

Segmented organic fertilizer market in Kutch District, Gujarat

ABSTRACT:

The present study is an attempt to develop market segments for the organic fertiliser on the basis of which companies and other entrepreneurs' sale their product for reaping more benefit. For that sake, Kutch district of Gujarat was purposively selected looking in to the growing importance of the area in the organic fertiliser market and respondents of 200 in number were also selected from the five different talukas as per the significant presence of the farmers in that region. Correspondence analysis was used for creating perceptual map and developing market segments whereas descriptive statistic was used to understand other critical areas of the study. It is found that organic fertiliser is always preferred in bulk, with other inputs as the complementary products. As it is high in price, farmers expect some discounts on the product purchase. Companies come with solutions of products by giving discounts, with ease and availability, with proper storage, transportation facility, technical knowhow and many more. The market is lucrative who are selling organic fertiliser to them who are doing agriculture with dairy farming where as other areas of market segments like agriculture with business and exclusively on agriculture could not be ignored.

Keyword: Organic fertiliser, Correspondence analysis, market, segment

1.INTRODUCTION

The green revolution brought impressive gains in food production but its adverse impact on water and soil put a challenge on future food security of a growing populated country like India. Between 2015–16 and 2018–19, more than five crore soil samples from across India were tested in government-approved laboratories to understand the state of the soils. The results revealed severe and widespread deficiency of organic carbon and micronutrients in Indian soils [1]. Another side, rampant use of chemical fertilizer also impact on both the underground and surface water quality and many parts of India are experiencing water stress due to irrigation in agriculture [2]. India is fortunate to have an abundance of organic fertilizer sources. In 2020–21, with a share of 63 percent, Chhattisgarh led the countrywide production of organic fertilizers [3]. A 2020 study mentions that the potential quantity of organic material (cattle dung, crop residue and municipal solid waste) in the country is about 1,056 million tonne per annum, of which about 35 per cent is actually available for utilization [3]. Even high amount

of pesticide use disturbs natural predator and prey imbalance in the ecosystem. As a result, fertility of soil decreases that again lead to more pesticide use for control of pests. In total, more chemical fertiliser, pesticides and other inputs for agricultural production escalate subsidies and country exchequers system which again difficult in a suffocate soil ecosystem and environment.

Organic ways of farming need to be adopted for sustainable agricultural practices. Similarly, alternative agriculture techniques, such as intercropping¹, Zero Budget Natural Farming (ZBNF)² with essential principles involving the enhancement of nature's processes, and elimination of external inputs, can be practiced [4]. Organic source of nutrient also helps to combat with the problem of multi nutrient deficiency and low organic content in our soil which is affecting productivity of major food crops at farmer field [5]. Organic farming is a method of farming system which primarily aimed at cultivating the land and raising crops in such a way, as to keep the soil alive and in good health by use of organic wastes (crop, animal and farm wastes, aquatic wastes) and other biological materials along with beneficial microbes (bio-fertilizers) to release nutrients to crops for increased sustainable production in an eco-friendly pollution free environment [6,7].

Organic fertilizers are decomposed organic material derived from animal, human and plant residues. Their type varies depending on the source of the organic material and the nature of composting, for example, City compost, Vermicompost, PROM, Organic manure, Raw bone meal, Steamed bone meal, Bio-enriched organic manure, fermented organic manure, liquid fermented organic manure, Potash derived from Rhodophytes [8]. As demand and varieties of forms of organic fertiliser has been increasing day by day, it segmented the market of customers in a different homogenous category for future growth and profit potential of the industries.

Farmers' purchasing behavior towards organic fertilizers is influenced by varieties of factors, including knowledge, attitude, extension services and market availability [9]. The types of fertilizers used, training received, and farm size can impact on a farmer's decision-making process [10]. Access to agro-input shops and extension services is crucial for facilitating the adoption of organic fertilizers [11]. Moreover, access to markets, institutional services, and training programs significantly affects farmers' knowledge and their adoption of new

¹ Intercropping is the practice of growing two or more crops in proximity.

