

International Journal of Agriculture Extension and Social Development

Volume 9; Issue 8; August 2026; Page No. 1191-1194

Received: 06-05-2026
Accepted: 13-06-2026

Indexed Journal
Peer Reviewed Journal

Profile analysis of dragon fruit farmers in Buldhana district of Maharashtra state

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DOI: <https://www.doi.org/10.33545/26180723.2026.v9.i8p.4150>

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Abstract

Dragon fruit (*Hylocereus* spp.) is an emerging high-value fruit crop that has gained increasing attention among farmers as an alternative horticultural enterprise. The profile characteristics of the farmers play an important role in understanding their resource base, experience, access to information and capacity to manage a newly emerging crop. The present study was conducted to analyse the profile characteristics of dragon fruit farmers in Buldhana district of Maharashtra. An exploratory research design was adopted for the study. Buldhana district was selected purposively, followed by the purposive selection of Buldhana and Sindkhed Raja talukas based on the area under dragon fruit cultivation. Twelve villages were selected and ten dragon fruit farmers from each selected village were randomly selected, resulting in a sample of 120 respondents. Primary data were collected through personal interviews using a structured and pre-tested interview schedule. The data were analysed using frequency, percentage, mean and standard deviation. The profile characteristics studied were age, education, family size, land holding, area under dragon fruit, annual income, income from dragon fruit, farming experience, experience in dragon fruit cultivation, availability of market, sources of information, innovativeness and risk preference. The findings revealed that 50.83 per cent of the respondents belonged to the middle-age group, while 33.33 per cent had secondary school education. A majority (59.17%) had medium family size and 46.67 per cent possessed small landholdings. More than half of the respondents (55.83%) cultivated dragon fruit on 0.27 to 0.56 ha. The largest proportion (40.00%) had annual income between Rs. 5,99,081 and Rs. 8,58,160, whereas 43.33 per cent earned Rs. 3,96,001 to Rs. 6,12,000 from dragon fruit cultivation. A majority had low farming experience (55.83%) and low experience in dragon fruit cultivation (60.00%). Market availability was moderately distant for 65.83 per cent of respondents. Medium levels of information-source utilization (56.67%), innovativeness (64.17%) and risk preference (62.50%) were observed.

Keywords: Dragon fruit, Profile analysis, Farmers, Horticulture, Agricultural extension, Buldhana, Maharashtra

1. Introduction

Agriculture plays a vital role in the Indian economy and provides livelihood and employment to a large proportion of the rural population. Horticultural crops have gained increasing importance because of their potential to enhance farm income, diversify farming systems and improve nutritional security. Among emerging horticultural crops, dragon fruit (*Hylocereus* spp.) has attracted considerable attention among farmers because of its adaptability to tropical and subtropical conditions, tolerance to drought and increasing market demand. Dragon fruit cultivation has expanded in several states of India, including Maharashtra. The crop is considered a promising alternative for farmers because it can be cultivated under relatively water-scarce conditions and has good economic potential. In Maharashtra, its cultivation is gradually spreading to different regions,

including Vidarbha region of Maharashtra. Buldhana district has also emerged as an important area for dragon fruit cultivation, where farmers have started adopting the crop as a new horticultural enterprise. The success and expansion of dragon fruit cultivation largely depend upon the personal, socio-economic, situational, communication and psychological characteristics of farmers. Characteristics such as age, education, family size, land holding, area under dragon fruit, annual income, income from dragon fruit, farming experience, experience in dragon fruit cultivation, availability of market, sources of information, innovativeness and risk preference influence farmers' decision-making and management of the crop. These variables were also considered important profile characteristics in the related study conducted in Buldhana district.

2. Methodology

In the present study an exploratory research design of social research was used. The Buldhana district of Western Vidarbha was chosen as study area and among the district Buldhana and Sindkhed Raja talukas were selected as a study area on the basis of major area under dragon fruit cultivation. Six villages from each taluka were randomly selected, resulting in a total of Twelve study villages. The sample comprised 120 dragon fruit farmers, including 60 farmers from Buldhana taluka and 60 farmers from Sindkhed Raja taluka. Primary data was gathered through face-to-face interviews using a structured and pre-tested interview schedule. The collected data was subsequently tabulated and analysed using suitable statistical tools such as frequency, percentage, mean and standard deviation to interpret the findings of the study.

