

“A STUDY ON PROBLEMS AND CONSTRAINTS OF STRAWBERRY FARMING IN SATARA DISTRICT” (With Special reference to Wai and Mahabaleshwar tehsil)

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Article Info	ABSTRACT
Article History: Received: 15th Dec 2025 Accepted: 18th Dec 2025 Published: 20th Dec 2025 Keywords: Strawberry organic Farming, strawberry Cultivation, Modern Practices in Strawberry Farming, Problems and Constraints of strawberry farming.	Strawberry farming can be both a rewarding and profitable venture, but it requires careful planning and attention to detail. Whether you're planning to grow strawberries on a small scale or run a larger farm, Strawberry farming has emerged as a lucrative agricultural venture in many parts of India, including Satara district in Maharashtra. However, despite its growing popularity, strawberry farmers in Satara face several challenges and constraints that impact productivity and profitability. This study aims to explore the key problems faced by strawberry farmers in Satara and identify the gaps that hinder sustainable strawberry cultivation in the region. The study uses primary data from surveys conducted with local farmers and secondary data from government sources and agricultural research institutions. The district of Satara, located in the western part of Maharashtra, has gained prominence for its strawberry production. The favorable climate and soil conditions, along with proximity to urban markets like Mumbai and Pune, have made Satara an important strawberry-growing region in India. However, despite its potential, strawberry farming faces several challenges ranging from input costs, pest and disease management, inadequate technical knowledge, and market fluctuations. This paper identifies these problems and explores potential solutions. Most of the research is based on secondary data with the help of various journals and newspapers and magazines. For this research we select the 100 respondents (Farmers) for the study of my research. The aim of the study is how strawberry farming is very beneficial to the farmers and which marketing strategies are helpful for reaching this strawberry from local to global. What kind of problems faced by strawberry farmers in Satara district, what kind of economic resources they have used for strawberry cultivation and how to access market, which strawberry farming practices will be the best solution for strawberry farmers for enhancing their quality as well as to satisfy the requirement or need of the customers. In this research, researcher select the 100 strawberry farmers, the data will be collected from the descriptive research design or purposive sampling research technique. It will be based on data researcher collect the demographic variables such as age, nationality, marital status, sex, and other information such as what are the major problems faced by strawberry farmers.

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INTRODUCTION:-

Agriculture continues to be the backbone of rural livelihoods in India, and horticulture has emerged as a vital sub-sector contributing significantly to farmers' income diversification and employment generation. Among various horticultural crops, **strawberry cultivation has gained immense prominence**, particularly in regions with favorable agro-climatic conditions. In the state of Maharashtra, the **Satara district—especially the Mahabaleshwar and Panchgani regions—has become a major strawberry-producing hub**, accounting for a substantial share of India's total strawberry output. The district's cool climate, rich lateritic soil, and well-established market linkages have facilitated the rapid expansion of commercial strawberry farming over the past few decades. Despite its economic potential, **strawberry cultivation in Satara faces numerous challenges** that hinder productivity, profitability, and sustainability. Farmers in the region frequently encounter problems related to **high input costs, pest and disease incidence, water scarcity, limited access to advanced technologies, price fluctuations, inadequate storage and processing facilities, and dependency on middlemen**. Additionally, climatic uncertainties and the perishable nature of the crop increase risks for small and marginal growers, who constitute a large portion of the farming community in the district.

Understanding these constraints is essential for improving production efficiency and ensuring the long-term viability of strawberry farming in Satara. Systematic research on the problems faced by farmers can provide valuable insights for policymakers, agricultural extension agencies, and other stakeholders to develop targeted interventions. Such interventions may include improved extension services, technological support, financial assistance, infrastructure development, and better market regulation.

Therefore, this study aims to **identify and analyze the major problems and constraints associated with strawberry farming in Satara district**, assess their impact on farm operations and profitability, and propose feasible recommendations to enhance the overall performance of the strawberry sector. Through empirical investigation and farmer-level data, the research seeks to contribute to a deeper understanding of the challenges faced at the grassroots level and to support the development of more resilient, profitable, and sustainable strawberry cultivation systems.

