Farmers Buying Behaviour Towards Cotton Seeds: A Study in Guntur District, Andhra Pradesh

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ABSTRACT

Present study was undertaken to study the buying behaviour of farmers and also to identify the factors that influence their buying behaviour. The study was done in the area of Guntur district, Andhra Pradesh, India. The technique used for sampling method is four stage random sampling technique. The tests used for analysing the data are regression analysis, ANOVA and Post hoc test. It is identified that the factors, Brand image, quality, service, product features influences the buying behaviour of farmers, and the factors price, promotional activities, farm size and financial status are least considered by the farmers. ANOVA interprets that there is significant difference between groups and post hoc test interprets that there is significant difference in age groups, education and income.

Keywords: Market structure, buying behaviour, seed marketing, Quality.

1. INTRODUCTION

Seed has a prime importance in the field of agriculture. The quantity of output depends on the quality of inputs used, among them, seed plays a prominent role. Seeds are to be made available to the farmer at a right place and at a right time which is possible only through a proper distribution channel. Marketing of seed is an important aspect in the seed industry and involves making the business sustainable and rewarding. It is nothing but bringing seller and buyer together. Seed marketing must be ethical and farmers oriented, aims at satisfying the farmers demand by supplying improved seed varieties at an acceptable price. A specialized marketing is essential to take seeds to farmers and make them use it (Gregg, 1983). The Indian seed industry has occupied fifth place in the world with a turnover of about ₹15000 crore. Of the total turnover, 33% was occupied by private unorganized and 24% is controlled by the public sector and the remaining 43% is

under the control of the private sector. In commercial crops such as cotton, the majority supply of seeds is under the control of private sector resulting heavy competition (Murugkar, Ramaswami, & Shelar, 2007). Generally, market structure of a seed is an oligopoly market (Bambang, october 2006) where we find few numbers of sellers and more number of buyers. Market structure influences the pricing as well as the competition within the market (Bain, 1968). Buying behaviour is nothing but an act of purchase to obtain and use goods and services. It is a set of decisions which includes the selection of brand, quality, retailer, variety, place and time of purchase and mode of purchase (Dodds WB, 1991). Buying behaviour can be influenced by many factors such as cultural, social, personal and psychological factors.

2. REVIEW OF LITERATURE

Understanding farmers buying behaviour is a complex process. The demand for seeds is a seasonal demand. Farmers purchased seeds only at a time of requirement as it is a perishable and costly product and its usage totally depends on the climatic conditions. Before purchasing seeds farmers gather information about seeds from peer group, their own knowledge, field staff, advertisements (Ramasamy & Chandrasekharan, 1990), television, poster and magazines (Dharmaraj, Nilay, & Pratik, 2013), dealers and company representatives (Velvan, S. Naveen, & S. Varadha, 2015). Most of the farmers purchase seeds from a district and local private dealers (Ramasamy & Chandrasekharan, 1990) (Velvan, S. Naveen, & S. Varadha, 2015). Farmers are very attentive to reduce risk so they can purchase seeds from a well-known retailer (Peter & Ralph, 2000). The factors that influence their dealer's selection are: timely and easy availability, perceived quality, credit facility (Sukhpal, 2000) (Ramasamy & Chandrasekharan, 1990), proper communication, information exchange, reputation, technical competence, better service, quality seed supply and previous contact (Anderson, Chu, & Weitz, 1987) have a positive effect on dealer's selection. But some factors such as price, availability of seeds, technical advice, distance and peer group influence had negative effect on dealer's selection (Ramasamy & Chandrasekharan, 1990). Farmers purchase seeds in terms of cash, credit and both cash and credit (Velvan, S. Naveen, & S. Varadha, 2015). If the purchase is made in form of credit they purchase the seeds from private dealers and make the payment at time of crop, if it is in the form of cash they purchase the seeds from government owned shops, agricultural universities, mela (Satyavair & Vinod, 2008) etc.

There are many factors that influence consumer purchase decisions. Kotler and Armstrong, 2007, identified that consumer behaviour has been influenced by four factors: cultural, social, personal and psychological factors. The fellow farmers and dealers act as a decision promoters and factors such as word of mouth, dealers, demonstration plots, fair & melas and village campaigns act as convincing factors on farmers while making a purchase decision. Various authors have identified different factors that influence their purchase decision such as brand image, credit facility, availability of preferred brands, retailer, price quality, quality, price, better performance, disease resistance, promotional activities, packaging etc. But these factors are not studied altogether, and also not focused on the individual factors, so researcher felt it as gap and made an attempt to study buying behaviour of farmers and also to know the influence of product factors (brand image, quality, price, service, product features and promotional activities) and individual factors (farm size and financial status) on the buying behaviour of farmers in Guntur district, Andhra Pradesh.

Famers face different problems in the seeds market. Major problems that they faces while purchasing seeds are non-availability of quality seeds, high price, no discounts, inconvenience and less expert advice (Dharmaraj, Nilay, & Pratik, 2013). Among these problems, unavailability of quality (Ali, Maia Faay, &

Peter, January 23 to 25, 2001) (Ravi Shankar & Pundir, 2016)seeds is the major constraint faced by the farmers; this is due to improper distribution channel or inefficient supply of seeds.

