Ritesh Singh[6], Bandana Shahu Gupta[7], Suraj Kumar Mishra[8], Sandeep Kumar[9], Kuldeep Singh[10]

[1,4,5,6]Ph.D. Research Scholar, Extension Education, ANDUA&T, Kumarganj, Ayodhya, U.P.
[2]Assistant professor, Deptt. of Ext. Edu., ANDUA&T, Kumarganj, Ayodhya, U.P.
[3]Professor & Head, Deptt. of Ext. Edu., ANDUA&T, Kumarganj, Ayodhya, U.P.
[7 & 9]M. Sc. Scholar, Extension Education, ANDUA&T, Kumarganj, Ayodhya, U.P.
[8]Department of Business Studies, SHUATS, Prayagraj, Uttar Pradesh.
[10]Assistant professor, Faculty of Agriculture, Mahayogi Gorakhnath University, Gorakhpur, U.P.
Corresponding author mail: *anuragshankarsingh16@gmail.com*

Article History
Volume 6, Issue 12, 2024
Received: June 10, 2024
Accepted: July 5, 2024
doi:
10.48047/AFJBS.6.12.2024.4486-4494

ABSTRACT

Knowledge is dynamic and evolves over time through learning, experience, and interaction. It forms the basis for decision-making, problem-solving, innovation, and development in various fields such as science, technology, business, and education. The aim of this research was to investigate the Knowledge level of the farmers about pea production technology and its association with selected independent variables. The study was conducted in two specifically chosen districts, Sultanpur and Bhadohi in Uttar Pradesh. The study employed a random sampling method to select two blocks from each district Lambhua and Kurebhar from Sultanpur, and Gyanpur and Suriyawan from Bhadohi. A list of major pea-growing villages was compiled with input from the Revenue and Agriculture departments of these blocks. Subsequently, 20 villages (5 from each block) were randomly chosen. Within each village, 20 respondents were selected using simple random sampling, resulting in a total of 200 farmers per district and 400 respondents overall. The research utilized an *ex-post facto* research design, focusing on variables that were predetermined and not manipulated during the study. Data were collected using a pre-structured interview schedule. It was found that farmers in Sultanpur and Bhadohi districts of Uttar Pradesh exhibit varying degrees of knowledge about pea cultivation practices, influenced significantly by factors such as education, social participation, and access to extension services. The findings underscore the critical role of education and training in enhancing farmers' understanding and adoption of improved agricultural practices. While some variables like age, gender, and economic motivation showed positive correlations with knowledge levels, others such as caste and marital status did not significantly influence farmers' knowledge about pea production.

Keywords: Knowledge, ex-post facto, economic motivation etc.

1.1 INTRODUCTION

Vegetables play a crucial role in diversifying agriculture and ensuring food security for India's predominantly vegetarian population. They provide essential vitamins, minerals, and nutrients vital for maintaining health and preventing diseases such as heart ailments, thanks to their antioxidant properties found in green leafy vegetables, carrots, squash, melons, and tomatoes. These antioxidants combat harmful radicals in the body. Vegetables not only enhance the nutritional quality of diets but also contribute significantly to the overall well-being due to their rich content of minerals, vitamins, and other essential nutrients. **(Anonymous, 2023)**

Garden pea (*Pisum sativum L. var. hortense*) belongs to the family Leguminosae (Fabaceae) is also called sweet pea is a choice vegetable grown for its fresh shelled green seeds rich in protein (7.2 %), vitamins and minerals. The green seeds are used as vegetable or can be used after processing (canning, freezing and dehydration). India is ranking second next to China both in terms of area and production **(FAO, 2012).** In India, it is grown in an area of 0.42 million ha with the production of 4.01 million metric tonnes and productivity is 9.5 t/ha. Garden pea is a cool season crop mainly grown during winter season in plains and during summer season in hills. Major area of garden pea is in temperate and subtropical regions of the country. It is also grown in some cooler parts of southern India. Garden pea is cultivated on a large scale in the states like Uttar Pradesh, Madhya Pradesh and Jharkhand. It is also grown in Himachal Pradesh, Punjab, West Bengal, Haryana, Bihar, Uttarakhand, Jammu and Kashmir, Odisha, parts of Rajasthan and Maharashtra. In the south it is grown in Karnataka and in the hilly regions like Ooty and Kodaikanal. **(Budhesh *et al.,* 2023)**

