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An analysis of the socio-economic status of farmers and cropping pattern adopted in the Valsad district of Gujarat

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Abstract

In India, agriculture is vital, supporting about 42.3% of the population and accounting for 18.2% of GDP. This study focuses on the Valsad district in Gujarat, an agroclimatic zone with high rainfall (2200-2500 mm), and a cropping pattern dominated by rice, sugarcane, and mango. Socio-economic analysis reveals a predominantly young and educated farming population, with 72% being marginal or small landholders and 75% earning below 5 lakhs INR annually. Despite a reliance on traditional crops, the potential for adopting innovative practices is significant. The findings emphasize the need for targeted strategies to enhance sustainability, diversify cropping systems, and improve livelihoods in the region.

Keywords: Farmers, socio-economic status**,** cropping pattern, Valsad, agriculture

Introduction

Agriculture is the main livelihood for approximately 42.3% of India's population and contributes 18.2% to the country's GDP at current market prices. The sector has been thriving, as shown by its 4.18 percent average annual growth rate at constant prices over the previous five years (Economic Survey 2023-24). India's food grain production for 2023-24 is projected to hit a record 3322.98 LMT, surpassing the 2022-23 production of 3296.87 LMT by 26.11 LMT. This remarkable increase is attributed to strong yields of rice, wheat, and Shree Anna (PIB 2024). The country holds the top global position in producing spices, pulses, milk, and jute and ranks second in producing wheat, rice, fruits and vegetables, sugarcane, cotton, and groundnuts. The term "cropping pattern" refers to the annual sequence and spatial arrangement of crops or fallow land in a specific area. Key factors influencing cropping patterns in India include rainfall, climate, temperature, and soil type. The cropping pattern in India varies from state to state and even district to district. The cropping pattern in a particular location influences the availability of food (grain, fruits, and vegetables) and the consumption pattern of food.

The Indian state of Gujarat contains the district of Valsad, formerly known as Bulsar. Umargam, Dharampur, Kaprada, Pardi, Vapi, and Valsad are the six talukas that make up the Valsad district. The Valsad district's headquarters is in Valsad city. On a global map, the Valsad district is located between 72.73' and 73.00' East Longitude and 20.07' and 21.05' North Latitude. The district spans a total area of 2,939 square kilometers. It is surrounded by the Navsari district to the north, the Nasik and Thane districts of Maharashtra to the east and south, respectively, and the Arabian Sea to the west. The Valsad district is located in South Gujarat Heavy Rainfall Zone-I, which is made up of two agro-ecological situations: I, which is made up of the blocks of Dharampur and Kaparada (1650 square kilometers., sub-mountain, undulating topography, more than 90% forest, more than 90% tribal population), and II, which is made up of the blocks of Valsad, Pardi, and Umargam (927 sq. km., plain, medium black soil, coastal region). The average annual rainfall in Valsad district is 2200-2500 mm. Sources of irrigation are canals, wells, and rivers. Mango, sapota, cashew nut, paddy, sugarcane, pulses, and vegetables (brinjal, chili, tomato, and cucurbits) are the district's main crops. The related agricultural-related enterprises of farmers in the Valsad district include forestry, fisheries, poultry, and dairy. The total land cultivated in Rabi is 24575 ha, Kharif 100151 ha & summer 5638 ha in 2021-22.

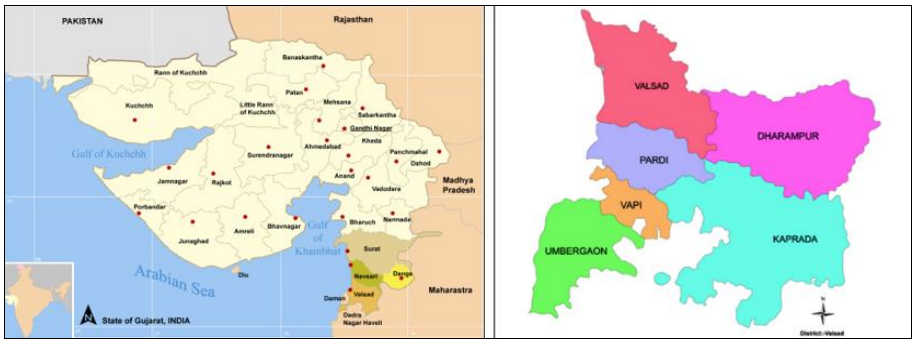
Objectives

- To know the socio-economic status of farmers
- To analyze the cropping pattern adopted by farmers

Materials and Methods

Area of the Study

The study was carried out in the Valsad district of Gujarat. All six tehsils-Valsad, Vapi, Dharampur, Kaparada, Pardi, and Umargam - were covered.



