Original Research Article

Farmers' Brand Preference and Brand Loyalty towards Maize Hybrid Seeds in Guntur District of Andhra Pradesh, India

ABSTRACT

A good quality seed is considered as a primary vital farm input among all agricultural farm inputs. Since it directly helps to a good crop productivity, which further makes farmer to generate income by marketing the surplus to consumers. Farmers are finding it difficult to select a high-quality seed brand for cultivation because numerous seed brands have been introduced to the market by the public and private companies. As maize is one of the most profitable crops, most farmers opt for commercial cultivation. The present study was conducted to learn the farmers' brand preferences and brand loyalty while purchasing Maize hybrid in Guntur district of Andhra Pradesh. Data were gathered from 90 sample farmers by choosing two mandals in the district through random sampling approach. Top eight brands of maize seed was taken for the study and ranking was determined using simple weighted average method. It was found that, majority of the farmers preferred NK 7884 and NMH 8352 Winner followed by KMH 8333. Also, the study concluded that, there would be repetitive purchase of the same brands and the farmers would purchase preferred branded seeds, regardless of considering the cost of seed.

Keywords: Maize hybrid, Brand preference, Brand loyalty

1. INTRODUCTION

Maize is the most widely cultivated cereal grains in the globe (Bhasker Reddy, 2010). It is recognized as the "Queen of Cereals" due to its large genetic yield potential, production and productivity (Thota Vivekananda, 2012). Maize is recognized as a potential option for diversifying agricultural production in upland areas of India (Lakshman Dev, 2009). The only cereal crop that can be grown in all seasons, regions and settings is the maize. India accounts for about 4% of the world's total maize area and 2% of its total production, placing it fourth in terms of area and seventh in terms of production respectively among the maize growing nations. During 2018–19, India's maize area expanded to about 9.2 million hectares (DACNET, 2020). India's total maize production in 2020-21 was about 24.51 MMT. In Andhra Pradesh, maize was cultivated in an area of 3.01 lakh ha with a production of 21.21 lakh tonnes and productivity of 7055kg/ha respectively contributing 5.66 percent to total country's production. In 2019-20, Guntur district of Andhra Pradesh is the largest Maize producing region with a production of 5.03 lakh tonnes and the crop is cultivated in the area of 48 thousand ha (Maize Outlook Report, 2021).

First most important fundamental input for sustainable agriculture is seed (Dharmendrabhai, P. T. 2016). The quality of the seeds greatly influences how all other inputs respond (Patel, Tejaskumar. S. 2015). The growth of the seed industry has paralleled with an increase in agricultural productivity (Vasava, Dhruvitkumar. M. 2015). Farmers prefer to use high-quality hybrid seed brands for successful crops. Prior to the introduction of hybrid seeds, the majority of farmers preferred cultivating traditional and the seeds of previous crops. However, because of the severe climatic change and the lack of fertile soil, the yield potential of traditional seed varieties has been lower than predicted, rendering farmers unable to cover their costs of cultivation. Farmers switched to hybrid seeds because they offered greater yield potential and pest and disease resistance. To meet the need of farmers, numerous public and commercial seed firms released numerous seed varieties under various brand names into the market (Krishna et al., 2020). The private seed industry is no more confined to just production and marketing of seed. It has as well acquired technological strength to cater the varietal needs of tomorrow (Patel, Jignesh. N. 2015).

Farmers are faced with a challenging task when selecting a specific seed brand among the several available seed brands for the same crop. They obtain information and advice from a variety of sources, including dealers, other farmers, and agricultural organisations, which enables them to choose the best brand for their budget and soil type. Farmers are moving from traditional seeds to hybrids despite the high expense of hybrid seeds because they are more aware of the yield and quality of produce produced from hybrid seeds. Farmers begin to agree a strong, high-quality brand with reliability and assurance. Farmer loyalty to a certain brand depends on regular purchases over a period of time regardless of price change (Krishna et al., 2020). Farmers' attention began to shift toward professionally produced, labelled, branded, value-added seeds, which provide better prices and larger yields in a comparatively shorter period of time, as a result of change in pattern in the retail food industry (Bhasker Reddy, 2010). This study aims to analyse how brand preference and loyalty enables the sample farmers to choose a specific brand for their production needs. Since there are different maize seed brands available in the Guntur district, so the efforts are made to identify the brands that farmers in the various economic levels prefer in the study area.

