Profile Scanning of the Farmers of Karimnagar District of Telangana State, India

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

This research highlights the profile of farmers in Karimnagar district, Telangana. The study uses an ex-post facto and exploratory research design to analyse the socio-economic characteristics of farmers who adopted and those who did not adopt the technologies introduced by Krishi Vigyan

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Kendra (KVK), Jammikunta. The study includes 300 farmers who adopted KVK technologies and 150 who did not. Results show that the majority (43.00%) of the KVK-adopted farmers were of middle age, with 26.34% having primary-level education and 42.33% having high exposure to mass media. In contrast, the non-adopted farmers exhibited lower socio-economic and technological engagement. The research provides insights into the factors influencing the adoption of agricultural technologies.

1. INTRODUCTION

The Karimnagar district, located in the northern part of Telangana, India, spans 11.823 lakh hectares and is primarily agrarian. The district comprises five revenue divisions—Karimnagar, Jagtial, Peddapally, Manthani, and Siricilla—covering 1207 villages across 57 mandals. As per the 2011 census, the district has a population of 37.76 lakh, with a gross cropped area of 8.21 lakh hectares and a cropping intensity of 160%. The district is known for its extensive cultivation of paddy, cotton, maize, turmeric, groundnut, and chillies, as well as its mango and sweet orange plantations. Given these factors, Karimnagar has become a hub for paddy seed processing.

To enhance agricultural productivity, it is essential to understand farmers' demographic, socio-economic, and psychological characteristics. The present study seeks to map the profiles of farmers in the district, focusing on those who have adopted KVK technologies and those who have not. This profiling aids in identifying key development areas and helps to determine the factors driving or hindering the adoption of agricultural innovations.

2. METHODOLOGY

This study employed an ex-post facto research design combined with an exploratory approach, as the phenomenon under investigation the adoption of KVK technologies had already occurred. The study was conducted in 15 villages adopted by KVK Jammikunta. A total of 450 farmers were selected, including 300 who adopted KVK technologies and 150 who did not, using a simple random sampling method.

Nine personal, psychological, socio-economic, and situational characteristics were examined to assess the profiles of the selected farmers. Data were collected using an interview schedule, and frequency and percentage analyses were employed for comparison. Variables such as age, education, mass media exposure, extension contact, innovativeness, and social participation were measured and analyzed to explore their relationship with technology adoption.

3. RESULTS AND DISCUSSION

Personal, psychological, socio-economic and situational characteristics of farmers: Following are the results generated on selected personal, psychological, socio-economic and situational characteristics of adopting and non-adopting farmers of KVK technologies. Results on selected characteristics were shown in corresponding tables.

3.1 Age

It is evident from Table 1 that The majority (43.00%) of the KVK-adopted farmers were middle-aged (36-55 years), while 39.66% were young (up to 35 years). In contrast, the majority of non-adopted farmers were also middle-aged (44.00%), but a significant proportion were older (32.67%). The younger and middle-aged farmers are more likely to adopt new technologies, possibly due to their enthusiasm for innovation and willingness to tackle climate-related farming challenges.

Table 1. Distribution of respondents according to their age

S.No.	Category	KVK adopted farmers (n=300)		KVK non-adopted farmers (n=150)	
		Frequency	Percentage	Frequency	Percentage
1.	Young age(up to 35)	119	39.66	35	23.33
2.	Middle age(36-55)	129	43.00	66	44.00
3.	Old age(>55years)	52	17.34	49	32.67

This result conforms with the results of Gangadhar [1] and Naik [2]

3.2 Education

It could be observed from Table 2 that, a significant proportion (26.34%) of KVK-adopted farmers had primary-level education, followed by those with intermediate education (21.33%). However, 33.33% of non-adopted farmers were illiterate. This disparity highlights the role of education in influencing the adoption of new agricultural practices, as better-educated farmers are likely to comprehend and implement technological innovations more effectively.

3.3 Mass Media Exposure

It was noticed from Table 3 that, among the KVK-adopted farmers, 42.33% had high exposure to mass media, compared to only 22.00% of non-adopted farmers. High media exposure is essential in disseminating information about modern agricultural techniques, helping farmers stay updated with the latest developments.