Pea (*Pisum sativum* L.) production in India plays a significant role in the agricultural sector, contributing to both domestic consumption and export markets. The states of Uttar Pradesh, Madhya Pradesh, and Maharashtra are major producers due to favorable climatic conditions and soil types conducive to pea **cultivation (Singh et al., 2019).** Peas are typically grown during the Rabi season (winter), benefiting from cooler temperatures and sufficient moisture. However, challenges such as disease management (e.g., powdery mildew) and fluctuating market prices impact production sustainability **(Kumar et al., 2020)**. Despite these challenges, pea farming continues to support rural livelihoods and promote agricultural diversification in India.

Peas are rich in protein, dietary fiber, vitamins (such as vitamin A, C, and K), and minerals (including iron, calcium, and potassium), making them a valuable component of a healthy diet **(Bhagwat *et al.,* 2018).** Peas have the unique ability to fix atmospheric nitrogen through a symbiotic relationship with nitrogen-fixing bacteria (rhizobia), thus reducing the need for synthetic fertilizers and improving soil **fertility (Ladha *et al.,* 2016).** Pea production contributes significantly to the agricultural economy globally, providing income for farmers and supporting rural livelihoods **(FAO, 2020).** Peas are susceptible to various diseases and pests, such as powdery mildew, root rot, aphids, and pea weevils, which can reduce yield and quality **(Rubiales and Moral, 2012).** Pea cultivation is sensitive to environmental conditions such as temperature and moisture, affecting growth, flowering, and yield **(Erley *et al.,* 2018).** Meeting market demand while maintaining quality standards throughout the supply chain poses logistical and economic challenges for producers. **(Smith *et al.,* 2017).**

1.2 Objective of the study

The main objectives of the study are as follows:

- To assess the knowledge level of farmers about pea production technology.

- To ascertain the association of selected independent variables with knowledge level of farmers about pea production technology.

2.1 Research problem

The research problem focuses on evaluating farmers' knowledge regarding pea production technology and exploring its correlation with various independent variables. This study aims to delve into the extent of farmers' understanding of modern techniques and practices related to pea cultivation. Key independent variables and their association to be examined include farmer's Age, Caste , Housing pattern, Gender, Religion, Education, Occupation, Annual Income, Social Participation, Marital Status, Land holding, Irrigation sources, Family type, Family size, Innovativeness, Scientific orientation, Economic motivation, Extension Contact, Risk orientation and Cosmopolitan outlook. Understanding farmers' knowledge levels is crucial as it directly impacts their adoption of improved practices, productivity, and overall agricultural sustainability. Knowledge gaps can hinder effective implementation of advancements in pea production, affecting crop yield and quality. By identifying factors that influence farmers' knowledge levels, the study intends to provide insights into areas where interventions and educational programs can be targeted. This research will contribute to enhancing agricultural extension services and educational outreach tailored to meet the specific needs of pea farmers. Ultimately, improving knowledge about pea production technology among farmers can lead to more informed decision-making, increased profitability, and sustainable agricultural practices. The findings from this study are expected to inform policymakers, agricultural extension officers, and development agencies on strategies to enhance farmers' knowledge and promote adoption of best practices in pea cultivation, thereby contributing to food security and economic development in agricultural communities.

2.2 Research methodology

2.2.1 Study area

The study was conducted in two specifically chosen districts, Sultanpur and Bhadohi in Uttar Pradesh. These districts were selected because Sultanpur is known for its high vegetable pea production while Bhadohi has the lowest production in the eastern Uttar Pradesh region throughout the year. From each district, two blocks were selected: Lambhua and Kurebhar from Sultanpur, and Gyanpur and Suriyawan from Bhadohi, using random sampling. A comprehensive list of major pea-growing villages was compiled with input from the Revenue and Agriculture departments of these blocks. From this list, 20 villages (5 from each block) were randomly chosen for the study. Within each village, 20 respondents were selected using simple random sampling, resulting in a total of 200 farmers per district, making up 400 respondents overall. The study utilized an *ex-post facto* research design, focusing on variables that had already occurred and were not subject to manipulation.

