Original Research Article

Influence the adoption of improved production technology among mustard growers in the Jaunpur District, Uttar Pradesh, India

Abstract:

This study explores how mustard growers in the Jaunpur district adopt new technologies, with a particular emphasis on how much improved production technology is adopted thanks to Krishi Vigyan Kendra (KVK) Jaunpur. India's most common occupation, agriculture, has difficulties like decreased crop yields and the requirement for sustainable methods. KVKs, which were founded in 1973, are essential for distributing agricultural innovations and offering vocational training. Purposively undertaken in Jaunpur, the study investigates the socioeconomic aspects that impact the adoption behavior of mustard growers. The assessment of adoption level indicates that 41.66% of participants belong to the medium adoption category, underscoring the necessity of customized interventions. The results provide insight into the dynamics of technology adoption among mustard farmers and highlight the function of KVKs in advancing environmentally friendly farming methods.

Keywords: *Krishi Vigyan Kendra, sustainable agriculture, improved production technology, adoption behavior, and mustard growers etc***.**

Introduction:

About 70% of the people in India is either directly or indirectly dependent on agriculture, making it the country's main industry. According to the Ministry of Agriculture's most recent figures, 315.7 million tons are expected to be produced agriculturally in 2021–2022. Even though agriculture makes a substantial contribution to India's economy, its percentage of GDP has decreased from 54% at the country's independence to 18.8% currently. The agricultural industry faces a number of difficulties, including lower crop yields per hectare when compared to other emerging nations, which emphasizes the need for technical innovations and sustainable practices.

An important step towards tackling these issues is the creation of Krishi Vigyan Kendras (KVKs). KVKs, established in 1973 under the visionary guidance of Mohan Singh Mehta, are essential establishments that offer vocational training to extension workers, farmers, and young people living in rural areas. In order to improve the agricultural economy, this network of knowledge and resource centers is essential for assessing technology modules tailored to specific regions, improving farming methods, and holding demonstrations. There are currently 731 KVKs

in India, and they are all involved in getting technologies created by the Indian Council of Agricultural Research (ICAR) out to farmers so they may be assessed.

Krishi Vigyan Kendra, Jaunpur, established in April 2005, exemplifies the commitment of KVKs to meeting the needs of the farming community. Aligned with the objectives of vocational training and technology dissemination, KVK Jaunpur focuses on empowering farmers, farm women, and rural youth through various training programs. These initiatives are strategically designed to address the diverse challenges faced by the farming community, emphasizing farmer interest groups and adapting to the local farming systems.

This study explores the degree to which mustard growers have embraced enhanced production techniques within the boundaries of KVK Jaunpur. Mustard, a member of the Brassica genus, is an important oilseed crop and makes India the world's third-largest producer of rapeseed mustard. Mustard cultivation offers an attractive terrain for analyzing farmers' adoption behavior because of its rich history and variety. With the socioeconomic features of mustard growers in the Jaunpur region taken into consideration, the study attempts to evaluate the factors influencing the adoption of enhanced production technologies. The study clarifies the function of KVKs and the larger agricultural environment in promoting sustainable and cutting-edge farming methods as we begin this investigation.

Methodology:

The research was purposefully conducted in Jaunpur district, given its significance as a center for agricultural education and implementation of improved practices, notably anchored by Tilak Dhari Post Graduate College. With agriculture being the predominant occupation in the area and over half the population relying on it for their livelihoods, Jaunpur serves as an ideal locale for studying mustard growers' adoption behavior. The study focused on the Baksha development block, randomly chosen from the 21 blocks in Jaunpur district. Within this block, 10 villages were selected based on their assumed higher usage of mass media. The respondents, totaling 120, were then randomly sampled from these villages to ensure a representative cross-section for a thorough investigation into the extent of adoption of improved production technology among mustard growers in Jaunpur.Using an interview schedule with measuring tools for both dependent and independent variables, data were manually gathered. After

outlining the goal of the study and seeking objective participant input, the researcher recorded the participants' comments.

The adoption behavior of mustard production technology refers to the extent of adoption of recommended improved farm prentices. The question were regarding improved varieties, sowing time and methods, recommended dose of chemical fertilizer, irrigation management, and plant protection were selected. The weightage of 3 high adoptions, 2 for medium adoption and 1 for low adoption of each practice were assigned. The total score obtained by the respondent from all the ten practices was the adoption score of individual respondent. Finally this raw adoption score obtained by individual respondent was converted into adoption index as below.

