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## Farmers Buying Behavior Toward the Fertilizers

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### ABSTRACT

In India most of the family occupation is based on agriculture or farming, that's why India is known as an agriculture-oriented economy. In India, farmers use a huge amount of fertilizers and therefore lots of companies are entering the agro-based chemical fertilizer market. Due to huge competition, farmers get different choices to purchase fertilizers. After the green revolution in India farmers go with chemical fertilizers to increase the production as well as productivity of the land, and due to this new fertilizer companies are entering the market and farmers get the choice to purchase the fertilizers. Our research is only for the study of the buying behavior of the farmers in the Sangli district, so in our district farmers have different perceptions while purchasing fertilizer, some different factors may affect the buying behavior of the farmers like the price of fertilizer, farmers land-holding, Crop that they cultivate, influencer, and so on. The farmers also face lots of problems while purchasing fertilizer. In our research, we find the conclusions on this research problem, also find the farmers required actually because every farmer have different buying behavior. And then along with this result we can satisfy the need of the farmers.

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## 1. INTRODUCTION

In the Sangli district India, nearly 80% of people are dependent on agriculture. Farmers after the green revolution (1960) started the cultivate crops with new technology and with chemical as well as organic fertilizers to increase the production and productivity of the land. In India government introduce new varieties of crops, fertilizers that are mixed, complex, and compound fertilizers, to improve the production rate.

After the green revolution farmers adopt crop cultivation by using chemical fertilizers (Komarudin *et al.*, 2021). Due to this many chemical companies enter the agrochemical market, now days we see every operation in agriculture require a chemical to improve production as well as tackle the problems which are faced due to weather, pest, diseases, and nutrient deficiency.

Farmers are having very short knowledge regarding the application of fertilizers (Sukamto & Rahmat, 2023), from this research we find the factors which are influences farmers for purchasing fertilizers (chemical & organic). Every farmer has dave different perception of purchasing fertilizer as well as other agrochemicals and utilization of the fertilizers is varied by the crop cultivated.

In the Sangli district, the main crop is sugarcane and it requires an average amount of fertilizers for crop growth, some farmers cultivate fruit crops, turmeric, orchards, etc. By this, we can find the buying behavior of the farmers towards fertilizers. The objectives of this study are:

- (i) To study the farmers' buying behavior for fertilizers.
- (ii) To analyze the relation between land-holding and fertilizer utilization.
- (iii) To know the attitude of the farmer toward buying fertilizers.
- (iv) To know the preference, knowledge, and basic need of the farmer regarding fertilizer application or purchase.

This study can get fair and good knowledge about the buying behavior of the farmers of the Sangli district. We can get information which helps for further study. This study helps to solve the problems faced by the farmer while purchasing the fertilizers, also fulfills the want of the farmers, also helps to get the required amount of fertilizers. By knowing the buying behavior of the farmers, they can predict the requirement of fertilization, they can change their credit and debit policies, also develop and implement a marketing strategy.

The study is limited to the Sangli district farmers because India is geographically uneven so it has different cropping patterns for different areas due to their atmospheric conditions, also, we took the responses from Sangli district farmers and we focus on only chemical fertilizers. There is further scope for the study in the utilization as well as buying behavior of the farmers towards the water-soluble fertilizers and also scope to study regarding the awareness for organic farming.

## 2. REVIEW OF LITERATURE

Several papers used in this study are:

- (i) Ramya and Kaliyamurthy, (2019). The research is based on the buying behavior of farmers towards micronutrients in the digital age in this research, we observed how digital marketing and audiovisual ads affect the buying behavior of the farmer toward micronutrients.
- (ii) Amaliyar and Singh, (2016). The research is based on the study of market potential, farmers buying behavior, and satisfaction levels towards water soluble fertilizers in the Anand and Narmada districts of Gujarat. This research shows the farmers' buying and

preferences toward water-soluble fertilizers, and what factors influence the farmers to purchase water-soluble fertilizers.

- (iii) Kole stated in his dissertation that identifying the factors playing the important role in the buying behavior of the farmer in the free state if the fertilizers supplier wants to focus on the emerging farmer as well as their need.
- (iv) [Kumar and Kapoor, \(2017\)](#). This research is based on the Extensiveness of farmers' buying process of Agri-inputs in India: implications for marketing., this study states that the factors influence the buying process of the farmers to purchase fertilizers.

