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## Consumer behavior and satisfaction level towards herbicide in Gujarat state

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**Abstract**

The study entitled "Consumer behavior and satisfaction level towards herbicide in Junagadh and Rajkot district of Gujarat" was undertaken to study the perception of farmers about herbicide, to study factors influencing the buying behavior of farmers for herbicide used and to find out satisfaction level of farmers towards herbicide. The 65 farmers from each district were selected and hence its way total of 130 farmers were selected for the study. The data analysis was done by using Lickert's scale and multiple regression analysis. The majority of farmers have a highly positive perception about herbicide. The coefficients of the cropping area, brand image, and experience were found positive and significant. The coefficient of advertisement was found negative and significant. The result revealed that the majority of the farmers were highly satisfied with the quality, followed by moderately satisfied and satisfied with the price, brand image, availability and effectiveness of herbicide in the study area.

**Keywords:** Consumer behavior, herbicide, perception, satisfaction

**Introduction**

India is an Agricultural country and providing direct employment to more than 50 percent of the working population in the country. Agriculture contributes about 15 to 16 percent of the total Gross Domestic Product (GDP) of our country. Amid a weak business environment, herbicides remain a bright spot for agrochemical firms. The herbicides business, which has been outperforming the agrochemical market growth for the past several years, is forecast to grow at a strong pace in the next few years too. Manpower shortage and high agricultural wages are driving demand for herbicides. Historically, the availability of an abundance of low-cost workers meant there wasn't much of a need for herbicides, as the work of uprooting the unwanted plants could be done manually. But as wages rose-up, manual weeding has become an expensive affair, which in turn is driving demand for herbicides.

Herbicides are chemicals used to destroy unwanted plants (terrestrial or aquatic) called weeds. Herbicides fall into two broad categories: inorganic (e.g., Copper Sulfate, Sodium Chlorate, and Sodium Arsenite) and organic (e.g., Chlorophenoxy Compounds, Dinitrophenols, Bipyrindyl compounds, Carbamates, and Amide herbicides). Historically, inorganic compounds were the first available and the first used. There have been over a long period a continuous effort to develop more selective herbicide compounds that affect weeds, as opposed to desirable plants.

**Methodology****Data Collection**

The study was confined to the Junagadh and Rajkot districts of Gujarat state. The study was carried out during the year 2019. Major crops grown in the districts are Cotton, Groundnut, Wheat, Gram, Cumin, Coriander, Onion, and Vegetables. Junagadh and Rajkot districts were selected purposively as the company has the highest sales in the respective district. Talukas were selected purposively and a random sampling technique was used to select four villages from each taluka and 8 user farmers of herbicide from each village. The selection of the villages depends on the number of users of company products available in that particular village.

**Perception of Farmers**

Data was collected through face-to-face interviews with the farmers, usually at their farms, based on a structured questionnaire. The multiple-choice question was asked to farmers on the efficacy of pesticides and they have to choose the one answer which they thought best described their opinion or attitude. The questions were based on the different opinions about herbicides efficacy that existed in the area,

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with farmers divided between those who were generally satisfied with the efficacy of the herbicides they were using and those who were expressing objections about herbicide

efficacy. Farmers were also asked to rate the efficacy using a three-point scale from 1 to 3 as follows:

S. No.	Statement	Category	Score
1	Herbicides are not so effective; they often provide <b>unsatisfactory control</b> of the major weeds in crops the last few years	Low	1
2	Herbicides are effective; they usually provide <b>satisfactory control</b> of the major weeds in crops each year	Medium	2
3	Herbicides are effective; they usually provide <b>excellent control</b> of the major weeds in crops each year	High	3

### Satisfaction Level

The Likert scale technique was used to study the satisfaction level of farmers regarding herbicide. The five-point scale was given to the different parameters which are highly satisfied, moderately satisfied, satisfied, dissatisfied and highly dissatisfied.

Particular	Scale
Highly satisfied	5
Moderately satisfied	4
Neutral	3
Dissatisfied	2
Highly Dissatisfied	1

### Various parameters

Price, Brand Image, Quality, Availability and Effectiveness.

### Multiple Linear Regression Analysis

The linear multiple regression model was used to analyze the factors influencing consumer's buying decisions towards herbicides products.

$$Y = a_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + b_7 X_7 + b_8 X_8 + b_9 X_9 + b_{10} X_{10} + b_{11} X_{11} + b_{12} X_{12} + \mu$$

Where,

Y= Herbicide purchase (liter),

$a_0$ = Intercept,

$\beta_1$  to  $\beta_{12}$ = Coefficient to be estimated,

$X_1$ = Cropping area,

$X_2$ = Influence of advertising medium (Radio, TV, Wall painting, Newspapers),

$X_3$ = Packaging quality (Good, Average, Poor),

$X_4$ = Availability of product (Regular, Irregular),

$X_5$ = Preferred payment option (Cash, Credit),

$X_6$ = Education (Primary, Secondary, High Secondary, Graduate),

$X_7$ = Price of the product (Low, Medium, High),

$X_8$ = Brand Image (Good, Average, Medium),

$X_9$ = Quality of the Product (Good, Average, Poor),

$X_{10}$ = Fellow farmers influence (Yes, No),

$X_{11}$ = Dealer opinion (Favorable, Unfavorable),

$X_{12}$ = Experience (Positive, Negative)

