

# INFLUENCE OF REFERENCE GROUP ON TRACTOR PURCHASING DECISION OF FARMERS IN TELANGANA

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## ABSTRACT

*The farmer's profits are decided by his choice of machinery and managing abilities. The tractor is the greatest agricultural tool used by the farmers but in India, the penetration is very low. In this context, there is much scope for the Tractor manufacturers in terms of sales. The present paper aimed to study the reference group's influence on tractor purchasers, especially farmers in rural areas. In general, a reference group can be understood as an individual or group of individuals who have the ability to significantly influence the behavior of an individual. The reference group influences can be divided into three types, viz. Informational, utilitarian, and value expressing influences. Purchasing a tractor needs much investment from an Indian farmer, so he will do much investigation and groundwork and considers many factors. The use of the reference group is one of them. The study has been conducted by using a questionnaire that includes 14 carefully worded statements that are formed upon the reference group influence scale created by Park and Lessig (1977). A random sample of 384 was chosen from the farmers who wish to buy Tractors. The study has shown that Indian farmer is more sensitive to his reference group and his decision is much influenced by them. The marketers need to prepare and implement the strategies that aim at these reference groups.*

**Keywords:** Farm machinery, Farmer's purchasing Behavior, Indian Farmer, Reference Group, Tractor.

## INTRODUCTION

A farmer can make more profits by choosing the right complement of equipment for his farm. The profits are decided by his choice of machinery and managing abilities (Foster and Rosenzweig 2010). In many agricultural operations, the use of outdated technology such as bullock-driven ploughing and manual sowing, reaping, transporting, threshing, harvesting, etc. has given way to user-friendly machines such as tractors, power tillers, threshers, sprayers, and other powered equipment and implements. Even scarcity and high cost of labor has made the farmer look for investing in farm machinery (Reddy et al. 2013). At the same time, farm mechanization has resulted in an increase in income timely completion, and general improvement in the quality of work (Kaur & Kumari, 2022).

Tractor is the single most used agricultural tool today. It can be used for transporting farm products, other equipment like harvester can be hitched to it, or the power shafts of tractors can be rigged to various agricultural implement and agricultural equipment like grinders, pumps, etc. In fact, the word tractorization has been recognized as using a vehicle for removing drudgery and increasing the level of

farming and thereby enhancing the working conditions of farmer (Singh & Pandey, 2005). Tractors enhance the productivity of the farm (Singh et al. 2021)

Despite such importance of tractors in agriculture, many farmers still do not use them. In India, less than 30 per cent of the farmers use machinery like tractors ((Singh et al. 2021). Roughly 44% of the Indian farmers are using tractors, and there one tractor per 30 hectares in India and India is one of the major markets for tractors in the world. (NABARD Report, 2018). It shows that companies need to understand the farmers and their behavioral patterns, especially in rural India, to motivate them to buy tractors. There are many factors that influence farmers to purchase tractors, which include product features, spares and services, economy, reputation, and reference groups (Sivakumar & Kaliyamoorthy, 2014). There is a huge potential for tractor market in India, but there are very few studies conducted in the area of farm machinery buying behavior. In this regard, the present research is conducted to study the impact of three major reference group influences that have been suggested by Lessig & Park (1978). It found the major reference groups for rural farmers, the knowledge of which will help marketers to formulate their strategies to reach and influence farmers.

## REVIEW OF LITERATURE

According to Bearden & Etzel (1982), “the concept of the reference group is based on the social principle that people take the standards of significant others as a basis for making self-appraisal, comparisons, and moving into various social realms.” (p. 1). The term reference group refers to the group of individuals that has an impact on the attitudes and behaviors of others. They are psychologically significant for one’s attitude and behavior (Bearden & Etzel, 1982). In general, a reference group is an individual or group of individuals who can influence the behavior of individuals significantly. These reference groups influence consumer behavior in various aspects (Park and Lessig, 1977; Escalas and Bettman, 2003). Gerard (1955) proposed two influences of a reference group: informational influences and utilitarian influences (cited in Duetsch et al. 1955). Later, Lessig & Park (1978) added value expressive as the third influence.

