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Augmentation of Agricultural Income through Cultivation of Medicinal Plant a Study of Satara District

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ABSTRACT

Satara district in Maharashtra state is part of two main watersheds of the Bhima and Krishna rivers. The Sahyadri range, or main range of the Western Ghats, runs north and south along the western edge of the district. Major part of the district has the black loamy clay containing carbonate of lime. This soil, when well watered, is capable of yielding heavy crops. This paper explores the possibility of cultivation of medicinal plants by the farmers of this region so as to augment their income. The global trade in plant based drugs was estimated to be US $ 32 - 43 billion and the use of plant-based prescription and over-the-counter drugs is increasing both in the developed and developing countries. India exports medicinal herbs and drugs made out of them worth Rs. 500 crore. With the given economic importance of medicinal plants, it is worth giving a thought of cultivating and gainfully exploiting the economic potential.

INTRODUCTION:

The global demand for medicinal herbs has increased tremendously and today there is a great demand for genuine quality herbal material both in the country as well as in the other countries. Cultivation of medicinal plants and harvesting them at the appropriate time is very essential for harvesting quality material in terms of active ingredients. Each species has its own demand for nutrients, water and other parameters before it can be harvested for optimal active principles. The cultivation practices as well as post harvest technology plays a very important role for successful plantations, storage and selling of these plants in a business model. Income from agriculture in India is barely hand-to-mouth for a vast majority of Indian farmers. The Indian farmer is always looking at ways to cultivate crops/vegetables/fruits that will give him handsome returns. Medicinal plant cultivation along with the regular crops will definitely augment his income. Since medicinal plants can fetch him a good price for his produce.

OBJECTIVES OF THE STUDY:

The study is confined with the following objectives

1) To assess the interest of farmers for cultivation medicinal plant.

2) To study the reasons why medicinal plant cultivation is not popular with the farmers.

HYPOTHESES:

The study focuses on the following hypothesis

1) There is relation exist between interest of cultivation medicinal plant and educational qualification of farmer

SAMPLE:

The sample comprises of farmers and agriculture officers for the study. The area selected for the study is Satara district of Maharashtra state.

DATA COLLECTION METHODS:

The above mentioned objectives of the study will be fulfilled by adopting the following methodology. Questionnaires were distributed through personal meets, agricultural

expositions and emails with the help of Agricultural Produce Marketing Cooperative offices situated in the Satara district. 55 farmers were surveyed within a period of two months. The farmers furnished an enthusiastic and splendid response towards the questionnaire. All the farmers responded back with the filled in questionnaire and rest answered during personal interactions.

Primary Data: The primary data collected through a well structured direct questionnaire has distributed amongst to the respondents and also through interviews with the help of a schedule

SCOPE OF THE STUDY:

Geographical Scope: This study is confined to the Satara district of the State of Maharashtra

Topical Scope: The focus of this study is effective utilization of land for medicinal plant farming for Satara district.

Analytical Scope: The data collected as part of the study was analyzed to fulfill the objectives and test the hypotheses.

Functional Scope: This research study aims at suggesting appropriate inter-crop plan for medicinal plants and conventional (cash) crops.

RESULTS AND DISCUSSION

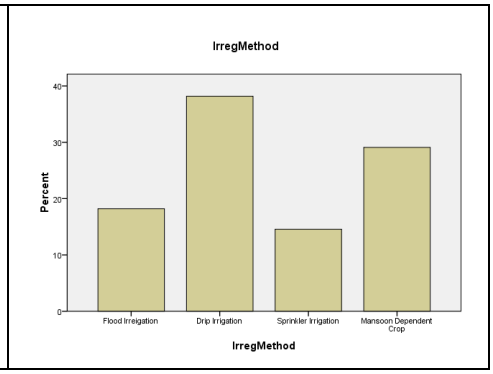
Survey was carried out for assessing farmers' interest in cultivation of medicinal plants and marketing as an augmentation to livelihood for farmers in the Satara district.

Agriculture Practices

A) **Irrigation Method**: The farmers of Satara district follow four basic methods of irrigation. These are flooded irrigation, drip irrigation, sprinkler and monsoon based. The most preferred method is the drip irrigation method. Maximum (38.2%) of the surveyed farmers responded to the use of drip irrigation.