3. Results and Discussion

3.1. Age

Table 1 indicates that 50.83 per cent of the respondents belonged to the middle age group of 36 to 50 years, followed by 40.00 per cent in the young age group up to 35 years, while 9.17 per cent were above 50 years. Thus, majority of middle-aged respondents were actively engaged in dragon fruit cultivation. These findings are in line with the results of [3, 6, 8, 11]

3.2. Education

Table 1. shows that most of the dragon fruit farmers, (33.33%) had completed secondary education, followed by higher secondary education (31.67%). Graduates accounted for 23.33%, while only 4.17% of the respondents were middle and primary level and 3.33% were illiterate. Overall, most respondents had completed secondary or higher secondary education, indicating that the majority of dragon fruit farmers were formally educated up to the secondary and higher secondary levels. Similar findings were reported by [8, 11].

3.3. Family size

The data in the Table 1 showed that majority of the dragon fruit farmers i.e. 59.17% had the medium size of family followed by 20.83% large and 20.00% of small-size family respectively. It can be concluded that majority of the dragon fruit farmers had medium size of family. These findings are in line with the reports of [4, 8].

3.4. Land holding

According to Table 1, the distribution of respondents according to their land holding revealed that the majority of the dragon fruit farmers (48.33%) belonged to the semi-medium land holding category, followed by 30.00% who had medium-sized land holdings. Small and marginal farmers constituted 16.67% and 5.00% of the respondents, respectively. None of the dragon fruit farmers belonged to the large land holding category. The findings indicate that dragon fruit cultivation was predominantly practiced by farmers having semi-medium and medium-sized land holdings. Similar results were also reported by [1, 12].

3.5. Area under dragon fruit cultivation

It is evident from Table 1. that distribution of respondents according to the area under dragon fruit cultivation. Among

dragon fruit farmers, a majority of respondents (55.83%) had a medium area of 0.27 to 0.56 ha under dragon fruit cultivation. About 23.34 per cent had more than 0.56 ha, while 20.83 per cent cultivated dragon fruit on up to 0.26 ha. Thus, medium area under dragon fruit cultivation was predominant among the respondents. These findings are in line with the results of [7, 14].

3.6 Annual income

The results in Table 1. show the distribution of respondents according to their annual income. The majority of respondents of dragon fruit farmers (40.00%) had an annual income between Rs. 5,99,081 to Rs. 8,58,160 followed by 39.17% reported an annual income between Rs. 8,58,161 to Rs. 11,17,240. About 16.67% reported an annual income earned up to Rs. 5,99,080, (2.5%) had an annual income between Rs. 11,17,241 to Rs. 13,76,320, while 1.66% had an annual income above Rs.6,00,000. The findings suggest that most dragon fruit farmers had a moderate level of annual income. Similar results were also reported by [5].

3.7 Income from dragon fruit

The results in Table 1 show the distribution of respondents according to their income from dragon fruit cultivation. The majority of respondents (43.33%) had an income from dragon fruit cultivation between Rs. 3,96,001 to Rs. 6,12,000, followed by 25.00 per cent who reported an income between Rs. 6,12,001 to Rs. 8,28,000. About 23.33 per cent reported an income up to Rs. 3,96,000, while 5.84 per cent had an income between Rs. 8,28,001 to Rs. 10,44,000, and only 2.50 per cent reported an income above Rs. 10,44,000. The findings reveal that most respondents obtained a moderate level of income from dragon fruit cultivation. Similar findings were reported by [9].

3.8 Farming experience

From the findings in the Table 1. more than half of the respondents (55.83%) were in the low farming-experience up to 16 years followed by 35.84 per cent had 17 to 28 years, while 8.33 per cent had more than 29 years of farming experience, respectively. Overall, a larger proportion of dragon fruit farmers possessed relatively less farming experience. Similar results were also reported by [1].

3.9 Experience in dragon fruit cultivation

The data presented in Table 1 revealed that majority of 60 per cent of respondents had low experience in dragon fruit cultivation up to 3 years, while 35.83 per cent had 4 to 5 years of experience in dragon fruit cultivation and only 4.17 per cent had more than 5 years of experience in dragon fruit cultivation. This indicates that dragon fruit cultivation was relatively new for a large proportion of the sampled farmers. The results reveal that the majority of farmers had comparatively less experience in dragon fruit cultivation. These findings are in line with the results of [3].

3.10 Availability of market

The data in Table 1 showed that the majority of the dragon fruit farmers (65.83%) had moderately distant market availability, followed by 20.00 per cent who had distant market availability and 14.17 per cent who had nearby market availability, respectively. It can be concluded that the majority of the dragon fruit farmers had moderately distant

availability of market market. A similar finding was observed by ^[13].