### **Informational Influence**

It is formed on the want to arrive at informed decisions. Individuals seek information from various available sources to face uncertainty and are likely to accept the information from the most credible source. Those who are presumed to have expertise in the relevant field or are have a high credibility.

### **Utilitarian or Normative Reference Group Influence**

It is visible in the attempts that individuals make to abide by the wishes of others either to gain rewards or escape punishment. This influence leads to compliance with other’s expectations.

### **Value Expressive or Identification**

This influence is described by an individual’s need for emotional attachment with other individuals or groups. The emotional attachment is of two types; (i) an

individual attempts to take on resemblance of the reference group, and (ii) the influence flows from an attachment for or linking with the group (Loudon, 1993; Krishnamacharyulu, 2006).

The opportunity for social interaction or observing and studying others as well as some form of communication are required for these types of influences to exist. Reference groups influence the advancement of self-concept, add to the development of values and attitudes, and create a need to adjust with the group members. At the time of purchase, group conformity and the noticeable elements of the item are seen side by side. Products and brands are certainly among them (Bearden & Etzel, 1982); (Bearden & Netemeyer, 1999). Witt & Bruce (1972) identified various other factors related to reference group influence, some of which are the risk perceived, the referent's expertise, and the need for social approval that affect the reference group influence.

The concept of reference group has been used in the studies related to farmers, scientists, housewives, consumers, voters, students (Hyman, 1968), and soldiers. Advertisers use the concept of reference group to persuade consumers by showing that the consumption of products takes place in a socially pleasant situation, prominent and attractive people endorse the product, or group members serve as spokesperson (Kotler, 2009). The construct of reference group has put forth the notion of group membership in a manner that explains the influence of groups upon the behavior of individuals. From the perspective of consumer behavior and marketing, the impact created by reference groups upon the behavior of individuals can often be manifested in the product types and brands bought.

Individuals often act in a way similar to the social groups with whom they can connect (Childers, 1992). Reference group influences the consumption decisions, which can be suited by analyzing factors like product category. People generally dislike strong pressures and bold directives (Panda, 2007). But in general, due to the strong influence of reference groups, there is a need for the marketers to find a way to reach and influence the groups. The term 'opinion leader' refers to a person who provides an informal suggestion or information related to products. They are, in general, socially active, confident, and involved with the category. Marketers try to identify the demographic and psychographic characters, their media habits, and try to reach them (Kotler & Keller, 2009). Usually, individuals are free to choose the reference groups which they want to be a part of. According to Bourne (1957), the influence of the reference group on product and brand decision is a function of two types of conspicuousness: the product may be a luxury or a necessity, and it may be consumed publicly or privately (Childers & Rao, 1992).

Indian farmers started adapting to farm machinery after the Green Revolution in the 1960s. Increased crop intensity, adoption of more profitable cash crops, and better prices for the yield made the Indian farmers purchase tractors (Singh, 2006). Thus, tractors, especially in southern and western India, have become a necessity.

## Reference Group and Farmer

Indian farmer looks balanced when it comes to the purchase of agricultural inputs. He relates the markets and his needs before making a decision. But he is shy in terms of information collection and depends on a reference group for information. He is probably sensitive to his reference group reactions and ready to accept social influence to an extent (Alagh, 2004). In rural areas, there are many reference groups that influence farmers' decisions, which include primary health workers, doctors,

teachers, panchayath members, and rural bank managers/officers (Saxena, 2006). However, his decisions related to technology are mostly influenced by his neighbors and other farmers, who are already experienced (Skevas & Kalaitzandonakes 2022), and their recommendations (Gordan, 1993).

Dealers are one of the sources of information for the farmers (Buckingham, 1979; Grisso, 1988). Rural mechanics and service providers are also one of the reference groups for the farmer. The Eicher tractor succeeded in Indian market because it is easy to repair and service, so it has been recommended by many mechanics though its competitor Ferguson is technologically advanced compare to Eicher (Saxena, 2005). Family members, friendship groups, and work exchange groups also can influence the farmer's adoption behavior (Dasguptha, 1989). In rural India, opinion leaders and reference groups are more exposed to the media. They are the key persons of the village such as the sarpanch (the village head), gramsevak (the attendant appointed by the local government), schoolmaster, and the young generation professionals, are the opinion leaders (Singh & Pandey, 2005).