2.2.2 Data collection

Data were collected using a pre-structured interview schedule. An interview schedule was developed for this purpose, categorized into twelve main packages of practices of pea production technology with detailed sub-questions. Respondents' answers were recorded on a two-point scale i.e. yes or no.

2.2.3 Formula used

2.2.3.1 The data analysis involved calculating mean percent scores, applying z-tests, and determining critical differences.

$$\textbf{Mean Percent Score (MPS)} = \frac{\textit{Total score obtained by respondents}}{\textit{Maximum obtained score}} \times 100$$

2.2.3.2 'Z' test (Standard Normal Deviate Test)

This test was used to observe significant difference between two sample mean for large sample (*i.e.* n > 30). Formula for 'Z' test is as under:

3 $$Z = \frac{|X_1 - X_2|}{\sqrt{\frac{s_1^2}{n_1^2} + \frac{s_2^2}{n_2^2}}}$$

Where,

X_1: Mean of first sample, X_2: Mean of second sample, S_1: Standard deviation of first sample, S_2: Standard deviation of second sample, n_1: Size of the first sample, n_2: Size of the second sample

This test was used to see the significant difference between pea growers of Sultanpur and Bhadohi district about knowledge level of pea growers regarding improved pea production technology.

2.2.3.3 Correlation coefficient (r):

In order to know the relationship between any two variables, correlation test is frequently applied. The correlation coefficient (r) is a measure of a degree of closeness of the linear relationship between the two variables.

3. RESULT AND DISCUSSION

The study collected data from 400 pea farmers to evaluate their understanding of enhanced pea production techniques. Here are the summarized findings for each category.

3.1 KNOWLEDGE OF FARMERS REGARDING IMPROVED PEA PRODUCTION TECHNOLOGY

This section of the chapter discusses the current state of farmers' awareness regarding advanced pea cultivation technology. Knowledge, defined as the information individuals possess, is crucial in influencing their behavior and adoption of innovations. Therefore, it is essential to assess the level of understanding among farmers regarding improved pea cultivation methods. In light of this objective, this section endeavors to present findings on the existing knowledge of respondents involved in pea cultivation concerning various aspects of pea production technology. The outcomes are categorized and presented as follows:

3.1.1 Distribution of Farmers on the Basis Their Existing Knowledge about Improved Pea Production Technology

Farmers were classified into three categories—low, medium, and high levels of knowledge based on the mean score and standard deviation of their knowledge scores related to pea production technology.

Table 3.1.1: Distribution of respondents on the basis of their overall knowledge level regarding improved pea production technology

n=400

S. No.	Category	Respondents				
		Sultanpur		Category	Bhadohi	
		f	%		*f*	%
1.	Low (up to 14)	44	22.00	Low (up to 14)	43	21.50
2.	Medium (15-16)	109	54.50	Medium (15-17)	104	52.00
3.	High (17 & above)	47	23.50	High (18 & above)	53	26.50
	Total	**200**	**100.00**	**Total**	**200**	**100.00**

***f* = Frequency, % = per cent**

Mean: 15.59, S.D: 1.64, Min: 12, Max: 22 (Sultanpur) Mean: 16.09, S.D: 2.03, Min: 12, Max: 22 (Bhadohi)