1.1 Objective of the study

To study the brand preference and brand loyalty for Maize hybrid among the farmers in Guntur district of Andhra Pradesh.

2. METHODOLOGY

2.1 Selection of Study Area

In Andhra Pradesh 25 % of the maize production was observed in Guntur district. Hence, this district was selected for this study. In the selected district, two mandals were selected randomly viz., Thullur and Amaravathi.

2.2 Selection of Sample Respondents

In the first stage two mandals were randomly selected from the selected district and secondly, from each mandal three villages were randomly selected for the study. 15 farmers from each village was selected by using stratified random sampling technique. Hence, the total sample size of respondents accounted for 90.

2.3 Study Period

The reference year for the present study regarding the farmers brand preference and brand loyalty towards the Maize hybrid was taken as 2022. The primary data was collected from the sample farmers using a pre-structured interview schedule during the period of April to June of 2022.

2.4 Statistical Analysis

2.4.1 Percentage Analysis

Socio-economic characteristics of the sample farmers which includes age, education, occupation, experience, size of land holding, area under maize cultivation, source of information, brand loyalty, mode of purchase and place of purchase were evaluated using percentage analysis. Percentage analysis was computed by using this formula

Percentage analysis = $\frac{No\ of\ samples\ taken\ X\ 100}{Total\ no\ of\ samples}$

2.4.2 Weighted Average Score Method

To rank the preferences of various brands utilised by the farmers in the study area, the weighted average score approach was applied (Krishna et al., 2020).

Weighted average score = $\frac{\sum wx}{\sum w}$

Where,

w : Weighted factor for each seed brand

x : No of factors

3. RESULTS AND DISCUSSION

The collected data of sample farmers are subjected to percentage analysis and simple weighted average technique. The results of socio-economic characteristics, brand preference and brand loyalty are presented below

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3.1 Socio-economic characteristics of sample respondents (maize farmers)

The socio-economic characteristics of the farmers of Guntur district was analysed with respect to age, gender, educational qualification, marital status, family type, occupation and annual income and presented in table 1.

Table 1 Socio-economic characteristics of sample respondents

Particulars	No. of farmers	Percentage (%)
Age (years)		
Below 30	7	7.78
31-40	32	35. 56
41-50	35	38. 89
Above 50	16	17. 78
Total	**90**	**100**
Gender		
Male	65	72. 22
Female	25	27. 78
Total	**90**	**100**
Educational Qualification		
Illiterate	29	32.22
Primary	20	22. 22
Secondary	18	20
Higher secondary	12	13. 33
Diploma	7	7. 78
Degree/ PG	4	4. 44
Total	**90**	**100**
Marital Status		
Married	85	94. 44
Unmarried	5	5. 56
Total	**90**	**100**
Family Type		
Nuclear	68	75. 56
Join	22	24. 44
Total	**90**	**100**
Occupation		
Agriculture	82	91. 11
Agriculture + Others	8	8.89
Total	**90**	**100**
Annual Income (Rs.)		
Below 50,000	8	8.89
50,000 to 1 lakh	18	20