### **Tractor Industry in India**

Since the agriculture sector is a major contributor to India's GDP, the tractor industry is considered to be an important part of the agriculture sector. A tractor is considered one of the major inputs that increase the farmers' yield (Singh, 2006). The use of tractors for agriculture started during the 1950s with an annual introduction of about 8,500 imported units (Mandal & Maity, 2013). The domestic tractor industry started in 1961 with a total production of 880 units annually. According to Department of Agriculture and farmers' Welfare Annual report (2021-22), 9,88,028 tractors were sold in India during 2021-22 (Sushma et al. 2022)

There are five categories of tractors available in India, based on horse power (HP): 20 HP or lower, 21-30 HP, 31-40 HP, 41-50 HP and over 51 HP. Traditionally, Indian tractor market is dominated by 31-40 HP tractors (approximately 60%; Sing and Pandey, 2005). Recently, there has been much growth in the above-40 HP sector also. It is due to the availability of better products/technologies at competitive prices, the trend of cooperative farming and precision farm technologies, larger landholding, and a rise in revenue. Haryana, Punjab, and Uttar Pradesh are the traditional markets for tractors in India (because of the green revolution and the nature of soils; Krishnamacharyulu, 2009).

As the northern Indian market is saturated, firms are targeting the southern parts of India. Punjab and Haryana show more replacements than new sales while in the recent past states like Maharashtra, Gujarat, Andhra Pradesh, Madhya Pradesh, and Tamil Nadu have shown better growth in terms of sales. The Indian tractor market is somehow unpredictable though, with tractor manufacturing firms targeting exports as the manufacturing costs are less in India (Dogra, 2008).

Currently, there are 16 major industry players where Mahindra and Mahindra leads. The other players include Tafe, Sonalika International Tractors, Escort, L&T, John Deere, etc. Most of the Indian tractor manufactures have foreign collaborations.

India has 3rd largest gross cropped area along with pieces of land holdings, which made it one of the biggest markets of tractors in the world. Still, it ranks eighth in the number of total tractors that are used (Krishnamacharyulu, 2006). This is due to the fragmented nature of landholding patterns, lack of easy credit, low levels of mechanization, and price-sensitive nature of the buyers (Dogra, 2008). According to Anjani Kumar Choudhari, former President, Farm Equipment Sector

and Management Board Management, Mahindra and Mahindra Limited, the three major factors that affect the tractor industry in the rural area are government investments, monsoons, and the availability of credit (Shwetha, 2009).

In 2003-04, there was a revival in the tractor industry on account of good monsoon with sales growing by 10.5 percent (1,70,000 in 2002-03 to 1,90,000 in 2003-04) and recorded a growth of about 30 percent more units (2,47,531) in 2004-05 (Dogra, 2008). In India, 95 percent of the tractors are purchased on loan. Credit has a strong correlation with the sales of tractors. Banks and financial institutions like NABARD provide loans under priority lending schemes to purchase tractors in rural areas (Krishnamacharyulu, 2006). The Indian government has also been supporting the demand for farm tractors with easy availability of credit for its purchase under priority sector lending (Yadav and Ghosh, 2019). The government gave Rs. 2.8 lakh crores in FY2008-09 in terms of rural credit. The availability of agriculture credit, especially from NABARD and other commercial and cooperative banks, has directly influenced the purchasing capacity of farmers and hence the increased demand for farm tractors (Singh, 2006; Yadav and Ghosh, 2019).

### **Tractor Purchasing Decision**

Tractors play a major role in agricultural mechanization (Krishnadas & Renganathan, 2021). Tractor purchase is somehow a major concern due to comparatively high prices for both the tractor and the implements accompanying it. This investment thus needs a thorough examination of alternatives before the purchase. As a result only rich farmers are in a position to use them (Bisshoff et al. 1994). Fuel consumption, tractor's price, and the state of the spare parts are also major concerns for the farmers while choosing a tractor brand (Aksoy et al. 2019).