3.4 Extension Contact

It was evident from Table 4 that, the majority (46.67%) of the KVK adopted farmers had a high level of extension contact followed by medium (32.67%) and low (20.66%), whereas the majority (39.34%) of the KVK non adopted farmers had a medium level of extension contact followed by low (36.66%) and high (24.00%). It could be understood that a high level of social participation, and mass media exposure shall drive individuals to have a high level of extension contacts.

3.5 Innovativeness

It was observed from Table 5 that, the majority (46.00%) of the KVK-adopted farmers had a high level of innovativeness followed by medium (32.33%) and low (21.67%), whereas the majority (34.66%) of the KVK non-adopted-farmers had a medium level of innovativeness followed by low (34.00%) and high (31.34%). This finding suggests that innovation-minded farmers are more likely to adopt KVK technologies, which may help them cope with the risks and uncertainties inherent in agriculture.

3.6 Social participation

It was known from Table 6, that the majority (41.34%) of the KVK-adopted farmers had a high level of social participation followed by medium (36.33%) and low (22.33%), whereas the majority (47.33%) of the KVK non-adopted farmers had a low level of social participation followed by medium (34.00%) and high (18.67%).

3.7 Scientific Orientation

It was observed from Table 7 that, the majority (38.00%) of the KVK-adopted farmers had a high level of scientific orientation followed by medium (35.67%) and low (26.33%), whereas the majority (40.66%) of the KVK non-adopted-farmers-had-a low level of scientific orientation followed by medium (40.00%) and low (19.34%). Social engagement with peers, agricultural groups, and cooperatives can foster the exchange of information and encourage the uptake of new technologies.

3.8 Risk preference

It was stated in Table 8 that, the majority (39.66%) of the KVK-adopted farmers had a medium level of risk preference followed by high (37.34%) and low (23.00%), whereas the majority (41.33%) of the KVK non-adopted farmers had a low level of risk preference followed by medium (37.33%) and low (21.34%). The readiness to take risks and adapt to scientific knowledge are critical factors in adopting innovative farming practices.

Table 2. Distribution of respondents according to their education

S.No.	Level of Education	KVK adopted farmers (n=300)		KVK non-adopted farmers (n=150)	
		Frequency	Percentage	Frequency	Percentage
1.	Illiterate	58	19.34	50	33.33
2.	Primary School	79	26.34	33	22.00
3.	High school	49	16.33	30	20.00
4.	Intermediate	64	21.33	23	15.34
5.	Undergraduate	42	14.00	12	8.00
6.	Postgraduate	08	2.66	02	1.33

This result is comparable to Naik's [2], Prashanth's, and Jagan Mohan Reddy's [3].

Table 3. Distribution of respondents according to their mass media exposure

S.No.	Category	KVK adopted farmers (n=300)			KVK non-adopted farmers (n=150)		
		Low (7-14)	Medium (15-21)	High (22-28)	Low (7-14)	Medium (15-21)	High (22-28)
1	Frequency	76	98	126	65	52	33
2	Percentage	25.33	32.67	42.00	43.34	34.66	22.00

The results are in line with the results of Latha [4] and Mohanty [5].

Table 4. Distribution of respondents according to their extension contact

S.No.	Category	KVK adopted farmers (n=300)			KVK non-adopted farmers (n=150)		
		Low (11-17)	Medium (18-25)	High (26-33)	Low (11-17)	Medium (18-25)	High (26-33)
1	Frequency	62	98	140	55	59	36
2	Percentage	20.66	32.67	46.67	36.66	39.34	24.00

These findings are in agreement with the findings of Kishor [6] and Rao et al. [7]

Table 5. Distribution of respondents according to their innovativeness

S.No.	Category	KVK adopted farmers (n=300)			KVK non-adopted farmers (n=150)		
		Low (6-8)	Medium (9-10)	High (11-12)	Low (6-8)	Medium (9-10)	High (11-12)
1.	Frequency	65	97	138	51	52	47
2.	Percentage	21.67	32.33	46.00	34.00	34.66	31.34

These results are in line with the results of Rao et al. [8] and Rao et al. [9].