1 lakh to 3 lakhs	39	43. 33
More than 3 lakhs	25	27. 78
Total	**90**	**100**

As depicted in table 1, majority of the farmers 38.89 per cent belong to the age group of 41 to 50 years followed by 35.56 percent and 17.78 percent of the farmers belong to the age group of 31-40 and above 50 years respectively. According to the survey, there are more male respondents (72.22 %) than female respondents in maize cultivation. Among the respondents 32.22 per cent of them are illiterate, 22.22 per cent had primary education and 20 per cent had secondary education. In terms of marital status, 94.44 per cent respondents are married and 5.56 per cent are unmarried respondents. In terms of type of family most of the respondents 75.56 per cent are having nuclear family than Joint family. In terms of occupation, majority of respondents 91.11 per cent are doing Agriculture and 8.89 per cent are doing Agriculture + others. In terms of income, 43.33 per cent of the farmers had an annual income of 1 lakh to 3 lakhs. Farmers having income of more than 3 lakhs were 27.78 per cent, Rs. 50000 to 1 lakh were 20 per cent and only 8.89 per cent had an annual income less than Rs.50000.

3.2 Size of land holding

In general, the sample farmers' cropping pattern, quantity of seeds used etc., would be influenced by the size of their land holdings. (Naveen Kumar S, 2013). Therefore, information on the size of land holding of the farmers were gathered, and the results are shown in table 2.

Table 2 Size of land holding

S. no	Land Holding (acres)	No. of farmers	Percentage (%)
1	Marginal (< 2.5)	10	11. 11
2	Small (2.5 - 5)	23	25. 56
3	Medium (5 – 10)	31	34. 44
4	Large (> 10)	26	28. 89
Total		**90**	**100**

From the above table 2, it could be observed that 34.44 per cent were medium farmers followed by 28.89 per cent were large farmer. Small and marginal farmers account for 25.56 per cent and 11.11 per cent respectively. Thus, the majority of the sample farmers holds medium-sized and large-scale farms.

3.3 Area under Maize Cultivation

Information about area under maize cultivation of sample respondents was collected, analysed and the results were provided in table below 3.

Table 3 Area under Maize Cultivation

S.no	Area under Maize Cultivation (acres)	No. of farmers	Percentage (%)
1	Less than 5	7	7.78
2	5 to 10	24	26.67
3	11 to 15	32	35.56
4	More than 15	27	30
Total		**90**	**100**

It could be observed from the table 3 that, 35.56 per cent sample farmers cultivate maize in 11 to 15 acres followed by 30 per cent, 26.67 per cent and 7.78 per cent of farmers cultivate maize in the area of more than 15 acres, 5 to 10 acres and less than 5 acres respectively. Hence, the majority of the farmers cultivate maize in the area of 11 to 15 acres.

3.4 Farming Experience in Maize cultivation

Farmers experience would have a significant role in allocation of resource such as area under crop, brand choice and also to the sustainability of the farm business (Naveen Kumar S, 2013). Hence, the information on experience in maize cultivation was collected, analyzed, and the findings are shown in table 4.

Table 4 Farming Experience in Maize cultivation

S.no	Farming Experience in Maize cultivation (years)	No. of farmers	Percentage (%)
1	Below 5	6	6.67
2	5 to 15	21	23. 33
3	16 to 30	40	44.44
4	More than 30	23	25.56
Total		**90**	**100**

It could be concluded from table 4 that, 44.44 per cent of the farmers have 16 to 30 years of experience in the crop followed by 25.56 per cent of farmers with more than 30 years and 23.33 per cent of sample farmers were with 5 to15 years. Only 6.67 per cent of farmers were least expertise in maize cultivation. Thus, majority of the sample farmers were expertise in crop with 16 to 30 years.

3.5 Source of Information utilized by sample farmers for purchasing maize seeds brand

The source of information is vital for the purchasing of seeds and also influence the brand preference. Table 5 shows the sources of information used by the sample farmers to acquire seeds.

Table 5 Source of Information for purchasing maize seeds brand (N = 90)

S.no	Source of Information	Frequency	Percentage (%)
1	Dealers/Retailers	23	25.56
2	Radio/Television	14	15.56
3	Journals/Newspapers	8	8.89
4	Demonstration	6	6.66
5	Friends/Relatives	39	43.33
Total		**90**	**100**

A perusal of table 5 showed that majority 43.33 per cent of the farmers depend upon friends and relatives for source of information regarding maize seed brands followed by dealers or retailers with 25.56 per cent. Farmers depend on other sources like radio/television, journals/newspapers and demonstration with 15.56 per cent, 8.89 per cent and 6.66 per cent respectively.