### Results and discussion

#### Perception of Farmers about Herbicide

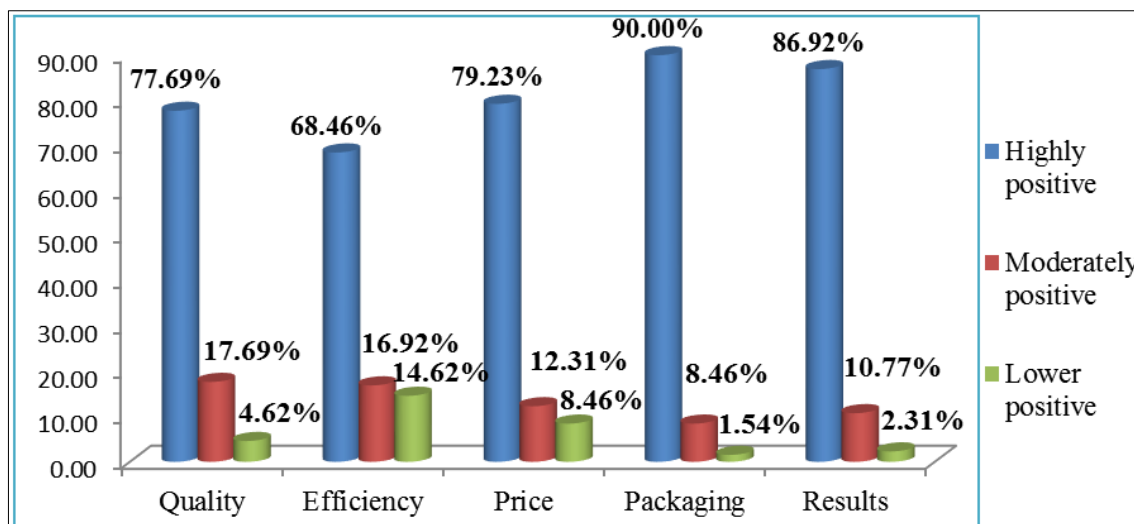


Fig 1: Perception of farmers about herbicide

The bar graph depicted that the perception of farmers about herbicide. The perception of the farmers about in the study area in terms of quality, efficiency, price, packaging, and results is presented in figure 1. The result revealed that in terms of quality, 77.69 percent of farmers had a highly positive perception, followed by moderately positive (17.69 %) and lower positive (4.62%) about herbicide. Also, terms of efficiency, 68.46 percent of farmers had a highly positive perception, followed by moderately positive (16.92%) and lower positive (14.62%) about herbicide. However, in the case of price, 79.23 percent of farmers had a highly positive

perception, followed by moderately positive (12.31%) and lower positive (8.46%) about herbicide. Nevertheless, packaging which was 90.00 percent of farmers' highly positive perception, followed by moderately positive (8.46 %) and lower positive (1.54%) about herbicide. Whereas that said of results, 86.92 percent of farmers had a highly positive perception, followed by moderately positive (10.77 %) and lower positive (2.31%) about herbicide in the study area. In contrast, from the result it can be concluded that farmers of the study area had an overall highly positive perception of herbicide.

### Factors Influencing the Buying Behavior of Farmers for Herbicide Used

**Table 1:** Factors influencing buying behavior

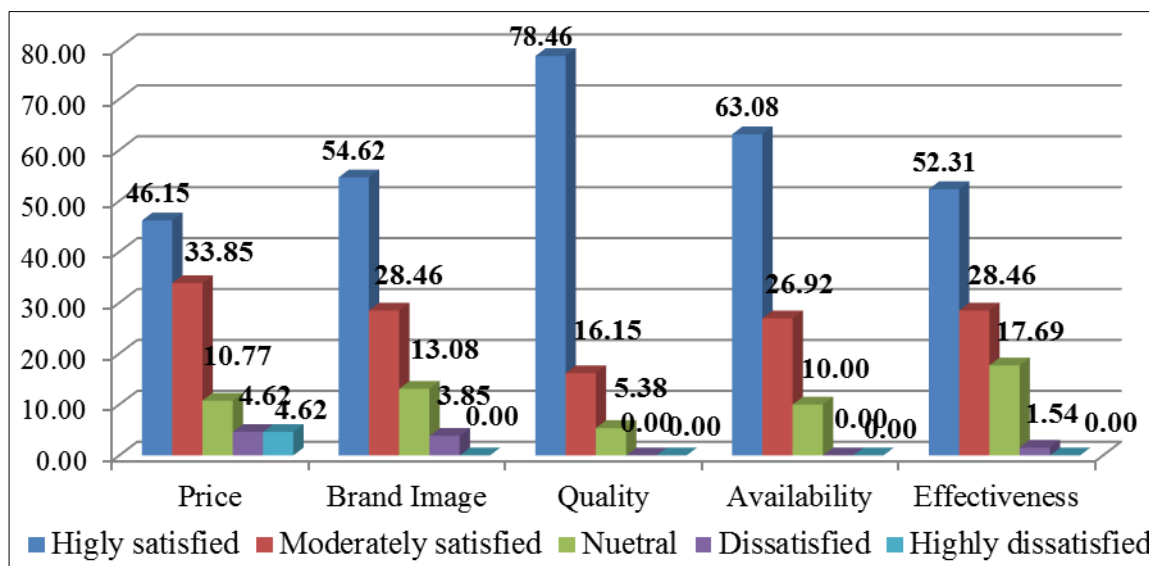
Factors	Coefficients	Standard Error	t Stat
Intercept	-216.43	538.2282	-0.4021
Cropping area (acre)	275.30***	13.92628	19.7686
Influence of advertising media	-77.88*	39.61517	-1.9660
Packaging quality	9.40	31.51363	0.2983
Availability of product	5.48	35.92553	0.1526
Preferred payment option	-75.47	142.6403	-0.5291
Education of customer	10.90	38.52805	0.2830
Price of the product	97.18	59.99513	1.6199
Brand Image	73.74*	43.832	1.6824
Quality of the product	19.58	55.07161	0.3556
Fellow farmers influence	32.95	33.0217	0.9979
Dealer opinion	11.50	34.88519	0.3299
Experience	107.38**	49.18825	2.1830
Coefficient of Determination (R <sup>2</sup> )	78.81		