Table. No.1 Irrigation Methods

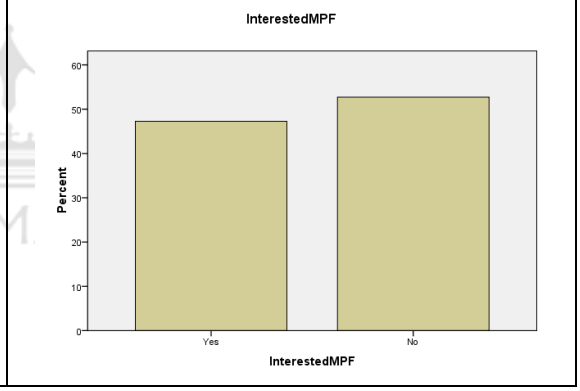
Irrigation Method	Frequency	Percent
Flood Irrigation	10	18.2
Drip Irrigation	21	38.2
Sprinkler Irrigation	8	14.5
Monsoon Dependent Crop	16	29.1
Total	55	100.0



B) **Interest in Medicinal Plant Cultivation:** It was observed that 47.3% respondents are interested in cultivating medicinal plants. Whereas 52.7% respondents did not show any interest.

Table. No.2 Interest in Medicinal Plant Cultivation

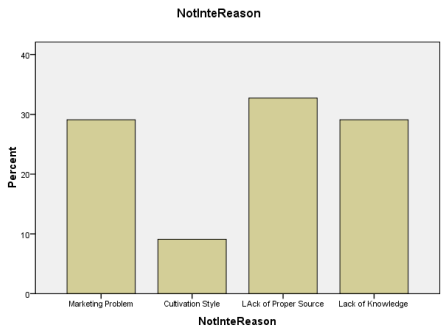
Interested in MPF	Frequency	Percent
Yes	26	47.3
No	29	52.7
Total	55	100.0



C) **Reasons for Disinterest in cultivation of Medicinal Plants**: It is observed that 29.1% the respondent cited marketing problems, 9.1% showed their disinterest because the cultivation methods differ, 32.7% respondent cited lack of proper resources and 29.1% respondent cited that they lacked the required knowledge for their disinterest in cultivating medicinal plants.

Table. No.3 Reasons for Disinterest in Medicinal Plant Cultivation

	Frequency	Percent
Marketing Problem	16	29.1
Cultivation Style	5	9.1
Lack of Proper Source	18	32.7
Lack of Knowledge	16	29.1
Total	55	100.0

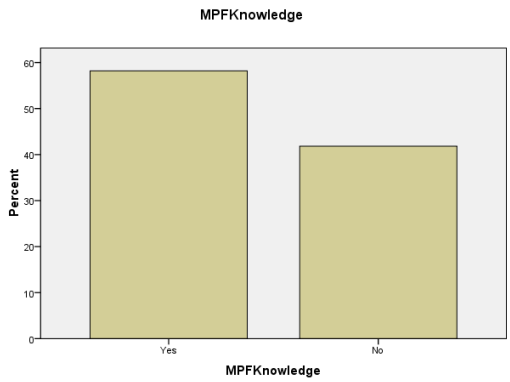


			Reason for Disinterest in Cultivating Medicinal Plants				
			Marketing Problem	Cultivation Method	Lack of Proper Resources	Lack of Knowledge	
Interested in Medicinal Plant Farming	Yes	Count	3	1	12	10	26
		% within Interested in Medicinal Plant Cultivation	11.5%	3.8%	46.2%	38.5%	100.0%
	No	Count	13	4	6	6	29
		% within Interested in Medicinal Plant Cultivation	44.8%	13.8%	20.7%	20.7%	100.0%
	Total	Count	16	5	18	16	55
		Total %	29.1%	9.1%	32.7%	29.1%	100.0%

D) **Knowledge of Medicinal Plant Cultivation**: It was observed that 58.2% of the respondents have the knowledge of medicinal plant cultivation whereas 41.8% respondents do not have the knowledge of medicinal plant cultivation.

Table. No.4 Knowledge of Medicinal Plant Cultivation

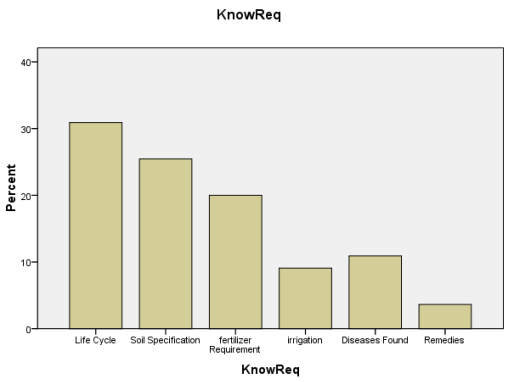
Knowledge	Frequency	Percent
Yes	32	58.2
No	23	41.8
Total	55	100.0



E) **Specific Knowledge Required for Medicinal Plant Cultivation**: It is observed that 30.9% the respondents require knowledge of life cycle, 25.5% require knowledge of soil specification, 20% require knowledge of fertilizer requirement, 9.1% require knowledge of irrigation, 10.9% require knowledge of diseases and 3.6% require knowledge of remedies.

