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Consumer Behavior Towards UPl Fungicides In Junagadh And Rajkot Districts Of Gujarat

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Abstract

The present study entitled "Consumer Behavior towards UPL Fungicides of Junagadh And Rajkot Districts of Gujarat" was undertaken with the objectives of identifying the factors affecting the brand loyalty of farmers with regard to the fungicide 'Saaf' and studying the factors which affect the awareness of the farmers towards the brand 'Saaf'. 120 farmers were selected for the study purpose. Multiple regression and correlation were used for the analysis.

The result revealed that perception on product quality, availability of the preferred brand, satisfaction towards the brand and performance of the product were significant as well as positive and hence, were the eminent factors that affect the customer's loyalty towards the brand 'Saaf'. Moreover, social participation, mass media exposure and extension contact were found to be positive and significant and thus, these were the major factors which accelerates the farmer's awareness towards the brand 'Saaf'.

Key Words: *Gross Domestic Product (GDP), Multiple Regression, Correlation*

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I. Introduction

The Indian agriculture sector remains the backbone of the nation's economy accounting for 15.35 percent of the country's Gross Domestic Product (GDP) as per the estimates of Central Statistics Office (CSO), 2018. Though the share of Indian agriculture in GDP has witnessed a decline over the years, a trend expected in a developing economy, the food grain production in India registered a Compound Annual Growth Rate (CAGR) of about 2 percent during the FY' 2010 - 2011 and FY' 2016 – 2017, (CSO, 2018).

Indian agriculture is highly monsoon dependent, out of the 142 million hectares of net sown area, only 45 percent or 64 million hectares have access to irrigation facilities. According to CSO, the market size of agriculture and its allied sectors (including agriculture, livestock, forestry and fishery) during FY'16 was about Rs.16.02 lakh crores and has shown a marginal growth of about 1 to 2 percent compared to earlier year. Its contribution to the Gross Value Added (GVA) has also reduced by 100 bps to 15.35 percent during FY' 16 compared to earlier year, (CSO, 2018).

Apart from high dependency on monsoon and irrigation facilities, the situation becomes critical when it is noted that about 15-25 percent potential crop production is lost due to pests, weeds and diseases. Therefore, in order to meet the growing demand borne out of increasing population, the productivity of the crops and efficient utilization of the arable land become essential factors. Thus in order to enhance productivity, the usage of pesticides play a vital role. Currently, India is the fourth largest global producer of pesticides with an estimated market size of around $ 4.9 billion in FY''17 after United States, Japan and China, (CSO, 2018).

Pesticides comprise of a large group of chemicals that are used in agriculture to control plants and animals infestation. Pesticides, being the last input in agricultural operation, are used for preventing the destruction of crops from pests like insects, weeds, etc. thereby increasing the agricultural production. On the production front, pesticides are first manufactured as technical grade product (85percent or more of the active chemical ingredients), which has a higher commercial purity. The active ingredients are then mixed with inert ingredients (solvents, adjuvants and fillers) to achieve the desired formulation. The active ingredient kills the pest whereas the inert ingredient facilitates ease of handling, spraying and coating on plants.

Domestic Pesticide industry to grow consistently albeit with high dependence on erratic monsoons. India's pesticides consumption is the lowest with per hectare consumption of just 0.6 Kg compared to US, 5-7

Kg/ha and Japan, 11-12 Kg/ha. In India, paddy accounts for the maximum share of pesticide consumption around 26 percent to 28 percent followed by cotton, 18 percent to 20 percent, (CSO, 2018).

The Indian pesticide industry is predominated with generic version products and has a substantial opportunity to explore the drugs going off-patent during FY' 2017-2020 and through acquisitions and strategic partnerships of global giants with domestic players. Nonetheless the industry is faced with challenges such as abysmally low spending of R&D by Indian players compared to the foreign players, seasonal demand as 70 percent of the pesticide consumption is skewed in favor of kharif crop, low brand awareness resulting in non-genuine products, inefficiencies in the supply chain and requirement of higher working capital investment due to elongated Inventory and credit periods, (Anon, 2018).