OBJECTIVES OF THE STUDY

1. To identify the major problems and challenges faced by strawberry farmers in Satara district.
2. To assess the key constraints related to resources, technology adoption, and market accessibility affecting strawberry cultivation in the region.
3. To examine potential solutions, innovations, and improved farming practices that can enhance productivity and sustainability in strawberry farming.
4. To analyze the influence of demographic variables (such as age, education, income, and farming experience) on farmers' production decisions and marketing strategies, and to evaluate how these factors contribute to better selling practices and improved quality in strawberry cultivation.

HYPOTHESES OF THE STUDY:

H₀₁ There is **no difference** in the severity of major problems (input cost, water scarcity, pest/disease issues, market fluctuations, technical knowledge gaps) reported by strawberry farmers in Satara district.

H₁₁ There **is a difference** in the severity of major problems (input cost, water scarcity, pest/disease issues, market fluctuations, technical knowledge gaps) reported by strawberry farmers in Satara district.

H₀₂ Resource availability, technology adoption, and market access constraints **do not have a significant impact** on strawberry cultivation outcomes in Satara district.

H₁₂ Resource availability, technology adoption, and market access constraints **have an impact** on strawberry cultivation outcomes in Satara district.

H₀₃ Adoption of improved farming practices, innovations, and recommended solutions **does not improve** the productivity or sustainability of strawberry farming in Satara district.

H₁₃ Adoption of improved farming practices, innovations, and recommended solutions **improves** the productivity or sustainability of strawberry farming in Satara district.

H₀₄ Demographic variables (age, education, farm size, income, farming experience) **do not have an influence** on farmers' production decisions, marketing strategies, selling practices, or quality improvement in strawberry cultivation.

H₁₄ Demographic variables (age, education, farm size, income, farming experience) **have a influence** on farmers' production decisions, marketing strategies, selling practices, or quality improvement in strawberry cultivation.

LITERATURE REVIEW

In this research has very few focus on the specific issues faced by farmers in Satara district.

Deshmukh et al. (2017), Satara's climate is well-suited for strawberry cultivation, with a temperate climate and well-drained soil. However, irregular rainfall and fluctuating temperatures pose risks to crop stability.

Rajendran (2015) highlight the role of fungal infections, such as *Botrytis cinerea* (gray mold), and pests like aphids, which significantly impact yields.

Pawar and Patil (2019) discusses the challenges of fluctuating market prices and a lack of direct access to buyers, which affects farmer profitability.

Yadav (2020), farmers often lack the necessary knowledge of modern farming practices and require technical training for better crop management and pest control.

Magadum A. S. (2018), in her thesis "*A Geographical Study of Fruit Farming of Kolhapur District (Maharashtra)*", investigates the spatial distribution of fruit cultivation by considering both environmental and socio-economic influences. The study emphasizes land utilization patterns, assesses the potential for expanding fruit farming, identifies the principal regions engaged in fruit cultivation, and evaluates productivity levels across the district. To examine the economic and market aspects, she relied on both primary and secondary sources. A sample comprising 20% of the villages was chosen through a systematic purposive sampling technique. Secondary information was gathered from published and unpublished materials, the District Socio-Economic Abstract, Krishi Seva Kendra (Agricultural Service Centre), and Census Reports issued by the Government of India and Maharashtra. For analysis, she employed three-year averages to ensure consistency, while percentages were calculated using a five-year average method.

Bachhav N. B. (2013), in his thesis "*Pomegranate Cultivation in Nashik District: A Geographical Analysis*", undertook a comprehensive study of the district's geographical setting, spatial and temporal distribution, and the changing dynamics of pomegranate farming. His research explored the economic aspects of cultivation, including yield levels, cost-benefit ratios, and the influence of soil type, altitude, crop variety, seasonal cycles, and tree age on productivity and profitability. The study also examined the marketing structure and profitability across different markets, aiming to identify the challenges, underlying causes, and impacts associated with pomegranate cultivation. Data were collected from both primary and secondary sources. Primary

information was obtained through questionnaires, schedules, and interviews with farmers, while secondary data were drawn from the Office of the Superintendent of Agriculture, Nashik District, Sub-Divisional Agriculture Offices, the Annual Socio-Economic Review of Nashik District, and reports from the Government Water Resources and Irrigation Department. For sampling, a stratified random technique was employed to select villages, and farmers were categorized into three groups—small, medium, and large—based on landholding size and altitude. The analysis of crop concentration using the location coefficient revealed a varied distribution of pomegranate cultivation across the district. Except for the base year (1991), the concentration index of each tahsil showed minimal variation, with rankings remaining largely unchanged. The study highlighted a strong concentration of pomegranate farming in the rain-shadow zones of the north-eastern district, while cultivation was least prominent in West Niphad, Nashik, and Dindori talukas situated in the upper Godavari basin. Marketing challenges were evident, as farmers often sold their produce to private traders or local markets, incurring high costs.