² Zero Budget Natural Farming (ZBNF) is a type of chemical-free farming where the total cost of growing and harvesting plants comes out to be zero (taking into consideration the costs incurred by the farmers are recovered through inter-cropping).

technologies [12]. In this challenging atmosphere and business environment understanding the consumers behaviour is quite difficult and segmented market in this direction will be beneficial for the organic farming and industries.

With this back drop, this research paper is going to unveil the pattern of organic fertiliser consumption and probable market segment for this critical input with paramount strategy for the stakeholders involved in it.

2.MATERIALS AND METHODS

Kutch is a district of Gujarat state in western India, with its headquarters (capital) at Bhuj. Covering an area of 45,674 km², it is the largest district of India. The area of Kutch is larger than the entire area of other Indian states like Haryana (44,212 km²) and Kerala (38,863 km²). However, the locational disadvantage of the district as a dry and semi-arid climate with substantial desert create a situation of an area of water crisis, and deficit in soil water moisture percentage that triggers efficient use of agricultural pattern supported by organic fertiliser base over chemical one. Out of ten talukas of Kutch district, five talukas viz., Anjar, Bhuj, Bhachau, Mandavi and Nakhatrana talukas occupies more than 90 percent of the total area under better cultivation and progressive farmers. Therefore, these five talukas were selected purposively to have a for representation of the districts. From each selected taluka, four villages and from each selected village, ten organic fertilizer users were selected randomly. Thus, total 200 organic fertilizer users were selected as a sample, purposively (as per their organic fertilizer use history and dealers' comment on them) for this research work which was handled in between January to April, 2024.

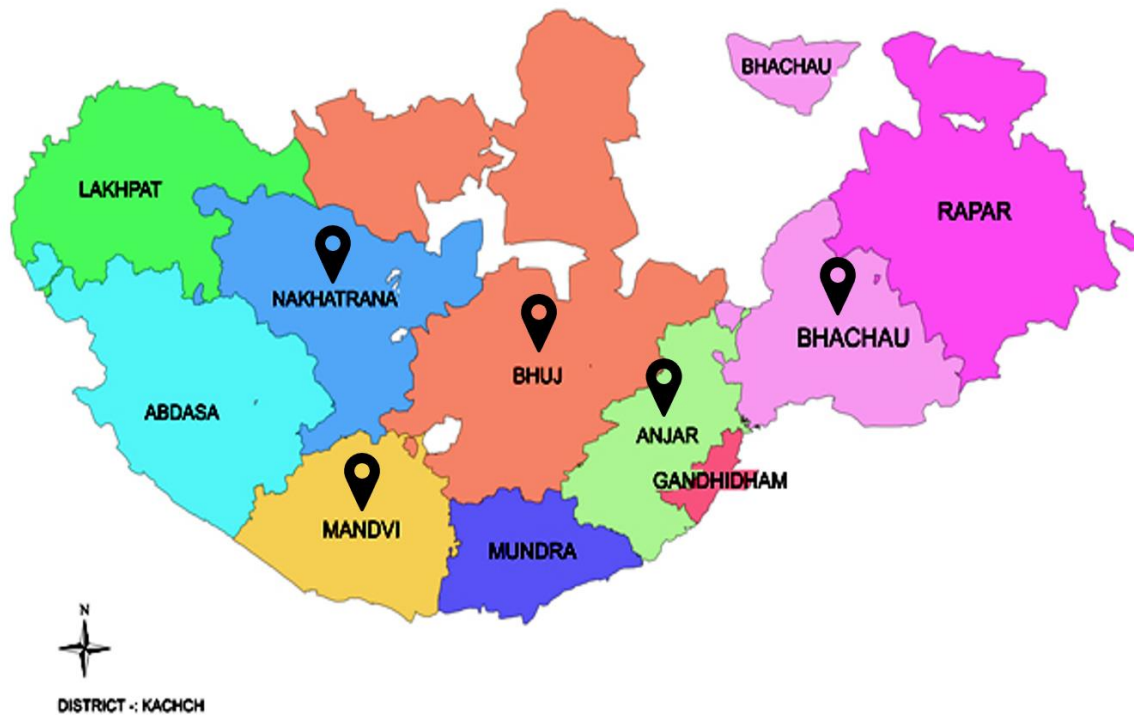


Figure 1 selected area for the study

The complete research work was targeted to the user of organic fertilisers which were predominantly marketed by ABC, DEF, XYZ, XLM, VED³ and other small companies with their products in their respective domain name. The companies were perceived differently among different uses as per their availability, product range, efficiency, storage and transportation facilities, selling pattern, credit facility, training and technical knowhow facility, and many more. Accordingly the market is segmented to different homogenous group and create a perceptual map for the organic market and industries as well.

