

RESEARCH PAPER

Study on buying pattern and buying behaviour of hybrid castor growing farmers in Aravalli district of Gujarat state

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ABSTRACT

The castor is an important cash crop for the India, the Gujarat is one of the leading state in castor production. The present study aims to study the buying pattern and buying behaviour of hybrid castor seeds by farmers. The study was undertaken in the five villages of Aravalli district in Gujarat. The 100 hybrid castor growers were surveyed for data collection. The snowball sampling was used to get the responses. The simple descriptive statistics were used to analyse the data. From the study it was found that the acreage for castor cultivation is decreasing and farmers are shifting to more remunerative crops. The majority of respondents are having irrigation facility for castor. Majority of respondents have grown hybrid castor seeds in 4 to 6 acre. The 50 per cent farmers purchase 3-6 kg of castor seed while 40 per cent farmer purchase more than 6 kg of castor seeds last year. As far as buying behaviour of farmers is concerned, it was found that topmost factors to which farmers give preference while buying hybrid castor seed were yield potential, wilt resistance, brand image, timely availability and germination percentage of seed. More than eighty five per cent of farmers were using hybrid castor seed since more than five years, the effect of this on their buying behaviour was that they were buying hybrid castor seed mostly because of their own experience.

KEY WORDS : Buying behaviour for castor seeds, Buying pattern for castor seed, Hybrid castor seeds, Farmers behaviour

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Castor belongs to family Euphorbiaceae having botanical name *Ricinus Communis*. It is an oilseed crop, widespread in the tropical region, having its main cultivated area in India, China and Brazil. Castor is a *Kharif* crop and is sown generally between

June-July, the harvesting commences from December onwards and continues till January. According to Food and Agriculture organisation, India produced 1644000 tonnes of castor seed in 2013 and stood first in castor production. According to the Solvent Extractors' Association of India, India dominates in international castor oil trade with export of 410797 MT of castor oil in 2014, moreover Gujarat produces 77 per cent of castor (9.3 lakh tonnes in 2013-14) followed by Andhra Pradesh and Rajasthan. The castor seed products have wide spread application in many industries like paint, lubricant, pharmaceutical, textiles etc. According to Ministry of

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Agriculture and Co-Op, GoI from 2015 to 2017 there has been decline in area under castor cultivation from 11.09 lakh hectares to 8.39 lakh hectares.

Schiffman and Kanuk (2010) define consumer behaviour as: “The behaviour that consumers display in searching for, purchasing, using, evaluating, and disposing of products, services and ideas”. There are many factors that influence consumer purchase decisions. According to Kotler and Keller (2016) consumer behaviour is influenced by four factors: cultural, social, personal and psychological factors. Singh (2004) have identified factors affecting farmers buying behaviour which include brand image, credit facility, timely availability and credibility.

METHODOLOGY

The present study aims to fulfill the following objectives :

- To study buying pattern of farmers for hybrid castor seed.
- To study the buying behaviour of farmers towards hybrid castor seed.

The research was undertaken on a micro framework by using primary as well as secondary data to study the various aspects related to buying pattern and buying behaviour of castor growing farmers. The Aravalli district was selected as an area of study. The two talukas selected for study were Modasa and Bhiloda. Three villages were selected from Modasa taluka and two villages from Bhiloda taluka, in total constituting five villages. The Snowball sampling was used as a sampling technique for studying farmers of the region. The sample size was 100 castor growing farmers for present study. The sample was formed by taking 20 farmers from each village to form a sample of 100 farmers. Primary data was collected from farmers by conducting personal interviews using questionnaire as a research instrument. The descriptive statistics like percentage mean and cumulative frequency were used for analysing the data. A five point rating scale was also used to understand the factors affecting buying behaviour of farmers while purchasing hybrid castor seed.

ANALYSIS AND DISCUSSION

From Table 1 can be concluded that 75 per cent of farmers are lying in the age group of 45 -65 years, involved in farming since long time. The effect of this on their buying behaviour is that they are purchasing hybrid

Table 1: Demographic profile of farmers

Age of farmers		
Age	No. of respondent	Percentage
Below 25 years	2	2
25-35 years	4	4
35-45 years	17	17
45-55 years	30	30
55-65 years	45	45
Above 65 years	2	2
Total	100	100
Education of farmers		
Education		
Below SSC	7	7
SSC	35	35
HSC	30	30
Under graduate	15	15
Post graduate	10	10
Others	3	3
Total	100	100
Size of land holding		
Land holding		
Below 1 ha.	10	10
1-2 ha.	22	22
2-5 ha.	33	33
Greater than 5 ha.	35	35
Total	100	100
Occupation of farmers		
Occupation		
Farming only	47	47
Farming + Animal	28	28
Husbandry		
Farming + Service	12	12
Farming + Business	13	13
Total	100	100
Annual income of farmers		
Income		
Below Rs. 2,00,000	14	14
Rs.2,00,000-	25	25
Rs.4,00,000		
Rs.4,00,000-	34	34
Rs.6,00,000		
More than	27	27
Rs.6,00,000		
Total	100	100

Table 1 : Contd.....