Jadhav M. T. (2013), in his thesis *“A Study of Cultivation and Marketing of Strawberry in Satara District”*, carried out an in-depth investigation into both the production and marketing aspects of strawberry farming. The study assessed the financial condition of strawberry growers, explored future opportunities, conducted cost-benefit analyses, and identified the challenges as well as prospects faced by cultivators. Data were collected from both primary and secondary sources. Primary information was obtained through questionnaires administered to strawberry farmers, while secondary data were drawn from published works, books, agricultural magazines, newspapers, and online resources. A simple random sampling method was applied, selecting 15 percent of villages from different tahsils. For statistical analysis, the study employed the **standard deviation method** to measure the variability of cultivation and marketing costs, and the **ANOVA single-factor test** to highlight differences in mean expenditures across tahsils. The findings revealed that 17.29% of farmers engaged in strawberry cultivation were young (below 30 years), while only 2.26% were above 61 years of age. Income distribution showed that 12.03% of farmers earned less than ₹1 lakh annually, whereas 87.97% had incomes exceeding ₹1 lakh. Regarding ancillary income, 57.9% of farmers reported none, 19.5% earned less than ₹1 lakh, and 22.6% earned more than ₹1 lakh from supplementary activities. Landholding patterns indicated that 51.50% of plantations were on less than 2.5 acres of cultivable land, 35.34% of farmers owned between 2.5 and 5 acres, and 7.90% possessed more than 5 acres.

Nalawade D. B. (2011), in his thesis *“Cashew Cultivation in South Konkan of Maharashtra: A Geographical Analysis”*, carried out a detailed study of cashew farming in relation to physical, socio-economic, and technical factors. His research focused on the spatio-temporal expansion of cashew cultivation, shifts in cropping patterns, productivity levels, and the economics of traditional crops. He also examined cashew nut marketing, identified promising areas for cultivation, and discussed challenges and future prospects. Data were collected through questionnaires, schedules, and farmer interviews, supplemented by secondary sources such as government reports, socio-economic reviews, district statistical abstracts, and census records. A stratified random sampling method was applied to select 10% of villages. Analytical techniques included correlation and regression to assess the relationship between altitude, tree size, and yield per hectare, along with Jasbir Singh's crop yield concentration index, ranking coefficient, and Majid Hussain's productivity measures. The study revealed that Ratnagiri and Sindhudurg districts together accounted for 4.32% of cashew cultivation. Light, loamy lateritic soils on hill slopes between 100–150 meters, combined with rainfall of 200–400 cm and temperatures of 30–33°C, were found to be ideal for cashew farming. With 31.79% of the net sown area available, the region holds

significant potential for expansion. Productivity analysis showed that while some areas fell into high-yield zones, nearly 20% of the region remained low in productivity.

Hajare R. V. (2007), in his thesis "*A Study of Fruit Farming in Maharashtra Plateau*", examined fruit farming patterns in relation to physical and socio-economic conditions. His study traced changes in fruit cultivation between 1970–71 and 2000–01, identified major fruit-growing areas, and analyzed productivity levels, market structures, and export prospects. Primary data were gathered through interviews and personal correspondence with farmers, while secondary information was drawn from government reports, vital statistics, and both published and unpublished sources. Analytical methods included the J.C. Weaver index to measure changes in fruit farming and correlation techniques to explore relationships between variables.

Khrisagar et al. (2003) investigated mango marketing in the South Konkan region of Maharashtra. Their study highlighted farmers' concerns about inadequate competition among dealers in the Vashi market, where wholesale prices often fell below expectations. Traders were reported to set prices secretly, limiting transparency. Additionally, a shortage of skilled labor during mango harvesting forced growers to bear high transportation costs, further reducing profitability.