The present research work embodies descriptive statistics and correspondence analysis technique for the solutions and strategy building work in the direction to organic fertiliser market segment.

Correspondence analysis is a multidimensional technique for scaling qualitative data in marketing research. It is an explorative research technique. The measure of correspondence can show the similarity, affinity, confusion, association or interaction among the variables. Correspondence table is the cross tabulation of row and column object [13].

³ ABC is the company that predominately in the Kutch market and sale product in the sachets. DEF is the company sell products in raw form. XYZ, XLM and VED company were the small one but have their own users in the Kutch market.

3.RESULTS AND DISCUSSION

The main crop grown by farmers presents a diverse array of agricultural products, with pomegranate being the most commonly cultivated crop, representing 51 percent of the total sample (figure 2). Due to semi-arid region and low water holding capacity of soil, people were used to grow pomegranate in their field followed by castor and cotton comprising 14 percent and 10 percent of the total sample, respectively. Other crops such as vegetable crop, wheat, mango, mustard, and date palm were also represented, albeit in smaller percentages. Additionally, 9 percent of the respondents grow other crops. Different crops were having different degrees of nutrient requirements, susceptibility to pests and diseases, and responses to fertilizer inputs. Consequently, the choices and applications of organic fertilizers may differ based on the specific crop being cultivated. For instance, certain crops like pomegranate, may benefit from specific types of organic fertilizers to enhance fruit quality and yield. While others, such as castor or cotton may require different nutrient compositions for optimal growth and productivity. Moreover, factors such as crop rotation practices, soil health management, and pest control strategies can influence the demand for and efficacy of organic fertilizers across different crop types. Identified companies were also looking into these opportunities of crop diversification and varieties and entered the market with various solutions and strategies.