3.11 Sources of information

The data in Table 1 showed that the majority of the dragon fruit farmers (56.67%) had a medium level of sources of information utilization, followed by 24.16 per cent who had a high level and 19.17 per cent who had a low level of sources of information utilization, respectively. It can be concluded that the majority of the dragon fruit farmers had a medium level of utilization of sources of information. Similar observations were reported by ^[4, 11].

3.12 Innovativeness

The findings in Table 1. show that nearly two-thirds of the

respondents (64.17%) had a medium level of innovativeness, followed by 24.16 per cent had a high level and 11.67 per cent who had a low level of innovativeness, respectively. It can be concluded that the majority of the dragon fruit farmers had a medium level of innovativeness. Similar findings were reported by ^[6, 9].

3.13 Risk preference

The data presented in Table 1 revealed that 64.17 per cent of the dragon fruit farmers had a medium level of risk preference, while 24.16 per cent and 11.67 per cent had high and low levels of risk preference, respectively. Thus, it was observed that most of the dragon fruit farmers exhibited a medium level of risk preference. Comparable findings were reported by ^[6].

Table 1: Distribution of the respondents according to their selected characteristics

Sr. No.	Profile of the dragon fruit farmers	Percentage
1	Age	
	Young (Up to 35)	40.00
	Middle (36 to 50)	50.83
	Old (Above 50)	09.17
2	Education	
	Illiterate	03.33
	Primary (1 to 4th)	04.17
	Middle school (5th to 7th)	04.17
	Secondary school (8th to 10th)	33.33
	Higher secondary school (11th to 12th)	31.67
	Graduate and above	23.33
3	Family size	
	Small (Up to 4)	20.00
	Medium (5 to 9)	59.17
	Large (Above 9)	20.83
4	Land holding	
	Marginal (Up to 1.00 ha)	15.00
	Small (1.01 to 2.00 ha)	46.67
	Semi-medium (2.01 to 4.00 ha)	37.50
	Medium (4.01 to 10.00 ha)	00.83
	Large (Above 10.00 ha)	00.00
5	Area under dragon fruit	
	Small (Up to 0.26 ha)	20.83
	Medium (0.27 to 0.56 ha)	55.83
	Large (Above 0.56 ha)	23.34
6	Annual income	
	Up to Rs. 5,99,080/-	16.67
	Rs. 5,99,081/- to Rs. 8,58,160/-	40.00
	Rs. 8,58,161/- to Rs. 11,17,240/-	39.17
	Rs. 11,17,241/- to Rs. 13,76,320/-	01.66
	Above Rs. 13,76,320/-	02.50
7	Income from dragon fruit	
	Up to Rs. 3,96,000/-	23.33
	Rs. 3,96,001/- to Rs. 6,12,000/-	43.33
	Rs. 6,12,001/- to Rs. 8,28,000/-	25.00
	Rs. 8,28,001/- to Rs. 10,44,000/-	05.84
	Above Rs. 10,44,000/-	02.50
8	Farming experience	
	Low (up to 16 years)	55.83
	Medium (17 to 28 years)	35.84
	High (above 29 years)	08.33
9	Experience in dragon fruit cultivation	
	Low (up to 3 years)	60.00
	Medium (4 to 5 years)	35.83
	High (above 5 years)	04.17

10	Availability of market	
1	Near (Up to 20 km)	14.17
	Moderately distant (21 to 88 km)	65.83
	Distant (Above 88 km)	20.00
11	Sources of information	
	Low (Up to 7)	19.17
	Medium (8 to 11)	56.67
	High (Above 11)	24.16
12	Innovativeness	
	Low (Up to 15)	11.67
	Medium (16 to 19)	64.17
	High (Above 19)	24.16
13	Risk preference	
	Low (Up to 20)	15.83
	Medium (21 to 24)	62.50
	High (Above 24)	21.67

Conclusion

The profile analysis of 120 dragon fruit farmers in Buldhana district showed a predominantly middle-aged and moderately educated farming population. Most respondents belonged to medium-sized families and small landholdings, while a medium area under dragon fruit cultivation was most common. The largest proportion reported annual income between Rs. 5,99,081/- and Rs. 8,58,160/- and income from dragon fruit between Rs. 3,96,001/- and Rs. 6,12,000/-. Low levels of general farming experience and dragon fruit cultivation experience were predominant. Availability of market was mainly moderately distant, while information-source use, innovativeness and risk preference were generally at medium levels. The findings suggest that extension programmes for dragon fruit farmers should be designed around their relatively recent experience with the crop, moderate information exposure and need for practical, locally relevant technical support.

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