

## ADOPTION OF RECOMMENDED HYBRID CASTOR CULTIVATION TECHNOLOGY BY THE CASTOR GROWERS

B. K. PATEL<sup>1</sup>, J. J. MISTRY<sup>2</sup> and G. J. PATEL<sup>3</sup>

### ABSTRACT

*The present study was undertaken in Mehsana district of Gujarat state to know the adoption of recommended hybrid Castor cultivation technology. The sample of the study was 120 Castor growers. The findings revealed that majority of the castor growers had medium level of adoption of recommended hybrid Castor cultivation technology. The variables viz; education, land holding, annual income, social participation, extension contact, sources of information, economic motivation, scientific orientation, innovativeness and knowledge level were found positively and significantly correlated with extent of adoption of recommended hybrid castor cultivation technology. The knowledge level and innovativeness contributed significantly to the prediction of the adoption of the hybrid Castor cultivation technology. The major constraints faced by the castor growers in adoption of recommended hybrid castor cultivation technology were unavailability of certified seed, high costs of inputs, insufficient irrigation facility and high rate and irregular supply of electricity.*

### INTRODUCTION

Among all the oilseed crops, castor is an important industrial non-edible oil seed crop of India and Gujarat is the leading castor growing state of the country. The area, production and productivity of castor were reported as 3.41 lac hectares, 6.65 lac tonnes and 1946 kg/ha, respectively (Desai and Shah, 2007).

Mehsana is one of the most important hybrid castor growing districts of Gujarat state. The area under hybrid castor in this district was 34,800 hectares with production about 59,900 metric tonnes and productivity of 1719 kg/ha during 2004-2005. But the harvested yield of research station was recorded as 2230 to 3000 kg/ha. Thus, the average yield of hybrid castor in the district was lower in comparison to its potential yield. Lower adoption of recommended technology by hybrid castor growers might be the reason for this situation.

### METHODOLOGY

The present study was undertaken purposively in Mehsana district of Gujarat State. Three talukas viz.; Kadi, Vijapur and Mehsana having higher area under hybrid castor cultivation were selected purposively. Four villages from each selected taluka were purposively selected which had higher area under hybrid castor cultivation. From each selected village, ten respondents were selected randomly. Thus the study was conducted with total 120 respondents. The data were collected by personal contact method with the help of structured interview schedule. To know the association between independent variables with adoption, correlation coefficient was worked out. Similarly to know the combined effect of the independent variables in explaining the variation in the adoption of castor cultivation technology, the multiple regression analysis was done. Responses in regards with constraints were

1 P.G. Scholar, Department of Extension Education, C.P. Collage of Agriculture, S.D.A.U., Sardarkrushinagar

2 Subject Matter Specialist (Extn. Edu.), Krishi Vigyan Kendra, S.D. Agricultural University, Khedbrahma, Dist. : Sabarkantha.

3 Programme Coordinator, Krishi Vigyan Kendra, S.D. Agricultural University, Khedbrahma, Dist. : Sabarkantha.

analyzed to find out frequency and percentage and then rank order was assigned.

**RESULTS AND DISCUSSION**

**1 Adoption of hybrid castor cultivation technology**

The results regarding adoption of hybrid castor cultivation technology are presented in Table:1

**Table 1 :Distribution of the respondents according to their extent of adoption** n = 120

Sr. No.	Extent of adoption	Frequency	Percentage
1	Low (Up to 15 score)	23	19.17
2	Medium (16 to 21 score)	87	72.50
3	High (Above 21 score)	10	08.33

$\bar{X}$  = 18.19

S.D. = 2.86

The results in Table 1 indicate that majority (72.50 %) of the castor growers had medium extent of adoption followed by 19.17 and 8.33 per cent castor growers who had low and high extent of adoption, respectively.

faced by them in adoption of recommended hybrid castor cultivation technology.

**2 Association between selected independent variables and extent of adoption of recommended hybrid Castor cultivation technology**

Thus, it could be inferred that majority of the castor growers (72.50 %) had medium extent of adoption. This might be because of their medium level of knowledge, extension contact, utilization of information sources, scientific orientation, innovativeness etc. as well as several constraints

The results regarding association between the independent variables and extent of adoption of recommended hybrid Castor cultivation technology are presented in Table 2.