Table 6. Distribution of respondents according to their social participation

S.No.	Category	KVK adopted farmers (n=300)			KVK non-adopted farmers (n=150)		
		Low (10-16)	Medium (17-23)	High (24-30)	Low (10-16)	Medium (17-23)	High (24-30)
1.	Frequency	67	109	124	71	51	28
2.	Percentage	22.33	36.33	41.34	47.33	34.00	18.67

These results conform with the results of Raju [10] and Rao et al. [9]

Table 7. Distribution of respondents according to their scientific orientation

S.No.	Category	KVK adopted farmers (n=300)			KVK non-adopted farmers (n=150)		
		Low (6-13)	Medium (14-22)	High (23-30)	Low (6-13)	Medium (14-22)	High (23-30)
1	Frequency	79	107	114	61	60	29
2	Percentage	26.33	35.67	38.00	40.66	40.00	19.34

Table 8. Distribution of respondents according to their risk preference

S.No.	Category	KVK adopted farmers (n=300)			KVK non-adopted farmers (n=150)		
		Low (4-6)	Medium (7-9)	High (10-12)	Low (4-6)	Medium (7-9)	High (10-12)
1	Frequency	69	119	112	62	56	32
2	Percentage	23.00	39.66	37.34	41.33	37.33	21.34

The findings are in line with the findings of Madhu Sekhar [11] and Rao et al. [7].

Table 9. Distribution of respondents according to their economic orientation

S.No.	Category	KVK adopted farmers (n=300)			KVK non-adopted farmers (n=150)		
		Low (6-9)	Medium (10-13)	High (14-18)	Low (6-9)	Medium (10-13)	High (14-18)
1	Frequency	72	95	133	50	67	33
2	Percentage	24.00	31.66	44.34	33.33	44.67	22.00

This result conforms with the result of Manjunatha [12]

3.9 Economic Orientation

It was observed from Table 9 that, the majority (44.34%) of the KVK-adopted farmers had a high level of economic orientation followed by medium (31.66%) and low (24.00%), whereas the majority (44.67%) of the KVK non-adopted farmers had a medium level of economic orientation followed by low (33.33%) and high (22.00%). This suggests that economically-oriented farmers are more inclined to adopt technologies that promise higher returns, further motivating them to engage with innovative agricultural practices.

It is evident from Tables 1 to 9 on profile characteristics of the adopted farmers by the KVK that the majority of them had grouped under high category in almost all the selected characteristics. It is quite obvious that there will be strong bondage, among the similar kinds of socio-psychological characteristics; it could be understood that a high level of social participation, and mass media exposure shall drive the individuals to have a high level of extension contacts. Equally medium level of risk preference and high scientific orientation of the respondents are responsible for their innovativeness. This kind of trend (high) prevailing among the farmers might have culminated in the form of high economic orientation. The poor farmers schooling of the adopted farmers may be attributed to their lack of institutional facilities and maybe some in-built shortfalls in the village system. Under normal circumstances, young and middle-aged individuals are attracted easily to experiment with new technology due to their innovativeness and risk preference, a similar trend is expressed in this study [13,14].

In the case of non-adopted farmers, a low profile is observed among the selected characteristics, the low level of mass media exposure, low level of social participation and medium extension contact led to a medium level of innovativeness. Normally poor risk preference and low scientific orientation lead to medium innovativeness; the medium economic orientation is resulted due to poor performance witnessed among other psychological variables. When age is scaling up, the preference of individuals towards acceptance of modern technologies may come down and they are sceptical to accept innovations that are the reason these people not adopted the technologies disseminated by the KVK. The massive prevalence of illiteracy among the farmers can be related to their age factor and also the poor schooling facilities available in the village.

4. CONCLUSION

The findings reveal that farmers who adopted KVK technologies were generally younger, better educated, more exposed to mass media, and had higher levels of extension contact and social participation. They also demonstrated higher levels of innovativeness, scientific orientation, and risk preference. These characteristics collectively drive the adoption of modern agricultural practices. On the other hand, non-adopted farmers exhibited lower socio-economic and psychological engagement, which hindered their ability to embrace new technologies.

This study underscores the need for targeted interventions that enhance education, media exposure, and extension services, especially for older and less-educated farmers. By doing so, adoption rates of agricultural innovations can be improved, leading to higher productivity and income levels among farmers in the Karimnagar district.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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