3.6 Mode of purchase

The sample farmers primarily use cash and credit mode of purchase of hybrid maize seed from the dealers. The details are presented in table 6.

Table 6 Mode of purchase made by the sample respondents (N = 90)

S. no	Mode of Purchase	Frequency	Percentage
1	Cash	44	48.89
2	Credit	28	31.11
3	Cash and Credit	18	20
Total		**90**	**100**

It could be concluded from the table 6 that, majority of the farmers 48.89 per cent purchased the maize seeds by cash followed by credit purchase 31.11 per cent and 20 percent of farmers bought the seeds by cash and credit purchase from the dealers. These results specifies that most of the farmers purchased the seeds by cash.

3.7 Place of purchase

The location of a seed's purchase would have significant impact on how easily one can seek out information about various brands (Naveen Kumar s, 2013). The place of purchase of seeds was enquired and the results are presented in table 7.

Table 7 Place of purchase made by the sample respondents (N = 90)

S. no	Place of Purchase	Frequency	Percent
1	Private dealers' shop	84	93.33
2	Government Agri-counters	6	6.67
Total		**90**	**100**

It could be concluded from the table 7 that, the majority of the farmers 93.33 per cent purchased maize seeds from the private dealers' shop followed by 6.67 per cent from Government Agri-counters. Hence, it could be concluded that, the private dealers' shops are the major place of purchase of the sample farmers.

3.8 Brand preference of sample farmers for specific maize hybrid brand

The sample farmers' brand preferences for hybrid maize was presented in table 8.

Table 8 brand preference of sample farmers for different brands of maize hybrid

S.no	Brand Name	1	2	3	4	5	6	7	8	Total
1	KMH 8333	10	19	16	11	18	5	4	7	**90**
2	P 3546	9	6	6	5	7	15	28	14	**90**
3	NMH 8352 Winner	24	14	9	12	9	6	6	10	**90**
4	NK 7884	15	22	12	12	10	8	5	6	**90**
5	NK 7720	11	8	21	16	14	7	8	5	**90**
6	P 3396	7	4	4	6	5	16	19	29	**90**
7	KMH 8322	9	6	13	19	15	17	6	5	**90**
8	MRM 4060	5	11	9	9	12	16	14	14	**90**
Total		**90**	**90**	**90**	**90**	**90**	**90**	**90**	**90**	

Table 9 Farmers' preference for maize hybrid brands

S.no	Brand Name	Mean score	Rank
1	NK 7884	13.5	1
2	NMH 8352 Winner	13.33	2
3	KMH 8333	12.94	3
4	NK 7720	12.44	4
5	KMH 8322	11.54	5
6	MRM 4060	9.83	6
7	P 3546	8.83	7
8	P 3396	7.59	8

The table 8 and table 9 indicated the classification about the farmers' brand preferences for maize hybrid seed brands. Eight maize hybrid seed brands were considered for the study, namely KMH 8333, P 3546, NMH 8352 Winner, NK 7884,

NK 7720, P 3396, KMH 8322 and MRM 4060. The sample respondents in the study area were asked to rank the selected brands in order of importance. The ranking preference for the selected brands was analysed using weighted average score approach. The brand preference of the maize hybrid brands in Guntur is presented in table 9. The results from the table revealed that among all the brands, NK 7884 occupied first position with 13.5 score followed by NMH 8352 Winner, KMH 8333, NK 7720, KMH 8322, MRM 4060, P 3546 and P 3396 with 13.33, 12.94, 12.44, 11.54, 9.83, 8.83 and 7.59 scores respectively. Thus, it could be concluded that majority of the framers preferred NK 7884 followed by NMH 8352 Winner while the least preferred brand is P 3396.