**Table 2 : Correlation between selected characteristics of the castor growers and their extent of adoption** n = 120

Sr. No.	Independent Variables	Correlation coefficient ('r' value)
1	Age	-0.11202
2	Education	0.45487**
3	Land holding	0.24457**
4	Annual income	0.30582**
5	Irrigation facility	-0.01561
6	Social participation	0.22881*
7	Extension contact	0.37131**
8	Sources of information	0.28544**
9	Economic motivation	0.30871**
10	Scientific orientation	0.20253*
11	Risk preference	0.07629
12	Innovativeness	0.42006**
13	Knowledge level	0.7750**

\*\* = Significant at 0.01 level of significance \* = Significant at 0.05 level of significance NS = Non Significant

The results of coefficient of correlation analysis (Table 2) indicate that out of the 13 independent variables, ten variables viz.; education, land holding, annual income, social participation, extension contact, sources of information, economic motivation, scientific orientation, innovativeness and level of knowledge had positive and significant correlation with extent of adoption of recommended hybrid castor cultivation technology by the castor growers. Remaining

variables viz.; age, irrigation facility, risk preference failed to establish any significant association with extent of adoption of recommended hybrid castor cultivation technology.

### 3 Variables predicting extent of adoption of Castor cultivation technology

The results regarding multiple regression analysis are presented in Table 3.

**Table 3 : Multiple regression analysis of independent variables of the castor growers with their extent of adoption** n = 120

Sr. No.	Independent variables	Regression coefficient (b <sub>i</sub> )	Standard error of b <sub>i</sub>	't' value (d.f. = 106)
1	Age	0.0161	0.0200	0.807
2	Education	0.0762	0.2419	0.315
3	Land holding	-0.6500	0.4374	-1.486
4	Annual income	0.0187	0.0133	1.405
5	Irrigation facility	0.0667	0.7235	0.158
6	Social participation	-0.0354	0.2788	-0.127
7	Extension contact	0.0650	0.1986	0.327
8	Sources of information	-0.1299	0.0663	-1.959
9	Economic motivation	-0.0698	0.1324	-0.527
10	Scientific orientation	-0.1207	0.1220	-0.990
11	Risk preference	-0.1555	0.0894	-1.740
12	Innovativeness	0.8190	0.3356	2.440*
13	Knowledge level	0.8432	0.0764	11.042**

Multiple regression ( $R^2$ ) = - 0.6778 Multiple R = 0.8233 Constant = 6.0055

\*\* = Significant at 0.01 level of significance

\* = Significant at 0.05 level of significance

In respect of the results of multiple regression analysis (Table 3), all the 13 independent variables together explained 67.78 per cent total variation in adoption of recommended hybrid castor cultivation technology by the castor growers. Further the results also indicated that out of 13 independent variables, two variables viz.; knowledge level and innovativeness were

found significantly contributing for adoption of recommended hybrid castor cultivation technology by the castor growers.

### 4 Constraints faced by castor growers in adoption of castor cultivation technology

The data regarding constraints faced by Castor growers in adoption of hybrid Castor cultivation technology are presented in Table 4.

**Table 4 : Distribution of respondents according to constraints faced by them in adoption of Castor cultivation technology**

n = 120

Sr. No.	Constraints	Frequency	Percentage	Rank
1	Unavailability of certified seed	105	87.50	I
2	Insufficient irrigation facility	86	71.67	III
3	High rate and irregular supply of electricity	84	70.00	IV
4	High cost of inputs (i.e. fertilizer/seed/insecticide etc.)	96	80.00	II
5	High wages and shortage of labour at the time of picking	75	62.50	VI
6	Non-availability of technical guidance	65	54.17	VII
7	Non-availability of finance	61	50.83	VIII
8	Low market price of produce	81	67.50	V

The major constraints faced by the castor growers in adoption of recommended hybrid castor cultivation technology were: unavailability of certified seed (87.50 %), high costs of inputs (80.00 %), insufficient irrigation facility (71.67 %), high rate and irregular supply of electricity (70.00 %), low market price of produce (67.50 %), high wages and shortage of labour at the time of picking (62.50 %), non-availability of technical guidance (54.17 %) and non-availability of finance (50.83 %) which were ranked as I, II, III, IV, V, VI, VII and VIII, respectively.

It can be inferred from the above results that unavailability of certified seeds, high cost of inputs and insufficient irrigation facility were the main constraints.

### CONCLUSIONS

Majority of the castor growers had medium extent of adoption of recommended hybrid castor cultivation technology. The independent variables viz.; education, land holding, annual income, social participation, extension contact, sources of information, economic motivation, scientific orientation, innovativeness and knowledge level were found positively and significantly correlated with extent of adoption

of recommended hybrid castor cultivation technology by the castor growers. The independent variables explained 67.78 per cent of total variation in extent of adoption of recommended hybrid castor cultivation for which two variables viz.; knowledge level and innovativeness were found significantly contributing in extent of adoption. The unavailability of certified seed, high costs of inputs, insufficient irrigation facility and high rate and irregular supply of electricity were the major constraints faced by the castor growers in adoption of recommended hybrid castor cultivation technology.

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