

## STATUS OF TECHNICAL SUPPORT TO THE FARMERS ABOUT JOJOBA CULTIVATION

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### ABSTRACT

The present study was conducted in seven Districts of Rajasthan State where the Jojoba (*Simmondsia chinensis*) is being cultivated. The districts were Jhunjhunu, Sikar, Bikaner, Jaipur, Jodhpur, Sriganganaga and Churu. Total 157 farmers were interviewed for the purpose. Results that majority of the respondents had maximum knowledge about the practice of pruning of plants with 73.16 per cent, whereas, the least knowledge was about yield and income from Jojoba with MPS 36.60.

### INTRODUCTION

JOJOBA (*Simmondsia chinensis*) pronounced as *Ho-ho-ba* which is a scraggy looking desert bush belonging to the family *simmondaceae*. It is also recognized as "Desert Gold". It has been introduced in India in recent past. Jojoba is native to the triangle of sonoran desert of Mexico, California and Arizona. It is grown widely in the countries of U.K., Israel, Argentina, USA, Australia, West-Asia and some African countries. Jojoba plant is an evergreen, long-living bush with a life span upto 200 years.

Being a renewable source of vegetable oil, Jojoba has attained much importance in recent years and promises to be a boon oil crop for the arid and semi-arid regions of India. Jojoba oil and its derivatives have diversified uses such as in cosmetics, pharmaceuticals, lubricants, food, medicines, electrical insulators, foam control agents, plasticizers, fire retardants and transformer oil etc.

It is interesting to note that Jojoba has been successfully tested as a fuel for vehicles. The shrub's peanut-sized seeds produce oil which engineers at the United Arab Emirates University in Al-Ain and the Helwan University in Cairo combined with methanol to make a fuel called "Jojoba ethyl ester" It is also used in candle and textile industries. Its oil is useful for treating a number of skin diseases and production of penicillin-G. Its seeds are being

used by desert people to dress wounds, facilitate child birth, cure stomach problems and restore hair growth. After extraction of oil, the cake can be used as an animal feed.

Initially, Jojoba was introduced in Rajasthan state at the Central Arid Zone Research Institute (CAZRI) Jodhpur, in the year 1965 from Israel.

Looking to the immense potential of Jojoba in Rajasthan, a society called "Association of Rajasthan Jojoba plantation and research project (AJORP)", was set up in Jaipur in the year 1995 with hundred per cent funding from the Department of Land Resources, Ministry of Rural Development, Government of India, New Delhi. Ministry also established two national level models of Jojoba plantation and Research farms in 100 hectares.

The present investigation is process evaluation, the type of evaluation which is performed when any programme is going on. Its findings will be of immense importance for the stakeholders (policymakers, AJORP, farmers and others) for modifying, strengthening and continuing the project for future. The findings will help in learning the lesson for cultivation of this petro-crop, if the impact is in definite positive direction. The present investigation was undertaken with the specific objective: "To assess the technical knowledge level of farmers about Jojoba cultivation."

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## RESEARCH METHODOLOGY

The present study was conducted in purposively selected seven districts of Rajasthan viz; Jhunjhnu, Bikaner, Sriganganagar, Sikar, Jodhpur, Churu and Jaipur. out. Total 157 cultivators were interviewed for gathering data with the help of face-to-face interview. The respondents were divided into three categories of marginal, small and large farmers. Self structured knowledge test was made use of by the researchers for data collection data collection. Simple statistics, percentage, mean per cent score, standard deviation and analysis of variance were applied for arriving at conclusions.

## RESULTS AND DISCUSSION

### Distribution of respondents on the basis of their knowledge about recommended practices of Jojoba cultivation

To get an overview of the respondents regarding their knowledge about recommended practices of Jojoba cultivation, they were classified into three categories viz., high, medium and low levels of knowledge. These categories were formed on the basis of calculated mean and standard deviation of the knowledge scores obtained by the respondents.