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Family size of farmers		
Size of family		
Less than 5 members	28	28
More than 5 members	72	72
Total	100	100
Number of family members involved in farming		
1.	7	7
2	14	14
3	32	32
More than 4	47	47
Total	100	100

castor seeds because of their own experience acquired over a period of time. From Table 1 it can be also concluded that 65 per cent of the farmers are having educational qualification as either SSC or HSC. The above table shows that 68 per cent of the farmers are medium and large farmers. The two main sources of income for the farmers of the region are sole farming and farming along with animal husbandry. From the study it was found that 86 per cent of farmers are having annual income in the range of 4 lakh to 6 lakh per annum. It was found that 72 per cent of families are having more than five members in family. It was also found that 47 per cent of castor growing families are those who are having more than four family members involved in farming.

The Table 2 shows the farming pattern adopted by castor growers in study area. From the table it can be concluded that 82 per cent of the farmers in the region are doing castor cultivation on irrigated land where they can have irrigations available to the crop during critical stages to save the yield reductions. Only 12 per cent of

farmers are doing cultivation of castor in non-irrigated land. The table shows that 6 per cent of farmers are doing cultivation on irrigated as well as non- irrigated land. It was found during the study that 84.1 per cent of farmers are using drip irrigation as a method of irrigation. Since 68 per cent of the farmers studied are medium and large farmers having large size of land holdings so they are able to afford to have drip irrigation for irrigating the crop to have more water use efficiency. 15.9 per cent of farmers in the region are using other methods of irrigation including furrow method, flooding method etc.

In the survey the area under castor crop was asked to respondents for previous, current year and planning for next year. The average of the acreage is shown in Table 3. From the study it was found that there has been decline in castor acreage during past years and farmers are shifting to other crops. The main reason which farmers gave about decline in castor acreage were that on one side the cost of farm inputs like fertilisers, labour, pesticides are increasing on other side the price of final produce in castor during the past few years is discouraging them to grow it. Other reasons given by farmers were that it is a long duration crop and takes eight months to mature during which they can grow other crops having short duration and having more returns. Some of the farmers said that the harvesting of castor is also difficult as spines over castor sometimes cause hypersensitivity to the harvester.

According to Ministry of Agriculture and Co-Op (2017), India, being the single largest producer of castor seed in the world, is showing the declining castor output after the farmers shifted to other crops like cotton, groundnut and pulses. The total castor acreage fell by more than 24 per cent in 2016-17 in comparison to that of 2015-2016. In Gujarat, the largest producer of castor

Table 2 : Farming pattern prevalent in the study area		
	No. of respondents	Percentage
Nature of farming		
Irrigated	82	82
Non-irrigated	12	12
Both	6	6
Total	100	100
Type of irrigation		
Drip	74	84.1
Sprinkler	00	00
Any other	14	15.9
Total	88	100

seed, a drop of over 27 per cent was recorded in the acreage with merely 5.65 lakh hectares being sown. Rajasthan and Andhra Pradesh also registered a drop in acreage of 14.5 per cent and 32.6 per cent, respectively.

From the study it was found that 85 per cent of farmers are using hybrid castor seed since more than last five years. 50 per cent farmers purchase 3-6 kg of castor seed while 40 per cent farmers purchased more than 6 kg of castor seeds last year. In the study area 66 per cent farmers purchase hybrid castor seed because of their own experience acquired during long journey of farming, as seventy five per cent of farmers are in the age group of 45-65 years. According to study conducted by Verma and Sidhu (2009) farmers judge the purity and quality of seeds purchased from public seed agencies, research organizations, government departments, private seed companies/dealers etc. by their past experience and reputation of product (brand image). From present study it was found that the inspiration and motivation getting after seeing successful results of progressive farmers were found to be the second important reason that what motivates farmers to buy hybrid seed in castor, 13 per cent farmers buy castor seed as per suggestions of progressive farmers. The present study also revealed that the 80 per cent farmers buy hybrid castor seeds on cash basis. According to Sirisha and Kishore Babu (2017) majority of farmers are purchasing seed on cash basis. According to Singh (2004) farmers purchase seeds largely on cash basis, especially high yielding varieties and only a few days before actual use. From the study it was found that customers when asked that are they ready

to switch over to any other brand in future for which they replied that they have intentions of replacing existing brand only if some promising results or differences are seen in the new brand.

