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### A study on socio-economic and personal characteristics of tomato growers in South Odisha

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#### Abstract

The present study was conducted to understand the socio-economic and personal characteristics of tomato growers, which will help policymakers in selecting appropriate measures and policies for the tomato grower's welfare. A total of 120 sample sizes were selected from 12 villages and 10 respondents from each village a total of (n=120) sample sizes. The study revealed that a significant proportion of the respondents, (73.33%) fall into the marginal/small farmer category, followed by (25.83%) are under the semi-medium farmer category. More than half (66.67%) of the tomato growers (60.17%) had medium-level annual income, between 1 Lakh and 1.5 Lakh. For training exposure, a large percentage (47.50%) stated that they received one to two training at all about the processing or marketing of their tomatoes, followed by those who reported receiving no training (40.83%) and those who received three or more training (11.67%). The study suggested several key areas for intervention to improve tomatoes' economic condition, like improving educational opportunities, improving land productivity through modern agriculture practices, diversifying income sources, and increasing market awareness. This highlights the need for educational and training programs to improve educational knowledge and skills.

**Keywords:** Tomato growers, socio-economic, personal characteristics

#### Introduction

A tomato can be used medicinally. It is also known as the "Poor Man's Orange" and is an effective source of vitamins A and C. Regarding vegetable production in the country, the tomato comes in third after the potato and the brinjal. Its plants are particularly perishable and susceptible to loss after harvest, especially juicy crops like tomatoes. Tomato is one of the most versatile vegetables with wide usage in Indian culinary tradition. Tomato is native to Peruvian and Mexican regions. Though there are no definite records of when and how it came to India, the Portuguese perhaps introduced it to India (Kumar G, 2018) [3]. The tomato, or (*Solanum lycopersicon*), is an essential crop because it provides farmers with nutritional and economic stability, coming in second place after potatoes, it is one of the most significant cash crops. It is among the most widely grown and consumed solanaceous plant species. The bulk of people in resource-rich India make their living from agriculture and related industries. Over 70% of the population of India is employed in the agricultural sector (Sherpa *et al.* 2023) [8]. Tomatoes can be viewed as a significant, diverse crop that also provides concentrated levels of protein, calories, and

other micronutrients. There is an extreme shortage of tomatoes in comparison to its demand due to land constraints; it is not possible to increase crop area and production horizontally. Tomato yield per hectare must increase to meet the increased demand for the crop. There are numerous ways to accomplish this, the most crucial being the careful application of fertilizers, the introduction of high-yielding varieties, and appropriate management techniques. Salads, sauces, seafood, meat, and other foods all contain tomatoes (Alam *et al.* 2016) [1].

The attempt was made in this study to understand the socio-economic and personal characteristics of tomato growers, which will help policymakers in selecting appropriate measures and policies for the growers' welfare. The results of the study will also help in the development of appropriate extension programs to support tomato growers in the study area and other regions with comparable circumstances. With this as a background, the present study was conducted to understand the various effects of social and economic factors on tomato production in the Gajapati and Rayagada districts of Odisha.

## Materials and Methods

The present study was carried out in a particular Odisha district. The state comprises 30 districts in total, of which two, Gajapati and Rayagada, were selected purposively. The administrative divisions of the Gajapati and Rayagada districts are seven and eleven blocks, respectively. Out of these blocks, three blocks i.e., Kasinagar, Gumma, and R. Udayagiri from Gajapati and Rayagada, Kolnara and Muniguda from Rayagada district have been purposively chosen from each district. Out of these blocks, 2 villages have been selected randomly from each block from both the districts i.e., Budura and Khandava, Gumma and Tarava,

and Sabarpalli and Cheligada from Gajapati's district block and Kotapeta and Baisingi, Kolnara and Dumriguda, and Muniguda and Munikhhol from Rayagada's district block. Thus, 12 villages and 10 respondents from each village and a total of (n=120) sample sizes were selected through a random sampling procedure. For data collection, a structured schedule was developed and the respondents were contacted personally for data collection. Frequency, and percentage, were used for the analysis of data and inferences were drawn.