3.9 Cost of maize hybrid seeds in market

From the study region, it was observed that respondents preferred to purchase 4 kg maize hybrid seed packets, and the price of the seeds was stated in table 10.

Table 10 Cost of maize hybrid seeds for different brands

S.no	Brands	Company	Cost of the seed in Rs/4kg packet
1	KMH 8333	Kaveri seeds	1300
2	P 3546	Pioneer	1400
3	NMH 8352 Winner	Nuziveedu seeds	1300
4	NK 7884	Syngenta	1800
5	NK 7720	Syngenta	1600
6	P 3396	Pioneer	1200
7	KMH 8322	Kaveri seeds	1300
8	MRM 4060	Mahyco seeds	1300

From the table 10 it is inferred that, the cost of NK 7884 brand for 4 kg is Rs. 1800 which is higher than other seed brands and the study shows that the farmers preferred NK 7884 because of its characteristics like high kernel set, resistance over pest and diseases and high yield potential. The cost of P 3396 hybrid seeds was least cost (Rs. 1200) in the study area.

3.10 Sample farmers' brand loyalty towards different brands of maize hybrid seeds.

The loyalty of farmers can be determined by their repeated brand purchases (according to Krishna *et al.,* (2020). +Below is information gathered from sample farmers about their brand loyalty to various brands.

Table 11 Repeated purchasing behavior of farmers' towards brand over the time period

S.no	Brands	2019		2021	
		Before 3 years		One year before	
		Frequency (No. of farmers)	Percentage	Frequency (No. of farmers)	Percentage
1	KMH 8333	10	11.11	14	15.56
2	P 3546	12	13.33	6	6.67
3	NMH 8352 Winner	14	15.56	19	21.11
4	NK 7884	10	11.11	21	23.33
5	NK 7720	15	16.67	10	11.11
6	P 3396	9	10	5	5.56
7	KMH 8322	12	13.33	8	8.89
8	MRM 4060	8	8.89	7	7.77
Total		**90**	**100**	**90**	**100**

Brand loyalty towards different brands of maize hybrid is observed through repeated purchasing behaviour of farmers. From table 11 it can be inferred that, there is a repeated purchase and a rise in purchasing for maize hybrids such AS NK 7884, NMH 8352 Winner and KMH 8333 from 11.11 per cent, 15.56 per cent and 11.11 per cent in the year 2019 to 23.33 per cent, 21.11 per cent and 15.56 per cent in the year 2021 respectively. Whereas maize seed brands like NK 7720, KMH 8322, MRM 4060, P 3546 and P 3396 declined from 16.67 per cent, 13.33 per cent, 8.89 per cent, 13.33 per cent and 10 per cent in the year 2019 to 11.11 per cent, 8.89 per cent, 7.77 per cent, 6.67 per cent and 5.56 per cent in the year 2021 respectively.

4. CONCLUSION AND SUGGESTIONS

From the study, it was concluded that, most of the farmers belongs to the age group of 41 to 50 years. The educational background disclosed that majority of the farmers were illiterate. In terms of land holding, majority of the farmers 34.44 per cent are medium farmers and 43.33 percent of the farmers had an annual income of 1 lakh to 3 lakhs. Source of information for majority of farmers obtained from friends and relatives. Most of the sample farmers bought maize hybrids from Private dealers. Farmers preferred to buy NK 7884 followed by NMH 8352 Winner, KMH 8333, NK 7720, KMH 8322, MRM 4060, P 3546 and P 3396 respectively. From the study, it was found that majority of the sample farmers repeatedly purchases NK 7884 followed by NMH 8352 Winner irrespective of price. From the current study the suggestions that could be made are Private companies should provide high-quality, better-performing seeds that will attract both farmers and dealers and in turn, increase brand loyalty. Farmers should receive enhanced input supplies at the proper time and with quality in addition to the dissemination of technological information. Before making a final purchasing decision, farmers should double-check about the seed brand by asking their peers who have already used it on their farm and In order to increase customer loyalty, businesses should make a serious effort to implement customer retention management strategies.

Consent

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

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