3. MATERIAL AND METHOD USED FOR THE STUDY

The data includes both primary and secondary data. The primary data was collected using schedule consisting of a well-structured questionnaire. The sample taken for the study is from Guntur district, Andhra Pradesh. The sample was selected using four stage random sampling technique. For each selected village, cotton farmers are classified as Marginal, Small and medium and large farmers were taken. The farmer's sample size was taken proportionately based on their population size. The total sample size taken for the study is 1000 which includes 624 marginal farmers, 210 medium and small farmers and 166 large farmers. . In Guntur, total 40 mandal were producing cotton. In these 20 mandals, 5 villages in each mandal were selected. In each village, 10 farmers were selected. Of the total sample size, only 759 responses are valid. The secondary data was collected from the books, published and unpublished articles, research publications etc.

The methods used for analysis are frequencies, linear regression, ANOVA, post hoc test. Linear regression is used to identify the influence of buying behaviour of farmers. ANOVA is used to know whether there is a difference between groups and post hoc test is used to know where the difference exists. Variables taken under product factors include a brand image, quality, price, service, product features and promotional activities and under individual factors, variables taken are farm size, financial status.

Formula 1: $Y = A + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8$

Y = Farmers buying behaviour

A = Constant

β_{1-7} = Co-efficients

ei = error terms

X_1 = Brand image, X_2 = quality, X_3 = price, X_4 = service, X_5 = product features, X_6 = promotional activities, X_7 = farm size, X_8 = financial status.

4. ANALYSIS AND DISCUSSION

The results obtained from the analysis have been summarized as follows.

1. **Source of seed:** From the frequency Table 1 it is observed that the farmers purchased seeds from the retailer.

Table 1
Frequency and Percentage Based on the source of seed
Seed sources

		Frequency	*Percent*	*Valid Percent*	*Cumulative Percent*
Valid	Retailer	759	100.0	100.0	100.0

2. **Terms of purchase:** From the frequency Table 2 it is identified that 68.6% farmers purchase seeds in terms of cash, 21.2% farmers purchase seeds in terms of credit and 10.1% farmers purchase seeds on both i.e. in terms of both cash and credit.

Table 2
Frequency and Percentage Based on the Terms of purchase
Terms of purchase

		Frequency	*Percent*	*Valid Percent*	*Cumulative Percent*
Valid	Cash	521	68.6	68.6	68.6
	Credit	161	21.2	21.2	89.9
	Both	77	10.1	10.1	100.0
	Total	759	100.0	100.0	

3.   **Accompany while going to purchase:** From the frequency Table 3 it is observed that, 7.5% of farmers go along with friends to purchase seeds and 0.9% farmers go with the family members and 91.6% of the farmers go alone to purchase seeds.

Table 3
Frequency and Percentage Based on the person accompanied while going for the purchase
Accompany

		Frequency	*Percent*	*Valid Percent*	*Cumulative Percent*
Valid	Friends	57	7.5	7.5	7.5
	Family	7	.9	.9	8.4
	Alone	695	91.6	91.6	100.0
	Total	759	100.0	100.0	

4.   **Factors influencing buying behaviour of farmers:** From the model summary Table 4, it is observed that the variables (product features, promotional activities, service, quality, brand image) influences the buying behaviour of farmers by 51.5%. From the ANOVA table, it is observed that regression is significant at 0.000 level of significance and the F-value is 101.587. From the co-efficient table it is observed that the factors brand image, quality, service and product features are significant and it represents that these factors influence the buying behaviour of farmers. It is also observed that the factors price, promotional activities, farm size and financial status are not significant and has no influence on the buying behaviour of farmers.

Table 4
Model Summary

Model	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*
1	.721[a]	.520	.515	1.755

[a]Predictors: (Constant), financial status, price, farm size, product features, promotional activities, service, quality, brand image

Table 5
ANOVA[a]

	Model	*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
1	Regression	2503.859	8	312.982	101.587	.000[b]
	Residual	2310.705	751	3.081		
	Total	4814.564	759			

[a]Dependent Variable: consumer buying behaviour
[b]Predictors: (Constant), financial status, price, farm size, product features, promotional activities, service, quality, brand image

5. **Difference between groups:** Post hoc test is used to know whether there is any difference between groups and also whether the difference exists. Here, in this study, it is used whether there is any difference in buying behaviour of farmers with respect to age, educational status, and income of the farmers.

Table 6
Co-efficients[a]

Model		Un-standardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.273	1.564		6.567	.000
	Brand Image	.175	.050	.266	3.483	.001
	Quality	.468	.031	.405	15.107	.000
	Price	.026	.050	.014	.532	.595
	Service	.136	.014	.250	9.653	.000
	Product Features	.173	.066	.198	2.622	.009
	Promotional Activities	.071	.048	.038	1.491	.136
	Farm Size	.255	.153	.042	1.658	.098
	Financial status	.122	.065	.048	1.880	.060

[a]Dependent Variable: Buying behaviour

From the Table 7, it is identified that the *p*-value for age < 30 and 30 – 40 years is greater than 0.05 so that we can conclude that there is no significant difference between those groups. It is also observed that the *p* value for <30 years age and > 40 years, 30-40 years and > 40 years is less than 0.05 so we can conclude that there is a significant difference between these groups.