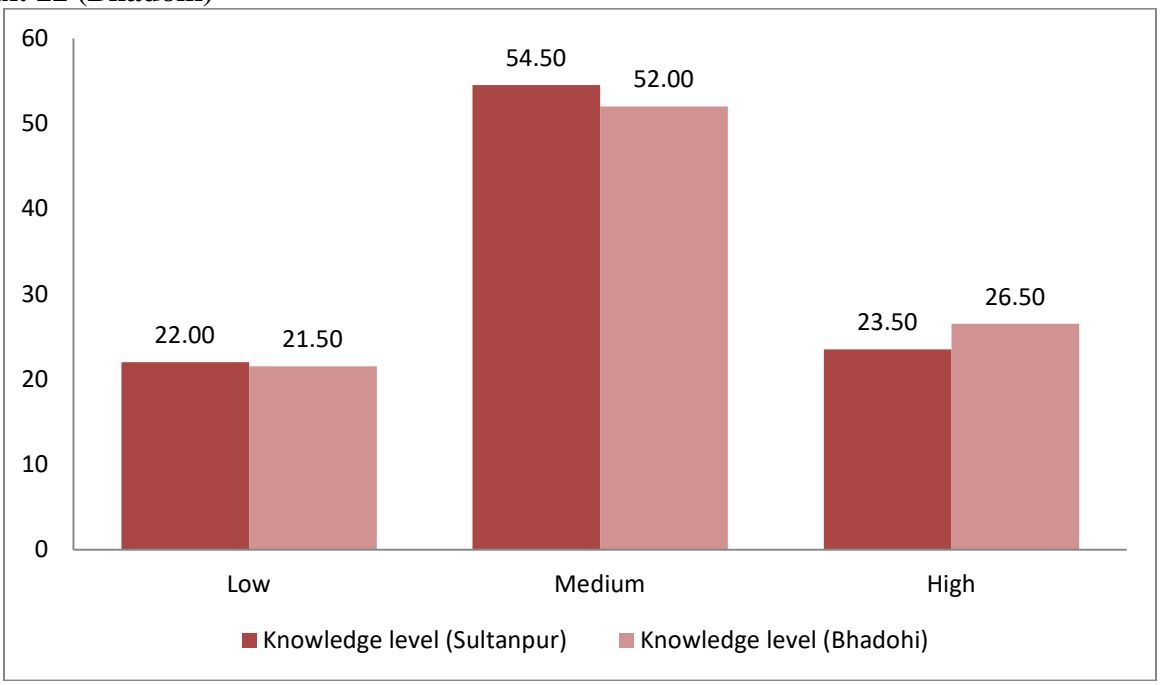

Fig 3.1.1: Distribution of respondents on the basis of their overall knowledge level regarding improved pea production technology

To assess the knowledge level of pea growers regarding improved pea production technology, respondents were categorized into three groups i.e. low, medium, and high based on mean and standard deviation. Table 3.1.1 presents the data revealing that in Sultanpur district, out of 200 respondents, the majority (54.50%) had a medium level of knowledge, followed by 23.50% with a high level, and 22.00% with a low level of knowledge about improved pea production technology. Similarly, in Bhadohi district, out of 200 respondents, the majority (52.00%) had a medium level of knowledge, followed by 26.50% with a high level, and 21.50% with a low level of knowledge in this regard. The higher knowledge level among pea growers in Sultanpur district may be attributed to factors such as larger land holdings, higher income levels, active social participation, a stronger economic motivation, and greater openness to adopting new practices compared to pea growers in Bhadohi. These findings align with those reported by **Meena (2014).**

Table 3.2 Aspect-Wise Extent of Knowledge of Farmers about Improved Pea Production Technology

n=400

S. No.	Practices	Parameter					
		Sultanpur		Bhadohi		Total	
		MPS	Rank	MPS	Rank	MPS	Rank
1.	High yielding varieties	59.47	XI	60.67	XI	60.07	XI
2.	Soil and field preparation	**83.06**	**I**	**75.09**	**I**	**79.07**	**I**
3.	Soil treatment	61.72	X	61.89	X	61.80	X
4.	Seed treatment	64.09	IX	63.76	IX	63.92	IX
5.	Time of sowing	**82.69**	**II**	**74.73**	**II**	**78.71**	**II**

6.	Seed rate and recommended spacing	71.07	VI	70.13	VI	70.60	VI
7.	Manures and fertilizer application	67.71	VIII	69.23	VII	68.47	VII
8.	Water management	**81.44**	**III**	**71.12**	IV	**76.28**	**III**
9.	Weed management	77.82	IV	70.81	V	74.31	IV
10.	Plant protection measures	58.35	XII	59.61	XII	58.98	XII
11.	Harvesting techniques	73.45	V	**73.66**	**III**	73.55	V
12.	Marketing	68.95	VII	64.66	VIII	66.80	VIII