A perusal of data in Table 1 revealed that majority of the respondents (65.60%) were from

**Table 1. Distribution of Respondents on the Basis of their Knowledge Regarding Recommended Practices of Jojoba Cultivation**

(n=157)

S. No.	Level of knowledge	Marginal Farmer		Small Farmers		Large Farmers		Total	
		f	%	f	%	f	%	f	%
1	High (> 20.93)	10	28.60	0	0.00	19	23.20	29	15.90
2	Medium (11.27 to 20.93)	12	34.30	38	95.00	53	64.60	103	65.60
3	Low (<11.27)	13	37.10	2	5.00	10	12.20	25	18.50
<b>Total</b>		<b>35</b>	<b>100.00</b>	<b>40</b>	<b>100.00</b>	<b>82</b>	<b>100.00</b>	<b>157</b>	<b>100.00</b>

f = frequency, S.D. = 4.83, % = per cent,  $\bar{X}$  = 16.10

medium knowledge category, while 15.90 per cent could be placed under high category. The proportion of respondents reported in the low knowledge was 18.50 per cent in the study area. The analyzed data contained in Table 1 divulge that 34.30 per cent small, 95.00 per cent medium and 64.60 per cent large Jojoba farmers had medium level of knowledge. Likewise 28.60 per cent of the small 0.00 per cent medium Jojoba farmers possessed high level of knowledge. However, higher percentage of small Jojoba farmers (37.10%) fell under the category of low level knowledge than large (12.20%) and medium (5.00%) Jojoba farmers.

Thus, it could be concluded from the table that majority of farmers had medium to high knowledge about recommended practices of Jojoba cultivation. Good educational status, awareness and services of AJORP and greater access to facilities and resources might have paved the way of Jojoba farmers to possess medium to high level of knowledge. However, those who were still practicing

Jojoba on traditional lines and those who were recently associated with the might have gained proportionally low level of knowledge regarding recommended practices of Jojoba cultivation.

The present findings of the study are supported by the findings of Lal and Sharma (1999) who reported that 47.50 per cent respondents had medium level of knowledge, while 32.50 per cent had low level of knowledge about jojoba cultivation.

### Overall knowledge of farmers regarding improved Jojoba cultivation practices:

The data incorporated in Table 2 vividly corroborate that from among the major practices, the respondents had maximum knowledge of marketing (MPS 81.63) which was placed at first position in the rank hierarchy by them. It was followed by irrigation, soil and its preparation,, harvesting, manure and fertilizers practices which were granted II, III, IV and V ranks with MPS 65.26, 61.09, 58.03 and 57.18, respectively. However, the

respondents possessed at least knowledge of transplanting (MPS 49.32), PPM (MPS 50.56), and Pruning & inter cropping (MPS 48.01) and Nursery raising (MPS 44.21) which was placed at VI, VII, VIII and IX positions by them.

At deep glance at the data presented in Table 2 further indicate that knowledge regarding soil and its preparation practices obtained fifth rank in case of marginal (MPS 53.19) and II rank in small (62.3 MPS) and III rank in large (67.8 MPS) farmers. The practices of nursery raising obtained VIII rank in case of marginal (MPS 45.70) and small (39.75 MPS) and IX rank in case of large (46.94 MPS) farmers. Similarly, transplanting got IX rank in case of Marginal (32.41 MPS), VII rank in small (43.5 MPS) and third rank in case of large (66.86 MPS) farmers. The practices of manure and fertilizer obtained IV

rank in case of marginal (54.21 MPS) and V rank in case of small (56.25 MPS) and large (61.09 MPS) farmers.