### 3. METHODS

Key variables to be studied are Land-holding, Crop, Method of application of the fertilizers, Type of fertilizer, Brand or company of the fertilizers, Influencer, and Requirements. The farmers buying behavior is dependable on the above variables. They influence the farmer to buy fertilizer. We study the above variables to know the actual buying behavior of the farmer. The two methods of collecting the data are Primary Data and Secondary Data.

The primary data is collected by the use of a questionnaire by the creation of questions and sent to investors. He/she has to fill out the Google form and collecting primary data. The secondary data will be collected from reports and research published in journals, websites, periodicals, magazines, newspapers, Annual Financial Reports, and other reports of selected companies. Our research is mainly based on primary data.

We studied the farmers' buying behavior toward fertilizers in the Sangli district. In this geographical area, 80% of people's income is based on agriculture. In the rural areas fertilizers sale face problem due to a lack of information about the farmers' buying behavior in this geographic area. The population is infinite. Sample designs are the road map of serves as the basis for the selection of primary data collection of samples. The secondary data is already available so it's collected from various research papers and various websites.

The various methods of data collection are:

- (i) Nature, scope, and object of inquiry.
- (ii) Availability of funds.
- (iii) Time factor.
- (iv) Precision required.

It's our data collection method. In this method using "Precision required Method" are used in the project collection of data. Because of also primary and secondary data. The following process of data collection:

- (i) Firstly, decide which questions are asked to investors.
- (ii) This choosing questions to create questionnaires.
- (iii) To contact a selection of particular location area car showroom.
- (iv) Sending the questions through the mail.
- (v) The collection of primary data using Applied research technic.

We tried to find immediate solutions to existing problems facing a society or an area as well as in industry.

#### 3.1. Sample techniques

There are various sampling techniques used for the research. In this research, we used multiple sample selection techniques.

There are types of sampling methods:

- (i) Probability sampling method.
- (ii) Non-probability sampling method.

In this project, we used Convenience Sampling methods.

### 3.2. Convenience sampling method

The convenience sampling is the non-probability sampling method used in this project. It's are the 200 responses part of the population and sampling size. It's useful for pilot testing. In this project respondents to call them. Easily to get contact because he/she has in us are people so in sample data collecting in this technique so it's very useful in this project. In 2 months do the survey and collect the responses and results.

### 3.3. Data analysis

Data will be coded in excel, then analyzed in the SPSS. After that, the data result and interpretation are mentioned in the report.

### 3.6. Expected significance outcome

Through this study, we can find the farmers' behavior in purchasing fertilizers. We can solve the sales-related problems faced by the fertilizer manufacturing companies, we also study what influences most the farmer to buy a particular fertilizer. Also, we solve the farmer's problem regarding the buying of the fertilizer problems like price issues, duplicate fertilizers, quality of the fertilizer, etc. we can solve that problem by this research.

## 4. RESULTS AND DISCUSSION

In this primary data, we collected 200 samples by the google form distribution.

### 4.1. Landholding

The interpretation gained in this study is in the following. In the Sangli district, 45.5% of farmers have less than 1 ha of land for cultivation and 1 ha – 3 ha land-holders are 41% of farmers are there and 13.5% of farmers have more than 3 ha land-holding (see **Table 1**).

**Table 1.** Land-holding.

Sr.no	Land-holding	Respondents	Percentage
1	Up to 1 ha	91	45.5%
2	1 – 2 ha	56	28.0%
3	2 – 3 ha	26	13.0%
4	More than 3 ha	27	13.5%

### 4.2. Type of land

The interpretation gained in this study is in the following. In the Sangli district, most of the farmers' soil is black alluvial i.e 85.5%, and very few areas have covered with red soil some farmers' land is affected due to saline soil (see **Table 2**).

**Table 2.** Type of land.

Sr.no	Type of land	Respondents	Percentage
1	Black soil	171	85.5%
2	Red soil	15	7.5%
3	Saline soil	14	7.0%
4	Other	0	0.0%

### 4.3. the Main crop grown

The interpretation gained in this study is in the following. In the Sangli district, most of the farmers' main crop is sugarcane i.e. 79.5% of farmers grow sugarcane on their farm, and 9% of farmers grow turmeric on their farm, also have grab producing farmers in Sangali district (see **Table 3**).

**Table 3.** The main crop is grown.

Sr.no	Main crop	Respondents	Percentage
1	Sugarcane	159	79.5%
2	Turmeric	18	9.0%
3	Grapes	13	6.5%
4	Soya bean	2	1.0%
5	Other	5	2.5%
6.	Rabi crops	2	1.0%
7	Wheat	1	0.5%

### 4.4. Proper management of the dose of the fertilizers

The interpretation gained in this study is in the following. 96.5% of farmers gave their full attention to farming because they manage the proper fertilizer dose and apply it effectively, and just a few 3.5% of farmers ignore agriculture, not having good knowledge regarding farming (see **Table 4**).