Table 1 : Adoption index

Sr. No.	Categories	Score
1.	Low Level	Below(Mean-SD)
2.	Medium Level	(Mean-SD)to (Mean+SD)
3.	High Level	Above(Mean+SD)

Results and Discussion:

Age:

It is observed from **Table 2** that the majority of the respondents 40 per cent were belonged to middle age group 46 to 55 years, 30.83 per cent respondents were belonged to young age group below 45 year and 29.16 per cent respondents were of old were age group above 56 year. Thus, it may be concluded that the maximum mustard growers belonging to middle age 46 to 55 year.

Table: 2 Distribution of respondent according to their age.

Sr. No	Category	Respondents(N=120)	
		Frequency	Percentage
1.	Young	37	30.83
2.	Middle	48	40.00
3.	Old	35	29.16

	Total	**(N=120)**	**100**

The results of the present study showed that majority of the mustard growers 40 per cent were of middle age group. This might be due to that the farmers of this age group are more innovative to adopt new technology than other age group. They easily understand the benefits of improved varieties and recommended practices. So they adopt recommended package earlier. The findings of **Asati (2000**) and **Kawale *et al.* (2003)** conform the present finding.

Education:

It is evident from **Table 3** that the majority of respondents, at 30 per cent, had a middle-level education. This was followed by 15 per cent of respondents who possessed Graduation and Intermediate education, 14.16 per cent who had completed High school education, and 12.5 per cent who were illiterate. Additionally, 10 per cent of respondents had primary school education, while only 3.33 per cent possessed PG & above education.

Table: 3 Distribution of respondents according to their education.

Sr. No	**Category**	**Respondents (n=120)**	
		Frequency	**Percentage**
1.	Illiterate	15	12.5
2.	Primary	12	10
3.	Middle	36	30
4.	High school	17	14.16
5.	Intermediate	18	15
6.	Graduation	18	15
7.	PG & above	4	3.33
	Total	**120**	**100**

Regarding the level of education, majority of the respondents 30 per cent were of secondary class. This might be due to adequate education facilities in their village and the villagers are more conscious about education. The findings of **Chaurasiya and Mazhar (2018)** also confirm the present finding.

Caste:

It is seen from **Table 4** that the majority of the respondents, at 50 per cent, belonged to the OBC category, followed by 33.33 per cent of farmers who were in the General category. Only 16.66 per cent of respondents belonged to the SC/ST category. It can be concluded that the majority of the respondents belonged to the OBC category.

Table: 4 Distribution of respondents according to their caste:

Sr. No	Category	Respondents(n=120)	
		Frequency	**Percentage**
1.	General	40	33.33
2.	OBC	60	50.00
3.	SC/ST	20	16.66
	Total	**120**	**100.00**

Majority of the respondents 50 per cent belonged to OBC caste category due to more population of OBC caste as compared to other caste in the study area. The findings of **Chaurasiya and Mazhar (2018)** also confirm the present finding.

Family type:

The data presented in **table 5** reveals that out of 120 mustard growers, 64.16 per cent belonged joint family, and 35.83 per cent belonged to nuclear family. Thus, it can be stated that the maximum mustard growers 64.16 per cent were of joint family.

Table 5: Distribution of respondents according to their family type.

Sr. No.	Categories	Respondents(n=120)	
		Frequency	**Percentage**
1.	Joint family	77	64.16
2.	Nuclear family	43	35.83
	Total	**120**	**100**

Majority of the respondents 64.16 per cent belonged to joint family. The work of **Kumar *et al*. (2019**) also find.

Occupation:

The data presented in **Table 6** reveals that higher percentage of the respondents, 41.66 per cent, had farming as their main occupation, followed by 25 per cent of respondents who had farming + Government Jobs. Additionally, 20.83 per cent were engaged in Farming + Private Jobs, and only 12.5 per cent had a combination of farming + service + business + other activities.

Table: 6 Distribution of respondents according to their occupation

Sr. No.	Categories	Respondents(n=120)	
		Frequency	**Percentage**
1.	Farming	50	41.66
2.	Farming+govt.job	30	25
3.	Farming+pvt.Job	25	20.83
4.	Farming+other	15	12.5
	Total	**120**	**100**

The higher percentage of the respondents, 41.66 per cent, had farming as their main occupation, followed by 25 per cent of respondents who had farming + Government Jobs. Additionally, 20.83 per cent were engaged in Farming + Private Jobs, and only 12.5 per cent had a combination of farming + service + business + other activities. This trend might be attributed to the limited employment opportunities in the selected area, leading the majority of villagers to be primarily involved in agricultural activities. This finding is consistent with the research conducted by **Chandawat *et al.* (2009)** and **Kumar *et al.* (2019).**

Annual Income:

The data presented in **Table 7** reveals that out of 120 mustard growers, 45.83 per cent belonged to the low annual income category, 37.5 per cent belonged to the medium annual income category, and 16.66 per cent belonged to the high-income group.