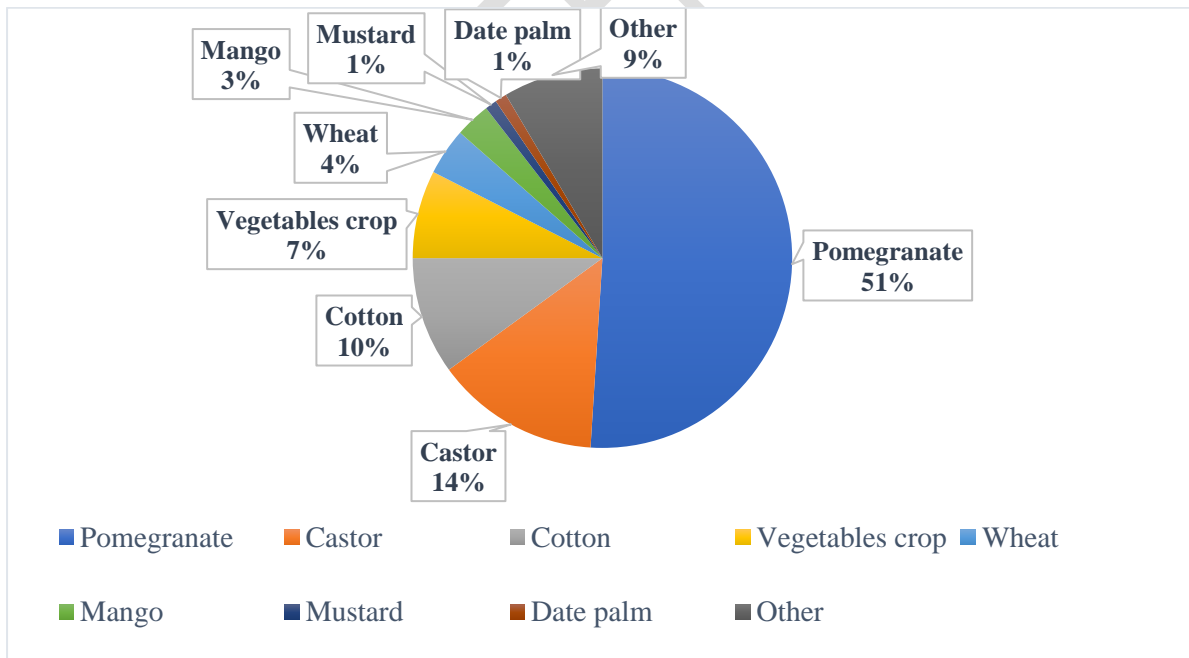


Figure 2 Main crop grown by the farmers

Meanwhile tube well and canal irrigation pattern of cultivation in the district make companies more optimistic for their business. Dominated by tube well irrigation system (96%), make the available water harder and scarce day by day. Even, larger farmers may take the advantage

more over than the smaller one due to access to technology (higher HP motors) and again that reduce the water tables and difficult further use in irrigation purpose. In this context, organic fertiliser has the great scope ahead to conserve the water in the soil and innovation od products will definitely use as a fertigation practices in the way forward.

Table 1 Source of irrigation

Source of Irrigation	Frequency	Percentage
Tube well	192	96
Canal	8	4
Total	200	100

As per the table 2, it was highlighted that organic fertilizer purchasing behavior among respondents depends on preferences and considerations when acquiring organic fertilizers. The companies make their market suitable for them after visualisation the purchased pattern of organic fertiliser that helps them to divide the market in to different segments.

Table 2 Purchasing behaviour of farmers towards organic fertilizer

Attributes	Yes	Percentage
Purchase in bulk	112	56
Purchase every year	119	59.5
Purchase with other input	104	52
Expect discount due to high price	81	40.5
Select retailer whose behaviour is good	145	72.5

Majority of respondents (56%) indicated that they purchased organic fertilizers in bulk, that indicates a preference for larger quantities, possibly for cost savings or convenience. Additionally, a significant portion (59.5%) reported that purchasing of organic fertilizers every year, highlighting the regularity of their fertilizer procurement practices. Interestingly, a considerable proportion (52%) also indicated purchasing organic fertilizers with other complement inputs, indicating potential bundling strategies or integrated purchasing behaviors. Furthermore, 56 percent of respondents expressed their expectation for discounts due to the

high price of organic fertilizers, indicating price sensitivity and a desire for cost-effective options. Lastly, a notable majority (72.5%) prioritize selecting retailers based on good behavior, indicating the importance of customer service and interpersonal relationships in their purchasing decisions. These findings provide valuable insights into the organic fertilizer purchasing behavior of farmers, suggesting avenues for further research into factors influencing purchasing decisions, strategies for promoting organic fertilizer adoption, and interventions aimed at enhancing the accessibility and affordability of organic fertilizers.

Brand preference for the organic fertiliser products in the study area (fig 3) bifurcated market in to 2X2 matrix where XLM, VED and XYZ companies were clustered in one segment whereas DEF company and ABC company have their own distinct characteristics to target their respective customer. The complete market was developed by considering education and awareness as the possible factors for understanding farmers' choice regarding the organic fertiliser. Producers purchased organic fertiliser every year from ABC company but facing the issues of improper technical knowledge to use the same. XYZ company, XLM company, VED Company and other similar products enter the market by providing discounts to the producers. However, availability of these products are the issues in the study area. Organic fertilizer of DEF company is poor in efficiency and facing the issues of storage, delayed in effect, and transportation. Less Product range, bulk Purchase and credit issues are some important areas in which companies are not putting their effort till date.