## Results and Discussion

**Table 1:** Distribution of tomato growers based on their socio-economic and personal characteristics

(n=120)

Sl. No.	Category	Frequency	Percentage
<b>1. Age</b>			
I	Young age (Less than 35)	14	11.67
II	Middle age (35 to 50)	65	54.17
III	Old (More than 50)	41	34.17
<b>2. Education</b>			
I	Illiterate	29	24.17
II	Can read and write	28	23.33
III	Primary school	33	27.50
IV	Junior school	18	15.00
V	High school	8	6.67
VI	Intermediate	4	3.33
<b>3. Family Size</b>			
I	Small (Less than 5 members)	7	5.83
II	Medium (Between 5 to 8 members)	77	64.17
III	Large (More than 8 members)	36	30.00
<b>4. Total Area Under Tomato Cultivation</b>			
I	Landless Farmer (0 acre)	0	0.00
II	Marginal/Small Farmer (Up to 0.5 acres)	88	73.33
III	Semi-medium farmer (0.5 to 1.5 acres)	31	25.83
IV	Medium Farmer (1.5 to 2.5 acres)	1	0.83
<b>5. Secondary Occupation</b>			
I	Labour (Agri/ Other)	65	54.17
II	Animal Husbandry	32	26.67
III	Business	23	19.17
<b>6. Annual Income</b>			
I	Very Low (Below 50,000)	3	2.50
II	Low (50,000 – 1,00,000)	24	20.00
III	Medium (1,00,000 – 1,50,000)	83	69.17
IV	High (1,50,000 – 2,00,000)	8	6.67
V	Very High (Above 2,00,000)	2	1.67
<b>7. Farming Experience</b>			
I	Low (Less than 12 years)	15	12.50
II	Medium (12-35 years)	80	66.67
III	High (More than 35 years)	25	20.83
<b>8. Training Exposure</b>			
I	No Training	47	40.83
II	One to Two	57	47.50
III	Three or More	14	11.67
<b>9. Economic Motivation</b>			
I	Low (less than 15)	23	19.17
II	Medium (In between 15 – 17)	42	35.00
III	High (More than 17)	55	45.83
<b>10. Innovativeness</b>			
I	Low (less than 2)	19	15.83
II	Medium (In between 2 – 3)	42	35.00
III	High (More than 3)	59	49.17
<b>11. Market Orientation</b>			
I	Low (less than 17)	21.67	18.06
II	Medium (In between 17 – 18)	57.50	47.92
III	High (More than 18)	20.83	17.36

The data in Table 1. reveals that the majority of the respondents (54.17) belonged to the middle age group. The major reason behind this is that most of the young generation migrate toward the city for jobs or study. The middle-aged population is more because they have been practising it since an early age with their elders or parents. Due to a lack of education and finance, they have stayed back and continued agriculture practices. The old age population is less because they have given the workload to the next generations as they would do more work in fields.

Table 1. shows that the greatest proportion of tomato growers (27.50%) have completed primary school, followed by those who are illiterate (24.17%), (23.33%) are those who can read and write. Additionally, it is evident that 15% of the farmers have completed junior high school, 6.67% have completed high school, and 3.33% have completed intermediate school. Similar results were observed by Sangavi *et al.* (2021)<sup>[7]</sup> where (35.56%) were educated up to primary school education followed by middle school education (30%) and secondary school education (12.22%). It is evident from the table that the majority of the respondents (64.17%) belong to the medium family size, followed by large family size (30%), and (5.83%) from small family size. This is because in the study area majority had joint family type. Similar findings were observed by Sherpa *et al.* (2023)<sup>[8]</sup> where (90%) of the tomato growers have medium family size, followed by large and small (6.25%) and (3.75%) respectively.

Table 1. indicates that a significant proportion of tomato growers (73.33%) fall into the marginal/small farmer category, followed (25.83%) are under Semi-medium farmer category, while a smaller percentage (0.83%) belongs to the semi-medium farmer category in total area under tomato cultivation. The reason behind this could be the division of land with each generation as it goes from parent to child. Similar findings were observed by Sahu *et al.* (2020)<sup>[6]</sup> where half of the respondents (50%) had an area of 0.5 to 1 ha under tomato cultivation followed by up to 0.5 ha (33.33%), and 1 to 1.5 ha (16.67%).