A five point rating scale was used to study factors affecting buying behaviour of farmers while purchasing hybrid castor seed. Respondents were asked to rate various parameters on five point scale where 1=Always, 2= Mostly, 3= Often, 4= Rarely and 5= Never. It was found that the top most five factors affecting buying behaviour of farmers while purchasing hybrid castor seed were yield potential, wilt resistance, brand image, timely availability and germination percentage. According to Punjaram (2014) the most important factor affecting buying behaviour of farmers while purchasing cotton seed is yield. According to Misra (2011) as high as 85 per cent wilt incidence has been recorded in castor growing area of North Gujarat. Therefore wilt resistance is an important factor affecting buying behaviour of farmers while purchasing hybrid castor seed. According to study conducted Verma and Sidhu (2009) farmers judge the purity and quality of seeds by reputation of product (brand image). According to Sirisha and Kishore Babu (2017) farmers purchase seeds from a retailer providing better services and purchase seeds having positive brand image, good in quality with different product features (height, big boll size etc). According to Singh (2004) in general farmers will not go beyond a distance of 30 km to buy seeds . The major channels still are fellow farmers and private traders. The reasons for preferring them are quality assurance, timely availability and easy access.

Table 3 : Area under castor crop (acres)

Year	Area under castor	Area under other crops
Previous year	5.36	5.18
This year	4.16	6.38
Next year	3.44	7.1

Table 4: Declining trend in castor acreage

State/crop year	Area (lakh hectare)	
-	2015-2016	2016-2017 (projected)
Gujarat	7.81	5.65
Rajasthan	1.99	1.70
Andhra Pradesh	0.46	0.31
Telangana	0.47	0.43
Others	0.36	0.30
Total	11.09	8.39

Source: Ministry of Agriculture and Co-Op, GoI; NB Research (2017)

Table 5: Buying pattern of hybrid castor growing farmers

Time period since farmers are using hybrid castor seed		
Years of usage	No. of respondents	Percentage
1-2 years	5	5
2-5 years	10	10
More than 5 years	85	85
Total	100	100
Quantity of hybrid castor seed demanded last year		
Quantity (kg)		
Less than 3	10	10
3-6	50	50
More than 6	40	40
Total	100	100
Purchase decision influence		
Upon whose suggestion		
Agriculture extension officer	7	7
Distributor	8	8
Dealer	6	6
Progressive farmer	13	13
Own experience	66	66
Total	100	100
Mode of purchasing hybrid castor seed		
Mode of purchasing		
Cash	80	80
Credit	20	20
Total	100	100
Intention to replace existing brand of hybrid castor seed		
Intention to replace existing brand of seed		
To replace	87	87
Not to replace	13	13
Total	100	100

Table 6 : Factors affecting buying behaviour of farmers while purchasing hybrid castor seed

Parameters	Always(5)	Mostly (4)	Often (3)	Rarely (2)	Never (1)	CS	Mean	Rank
Castor yield	95 (475)	4 (16)	1 (3)	—	—	494	4.94	1
Price	57 (285)	27 (108)	8 (24)	4 (8)	4 (4)	429	4.29	8
Timely availability	68 (340)	22 (88)	5 (15)	4 (8)	1 (1)	452	4.52	4
Wilt resistance	80 (400)	12 (48)	5 (15)	3 (6)	—	469	4.69	2
Post sales service	73 (365)	7 (28)	9 (27)	8 (16)	3 (3)	439	4.39	7
Packaging	36 (180)	27 (108)	19 (57)	13 (26)	5 (5)	376	3.76	9
Genetic purity	43 (215)	15 (60)	19 (57)	13 (26)	10 (10)	368	3.68	10
Brand image	67 (335)	23 (92)	6 (18)	4 (8)	—	453	4.53	3
Germination %age	73 (365)	14 (56)	6 (18)	4 (8)	3 (3)	450	4.50	5
Credit	5 (25)	12 (48)	3 (9)	50 (100)	30 (30)	212	2.12	11
Promotional strategies	7 (35)	9 (36)	7 (21)	33 (66)	44 (44)	202	2.02	13
Past experience	74 (370)	14 (56)	2 (6)	6 (12)	4 (2)	446	4.46	6
Recommendation from progressive farmer,dealer	6 (30)	3 (12)	2 (6)	70 (140)	19 (19)	207	2.07	12

(CS= Cumulative score)

Conclusion and Implication:

The farmers are doing mostly castor cultivation on irrigated land with drip irrigation as type of irrigation. There has been declining trend in castor acreage due to the reason that farmers are shifting to other crops like groundnut, cotton and pulses. The farmers are using hybrid castor seeds since more than last five years. The farmers are mostly purchasing hybrid castor seeds because of their own experience. Majority of the farmers are purchasing seeds on cash basis. The top most factors which affect buying behaviour of farmers while purchasing hybrid castor seed are castor yield, wilt resistance, brand image, timely availability and germination percentage. The farmers should be made aware about benefits of intercropping. Since farmers gave first priority to yield potential and wilt resistance while purchasing hybrid castor seed, so instead of cultivating castor as sole crop, intercropping of castor with other crops will increase yield and reduce incidence of wilt. If farmers can have early and medium duration hybrids or varieties available they can be encouraged to grow castor which will stop current declining trend of area under castor.

Future research :

The castor is an important crop for Gujarat but the area under this crop is decreasing, the future research can be carried out in the aspects of insights or reasons for leaving the crop. The research can be done on policy level to find out factors which can be improved by government and industry and the area under castor crop can be increased. The changing cropping pattern and its impact can also be studied.

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