Source of Data

- Both primary and secondary data were collected to fulfill the study's established objectives.
- The primary data on the socio-economic profile of farmers and cropping patterns adopted in the Valsad district were obtained from farmer respondents in the selected villages in the Valsad district.
- Secondary data related to the area, production, and productivity of various crops were collected from authentic websites and government websites.

Type of Research

It was a descriptive research study, aiming to outline the characteristics of the population.

Sampling Method

A non-probability sampling method was used during the project. Non-probability sampling is a fast, easy, and cost-effective way of gathering data because it doesn't require a complete survey frame.

Sampling Technique

This study was based on the convenience sampling technique.

Sampling Unit

Farmers of Valsad district of Gujarat.

Sample Size

The total sample size was 100 farmers.

Analytical Tools

- Percentage analysis and tabular analysis were used to study the socio-economic profile of farmers.
- Percentage analysis, tabular analysis, and graphical representation were used to study the cropping pattern adopted by farmers.

Results and Discussion

Socio-Economic Analysis of Respondents

Population

Table 1: Population Statistics for Valsad District and Gujarat

Total population of Gujarat	6.04 Crore
The population of Valsad	1,705,678

Source: Indiacensus.gov.in Dec 2011

The population of Valsad district is 1,705,678. (Estimates as per indiacensus.gov.in Dec 2011 data).

Age Distribution of Respondents

Table 2: Age Distribution of Respondents

Age Group (in years)	Frequency (N)	Percentage (%)
≤ 20	9	9
21-40	32	32
41-60	37	37
61-80	7	7
≥ 80	15	15
Total	100	100

Source: Primary Data collection

Table 2. displays the respondents' age distribution. The age of respondents is a very important demographic factor that influences the purchasing pattern and decision-making process. In the survey, 9% of respondents were aged less than or equal to 20 years, 32% of respondents were between 21 and 40 years old, 37% of respondents were between 41 and 60 years old, 7% of respondents were aged between 61 and 80 years old, and 15% of respondents were above 80 years old. Hence, we found that the majority of respondents in the Valsad district are youth, so the chances of adopting new technology regarding agriculture are higher because the young respondents are early adopters of the new technology.

Gender Distribution of Respondents

Table 3: Gender Distribution of Respondents

Gender Group	Frequency (N)	Percentage (%)
Male	50	50
Female	50	50
Total	100	100

Source: Primary Data Collection

Table 3. illustrates the respondents' gender distribution. It is important to conduct research using both Male and Female participants because Gender identity can influence a participant's perspective on a research topic. In a survey out of 100 farmers, 50 (50%) farmers were male and 50 (50%) were female.

Family Type of Respondents

Table 4: Family Type of Respondents

Family Type	Frequency (N)	Percentage (%)
Joint	29	29
Nuclear	63	63
Extended	8	8
Total	100	100

Source: Primary Data Collection

Table 4. shows the distribution respondents of by Family Type. Table 4. shows that 63% of respondents were living in nuclear families, 29% of respondents were living in Joint families and the remaining 8% of respondents were living in extended families. The perusal of the data displayed in the table above clearly indicates that the majority of respondents belong to the nuclear family.

Family Size of Respondents

Table 5: Family Size of Respondents

Family Size	Frequency (N)	Percentage (%)
2 members	4	4
3-5 members	76	76
>5 members	20	20
Total	100	100

Source: Primary Data Collection

Table 5. shows that 4% of respondents have a family size of 2 members, 76% of respondents have a family size of 3-5 members, and 20% of respondents belong to an extended family type. The perusal of the data displayed in the table above clearly indicates that the majority of respondents have a family size of 3-5 members.

Educational Qualification of Respondents

Table 6: Educational Qualification of Respondents

Educational Qualification	Frequency (N)	Percentage (%)
Illiterate	11	11
Up to Primary	24	24
SSC	14	14
HSC	21	21
Graduation & above	30	30
Total	100	100

Source: Primary Data Collection

Table 6. illustrates the respondents' distribution according to educational qualification. Farmer literacy implies that they can perform their duties with complete knowledge, which aids in farming activities such as purchasing patterns and decision-making processes for agricultural inputs. They can easily adapt to new technologies and improve their knowledge. The perusal of the data displayed in Table 6. indicates that 11% of respondents were illiterate, 24% were up to the primary level, 14% were up to SSC, 21% were up to HSC, and 30% were at graduate level education and above**.**

Income of Respondents

Table 7: Income of Respondents

Income (yearly)	Frequency (N)	Percentage (%)
< 1 lakh	35	35
1-5 lakhs	40	40
5-10 lakhs	14	14
>10 lakhs	11	11
Total	100	100

Source: Primary Data Collection

Table 7. shows the income of the respondent. The most important factor for the family's sustainability and the continuation of farming activities without incurring debt is income. In this survey, 35% of the respondents have a family income less than or equal to 1 lakh, 40% have a family income of 1-5 lakhs, 14% have 5-10 lakhs, and only 11% have a family income of more than 10 lakhs.