MPS = Mean Percent Score

Regarding pea growers in Sultanpur, Table 3.2 illustrates that knowledge about Soil and field preparation ranked highest with a mean percent score of 83.06, followed by Time of sowing with a mean percent score of 82.69. Water management knowledge ranked third with a mean percent score of 81.44, while weed management ranked fourth with a mean percent score of 77.82. Harvesting techniques knowledge ranked fifth with a mean percent score of 73.45, and seed rate and recommended spacing ranked sixth with a mean percent score of 71.07. Marketing knowledge ranked seventh with a mean percent score of 68.95, and manures and fertilizer application knowledge ranked eighth with a mean percent score of 67.71. Seed treatment knowledge ranked ninth with a mean percent score of 64.09, while soil treatment knowledge ranked tenth with a mean percent score of 61.72. High yielding varieties knowledge ranked eleventh with a mean percent score of 59.47, and plant protection measures knowledge ranked twelfth with a mean percent score of 58.35.

Regarding pea growers in Bhadohi, Table 3.2 shows that knowledge about Soil and field preparation ranked highest with a mean percent score of 75.09, followed by Time of sowing with a mean percent score of 74.73. Harvesting techniques knowledge ranked third with a mean percent score of 73.66, while water management knowledge ranked fourth with a mean percent score of 71.12. Weed management knowledge ranked fifth with a mean percent score of 70.81, and seed rate and recommended spacing ranked sixth with a mean percent score of 70.13. Manures and fertilizer application knowledge ranked seventh with a mean percent score of 69.23, and marketing knowledge ranked eighth with a mean percent score of 64.66. Seed treatment knowledge ranked ninth with a mean percent score of 63.76, while soil treatment knowledge ranked tenth with a mean percent score of 61.89. Knowledge about high yielding varieties ranked eleventh with a mean percent score of 60.67, and plant protection measures knowledge ranked twelfth with a mean percent score of 59.61.

Further examination revealed that most respondents in both categories were well-informed about the appropriate soil type, the recommended quantity of Farm Yard Manure (FYM) per hectare, and the number of ploughings necessary for successful pea cultivation. Nearly all farmers were aware that the ideal sowing period for peas in the eastern Uttar Pradesh region spans from the second week of October to the first week of November. However, there was limited knowledge among farmers regarding the precise dosages and timings for applying manures and fertilizers in pea crops. A majority of pea growers possessed knowledge about the critical irrigation stages, including pre-flowering (after 45 days of sowing) and pod development stages. However, knowledge regarding the proper method and quantity of potassium chloride application was lacking among many pea growers. Additionally, most farmers were familiar with both manual weeding and chemical weed control practices.

Further examination of the data indicates that over fifty percent of the respondents accurately knew the recommended seed rate for pea cultivation, which ranges from 80 to 100 kg per

hectare. Additionally, pea growers demonstrated awareness of high-yielding pea varieties such as Malviya Matar-15, Shikha, Vikas, Aman, Narendra Sabji Matar-1, and Kashi Nandini. However, there was limited knowledge among farmers regarding the specific duration and average yield associated with these recommended pea varieties.

It was found that the majority of respondents were harvesting peas at the correct time using the hand-picking method. Additionally, it was noted that very few respondents were aware that vegetable peas can be preserved for future use. Further analysis of the data shows that most respondents had awareness of pea diseases such as powdery mildew, root rots, rust, and mosaic. However, they lacked knowledge regarding the chemical control measures for these diseases.

3.3 Comparison of Knowledge of the Pea Growers

The comparison of knowledge about improved pea cultivation technology was made under following heads:

3.3.1 Comparison of knowledge between pea growers of Bhadohi & Sultanpur

To find out the significant difference between pea growers of Bhadohi & Sultanpur about knowledge of improved pea cultivation technology, 'Z' test was applied. The results of the same have been presented in Table **3.3.1**

Hypotheses

H_0: There is no significant difference in knowledge between pea growers of Sultanpur & Bhadohi about improved pea production technology.

H_1: There is significant difference in knowledge between pea growers of Sultanpur & Bhadohi about improved pea production technology.