Table. No.5 Specific Knowledge for Medicinal Plant Cultivation

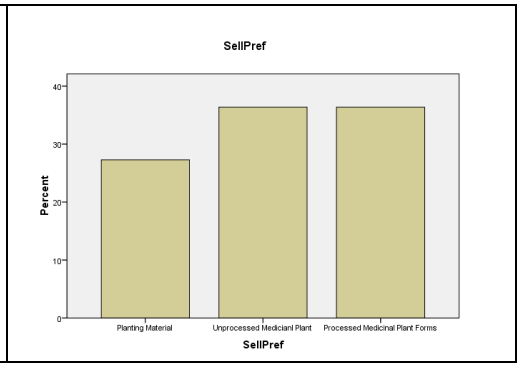
Knowledge Require	Frequency	Percent
Life Cycle	17	30.9
Soil Specification	14	25.5
fertilizer Requirement	11	20.0
irrigation	5	9.1
Diseases Found	6	10.9
Remedies	2	3.6
Total	55	100.0



F) **Selling Preferences:** It is observed that 27.3% the respondent prefer to sell planting Material, 36.4% prefer to sell unprocessed Medicinal plants and 36.4% prefer to sell processed Medicinal plant forms.

Table. No.6 Selling Preferences

Selling Preferences	Frequency	Percent
Planting Material	15	27.3
Unprocessed Medicinal Plant	20	36.4
Processed Medicinal Plant Forms	20	36.4
Total	55	100.0

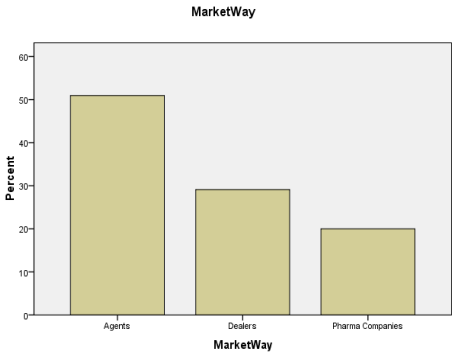


			Selling Preferences			
			Planting Material	Unprocessed Medicinal Plant	Processed Medicinal Plant Forms	Total
Interested in Medicinal Plant Farming	Yes	Count	8	5	13	26
		% within Interested in Medicinal Plant Cultivation	30.8%	19.2%	50.0%	100.0%
	No	Count	7	15	7	29
		% within Interested in Medicinal Plant Cultivation	24.1%	51.7%	24.1%	100.0%
	Total	Count	15	20	20	55
		% within Interested in Medicinal Plant Cultivation	27.3%	36.4%	36.4%	100.0%

G) **Ways of Marketing Medicinal Plant Produce:** It is observed that 50.9% the respondent want to sell their product through the agent, 29.1% respondent want to sell their product to the dealer and rest 20% respondent want to sell their product to the Pharmaceutical companies.

Table. No.7 Ways of Marketing

	Frequency	Percent
Agents	28	50.9
Dealers	16	29.1
Pharmaceutical Companies	11	20.0
Total	55	100.0



			Market the Produced			
			Agents	Dealers	Pharmaceutical Companies	Total
Interested in Medicinal Plant Farming	Yes	Count	8	13	5	26
		% within Interested in Medicinal Plant Farming	30.8%	50.0%	19.2%	100.0%
	No	Count	20	3	6	29
		% within Interested in Medicinal Plant Cultivation	69.0%	10.3%	20.7%	100.0%
	Total	Count	28	16	11	55
		% within Interested in Medicinal Plant Cultivation	50.9%	29.1%	20.0%	100.0%

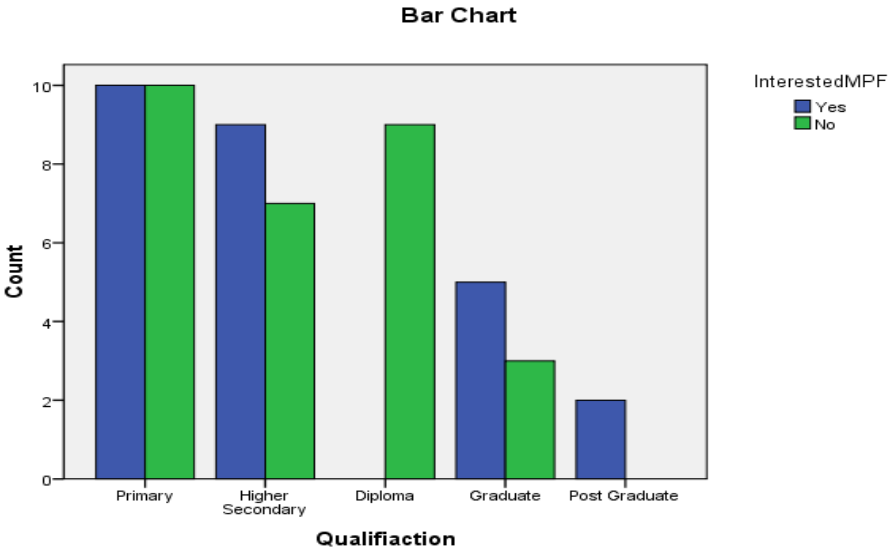
Hypothesis

H_0 - There is no relationship between interest in cultivation of medicinal plants and educational qualification of farmers.