In India, a tractor purchase may be considered as one of the important decisions that a farmer takes in his life as it needs much investment. For this, he will do much consultation and groundwork and consider many factors. Bisshoff et al. (1994) identified eight factors that influence agricultural tractor purchase: quality of the product and services, quality of operations, purchase planning, after-sale services, ergonomics, cost of credit, ease of operation, and potential savings. Grisso (1988), identified that price, quality, availability of spares parts, the reputation of the dealers, and previous experience with the dealer are the important factors that determine the purchase of a tractor. Indian studies have shown that Indian farmer looks at fuel efficiency, subsidy, low maintenance cost, Horse power, price, reference groups, brand name, availability of spare parts, and after sales service (Kaustab et al. 2020). A study by Sivakumar and Kaliyamoorthy (2014) found that subsidy is the first factor the farmers consider while buying a tractor and the other factors include information sources including reference groups, after-sale service, price, and brand name. Dealers perceived that subsidy, fuel efficiency, price and maintenance costs are the major influencing factors for the farmer while buying a tractor (Kaustab et al. 2020).

Tractor is becoming a necessity for the farmers, which is a public necessity (Bourne 1957), the influence of reference group will be more for a brand choice (Hawkins et al., 2011). Farmers consult various reference groups while purchasing a tractor (Grainger, 2019). According to LD Mittal, Chairman, Sonalika Groups, a farmer consults his neighbors and those who use tractors; this information is a guiding factor for him (Sarkar and Bhanot, 2009). Most of the time taken by Indian farmers to make a final decision is the time taken by him to decide the specific brand

of tractor. From the time of need identification to the time of purchase, the whole process can take up to 6-9 months, making it a very high involvement purchase. Farmers rely on information given by other users of tractors in order to arrive at his final decision. However, majority of the dealers and salespeople prefer leaving the previous sale behind and look out for new prospects (Rajesh, 2009).

### Need and Objectives of the Study

After considering the literature, it has been clear that reference groups are one of the various important determinants that affect the decision made by a farmer for the purchase of a tractor. There are many studies conducted on farmers' tractor buying behavior but no specific study in the area of reference groups in India exists. In this regard, the present study is aimed to find different reference groups for the farmers. At the same time, it is also aimed to find the influential aspect of the reference group on farmers' tractor purchase decisions. It is expected that the results of this study will give significant guidelines to the manufacturers and dealers in formulating their strategies for marketing purposes.

### RESEARCH METHODOLOGY

A descriptive research design was chosen to conduct the study. Both primary and secondary data have been used in the study. The secondary data has been taken from various journals, books, websites, blogs, etc. The primary data were collected from a sample of 384 potential farmer customers chosen for the survey. 48 villages from Telangana state were randomly chosen and eight farmers from each village were chosen randomly from the prospective customers who were planning to purchase a tractor within one year. The sample consists of 296 male and 88 female farmers. Before the study, random data collection was done to identify prospective customers.

The study was conducted using a pre-structured questionnaire that consisted of formally framed questions which included 14 carefully worded statements, formed based on the reference group influence scale created by Park and Lessig (1977) along with a question to find out what was the basic reference group for them (Table 1). These 14 statements were framed in a manner where each can address the majority of the important questions and decisions that reflect informational, value-expressive, and utilitarian influence. A pilot study was conducted using a sample of 25 in the Ranga Reddy district of Telangana. This sample was not considered for the main study. The reliability of the scale was tested in SPSS using Cronbach's alpha, the value for which was 0.863, which is above the required value, and showed that the items in the scale had good internal consistency (Gliem & Gliem, 2003).

<b>Table 1</b>	
<b>REFERENCE GROUP INFLUENCE MANIFESTATION STATEMENTS.</b>	
	<b>Informational influence</b>
1	I would search for information about various tractors and models from experts
2	I seek information from those who work with tractors (for example, mechanics)
3	I will collect information from friends, neighbors, relatives, or work associates (such as the performance of one brand compared to another)
4	I may change my mind if I see the brand or model that is used by the retailer himself or any

	relation of him
5	My choice is influenced by other consumers' word of mouth
	Utilitarian influence
6	My friends' evaluation and preference will influence my choice
7	Other people's recommendation may influence my final decision
8	The preferences of family members can influence my choice
9	My decision to purchase a particular brand or model is influenced by other farmers' preferences
	Value-expressive influence
10	I tend to choose a brand or model that will enhance my image in others' eye
11	I feel that those who purchase or use a particular brand or model possess the characteristics which I would like to have
12	I feel that it would be nice to act like the type of person who advertisements show using the tractor from a particular brand or model
13	I think that the people who purchase a tractor of a particular brand or model are sometimes admired or respected by others
14	Using a particular brand or model of tractor helps me show others who I am, or who I would like to be (such as a modern farmer, successful man, etc.)