Land Holdings of Respondents

Table 8: Land Holdings of Respondents

Classification of farmers	Frequency (N)	Percentage (%)
Marginal	51	51
Small	21	21
Medium	18	18
Semi-medium	6	6
Large	4	4
Total	100	100

Source: Primary Data Collection

Table 8. shows the total land holdings of farmers. Farmers' total land holding capacity is a critical factor influencing their agricultural input consumption and risk-taking ability. The result shows that 51% of farmers were Marginal farmers, 21% were small farmers, 18% were medium, 6% were semi-medium and only 4% were large. The result shows that a huge percentage of the farmers are marginal and small.

Cropping Pattern of Respondents of Area Kharif Crop Growing Farmers

Table 9: Kharif Crop Growing Farmers

Kharif crop	Frequency (N)	Percentage (%)
Rice	81	81
Vegetables	10	10
Pigeon Pea	5	5
Other	4	4
Total	100	100

Source: Primary Data Collection

Table 9. shows that a maximum number of respondents were grown Rice (81%) followed by Vegetables (10%) and, Pigeon Pea (5%). Approximately 4% of those surveyed grew other crops. The table illustrates that Rice is the major crop of the kharif season in Valsad district.

Vegetables include okra, sponge gourd, cucumber, bitter gourd, and green chili; and other crops include black gram, kharsani, finger millet, and other pulses. Kharsani and finger millet were primarily grown in the Valsad district's talukas of Kaprada and Dharmpur. As the Valsad district comes under a heavy rainfall zone, it is suitable for rice cultivation, and most of the farmers grow rice in the kharif season.

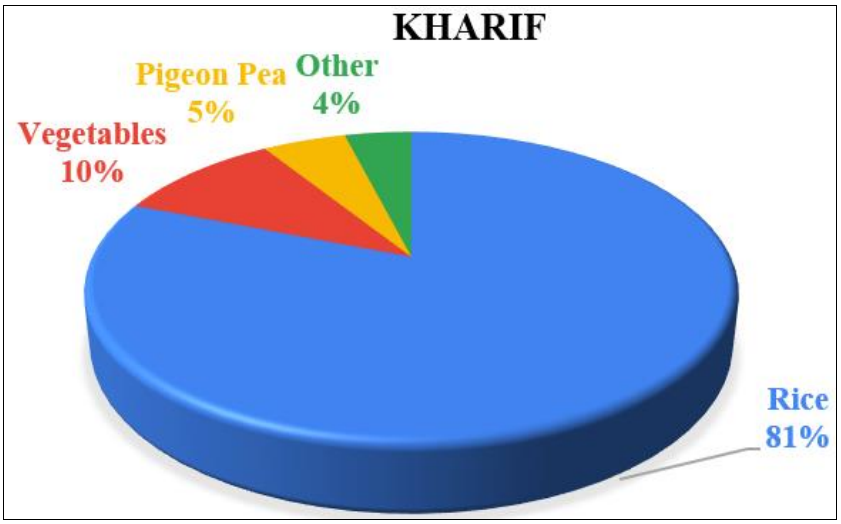


Fig 1: Kharif Crop Growing Farmers

Rabi Crop Growing Farmers

Table 10: Rabi Crop Growing Farmers

Rabi crop	Frequency (N)	Percentage (%)
Sugarcane	46	46
Chickpea	25	25
Vegetables	16	16
Other	13	13
Total	100	100

Source: Primary Data Collection

Table 10. shows that the maximum number of respondents were grown Sugarcane (46%) followed by Chick pea (25%) and, Vegetables (16%). Around 13% percent of the respondents were grown other crops. The table illustrates that Sugarcane is the major crop of rabi season in Valsad district.

In Table 10. Vegetables include tomato, bottle gourd, brinjal, and onion, and other crops include pulses and fodder for livestock.

