"CRITICAL ANALYSIS OF POMEGRANATE ORCHARDS HORTICULTURE IN DROUGHT-PRONE REGION OF SATARA DISTRICT OF INDIA:AN APPLIED PERFORMANCE STUDY OF FARMING SYSTEMS"

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Abstract

Horticulture is increasingly important sector in world agriculture as it is easily adaptable to waste land and detrimental soil. Pomegranate(*Punica granatum*) is significant horticulture crop in India. Currently, approximately 1.50 lakh hectare area is under pomegranate cultivation in India. Maharashtra state shows large contribution in pomegranate farming. As of now, there is a drought condition in various districts of Maharashtra. Most of the farmers are still using conventional farming system. This research studied the performance of pomegranate orchards in terms of yield and income, using both conventional as well as newly developed hi-tech farming systems by applied practical farming at the farm of Krishna Hi-Tech Agro Private Limited. It rendered that hi-tech technology farming system is more remunerative than conventional farming system.

Keywords: Pomegranate Orchards, Farming Systems, Drought-prone Region, etc.

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1. Introduction

2. Pomegranate's origin is Iran. Pomegranate is considered as crop of the arid and semi arid regions in India. It requires hot and dry climate during fruit development and ripening.

3.

India is the largest producer of pomegranate in world followed by Iran. Spain, Turkey, Morocco, China, Japan, France and America Cyprus are also leading cultivators. In India, It is commercially cultivated in Maharashtra followed by Gujarat, Rajasthan, Karnataka, Tamil Nadu, Andhra Pradesh, Uttar Pradesh, Punjab and Haryana on smaller scale. India exports pomegranate mainly to Kuwait, Oman, Bahrain, Saudi Arabia, U.A.E., Netherlands etc. Maharashtra's Solapur district grows 60 to 70 percent of India's pomegranates. Apart from these, pomegranate is also grown in the Nashik, Dhule, Ahmednagar, Pune, Satara, Osmanabad districts of Maharashtara. Maharashtra contributes about 80 % in the pomegranate cultivation of India.

As per USDA Nutrient database, Pomegranate gives 83 kcal energy by consumption of 100 gm. It also indicates that pomegranate contains 18.7g Carbohydrate, 4g fiber, 1.7g protein, 0.3 mg Iron as well as Vitamin C, Vitamin E and Vitamin K.

4. OBJECTIVES

The present study is undertaking by considering following Objectives:-

1. To study comparatively between conventional and hi-tech farming systems in Pomegranate Horticulture.
2. To evaluate role of irrigation in drought-prone zone of country.
3. To study economics of pomegranate orchards in drought-prone region.
4. To study efficiency of hi-tech farming systems in pomegranate orchards.
5. To enhance pomegranate production, augment farmers' income and strengthen nutritional security.
6. To try to boost quality of pomegranate fruit as it become perfect for export.

5. RESEARCH METHODOLOGY

The present study is based on primary data collected by research scholar. Research Scholar cultivated pomegranate at the farm of Krishna Hi-Tech Agro Private Limited in drought-prone region of Satara district. Research scholar derived the result and conclusion from the statistical and economical analysis of data collected.

Table No. 1 : Comparative Farming Systems

Conventional Farming System	Hi-Tech Technology Farming System
1. Open Farm	1. Organic Farming
2. Regular Soil	2. Inline Drip Irrigation System
3. Online Irrigation System	3. Rain Water Harvesting-Farm Pond
4. Chemical Manure	4. Sprinkler Irrigation
5. Without Mulching	5. Mulching Paper
	6. Bio/Liquid Fertilizer
	7. Pesticides
	8. Music Method
	9. Soil Health Card-Testing Report
	10. Post Harvest Management

6. DATA ANALYSIS AND INTERPRETATION

This Research is mainly based on primary tools. Researcher collected the data by implementing both farming systems in Pomegranate Orchards.

a. Overview Table No. 2: Production and Expenditure Statistics

Particulars	Conventional Farming System	Hi-Tech Technology Farming System
Production Value i.e. Annual Sales Value	Rs. 652000/-	Rs. 1033000/-
Recurring Expenditure i.e. Pesticides, Harvesting, Sorting,	Rs. 299000/-	Rs. 279000/-