Table: 7 Distribution of respondents according to their annual income

Sr. No	Categories	Respondents(n=120)	
		Frequency	**Percentage**
1.	Low(< 60000)	55	45.83

2.	Medium (60001-100000)	45	37.5
3.	High (>100000)	20	16.66
	Total	**120**	**100**

Majority of the respondents 45.83 per cent belonged to low income category. This might be due to that the respondents had limited source of income. They all were engaged in farming activities and some other activity throughout the year and they were able to generate higher income. This finding support with the work of **Kulshrestha *et al.*(2010**).

Mass media participation:

Data presented in **Table 8** show the participation of respondents in social organizations. It is concluded that 50 per cent had belonged to medium mass media participation, whereas, 38.33 per cent had low participation in social organizations and 11.66 per cent had high mass media participation.

Table 8: Distribution of respondents according to their Mass media Participation.

Sr.No.	Categories	Frequency	Percentage
1.	Low	46	38.33
2.	Medium	60	50
3.	High	14	11.66
	Total	120	100

The data presented in **Table 8** found that more than half of the farmers 50 per cent had belonged to medium mass media participation, whereas, 38.33 per cent belonged to low and 11.66 per cent belonged to high mass media participation. The finding support with the **Solanki (2008), Sharma*et al*.(2014)** and **Sharma *et al*. (2015).**

There were several reasons behind their medium mass media participation. Mass media connectivity of the mustard growers effects their adoption behaviour significantly, mass media makes them aware about new advancements in farming if they are not connected with some media they will not come to know about recent happenings and show poor or lees interest in

adoption behaviour since they does not know about the benefits of that programme because of lack of mass media participation.

Level of adoption:

The distribution of the respondents according to their extent of adoption (overall) of selected mustard production technologies is shown in **Table 9**. It was observed from the data presented in Table 8 that most of the trained farmers 41.66 per cent belonged to medium adoption category about recommended production technology of mustard, whereas, 33.33 and 25 per cent of them in high and low adoption categories of mustard production technologies, respectively.

Table: 9 Distribution of respondents according to their adoption level:

Sr. No.	Categories	Frequency	Percentage
1.	Low (<45 score)	30	25.00
2.	Medium (45 to 75 score)	50	41.66
3.	High (<75 score)	40	33.33
	Total	**120**	**100**

Majority 41.66 per cent of respondents had medium adoption, 33.33 and 25 per cent of them in high and low adoption categories of mustard production technologies, respectively. That might be due to their medium level of knowledge about the recommended package and innovativeness. The respondents were found to be of some traditional in nature to adopt new technology. This finding support with the work of **Jadav *et al*. (2004)** and **Medhi *et al.* (2017).**

Future Scope:

Through a focus on customized policy initiatives and extension services, the study creates opportunities for future mustard cultivation interventions in Jaunpur that will have a significant impact. While extension services, especially those offered by Krishi Vigyan Kendras, can improve their programs to accommodate the various requirements of various farmer groups, policymakers can use the complex understanding of mustard producers' adoption behavior to design targeted policies. In order to empower mustard growers, future initiatives should concentrate on financial inclusion, educational campaigns, technology adaptation, and the integration of information and communication technology (ICT). The long-term effects of technological adoption can be gleaned from longitudinal research, and initiatives to support

climate-resilient agricultural practices ought to be prioritized. The combined goal of these actions is to raise the socioeconomic standing, sustainability, and production of mustard farmers in Jaunpur and other similar agricultural areas**.**

Conclusion:

The results demonstrate the intricate interactions between socioeconomic, educational, and demographic variables that affect mustard growers' adoption practices in Jaunpur. Krishi Vigyan Kendra plays a crucial role in empowering farmers by providing them with vocational training and technology diffusion. Targeted interventions should take into account the unique requirements of various demographic groups, accounting for differences in income, family structures, and educational attainment in order to increase adoption rates. By addressing the particular difficulties mustard growers in Jaunpur experience and designing interventions to encourage the broad adoption of enhanced production technology, sustainable agricultural practices can be better promoted.

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