Source: Author.

The data related to reference group influence was collected using a five-point scale ranging between 1-5 (1: Strongly disagree; 2: Disagree; 3: Neutral; 4: Agree; 5: Strongly agree).

The procedure for computing the score was to assign the highest score collected from any of the items which represented a dimension about the three interpersonal influences. The derived scores were averaged for all components of the interpersonal influence. The instrument was translated into Telugu, which is the local language of the area, and retranslated into English to check the semantics. This conversion was done using a qualified expert in both languages.

## Hypothesis

**H<sub>1</sub>:** *There is no significant difference between the three influences on farmers' purchasing behavior*

**H<sub>2</sub>:** *There is no significant difference between males and females regarding of the three reference group influences.*

**H<sub>3</sub>:** *There is no significant difference between different age groups regarding the three influences.*

**H<sub>4</sub>:** *There is no significant difference between different education groups regarding the three influences.*

**H<sub>5</sub>:** *There is no significant difference between different income groups regarding the three influences.*

## RESULTS AND ANALYSIS

TABLE 2 DEMOGRAPHICS OF THE RESPONDENTS.		
Demographics	Frequency	Proportion

Gender	Male	296	77.08
	Female	88	22.92
		384	100.00
Education	Primary or below	87	22.66
	High School	102	26.56
	Intermediate	98	25.52
	Graduation	66	17.19
	PG and above	31	8.07
		384	100.00
Age	18-25	38	9.90
	26-33	63	16.41
	34-41	122	31.77
	42-40	97	25.26
	50 and above	64	16.67
		384	100.00
Annual Income	Below 1 lakh	56	14.58
	1 lakh to 3 lakhs	161	41.93
	3lakhs to 5 lakhs	126	32.81
	5lakhs to 10 lakhs	31	8.07
	Above 10 lakhs	10	2.60
		384	100.00

Source: Author.

Table 2 shows the demographic characteristics of the sample. The major characteristics considered under this study are Gender, Education, Age, and annual income of the farmer.

<b>Table 3</b>	
<b>SOURCES OF INFORMATION FOR THE FARMERS</b>	
<b>Reference Group</b>	<b>No. of Respondents (%)</b>
Family members	65
Mechanics	63
Associates	68
Relatives	24
Ambassadors	12
Priests	24
Village sarpanch	21
Teacher	10
Others	10

Source: Author.

Table 3 shows that associates (co-farmers), along with family members and mechanics, are the major sources of information for farmers while deciding to buy a tractor. Other studies have observed that fellow farmers and dealers are consulted

while purchasing seeds and fertilizers (e.g., Suman, 2021). Our study has shown that while purchasing tractors, farmers consult their fellow farmers.

**Table 4**  
**THE FACTORS THAT DETERMINES THE PURCHASE OF TRACTOR (1<sup>ST</sup> PREFERENCE)**

S. NO.	The factor that determines the purchase	Percentage of Respondents
1	Price	20.83
2	After-sale service	17.97
3	Low cost of operation (Maintenance cost)	14.06
4	Reliability	13.02
5	Availability of finance	10.94
6	Easy availability of spare parts	8.07
7	Ease of operation	6.77
8	Horsepower	4.69
9	Resale value	3.65

Source: Author.

Price and after-sales service are the major factors that influence the purchase decision of a farmer while purchasing a tractor.

The statistical results are provided in Table 4, 5 for the three reference group influences on farmers. The scores for each component of interpersonal influence have been averaged amongst the participants. A score above 3.0 has been recognized as a strong influence. The influence of all three reference groups has been validated by the participants.

**Table 5**  
**REFERENCE GROUP INFLUENCE**

Influence	No. of items	Range	Reference group mean score	Standard deviation (SD)
Informational Influence	5	1 to 5	4.35	0.23814
Utilitarian Influence	4	1 to 5	4.22	0.180507
Value-Expressive Influence	5	1 to 5	3.43	0.600963

Source: Author.