Table 3.3.1: Comparison of knowledge between the pea growers of Sultanpur & Bhadohi about improved pea production technology

S. No.	District of pea growers	Mean	S.D.	'Z' value
1.	Sultanpur	70.81	8.9	**5.20****
2.	Bhadohi	67.94	5.57	

**** Significant at 1 per cent level**

Table 3.3.1 reveals that calculated 'Z' value was greater than its tabulated value at 1 per cent level of significance. Thus, the null hypothesis (H_0) was rejected and research hypothesis (H_1) was accepted. It reveals that there was significant difference in knowledge between pea growers of Sultanpur and Bhadohi about improved pea production technology. The mean value further indicates that pea growers of Sultanpur district possessed more knowledge than pea growers of Bhadohi district about improved pea cultivation technology.

Mean value table

S. No	Name of District	Mean value	C.D. value
1.	Sultanpur	70.81	**2.87**
2.	Bhadohi	67.94	

By comparing the mean value with C.D. value, there is significant difference among the pea growers of Sultanpur and Bhadohi district with regard to possession of knowledge about improved pea cultivation technology. Similar results were found by **Meena (2014),** who reported that there is significant difference in level of knowledge regarding improved production practices of pea among big, small and marginal category of farmers.

3.4 ASSOCIATION BETWEEN PERSONAL VARIABLES AND KNOWLEDGE OF PEA PRODUCTION TECHNOLOGY BY THE FARMERS

This section deals with the association between knowledge level of pea growers with their independent variables. For this purpose coefficient of correlation was applied.

Table 3.4.1 Distribution of respondents according to their correlation coefficient between different variables and knowledge level.

S. No.	Variables	''r'' value (Sultanpur)	''r'' value (Bhadohi)
1.	Age	0.265**	0.287**
2.	Caste	0.099^{NS}	0.089^{NS}
3.	Housing pattern	0.372*	0.361*
4.	Gender	0.609**	0.613**
5.	Religion	0.037^{NS}	0.034^{NS}
6.	Education	0.385**	0.341**
7.	Occupation	0.192*	0.183*
8.	Annual Income of Family	0.179*	0.177*
9.	Social Participation	0.374**	0.311**
10.	Marital Status	-0.0389^{NS}	-0.0286^{NS}
11.	Land holding	0.418**	0.487**
12.	Irrigation sources	0.221*	0.231*
13.	Family type	0.195*	0.185*
14.	Family size	0.231*	0.237*
15.	Innovativeness	0.282**	0.277**
16.	Scientific orientation	0.678**	0.589**
17.	Economic motivation	0.185*	0.179*
18.	Extension Contact	0.613**	0.667**
19.	Risk orientation	0.662**	0.586**
20.	Cosmopolitan outlook	0.510**	0.219*

***Significant at 0.05% probability level, **Significant at 0.01% probability level, NS: Non significant**

Table 3.4.1 indicates that in Sultanpur district, variables such as Age, Gender, Education, Social Participation, Land Holding, Innovativeness, Scientific Orientation, Extension Contact, Risk Orientation, and Cosmopolitan Outlook showed high significance and a positive correlation with knowledge level regarding cultivation practices. Variables like caste, religion, and marital status did not show significant correlation with knowledge level. Housing pattern, occupation, annual income, irrigation sources, family type, family size, and economic motivation were found to have lesser but still positive significance and were positively correlated with respondents' knowledge level. This suggests that as these variables increase in value, farmers' knowledge about cultivation practices also tends to increase.

Similarly, in Bhadohi district, Age, Gender, Education, Social Participation, Land Holding, Innovativeness, Scientific Orientation, Extension Contact, and Risk Orientation were highly significant and positively correlated with knowledge level. Caste, religion, and marital status did not show significant correlation with knowledge level. Housing pattern, occupation, annual income, irrigation sources, family type, family size, economic motivation, and cosmopolitan outlook were also found to be less significant but positively correlated with respondents' knowledge level. This finding aligns with previous research by **Singh and Doharey (2021).**