**Note:** \*\*\*, \*\* and \* indicate significant at 1 %, 5% and 10 % level of significance respectively.

The factors influencing the buying behaviors of farmers for herbicide is presented in table 1. The coefficient of determination was found to be 78.81 percent which indicated that all the factors included in the model imparted a 78.81 percent effect on the purchase of herbicide. The coefficient of cropping area was found to be 275.30 which is positive and highly significant at a 1 percent level. This indicated that with an increase in cropping area, the purchase of herbicide also increased. The coefficient of advertising (-77.88) was found negative and significant at 10 percent level which indicated that with increases advertisement influence, the purchase of herbicide has decreased and it may be due to the reason that

farmers did not like much advertisement or advertisement are not much attractive for the farmers. The coefficient of the brand (73.74) image was found positive and significant at the 10 percent level. This indicates that brand image has a positive impact on the purchase of herbicide *i.e.* the purchase of herbicide has increased with the improvement in brand image. The coefficient of experience (107.38) was found positive and significant at the 5 percent level. This indicated that experience of using herbicide imparted a positive impact on the purchase of the same *i.e.* with god experience, the purchase of herbicide has increased. All the remaining factors were found non-significant.

### Satisfaction Level of Farmers towards Herbicide



**Fig 2:** Satisfaction level of the farmers about herbicide

The satisfaction level of the farmers about herbicide in the study area manifest in figure 10 The result depicted that 46.15 percent farmers are highly satisfied with the price of herbicide followed by, around 33.85 percent farmers are moderately satisfied, 10.77 percent farmers were satisfied with the price and 4.62 percent farmers were each dissatisfied and highly dissatisfied with the price. In the case of brand image, 54.62 percent of farmers were highly satisfied with a brand image followed by, 28.46 percent farmers were moderately satisfied, 13.08 and 3.85 percent farmers were satisfied and dissatisfied

with the brand image, respectively. Thus, none of the farmers was highly dissatisfied with the brand image. In the case of the quality of herbicide, 78.46 percent of farmers were highly satisfied followed by, 15.15 percent farmers were moderately satisfied, 5.38 percent farmers were satisfied with the quality and none of the farmers was dissatisfied and highly dissatisfied with the quality. In terms of availability, the 63.08 per cent farmers were highly satisfied with availability of product in market followed by, 26.96 percent farmers were moderately satisfied, 10.00 percent farmers were satisfied

with availability and none of the farmers was dissatisfied and highly dissatisfied with availability of product in market and moreover they opined that herbicide was always available in the market. In case of effectiveness of herbicide, the 52.31 per cent opined that they were highly satisfied with effectiveness of herbicide on wheat crop followed by, 28.46 percent opined that they were moderately satisfied with effectiveness on wheat crop, 17.69 and 1.54 percent opined that they were satisfied and dissatisfied, respectively with the effectiveness of herbicide. Thus, none of the farmers was highly dissatisfied with the effectiveness of herbicide.

### Conclusion

The majority of farmers have a highly positive perception of packaging and the result of herbicide. In case of the factors influencing the buying behaviors of farmers for herbicide, increased cropping area influenced positively to herbicide purchase. The increased advertisement negatively influenced the purchase of herbicide and it could be due to the reason that farmers did not like much advertisement or advertisement might not be much attractive for the farmers. It was also noticed that brand image has a positive impact on the purchase of herbicide. That experience of using herbicide imparted a positive impact on the purchase of the same *i.e.* with good experience, the purchase of herbicide has increased. And a majority of the farmers are highly satisfied with the quality of herbicide, followed by moderately satisfied and satisfied with the price, brand image, quality, availability, and effectiveness of herbicide in the study area. Hence it may be concluded that farmers were satisfied with the herbicide.

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