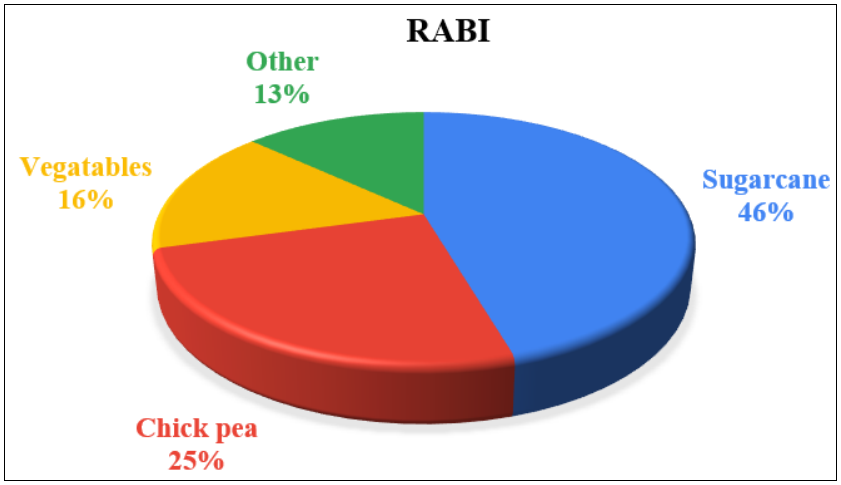


Fig 2: Rabi Crop Growing Farmers

Summer Crop Growing Farmers

Table 11: Summer Crop Growing Farmers

Summer crop	Frequency (N)	Percentage (%)
Seasonal Fruits	76	76
Rice	15	15
Vegetables	5	5
Other	4	4
Total	100	100

Source: Primary Data Collection

Table 11. shows that a maximum number of respondents were grown Seasonal Fruits (76%) followed by Rice (15%) and, Vegetables (5%). The percentage of responders who grew other crops was about 4%. The table illustrates that seasonal fruits are the major crop of the summer season in the Valsad district.

In Table 11, seasonal fruits include mango, cashew, sapota, etc. Mangos are the most common seasonal fruit and are grown in every taluka in the Valsad district. There is water scarcity in the summer season in Dharamapur and Kaparada talukas, so in the summer season, in most cases, rice cultivation does not take place at Kaparada and Dharampur talukas, and the rice is mostly grown in the areas where the water availability is high, including Valsad, Pardi, Vapi, and Umargam talukas. In Table 11, other crops include green gram, black gram, and fodder. vegetables, including gourds.

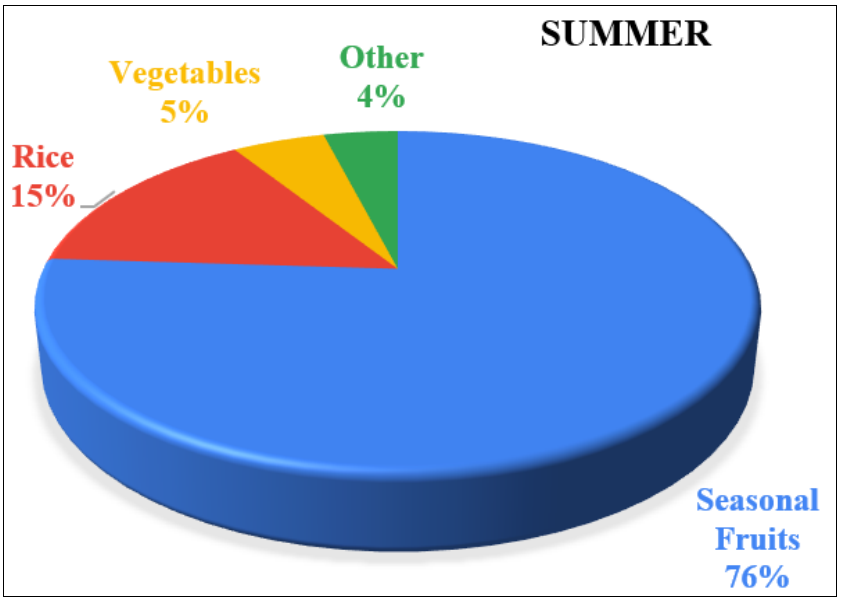


Fig 3: Summer Crop Growing Farmers

Tables 9,10,11 show that Rice is grown more in the kharif season compared to all other crops, while Sugarcane is grown more in the rabi season, and in the summer season seasonal fruits are taken. So that crops are grown by a greater number of farmers in cropping pattern "Rice-Sugarcane-Seasonal fruits".

Conclusion

The socio-economic analysis revealed that most respondents in the Valsad district are young (21-60 years), indicating a higher potential for adopting new agricultural technologies. Gender distribution was balanced, ensuring a diverse perspective in the study. The majority of respondents belong to nuclear families (63%) with family sizes of 3-5 members (76%). Educational qualifications showed that 30% of respondents were graduates or above, enabling better decision-making in agricultural practices. Income levels indicated that 75% of families earned below 5 lakhs annually, reflecting moderate financial resources. Landholding analysis found that 72% of respondents were marginal or small farmers, highlighting limited land availability.

Cropping patterns revealed rice as the dominant crop in the kharif season (81%) and sugarcane in the rabi season (45%). Seasonal fruits, primarily mango, cashew, and sapota, were the major summer crops (76%). The data underscores a dependency on traditional crops, with limited diversification among farmers. This study highlights the need for targeted interventions to improve agricultural sustainability and income diversification in the region.

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