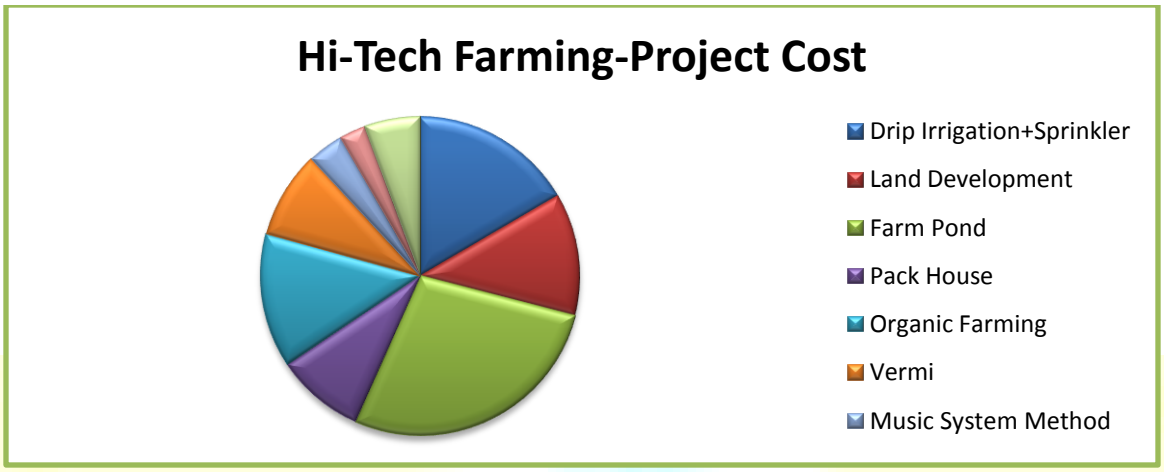
Grading, Packing, Administrative Expense, etc

b. Project Cost- Hi-Tech Farming Systems

Table No. 3: Project Cost- Hi-Tech Farming Systems

Sr. No.	Particulars	Cost
1	Drip Irrigation+Sprinkler	Rs.144885/-
2	Land Development	Rs. 109200/-
3	Farm Pond	Rs. 242000/-
4	Pack House	Rs. 78300/-
5	Organic Farming	Rs. 119245/-
6	Vermi Compost, Vermi Wash	Rs. 77000/-
7	Music System Method	Rs. 32000/-
8	Labour Training	Rs. 23500/-
9	Mulching Paper	Rs. 49320/-
	TOTAL	**Rs. 875450/-**

Figure No. 1: Project Cost of Hi-Tech Technology Farming System



c. Means of Finance- Hi-Tech Farming System

Table No. 4: Means of Finance- Hi-Tech Farming System

Sr. No.	Means	Amount
1	Loan-Bank	Rs. 647000/-
2	Own Contribution	Rs. 228450/-
	TOTAL	**Rs. 875450/-**

d. Projected Repayment of Loan To Bank

Table No. 5: Projected Repayment of Loan To Bank

(Rs. in Lakhs)

Sr. No.	Particular	Year I	**Year** II	**Year** III	**Year** IV	**Year** V
1.	Open Balance	6.47	5.18	3.88	2.60	1.29
2.	Return	1.29	1.29	1.29	1.29	1.29
3.	Close Balance	5.18	3.89	2.59	0.86	00

e. Projected Profitability Statement-Hi-Tech Farming Systems

Table No. 6: Projected Profitability Statement-Hi-Tech Farming Systems

(Rs. in Lakhs)

Particular	Year I	**Year** II	**Year** III	**Year** IV	**Year** V
Annual Sales	10.33	10.81	9.61	9.81	11.31
Annual Expenditure	2.79	3.12	2.84	2.60	2.90
Gross profit	7.54	7.69	6.77	7.21	8.41
Return	1.29	1.29	1.29	1.29	1.29
Net Profit	**6.25**	**6.40**	**5.48**	**5.92**	**7.12**

f. Comparative Profitability Statement (First 5 Years)

Table No. 7: Comparative Profitability Statement (First 5 Years)

(Rs. in Lakhs)

Sr. No.	Particulars	Conventional	Hi-Tech
1.	Annual Sales	6.52	10.33
2.	Recurring Expenses	2.99	2.79
3.	Interest	--	1.29
4.	**NET PROFIT**	**3.53**	**6.25**

g. Comparative Profitability Statement (After 5 Years)

Table No. 8: Comparative Profitability Statement (After 5 Years)

(Rs. in Lakhs)

Sr. No.	Particulars	Conventional	Hi-Tech
1.	Annual Sales	6.52	10.33
2.	Recurring Expenses	2.99	2.79
3.	Interest	--	--
4.	NET PROFIT	3.53	7.54

7. RESULTS AND DISCUSSION

India is the largest pomegranate producing country of the world. The presented research shows that, there is an increase in production yield of Pomegranate in Hi-Tech Technology farming system than Conventional farming system project. It increased profit in a Hi-Tech Technology farming system as well as maintained and enriched the Soil Health during its applications in Pomegranate Orchards. Results also proved that, there are many backlogs in Conventional farming system applications like erosion of soil, wastage of water insect pests and fungal infections as well as it requires more manure, more fertilizer. Water management gave very positive results in drought conditions.

8. CONCLUSIONS

Pomegranate is the leading horticulture fruit crop in world. The research rendered that Hi-Tech technology farming system is more remunerative than Conventional farming system in Pomegranate Orchards. Water management is also necessary as it works very effectively in drought conditions too. Organic farming and hi-tech technology are must for the sustainable horticulture.

9. SUGGESTIONS

Pomegranate growers should adopt Hi-Tech Technology for farming system instead of using conventional farming system.

Government should start a campaign to encourage farmers to use hi-tech technology farming system in farming rather than conventional farming system to come out from drought situations.

Horticulture Institutions should design the policy of sustainable agriculture.

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