SCOPE OF THE STUDY:-

The study is limited to *Satara district* of Maharashtra, *with special emphasis on Wai and Mahabaleshwar tehsils*, as these areas are major strawberry production hubs in the region. The research focuses on identifying and analyzing *problems and constraints faced by strawberry growers*, including economic, technological, institutional, and marketing challenges. Strawberry farmers (small, medium and large), local agricultural officers, market intermediaries, and cooperative societies involved in strawberry production and marketing are included as respondents. The study considers data and farming trends over recent years (e.g., last 3–5 years), capturing current issues and patterns in strawberry cultivation. A combination of *primary data field surveys & interviews and secondary data (published reports, government statistics, and research papers)* will be used.

LIMITATIONS OF THE STUDY :-

The study covers only selected tehsils (*Wai and Mahabaleshwar*) and cannot represent all strawberry farmers across the entire Satara district or other districts. 110 Limited number of respondents due to time and resource constraints may affect generalization of results to the entire farming population. Strawberry cultivation is seasonal, and data collection during a specific harvesting period might not capture issues outside this timeframe. Responses from farmers and stakeholders are based on recall and perception, which may introduce *subjectivity and reporting*. Lack of updated or comprehensive secondary data from government or institutional sources for some parameters may constrain analysis. Financial, time, and logistical limitations restricted the depth of field visits, number of interviews, and broader stakeholder consultation. Factors such as weather variability, market fluctuation, and policy changes occurring during the study period could influence findings but are not fully controllable.

DATA COLLECTIONS:-

The present study was based on **primary as well as secondary data**. Primary data were collected directly from strawberry growers of Satara district. A **structured interview schedule** was specially prepared in accordance with the objectives of the study. The interview schedule included questions related to Socio-economic

characteristics of farmers, Cultivation practices of strawberry, Production-related problems, Marketing constraints, Financial, technical, and institutional constraints. The data were collected through **personal interviews** with the selected respondents. Personal contact helped in obtaining accurate and reliable information and also

The **Mahabaleshwar and Wai tehsils** of Satara district were selected purposively due to the maximum area under strawberry cultivation. From each tehsil, selected villages were chosen, and **strawberry growers were selected randomly**. A total sample of farmers was interviewed for the study. Secondary data were collected from various published and unpublished sources such as: Government reports, Research journals, Agricultural department records, Books, theses, and websites. The data has been collected through secondary data rather than primary data through interviews and questionnaires. Data has collected from 10 villages (110 respondents) selected out of 40 villages from Wai and Mahabaleshwar tehsil.

DATA ANALYSIS:-

This data represents the constraint or challenges faced by strawberry farmers in Wai and Mahabaleshwar Tehsil

Sr. No.	Problems of Strawberry cultivation	Strawberry	
		Numbers of Respondents	Percentage
1	Natural Hazards		
	i) Uncertain rainfall	92	83.64
	ii) Extreme rise and fall in temperature	88	80
	iii) Foggy weather	58	52.73
	iv) Heavy rainfall	82	74.55
2	Timely Operations		
	i) Non-availability of labourers in time	86	78.18
	ii) High charges of labourer with less efficiency	76	69.09
	iii) Shortage of water-supply	79	71.82
	iv) Irregular electricity supply	82	74.55
3	Use of Fertilizer		
	Organic	18	16.36
	Non-Organic	92	83.64
	Total Respondents (Farmers)	110	