Table 7
Post Hoc Test Between age factor and buying behaviour
Multiple Comparisons
Dependent Variable: buying behaviour
Scheffe

(I) age	(J) age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
<30 years	30-40 years	.310	.320	.627	-.48	1.10
	>40 years	.867[*]	.307	.019	.11	1.62
30-40 years	< 30 years	−.310	.320	.627	−1.10	.48
	>40 years	.557[*]	.196	.018	.08	1.04
> 40 years	< 30 years	−.867[*]	.307	.019	−1.62	−.11
	30-40 years	−.557[*]	.196	.018	−1.04	−.08

*. The mean difference is significant at the 0.05 level.

From the Table 8, it is observed that, the *p*-values for groups illiterate and 1-5 th standard, illiterate and 6-10 standard, 1-5 th standard and 6 – 10 standard, diploma/inter and degree are greater than 0.05, so we can conclude that there is no significant difference between these groups. The *p* values for groups

illiterate and diploma/inter, illiterate and degree, 1-5 th standard and diploma, 1-5 th standard and degree, 6-10 standard and diploma/inter, 6-10 standard and degree are less than 0.05, so we can conclude that there is a significant difference between these groups.

Table 8
Post Hoc Test between Education and Buying Behaviour
Multiple Comparisons
Dependent Variable: buying behaviour
Games-Howell

(I) education	(J) education	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Illiterate	1-5 standard	−.416	.312	.672	−1.28	.45
	6-10 standard	−.506	.219	.143	−1.10	.09
	Diploma/inter/12 th standard	−1.522[*]	.270	.000	−2.27	−.77
	Degree	−2.000[*]	.292	.000	−2.82	−1.18
1–5 standard	Illiterate	.416	.312	.672	−.45	1.28
	6-10 standard	−.090	.326	.999	−.99	.81
	Diploma/inter/12 th standard	−1.106[*]	.362	.022	−2.11	−.11
	Degree	−1.584[*]	.379	.001	−2.63	−.53
6–10 standard	Illiterate	.506	.219	.143	−.09	1.10
	1-5 standard	.090	.326	.999	−.81	.99
	Diploma/inter/12 th standard	−1.016[*]	.286	.005	−1.81	−.23
	Degree	−1.494[*]	.307	.000	−2.35	−.64
Diploma/ inter/12 th standard	Illiterate	1.522[*]	.270	.000	.77	2.27
	1-5 standard	1.106[*]	.362	.022	.11	2.11
	6-10 standard	1.016[*]	.286	.005	.23	1.81
	Degree	−.478	.345	.639	−1.44	.48
Degree	Illiterate	2.000[*]	.292	.000	1.18	2.82
	1-5 standard	1.584[*]	.379	.001	.53	2.63
	6-10 standard	1.494[*]	.307	.000	.64	2.35
	Diploma/inter/12 th standard	.478	.345	.639	−.48	1.44

[*]The mean difference is significant at the 0.05 level.

From the Table 9, it is observed that the *p*-values for groups below l lakh and 1 to 2 lakh is significant at 0.005, so we can conclude that there is significant difference between these groups and the *p* value for groups below 1 lakh and above 2 lakhs, 1 to 2 lakhs and above 2 lakhs are greater than 0.05 i.e. 0.117 and 0.913. From this, we can conclude that there is no significant difference between these groups.

5. CONCLUSION

From the study it is observed that the farmers in Guntur district Andhra Pradesh purchase seeds from the retail outlet, their major source of seed is only retailer. Majority of the farmers go alone to purchase seeds and make their purchase in terms of cash. It is identified that farmers buying behaviour is influenced by the variables brand image, quality, service, product factors and factors price, promotional factors, farm size

Table 9
Post Hoc Test Between Income and Buying Behaviour
Multiple Comparisons
Dependent Variable: buying behaviour
Scheffe

(I) income	(J) income	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
<1,lakhs	1 to 2 lakhs	−1.425[*]	.433	.005	−2.49	−.36
	> 2 lakhs	−1.843	.889	.117	−4.02	.34
1 to 2 lakhs	<1,lakhs	1.425[*]	.433	.005	.36	2.49
	> 2 lakhs	−.418	.979	.913	−2.82	1.98
>2 lakhs	<1,lakhs	1.843	.889	.117	−.34	4.02
	1 to 2 lakhs	.418	.979	.913	−1.98	2.82

[*]The mean difference is significant at the 0.05 level.

and financial status are not considered by the farmers. 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). They purchase seeds irrespective of the price, farm size, and financial status. From the post hoc test it identified that age groups <30 years and 30-40 years behaviour is same and are different from >40 years age group in terms of brand image. When it comes to education there is no difference between farmers who has an educational status of diploma/inter and degree, illiterate and education below 10 are same.

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