Poor irrigation infrastructure has led to a strong correlation between Indian agriculture and monsoon. However, FY'17 turned out to be a good monsoon year after two consecutive years of below normal south-west monsoon (June-September) rainfall. As per the Indian Meteorological Department (IMD), the south west monsoon received 97 percent of the rainfall and the positive effect of the same is reflected in the income statement and financial risk profiles of the pesticide companies during FY'17. Furthermore as per IMD forecast India is likely to receive healthy monsoon rains this year at 96 percent of the 50 year average of 89 cm, thus bearing a positive effect on all the industries dependent on agriculture, (Anon, 2018).

UPL is a specialized generic crop protection chemicals manufacturer. The generic crop protection chemicals account for ~ 66 percent of the global crop protection market, while proprietary off -patent and patented crop protection chemicals account for the rest. The company is engaged in the business of agrochemicals, industrial chemicals and chemical intermediates. The agro chemicals segment consists of agrochemicals, technicals and formulations. The industrial chemicals segment consists of industrial chemicals and specialty chemicals. The others segment consists of traded products. The company has also got a captive power plant in Jhagadia. The company offers a range of products that includes insecticides, fungicides, herbicides, fumigants, plant growth and regulators and rodenticides, (UPL Annual Report, 2017 – 18).

They have 23 manufacturing sites which includes nine in India, four in France and two in Spain. They operate in every continent and have a customer base in 123 countries with their own subsidiary offices in Argentina, Australia, Bangladesh, Brazil, China, Canada, Denmark, France, Germany, Hong Kong, Indonesia, Japan, Korea, Mauritius, Mexico, New Zealand, Russia, Italy, Turkey, Spain, South Africa, Taiwan, USA, UK, Vietnam, Zambia, and Netherland, (Anon, 2018).

II. Material And Method

Gujarat is a state on the western coast of India with a coastline of 1,600 km, most of which lies on the Kathiawar peninsula and a population in excess of 60 million. It is the sixth largest Indian state by area and the ninth largest state by population. Gujarat is bordered by Rajasthan to the northeast, Daman and Diu to the south, Dadra and Nagar Haveli and Maharashtra to the southeast, Madhya Pradesh to the east, and the Arabian Sea and the Pakistani province of Sindh to the west. Gujarat has an area of 75,686 sq. meters with the longest coastline (24% of Indian sea coast) 1,600 kilometers, dotted with 41 ports: one major, 11 intermediate and 29 minor. Random sampling technique was used for the sample selection. At the first stage, Gujarat state was selected. At the second stage, four talukas (Junagadh, Vanthli, Rajkot, Kotda Sangani) were selected. At the third stage, 3 villages were selected from each taluka and at the fourth stage 120 farmers weresurveyed from the selected talukas. Primary data was collected by using a well -structured questionnaire. Secondary data was collected from company's database, annual reports and internet sources.

Brand Loyalty

Linear multiple regression model has been used to analyze the factors influencing the brand loyalty of the fungicide 'Saaf' of UPL (Shankar *et al.,* 2016).

Mathematically**,**

$Y = B_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + b_9x_9 + b_{10}x_{10} + U_i$

Here,

L = Loyalty towards the brand

B_0= Intercept

b_1 to $b_{10}$are the regression co-efficients

x_1 = Perception on product quality

x_2= Availability of preferred brand

x_3 = Reasonable Price

x_4= Credit Period

x_5 = Past experience

x_6 = Satisfaction

x_7 = Trustworthiness

x_8= Peer group influence
x_9 = Performance
x_{10} =Relationship with the dealers
U_i = Error term

Awareness

Correlation analysis has been used to study the awareness of farmers about the Fungicide 'Saaf'. For this analysis various questions were asked to the respondents. (Yes = 1, No = 0), (Odeyinka *et al.*, 2007).