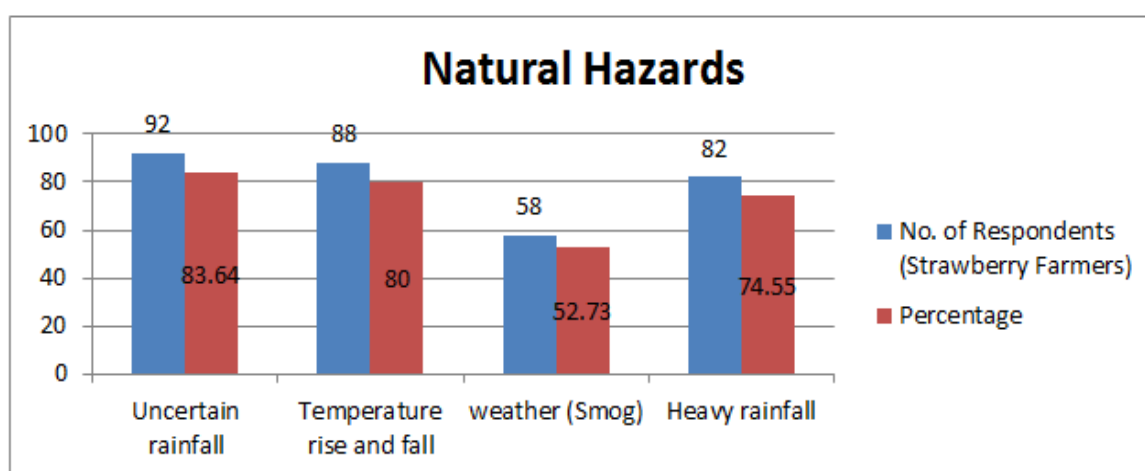


Figure 1 Natural Hazards

This chart shows that Natural hazards is the major issue or constraint for strawberry farmers, through this issue the product quality varies from above reasons and most of the strawberry farmers they have not only quality

issues but natural hazards influence on products quality. In this chart represents uncertain hairfall (83.64%) and temperature (80%) are major reasons of natural hazards for strawberry cultivation.

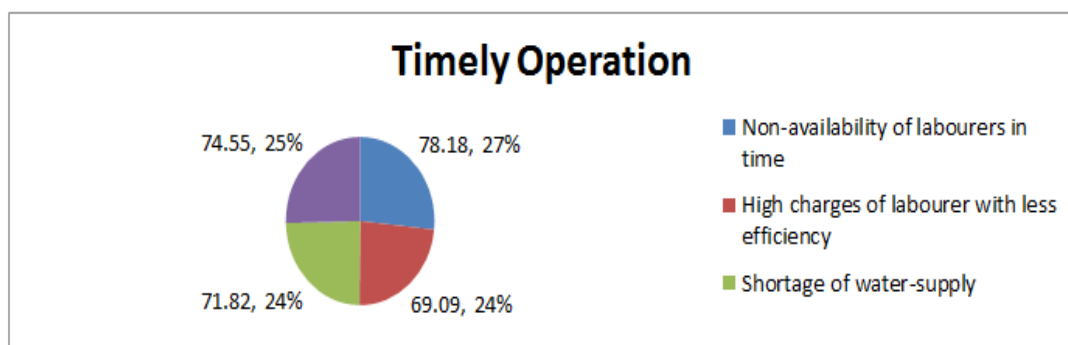


Figure 2 Timely Operation

This chart shows that timely operation is not the major issue or constraint rather than natural hazards for strawberry farmers, In this issue the strawberry related operations have specific time if the farmers not keep in watch on the strawberry operation such as cutting strawberry in time or water supply, irregular electricity supply and others reason effect on strawberry cultivation and its protection. Strawberry farmers they have not only quality issues but improper time management influence on strawberry production. There is a big challenge to cropping this strawberry in time and generally as per this chart shows that there is a need of laborer for this strawberry cropping but there is non availability of laborers in time, so it is very difficult to properly cropping in time sometimes laborers give them more money for strawberry cropping for cropping strawberry in time.