		Interested in Medicinal Plant Farming		
		Yes	No	Total
Qualification	Primary	10	10	20
	Higher Secondary	9	7	16
	Diploma	0	9	9
	Graduate	5	3	8
	Post Graduate	2	0	2
	Total	26	29	55

Symmetric Measures					
		Value	Asymptotic standard error [a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	-0.025	0.136	-0.180	0.858[c]
Ordinal by Ordinal	Spearman Correlation	0.024	0.139	0.174	0.862[c]
	N of Valid Cases	55			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

From the analysis data the value of Spearman Correlation is 0.862 hence researcher concludes that educational qualification and interest in medical plant farming is correlated.



OBSERVATIONS:

Lack of faith in commercial units:

Farmers faced misleading information on plants, which would fetch them quick and more profit. Many farmers had suffered great loss even in buy-back schemes laid by the industries or agents. False promises were given by the industries/agent and they even dishonored their buyback agreements at the time of harvest on the pretext of quality of plant produce being not

up to the mark. This lead to monetary and time loss to the farmers as they had to sell the produce at a low price.

Lack in testing centers:

It was observed that the big drug manufacturers and export agents preferred tested medicinal plants and stressed on its certification for the required chemical constituents and their levels in the medicinal plants. There are very few centers in the state, though most progressive, for accurate testing of quality of the extracts. Further, the clear measures and requirement of the produce have not been clear. This leads to the problems at time of trading the produce. In this plight, in monetary terms, farmers are the major sufferers.

RECOMMENDATIONS:

Reliable planting material:

a. Cultivation of medicinal plants is a bit difficult owing to the fact that there is a lack of standard agronomic practices for most species and unavailability of sources of quality planting materials and technical guidance.

b. Farmers should visit farms where medicinal plants are being cultivated before undertaking any cultivation of medicinal plants.

c. High yielding variations within species need to be generated, propagated and disseminated to farmers.

Market:

a. The medicinal plant market is prone to price fluctuations. The price of a particular species may certainly go down in case of surplus and overproduction. Schemes should be introduced which would ensure a minimum price of medicinal plants for higher profitability than the traditional crops.

b. It is recommended that proper market support need be provided to farmers, specially, in the initial phase, as it may be difficult for them to market their produce and get desired returns.

Market intelligence:

a. Sustainable agro practices in medicinal plants can be undertaken on the basis of market intelligence. A credible intelligence gathering mechanism has to be created and prices of planting material of different grades of produce should be made available through media-electronic (internet) and print (local newspapers and market bulletins). Total demand and present supply within and outside the state are to be specially made available to prospective farmers and buyers.

Marketing:

a. Marketing is the biggest problem for the cultivation of medicinal plants. If the produce is sold individually by the farmers then it is possible in long run that they do not receive the desired returns, if "Medicinal Plant Cooperative" like milk cooperative society is formed, it may end up on some desirable returns. So such cooperatives should be initiated and brought into the State.

b. Some organization can be set up which can ensure contract farming for better returns.

Organic Produce:

a. Medicinal plants raised without using any inorganic fertilizers fetch more price in the market. Therefore chemical fertilizers should be avoided and green manure and biofertilizers should be used. Medicinal plants, because of their pharmaceutical and cosmeceutical use, need to be grown without the use of any chemical inputs. WTO protocol also stresses that only that plant material could be exported that carry the tag of 'organically grown'.

b. Trials at organic cultivation of commercial crops have been made and need to be initiated for medicinal plants too. Organic cultivation of medicinal plants has to be a community response and undertaken by every grower.

c. Organic cultivation of medicinal plants in the State should be initiated *via* grower cooperatives on larger scale

Buyback schemes:

a. Introduction of buyback schemes and similar measure to boost farmers' confidence and ensure the proper price for file harvest is recommended. Buyback guarantee, such as that

provided by National Remedies Industry to Karnataka farmers to grow Kalmegh *(Andrographis paniculata)* must be extended to other threatened but very important medicinal plant species through Government intervention.

Buyers should be contacted in advance to get reasonable price for their desired produce.

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