CONCLUSION

This study has provided valuable insights into the knowledge levels of pea farmers regarding production technology and the factors influencing these levels. It was found that farmers in Sultanpur and Bhadohi districts of Uttar Pradesh exhibit varying degrees of knowledge about pea cultivation practices, influenced significantly by factors such as education, social participation, and access to extension services. The findings underscore the critical role of education and training in enhancing farmers' understanding and adoption of improved agricultural practices. While some variables like age, gender, and economic motivation showed positive correlations with knowledge levels, others such as caste and marital status did not significantly influence farmers' knowledge about pea production. Strategies to improve knowledge dissemination among farmers, particularly through targeted extension programs and leveraging innovative approaches, are crucial for advancing sustainable agriculture and ensuring food security. By bridging the knowledge gaps identified in this study, policymakers, agricultural extension services, and stakeholders can empower farmers to optimize pea production, enhance yields, and mitigate risks associated with pest management and environmental factors. Ultimately, enhancing knowledge about pea production technology not only contributes to agricultural productivity but also strengthens rural livelihoods and supports overall economic development in agricultural communities. This research underscores the importance of continuous learning and adaptation to evolving agricultural practices for sustainable food systems in the face of global challenges.

REFERENCES

- Baddeley, A. D., & Hitch, G. J. (1974). Working memory. In G. H. Bower (Ed.), The psychology of learning and motivation: Advances in research and theory (Vol. 8, pp. 47-89). Academic Press.
- Bhagwat, S., et al. (2018). Nutritional composition and health benefits of green peas (Pisum sativum L.): A review. *Food Chemistry*, 261, 78-86.
- Boruah, R.; Borua, S.; Deka, C. and Borah, D. 2016. Entrepreneurial behavior of tribal winter vegetable growers in johrat district of Assam. Indian Research Journal of Extension Education. 15(1): 65-69
- Brar, K.S. 2001. Problems and prospects of cotton cultivation in Sri-Ganganagar district of Rajasthan. M.Sc. (Ag) thesis submitted to Maharana Pratap University of Agriculture and Technology, Udaipur.
- Chundawat, M.S. 1997. Knowledge and adoption of improved practices of cumin production technology in the Jalore district of Rajasthan. M.Sc. (Ag.) thesis submitted to Rajasthan Agricultural University, Bikaner.
- Erley, G. S., et al. (2018). Climate change impacts on winter pea yields in central and southern Europe. *Field Crops Research*, 224, 105-113.
- Eysenck, M. W., & Keane, M. T. (2015). Cognitive psychology: A student's handbook (7th ed.). Hove: Psychology Press.
- FAO. (2020). *FAOSTAT Database*. Food and Agriculture Organization of the United Nations. Retrieved from http://www.fao.org/faostat/en/#home
- Kumar, M. 2008. A critical analysis of problems and prospects of groundnut cultivation in southern plain and aravalis hills (Zone IV a) of Rajasthan. Ph.D. thesis submitted to Maharana Pratap University of Agriculture and Technology, Udaipur.

- Kumar, S., et al. (2020). Sustainable Pest Management in Pea (Pisum sativum L.) Production: A Review. *Sustainability*, 12(4), 1443.
- Ladha, J. K., et al. (2016). Legumes and sustainable agriculture: Challenges and opportunities. *Proceedings of the National Academy of Sciences*, 113(27), 7684-7689.
- Meena, N. R. (2014). Critical Analysis of Problems and Prospects of Pea Cultivation in Kota Region of Rajasthan. Ph.D. (Ag) thesis submitted to Maharana Pratap University of Agriculture and Technology, Udaipur.
- Rubiales, D., & Moral, A. (2012). Improving field pea resistance to biotic stresses: Breeding and genetics. *Agronomy*, 2(4), 331-349.
- Singh R. & Doharey R. K. (2021). Critical analysis of problems and prospects of radish cultivation in Jaunpur district of Uttar Pradesh. M. Sc. (Ag.) Extension Education thesis submitted to Acharya Narendra Deva University of Agriculture And Technology, Kumarganj, Ayodhya, Uttar Pradesh.
- Singh, A., et al. (2019). Legume Research in India: Retrospect and Prospect. *Journal of Agricultural Science and Technology*, 11, 1-20.
- Smith, S. R., et al. (2017). A review of pea processing technologies and their implications on food safety and quality. *Critical Reviews in Food Science and Nutrition*, 57(4), 795-808.