Table 1. shows that in secondary occupations, labour accounts for more than half (54.17%) of tomato growers, with animal husbandry coming in second with (26.67%) and business with (17.17%). According to the results, the majority of the respondents worked in laborious occupations as a secondary occupation, such as building houses, bridges, or other agricultural structures, and the second-most frequently performed occupation was animal husbandry, which involved selling milk and milk products.

As can be seen from Table 1., the majority of tomato growers (69.17%) had medium-level annual incomes, between 1 lakh to 1.5 lakh. (20%) of them had low-level incomes, between fifty thousand to one lakh, and (6.67%) had high-level incomes, between 1.5 lakh and 2 lakhs. Moreover, a relatively small percentage of tomato growers earn less than fifty thousand annually (2.50%), while a smaller percentage earn more than two lakh (1.67%) annually.

The majority of the population had a medium level of annual income due to land fragmentation, low productivity, and lack of awareness of the new technology. On the other hand, few tomato growers belonged to the high-income group as they had large land-holding and high productivity

throughout the year compared to medium-income group farmers. Similar findings were also observed by Pawar *et al.* (2023)<sup>[5]</sup> who reported that the majority of the tomato growers (49.33%) had medium levels of annual income followed by low and high (26%), (14.67%) respectively.

Table 1. reveals that more than half (66.67%) of the tomato growers had medium years of farming experience, followed by high (20.83%), and (12.50%) had low farming experience. The main reason that the majority of the farmers have a medium level of farming experience is because most of the farmers were in the middle age group and started doing agriculture activities from a very young age. Similar findings reported by Effendy *et al.* (2020)<sup>[2]</sup> showed that 65% of the respondents have farming experience of more than 20 years, followed by less than 10 years (18%) and between 10 – 20 years 17%.

Table 1. shows that for training exposure, a large percentage of tomato growers (47.50%) stated that they received one to two training at all about the processing or marketing of their produce, followed by those who reported receiving no training (40.83%) and those who reported receiving three or more training (11.67%). Similar findings were also observed by Sangavi *et al.* (2020)<sup>[7]</sup>, who reported that (43.33%) of the tomato growers had done one to two training, followed by (41.11%) who had done no training and (13.33%) had done three or more than three.

Table 1. clearly shows that the majority of tomato growers (40.83%) reported a medium degree of economic motivation, with low and high levels of motivation (30.83%) and 28.33%), respectively. Conclusively, the majority of tomato growers had a medium level of economic motivation, considering that, apart from their secondary occupation, their primary source of income is agriculture and horticulture produce. Their lack of information about market trends and prices, in addition to their low expenses, renders them mostly satisfied with their income.

Table 1. makes it evident that the majority of tomato growers (49.17%) showed high levels of innovativeness, followed by tomato growers (35%) who showed medium levels and the tomato growers (15.83%) who demonstrated low levels. Thus, it is clear from this information that the majority of tomato growers have a high degree of innovativeness, which is related to their awareness of market trends and product knowledge.

It is evident from Table 1. that the majority of the respondents (47.92%) have a medium level of marketing orientation followed by low (18.06%), and high (17.36%). It is because of a lack of adequate information and knowledge about the market. Tomato growers are not aware of the marketing patterns, trends, prices and hotspot places to sell their produce. Mostly they are dependent on unregulated markets they have not opened their horizons to new options. The findings are in line with the findings of Maratha and Badodiya (2017)<sup>[4]</sup> who stated that the majority of the farmers belonged to a medium level of marketing orientation.

## Conclusion

The present study in Odisha's Gajapati and Rayagada districts reveals the socio-economic and personal characteristics of tomato growers. The majority of respondents are middle-aged, indicating younger generation

moving to urban areas for better opportunities. Education levels among tomato growers are low, with many only completing primary school or being illiterate. This highlights the need for educational and training programs to improve agricultural knowledge and skills. The study suggests several key areas for intervention to improve tomato growers' economic condition, like improving educational opportunities, improving land productivity through modern agriculture practices, diversifying income sources, and increasing market awareness. These steps can support economic stability and growth, ensuring a prosperous future for these communities.

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