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Constraints Perceived by Date Palm Growers of Barmer District in Adoption of Date Palm Cultivation Technology

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ABSTARCT

The date palm *(Phoenix dactylifera L.)* is one of the most potential fruit crop for dry arid zone of the country with irrigation facilities. It is cultivated for its sweet edible fruits and is considered to be the oldest amongst the cultivated tree fruits. In Western Rajasthan fruits of date palm mature one month early in comparison to Gulf countries having its own advantage in international markets. Date palm is very good source of nutrition having 70 per cent carbohydrates. The present study was conducted in Western Rajasthan and a total of 80 farmers were selected from Barmer district. The data were collected through personnel interview method through questionnaire prepared and care was taken to collect the unbiased and correct data. The data were collected, tabulated and analyzed to draw conclusion. The study has clearly revealed that the major technical constraints perceived by date palm growers were high price of good quality off shoots and lack of knowledge about improved variety. The major financial constraints were irregular supply of electricity and high charges of electricity. The extension and marketing constraints were related with lack of extension services and poor marketing facilities. In order to improve quality date palm production, these constraints may be overcome by the concerned state departments.

Key Words: Constraints, Date palm, Knowledge, Market, Technology.

INTRODUCTION

The date palm *(Phoenix dactyliferaL.)* is one of the most potential fruit crop for dry arid zone of the country with irrigation facilities. It is cultivated for its sweet edible fruits and is considered to be the oldest amongst the cultivated tree fruits. Major area and production of date palm is currently dominated by Middle East and other African countries. India is the largest importer of date fruits (286 MTA) in the world while Iran is the largest exporter (143 MTA). In India, it is cultivated in 12493 ha area in Kachchh district of Gujarat with a production of 85351t per annum of doka stage fruits. There are date palm research farm located in Jodhpur, Bikaner and Jaisalmer districts of Rajasthan and Abohar district of Punjab. Date palm has very specific conditions required for its successful cultivation i.e. prolonged hot dry climates, and are relatively tolerant of salty and alkaline soils. Date palms require a long, intensely hot summer with little rain and very low humidity during the period from pollination to harvest, but with abundant underground water near the surface or irrigation. One old saying describes the date palm as growing with ‘‘its feet in the water and its head in the fire.’’ Such conditions are found in western Rajasthan for the requirement of heat summation unit for date palm varies from 1950 to 3650 depending upon cultivars. The heat summation unit in the Indian desert during March to August has been worked out to be 2000 to 2400, above a base of 180C and from 3500 to 4000 above a base of 100C. This suggests that Indian desert meets this requirement.

In Western Rajasthan fruits of date palm mature one month early in comparison to Gulf countries having its own advantage in international

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markets. Rajasthan has an established export market and poses bright opportunities for export fresh and processed in the international market. It was considered to carry out the study with the objectives to document the constraints faced by date palm growers in adoption of improved date palm cultivation technology.

MATERIALS AND METHODS

The present study was conducted in Barmer district of Western Rajasthan. Total 80 farmers who were date palm growers from last 5 yr were selected. The data were collected through personnel interview. The data were collected through personnel interview method through questionnaire prepared and care was taken to collect the unbiased and correct data. The data were collected, tabulated and analyzed to draw conclusion. The constraints as perceived by respondents were scored on the basis of magnitude of the problem. A close ended questionnaire containing all possible common difficulties which can hinder the adoption of scientific date palm cultivation technology by the farmers was prepared to document the constraints. The constraints were operationally defined as the difficulties experienced by the date palm growers in adoption of scientific date palm cultivation technology.

A list of the probable constraints which can hinder the adoption was prepared based on past studies. The respondents were asked to mention the constraints experienced by them in adoption of date palm cultivation technology in the form of yes or no. Based on the opinion of the respondents, the frequency against each constraint was calculated.

RESULTS AND DISCUSSION

Technical constraints

The respondents were requested to express the constraints faced by them in adoption of scientific date palm cultivation technology. Frequency and percentage for each constraint were calculated (Table 1).

It was observed that majority (78.75%) of respondents expressed constraints related to high price of good quality offshoot followed by lack of knowledge about improved variety (71.25%), unavailability of offshoots of improved variety(65.00%). These all constrains are related to improved variety / offshoots which play a very vital role for both quality as well as quantity date palm production. Other technical constraints were unavailability of tissue culture plants (57.50%), high price of tissue cultural plants (52.50 %), unavailability of sufficient labour in time (45.00%), low fertility status of soil (38.75%) and insufficient

Table 1. Technical constraints faced by the Date Palm Growers. n= 80

Sr. No.	Technical Constraint	Frequency	Percent (%)
1	High price of good quality offshoots	63	78.75
2	Lack of knowledge about improved variety	57	71.25
3	Unavailability of offshoots of improved variety	52	65.00
4	Unavailability of tissue cultured plants	46	57.50
5	High price of tissue cultured plants	42	52.50
6	Unavailability of sufficient labour in time	36	45.00
7	Low fertility status of the soil	31	38.75
8	Insufficient water for irrigation	26	32.50