Like wise, practices related to irrigation was accorded III rank by marginal (60.94 MPS) II rank by small (MPS 69.16) and fourth rank by large (65.68 MPS) farmers. With regard to plant protection measure practices, marginal farmers were placed at VII position (MPS 45.71), whereas, small and large were placed at IV (57.5 MPS) and VIII (48.47 MPS), respectively. Similarly pruning and intercropping got VI rank in case of marginal (52.85 MPS), IX rank in case of small (MPS 33.75) and VII rank of large (57.43 MPS)O farmers with regards to harvesting practices, marginal farmers were placed at II rank (MPS 63.80), whereas small and large farmers were placed at VI position with MPS 58.5 and 57.8,

**Table 2. Overall Knowledge of Respondents Regarding Improved Jojoba Cultivation Practices**

Practices	Marginal Farmers		Small Farmers		Large Farmers		Total	
	MPS	Rank	MPS	Rank	MPS	Rank	MPS	Rank
Soil and its preparation	53.19	V	62.30	III	67.80	II	61.09	III
Nursery raising	45.70	VIII	39.75	VIII	46.94	IX	44.21	IX
Transplanting	32.44	IX	43.50	VII	66.86	III	49.32	VII
Manure and Fertilizers	54.21	IV	56.25	V	61.09	V	57.18	V
Irrigation	60.94	III	69.16	II	65.68	IV	65.26	II
Plant protection measures	45.71	VII	57.50	VI	48.47	VIII	50.56	VI
Pruning & intercropping	52.85	VI	33.75	IV	57.43	VII	48.01	VIII
Harvesting	63.80	II	52.50	VI	57.80	VI	58.03	IV
Marketing	81.42	I	80.00	I	83.48	I	81.63	I
<b>OVERALL</b>	<b>54.47</b>		<b>54.96</b>		<b>61.79</b>		<b>57.25</b>	

respectively remaining items were accorded similar ranks by all the categories of respondents. When all the major practices were pooled together the extent of knowledge possessed by marginal small and large farmers was 54.47, 54.96 and 61.79 MPS, respectively the pooled MPS of knowledge of all the categories of respondents was found to be 57.25.

The present findings similar to the findings of Meena and Dangi (2006), reported that out of total 11 major aspects of *Jatropha* cultivation, the respondents had maximum knowledge about the practices of pruning of plants with overall MPS 73.16, whereas, the least knowledge was about yield and income with its MPS 36.60.

#### **Comparison of knowledge of respondents in different groups regarding recommended practices of Jojoba cultivation:**

$RH_0$ : There is no difference in knowledge between different groups of respondents regarding recommended practices of jojoba.

$NH_1$ : There is difference in knowledge between different groups of respondents regarding recommended practices of jojoba.

To find out the significance of difference in knowledge between different groups of respondents regarding recommended practices of jojoba cultivation, F test was calculated. F value came to be 2.76 which is non-significant. It led to be acceptance of null hypothesis ( $RH_0$ ) and rejection of alternative hypothesis ( $NH_1$ ). Thus non-

**Table 3. ANOVA for knowledge between different groups of farmers**

Source of variance	d.f.	SS	MS	F value
Between groups	2	126.37	63.18	2.767 <sup>NS</sup>
Within groups	154	3517.19	22.83	
<b>TOTAL</b>	<b>156</b>	<b>2575.595</b>		

NS: Non-Significant

From the above discussion, it could be concluded that there was no significant difference between three categories. It means that the categories of respondents had more or less similar knowledge towards recommended practices of jojoba cultivation in the study. This may be due to the reason that there may be close contact of AJORP personnel with all the categories of farmers, whereas, one category is trained by AJORP, the technology might be percolating to other categories of farmers. It shows the positive impact of the AJORP because it seems that all the categories are being taught equally about the jojoba practices.

### CONCLUSION

It was concluded that majority of the respondents were from medium knowledge category. The respondents possessed maximum knowledge about marketing followed by irrigation,

soil and its preparation, and harvesting. Minimum knowledge level was found regarding nursery There was non-significant difference in level of knowledge between different groups of respondents regarding improved practices of jojoba cultivation.

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