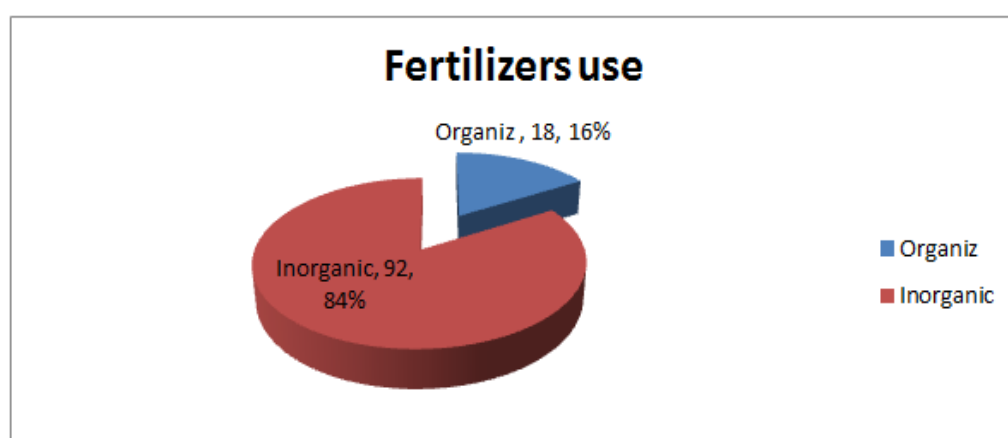


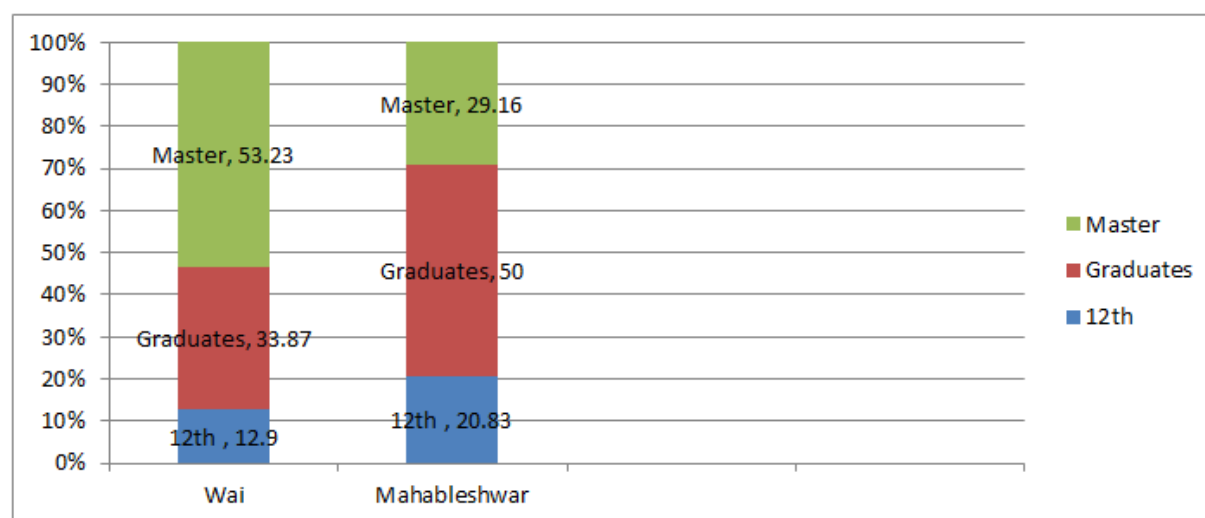
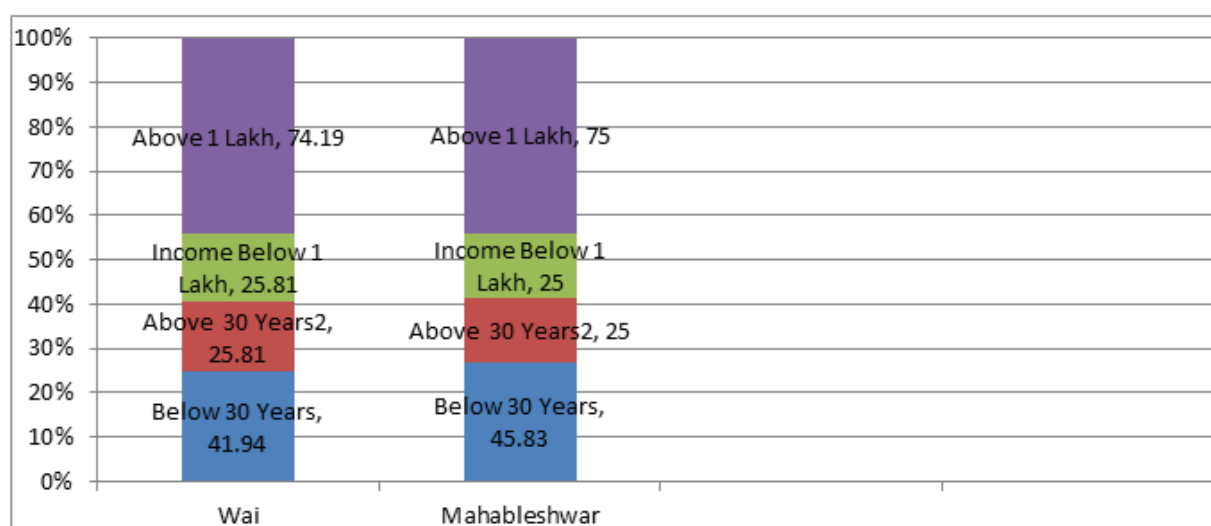
Figure 3 Use of Fertilizers