From Table 5, it is can be seen that there is a significant difference among the three influences at the p-values less than 0.05 [ $F(2, 1149) = 633.999, p = 0$ ]. The statistical evidence strongly reject Hypothesis 1. Here, a mean higher than 3 is treated as a strong influence over a maximum value of 5 and the means are 4.35, 4.22, and 3.43 for Informational, Value-expressive, and Utilitarian influences respectively, with a p-value of less than 0.001 for all three influences. It shows that the influence of the reference group can benefit the firms in selling their products better as the reference group influence is high.

The study supports (Table 3) the previous observations that a farmer's decision is influenced by his co-farmers (68%) (Beal, 1958; Gordan, 1993), family members (65%), mechanics (63%) (Avadesh et al., 2005) and that farmers are sensitive to reference group reactions (Alag, 2004) and accept social influence. Among the three

influences, information influence is the highest, followed by value-expressive influence and utilitarian influence.

As stated by early studies, for the Indian farmer tractor is a public necessity and he searches for as many options as possible. It will help the local dealers and tractor firms to identify the reference groups that have an impact on farmers' tractor purchases. Tractor dealers have already been using the existing customers to get a new deal; this would help for them in identifying other reference groups on which they need to concentrate. The study has shown that mechanics, associates, relatives, and brand ambassadors are the other major reference groups along with the family members. The study found that opinion leaders like priests and village sarpanch are the reference groups from whom the farmers seek information while purchasing a tractor. It is suggested that marketers prepare and implement strategies that target these reference groups. As Informational influences are high, firms need to provide more information about the product features to the reference groups.

The study also found that the price of a tractor and after-sale service (Table 4) are the major factors that influences the farmer's tractor purchase decision.

The analysis shows that there is no significant difference between the three influences between males and females as well as no significant base to differentiate (p-values less than 0.05). The same is the case with Age and Income. So we reject the null hypotheses H02, H03, and H05.

Since the education of the farmer shows a significant difference in the impact of the three influences, we cannot reject the hypotheses H04 (Table 6). The study supports the finding that farmers' education affects the purchasing decision, especially his information sources (Kumar & Kapoor, 2017). It gives an indication that the impact of the three influences differs at the education level of the farmer. The marketers need to identify which influence has more impact on the educated farmers.

		<b>Informational Influence</b>	<b>Utilitarian Influence</b>	<b>Value-expressive Influence</b>
Gender	F value	133.932	119.638	131.824
	Sign	0.00	0.00	0.00
Age	F value	153.04	121.233	144.132
	Sign	0.0001	0.00	0.00
Education	F value	143.456	117.235	132.743
	Sign	0.512	0.547	0.504
Income	F value	124.09	107.67	117.234
	Sign	0.000	0.000	0.000

Source: Author.

## **CONCLUSION AND SCOPE FOR FURTHER RESEARCH**

This paper looked into the influence of various reference groups on a farmer's purchasing behavior. The proposed hypothesis was empirically tested using the data collected. The results confirm that there is a significant influence of the reference group on farmers who purchase a tractor.

The paper presents only preliminary results, focusing upon successful strategies of marketing for tractor manufacturers. Future studies could look into the influence of reference group using more specific and general statements, using more consumer segments.

The sample, though chosen randomly, was from only one district of Telangana, and may not represent the whole population. Future research is suggested in the area of brand associations, source credibility of reference groups, and brand ambassador impact on purchase behavior of farmers.

The present study was more focused on whether the impact of influences is different among different demographic characteristics of the farmers; it did not study the impact of each influence separately. The buying decision of a farmer depends on personal characteristics (Kumar and Kapoor, 2017) and it is suggested to study further the impact of personal characteristics on reference group influence.

Opinion leaders are one of the major sources that influence the farmer's decision and marketers need to devise their strategies to identify these opinion leaders (Maggu, 1982). Village sarpanch and priests are such opinion leaders as identified in the study who can be used as information distributing sources while marketing tractors. The results of the study can be used in the other third world countries, where social and economical conditions are similar.

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