ρ (Population) and its estimate as 'r' (sample) indicate Karl Pearson coefficient of correlation.

$$\rho = \frac{Cov(XY)}{\sigma_X \sigma_Y}$$

$$r = \frac{Cov(XY}{S_X S_Y} = \frac{\sum xy}{\sqrt{\sum x^2 . \sum y^2}}$$

Where,

$$\sum xy = \sum XY - \frac{\left(\sum X\right)\left(\sum Y\right)}{n}$$

$$\sum x^2 = \sum X^2 - \frac{\left(\sum X\right)^2}{n}$$

$$\sum y^2 = \sum Y^2 - \frac{\left(\sum Y\right)^2}{n}$$

III. Results And Discussion

Brand Loyalty

Linear multiple regression analysis was used to identify the factors affecting brand loyalty of UPL with regard to their fungicide 'Saaf'. It was revealed that the coefficient of determination (R^2) was 0.6317 that showed 63.17 percent of the variation occurs in between the set of variables used in the study.

The variables which were significant were the perception on product quality, availability of preferred brand, satisfaction and performance. This shows that they affect the farmer's loyalty towards the brand and hence the null hypothesis i.e. they do not affect the farmers brand loyalty is rejected and the alternative hypothesis is accepted.

While the other variables like reasonable price, credit period, past experience, trustworthiness and peer group influence do not impart any significant variation toward the loyalty of the brand 'Saaf". Thus, here the null hypothesis is accepted.

Table 1Factors affecting brand loyalty of UPL with regard to 'Saaf'

Factors	Coefficients	P-value
Intercept	0.7567	0.0311
Perception on product quality	0.0950**	0.0356
Availability of preferred brand	0.0938*	0.0882
Reasonable price	0.0320	0.5723
Credit period	0.0004	0.9961
Past experience	-0.0379	0.6348
Satisfaction	0.1695***	0.0001
Trustworthiness	0.3955	9.1600
Peer group influence	-0.0131	0.3418
Performance	0.1280**	0.0214
Relationship with dealers	0.0340	0.2824
R^2	**0.6317**	

*****Significant at 1% level**
****Significant at 5% level.**
***Significant at 10% level**

The Table 1 reveals that there is no significant relationship between age, landholding, education, economic motivation, information seeking behavior, and annual income of the farmers with the awareness levels for the fungicide 'Saaf'. Hence the null hypothesis set for the study that there is no association between those factors with the awareness levels for 'Saaf' is accepted.

The table also depicts that the factors like mass media exposure, social participation and extension contact are significantly associated with the awareness levels for the fungicide 'Saaf'. Hence the null hypothesis set for the study is rejected and the alternative hypothesis is accepted i.e. there is association between those factors with the awareness levels of the farmers for the fungicide 'Saaf'.

Table 2 Awareness of farmers about the fungicide 'Saaf'

Factors	Prob>ρ
Age	0.0898 N. S
Land holding	0.0497 N. S
Education	0.0716 N. S
Social participation	0.0001*
Mass media exposure	0.0097*
Information seeking behavior	0.2635 N. S
Economic motivation	0.2031 N. S
Extension contact	0.0024*
Annual income	0.2447 N. S

***Significant at 1% level of probability**
N. S = Non-significant

IV. Conclusion

Population statistics in the country have been responsible for maintaining adequacy in agricultural practices, ensuring greater utilization of agrochemical products in areas that were ignored in the past.

Globalization of agrochemical industry has a huge impact on the Indianmarket**.** With the high rate of population growth, increasing the need for food production and economic growth, the market for agrochemicals gets pushed ahead. The ambitious project of food security can only be achieved through improved product performance and productivity with the scarce resources available. Land scarcity due to urbanization, soil degradation, water scarcity etc. makes it more essential for the farmers to use agrochemicals to sustain. Export potential and Integrated Farming Practices would provide future growth opportunities. Low awareness among the farming communities and their low acceptance level to the modern day farming practices act as a major challenge for the industry.

The study concluded that the factors like product quality, availability of the preferred brand, satisfaction and performance affect significantly to the product brand loyalty. So, the company must be concerned in maintaining the product quality and more and more agrocentres dealing with the product must be established within the reach of farmers.

Mass media exposure and extension contact emerged out to be the main factors to affect the consumer's awareness towards the 'Saaf' brand. So the company must concentrate in utilization of more of these two factors to increase the awareness of the farmers towards the brand. Finally, it is advisable for the company to use more of the different advertising media like television, posters, pamphlets etc. to capture the market.

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