BRAND PREFERENCE IN ORGANIC FERTILISER IN KUTCH DISTRICT

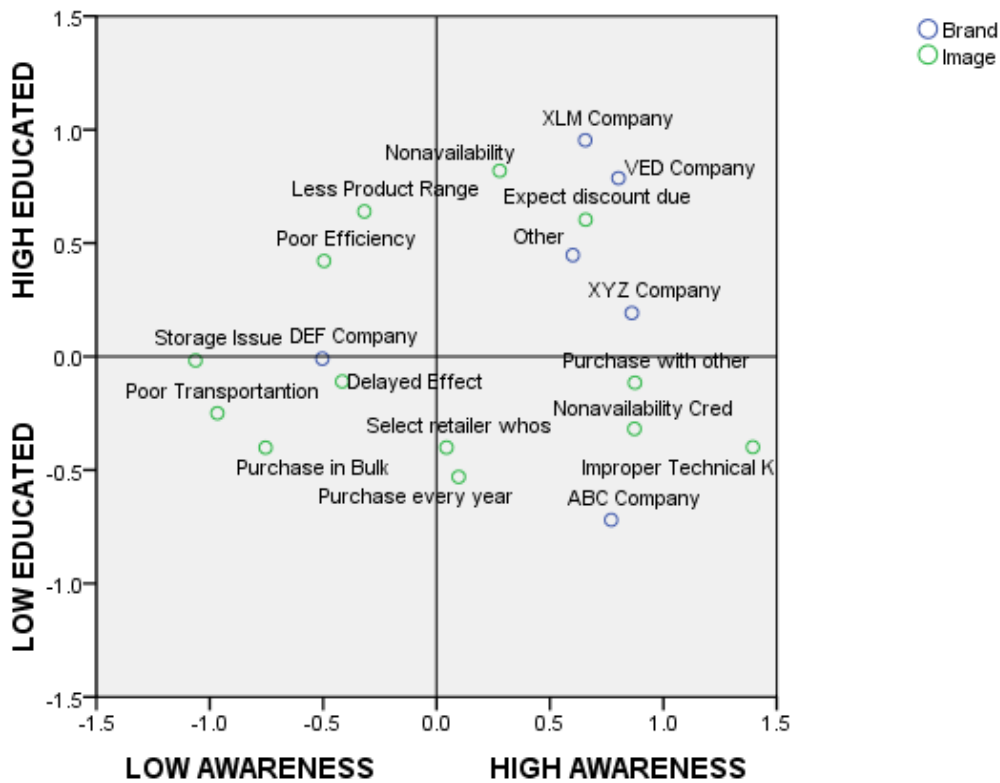


Figure 3 Brand preference in Organic fertilizer market

As observed in the table 3, brand is only associated with different occupations in the study area. Among the brands, ABC company majorly targets the Agricultural producers who have the livestock (42%). DEF company and its organic fertiliser majorly targets the agriculture market (69%) segment followed by agricultural farmers (56%) who are also involved in some other business as well. While ABC company targets business people who are also involved in agriculture (28%), DEF company targets agriculture people who have livestock (32%) in their future market endeavour and penetration. Small companies like XYZ, XLM, VED and other small companies have not shown any specific criteria of their market entry as per the occupational segment market in to concern.

Table 3 Brand Occupation relationship in Organic Fertiliser market

	Name of Company	Occupation			Total
		Agriculture	Agriculture & Animal Husbandry	Agriculture & Business	
Brand	ABC	0.10	0.42	0.28	0.19
	DEF	0.69	0.32	0.56	0.60
	XYZ	0.04	0.04	0.00	0.04
	XLM	0.06	0.10	0.07	0.07
	VED	0.09	0.04	0.06	0.07
	Other	0.02	0.08	0.03	0.03
Total		1.00	1.00	1.00	1.00

4.CONCLUSION

Organic fertiliser will be the key input in future for conserving soil quality, water intake capacity along with better quality food for the growing population. Meanwhile, many companies are coming to the market and target to their respective customers by creating market segments. Organic fertiliser is always preferred to be purchased in bulk, with other inputs as the complementary products. As it is high in price, farmers expect some discounts on the product purchase. Companies come with solutions of products by giving discounts, with ease and availability, with proper storage, transportation facility, technical knowhow and many more. The market is lucrative who are selling organic fertiliser to them who are doing agriculture with dairy farming where as other areas of market segments like agriculture with business and exclusively on agriculture could not be ignored.

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