Table 2. Financial constraints faced by the Date Palm Growers. n= 80

Sr. No.	Financial constraint	Number (Frequency)	Percent (%)
1	Irregular electricity supply	67	83.75
2	High charges of electricity	58	72.5
3	High cost of insecticides /pesticides (plant protection)	24	30

Table 3. Marketing constraints faced by date palm growers. n= 80

Sr. No.	Constraint	Number (Frequency)	Percent (%)
1	Non remunerative price	63	78.75
2	High cost of transportation	58	72.50
3	Poor marketing facility	53	66.25
4	Higher charges of middle man	48	60.00
5	Poor transport facilities	39	48.75

water for irrigation (38.75%). The probable reason for having constraints related to tissues culture plants was due to fact that the research work on tissue culture plants on date palm is under progress in India and hence only imported tissue culture plants were available for propagation, which is costly.

Financial constraints

Major financial constraints expressed by date palm growers were high rate of electricity (83.75%) followed by irregular electricity supply (72.5 %) and high cost of insecticide/ pesticide (30.0%). Date palm requires too much water for plant growth and water is insufficient in these areas, hence, irregular electricity supply and high rate of electricity might have been mentioned as major financial constraints perceived by date palm growers.

Marketing constraints

Major marketing constraints perceived by date palm growers were non remunerative price (78.75 %) followed by high cost of transportation (72.50 %) , poor marketing facilities (66.25 %), high charges of middle man (60.00 %) and poor transport facilities (48.75 %). Similar results were reported by Pandya *et al* (2017).

Extension constraints

Major extension constraints expressed by date palm growers were lack of timely and appropriate extension services (61.25 %) followed by inadequate mass media sources (22.50 %) and soil testing laboratory is far away from destination (16.25 %).

Knowledge level of recommended cultivation of practices of Date palm growers

The practice wise scores were assigned to all 13 practices on the basis scores obtained by the respondents adopting particular practices. The mean scores were worked out for all the 13 practices. The frequency score further converted into percentage and ranks were assigned to each practice**.** It was evident (Table 4) that the highest level of knowledge was observed in planting time (92.50 %), selection of variety (90.00%), plant spacing (88.75%), use of chemical fertilizer (68.75 %), Soil type & selection of field (66.25%), irrigation management (65.00 %), planting method (63.75 %), Plant protection (Insect Pest & Disease management (55.00%), Use of organic manure (48.75 %), Use of micronutrient (43.75 %), Pollination methods (35.00 %), Maturity indices for harvesting (27.50 %) and Post - harvest management (11.25 %).Similar results

Table 4. Extension constraints faced by the Date Palm Growers. n= 80

Sr. No.	Constraint	Number (Frequency)	Percent (%)
1	Lack of timely and appropriate extension services	49	61.25
2	Inadequate mass media sources	18	22.5
3	Soil testing laboratory is far away from destination	13	16.25

Table 5. Distribution of respondents according to their practice wise knowledge about date palm cultivation technology.

Sr. No.	Date palm cultivation practice	Respondents		Rank
		Frequency	Percentage (%)	
1	Selection of varieties of date palm	72	90.00	i
2	Plant spacing	74	92.50	ii
3	Planting time	71	88.75	iii
4	Use of chemical of fertilizer	55	68.75	iv
5	Soil type & selection of field	53	66.25	v
6	Irrigation management	52	65.00	vi
7	Planting method	51	63.75	vii
8	Plant protection measures	44	55.00	Viii
9	Use of organic manure	39	48.75	viii
10	Use of micronutrient	35	43.75	ix
11	Pollination methods	28	35.00	x
12	Maturity indices for harvesting	22	27.50	Xii
13	Post - harvest management	9	11.25	Xiii

were reported by Deshmukh *et al* (2016), Naik and Deshmukh (2016) and Mehta and Sonawane Madhuri (2012).

Table 6. Distribution of respondents according to level of overall lknowledge about recommended package of practices of date palm.

Sr. No.	Category	Frequency	Per cent
1	Low	11	13.75
2	Medium	52	65.00
3	High	17	21.25

The respondents were categorized into three groups of date palm grower according to level of overall knowledge about recommended package of practices date palm like low, medium and high. It was observed data (Table 6) that majority (65.0%) of respondents were having medium level of adoption followed by 21.25 and 13.75 per cent of the respondents with high and low level of adoption for recommended package of practices of date palm cultivation respectively. These findings were in the line with the findings of Naik and Deshmukh (2016) and Badgujar (2014).

CONCLUSION

The study has clearly brought out that the major technical constraints perceived by date palm growers were high price of good quality off shoots and lack of knowledge about improved variety. The major financial constraints were irregular supply of electricity and high charges of electricity. The extension and marketing constraints were related

with lack of extension services and poor marketing facilities. In order to improve quality date palm production, these constraints may be overcome by the concerned stated departments. It can be highlighted that most of the growers fell in illiterate but knowledge was found to have significant association with socio-economic. Research ought to be directed towards indicating other important social, economic and training factors that has an important role on knowledge of growers.

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