This chart shows that inorganic fertilizers has more use for strawberry production due to weather and any other climatic conditions most of the strawberry farmers has not use organic fertilizers. The fertilizers cost is much high and this is not useful for strawberry farmers because input cost of organic farming is high rather than inorganic farming. This chart shows that there is a need of increase in organic fertilizers rather than inorganic fertilizers, it is shows that there is a need of improper management of water resources as well as inadequate finance due to this reasons farmers not able to use of organic farming because its input cost is high and it is not affordable to strawberry cultivators.

Age, Education and Income of strawberry cultivators (Wai and Mahableshwar)

Sr. No.	Age and income of strawberry Cultivators	Strawberry							
		Age (Below 30 Year)	%	Age (above 30 Years)	%	Inocme Below 1 Lakh	%	Income Above 1 lakh	%
1	Wai	26	41.94	36	58.06	16	25.81	46	74.19
2	Mahableshwar	22	45.83	26	54.17	12	25	36	75

Sr. No.	Education of strawberry Cultivators	strawberry					
		12 th	%	Graduates	%	Masters	%
1	Wai	8	12.90	21	33.87	33	53.23
2	Mahableshwar	10	20.83	24	50	14	29.16



FINDINGS:-

1. The majority of the strawberry farmers in Satara district was **middle-aged** (30-50 years) and had **small to medium landholdings**.
2. Most of the farmers having **low levels of education** and lacked advanced training in modern strawberry farming techniques.
3. Most farmers used **traditional farming practices** with limited use of modern equipment or techniques.
4. **Water scarcity** has identified as one of the biggest challenges affecting strawberry production, especially during the dry months. **Pests and diseases**, particularly fungal infections, that affected crop quality. **Poor soil health** and inadequate fertilizers, which resulted in reduced yields.
5. **Climate change**, with unseasonal rains and fluctuating temperatures negatively impacting strawberry growth. Farmers were heavily reliant on **middlemen** for selling their produce, leading to **low prices** and **exploitation** in the local market. **Lack of cold storage facilities** was another major constraint, leading to wastage and post-harvest losses.
6. **Access to credit** was limited, with many farmers struggling to obtain loans due to high-interest rates or inadequate collateral. **Government support** for strawberry farming was found to be insufficient in terms of both financial aid and technical assistance.

CONCLUSIONS:-

1. The study identified water scarcity, pest and disease issues, and poor soil fertility as the **key constraints** affecting strawberry farming in Satara district.
2. in **marketing infrastructure**, including inadequate cold storage facilities and transportation, was found to hinder profitability.
3. The presence of **middlemen** in the supply chain resulted in **low farmgate prices**, depriving farmers of fair returns for their produce. There was **insufficient institutional support**, especially in terms of financial schemes, insurance, and technical training.
4. Due to these constraints, many farmers has not as **economically viable** as it could be, leading to reduced income and low adoption of modern practices.

SUGGESTIONS:-

1. **There is a need of** drip irrigation and rainwater harvesting, should be promoted to address the issue of water scarcity. Government programs for **subsidized irrigation equipment** and **efficient water management practices** should be strengthened.
2. Establishment of **cold storage facilities** and **transportation networks** should be a priority to reduce post-harvest losses and ensure higher prices for farmers. Farmers should be trained in **proper post-harvest handling** techniques, including packaging and marketing.
3. The government and financial institutions should offer **easier access to credit**, including low-interest loans and financial support schemes for strawberry farmers.
4. The government should increase its **focus on strawberry farming** through **subsidies**, **insurance schemes**, and **technical training** for farmers. Establish **farming clusters** where expert advice and resources can be shared among neighboring farmers.

5. Encourage farmers to form **cooperatives** that will help them in direct marketing, reduce exploitation by middlemen, and gain better prices for their produce. Develop **direct market linkages** with supermarkets and wholesalers to ensure fair and transparent pricing.
6. Encourage the adoption of **sustainable agricultural practices** to improve soil health and maintain long-term productivity. Practices like organic farming, crop rotation, and the use of **natural fertilizers** should be promoted.

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