**Table 4.** Proper management of the dose of the fertilizers.

Sr.no	Proper Fertilizer Management	Respondents	Percentage
1	Yes	193	96.5%
2	No	7	3.5%

### 4.5. Type of application of fertilizers

The interpretation gained in this study is in the following. In **Table 5**, most of the farmers in the Sangli district use a drip irrigation system to apply fertilizers i.e 47.5% of farmers use drip, and 31.5% of farmers use the broadcasting method to apply fertilizers (see **Table 5**).

**Table 5.** Type of application of fertilizers.

Sr.no	Type Application of Ferti	Respondents	Percentage
1	Drip irrigation	95	47.5%
2	Broadcasting	63	31.5%
3	Application to soil	41	20.5%
4	Other	1	0.5%

### 4.6. Do farmers test your soil and change the dose according to the soil report?

The interpretation gained in this study is in the following. In the Sangli district, 78% of farmers do soil testing and modify the required dose of the fertilizer and others are not test their soil (see **Table 6**).

**Table 6.** Result of soil testing.

Sr.no	Soil testing	Respondents	Percentage
1	Yes	156	78%
2	No	44	22%

#### 4.7. What Form of fertilizers do farmers use?

The interpretation gained in this study is in the following. Farmers mostly use both chemical as well as organic fertilizers which are 52% of farmers use both organic as well as chemical fertilizers, and very few farmers use organic fertilizers i.e. 10%, and the remaining 38% of farmers use chemical fertilizers (see **Table 7**).

**Table 7.** Result of the form of fertilizers.

Sr.no	form of fertilizers	Respondents	Percentage
1	Chemical fertilizers	76	38%
2	Organic fertilizes	20	10%
3	Both	104	52%

#### 4.8. Type of chemical fertilizers

The interpretation gained in this study is in the following. The farmers mostly prefer all the fertilizers given but most of the farmers prefer to use simple fertilizer which is 39.5% of farmers (see **Table 8**).

**Table 8.** Type of chemical fertilizers.

Sr.No	Type of Chemical Fertilizers	Respondents	Percentage
1	Simple fertilizers	79	39.5%
2	Complex fertilizers	16	8.0%
3	Mixed fertilizers	32	16.0%
4	All of these	73	36.5%

#### 4.9. which company's fertilizer do farmers prefer?

The interpretation gained in this study is in the following. 51% of farmers use mahadhan brand fertilizers in the Sangli district, and after that 35% of farmers prefer IFFCO brand fertilizer which is a reputed brand of fertilizers (see **Table 9**).

**Table 9.** Result of fertilizer company/brand.

Sr.no	Fertilizer company/brand	Respondents	Percentage
1	IFFCO	70	35.0%
2	Mahadhan	102	51.0%
3	UPL	19	9.5%
4	Other (local)	9	4.5%

#### 4.10. Who influenced farmers to purchase that company's fertilizer?

The interpretation gained in this study is in the following. In **Table 10**, the farmers get influenced to purchase fertilizers due to those factors. Most of the farmers purchase fertilizer consulting with agriculture consultants which are 38.5%. 28.5% of farmers get influenced due to advertisements (see **Table 10**).

**Table 10.** the effect of buying fertilizer in the company.

Sr.no	Influencer	Respondents	Percentage
1	Advertisement	57	28.5%
2	Offers	24	12.0%
3	Consultant	77	38.5%
4	Other farmers	42	21.0%

#### 4.11. How do farmers purchase fertilizers?

The interpretation gained in this study is in the following. Most of the farmers purchase fertilizers by a full cash payment (68%), but some farmers (13.5%) purchase fertilizers on credit, and also farmers purchase fertilizers with 50% credit and 50% credit (see **Table 11**).

**Table 11.** Purchase fertilizers.

Sr.no	Payment	Respondents	Percentage
1	Cash payment	136	68.0%
2	On credit	27	13.5%
3	50% paid 50% credit	37	18.5%

#### 4.12. how many bags of fertilizer did farmers require for crop production?

The interpretation gained in this study is in the following. From **Table 12**, we see that most of the farmers required fewer amounts of fertilizers that is 62% of farmers required less than 16 bags for crop production. And 29% of farmers required 16 – 20 bags for crop production and the remaining farmers use fertilizers more than them.

**Table 12.** Quantity of fertilizer.

Sr.no	Quantity of fertilizer 1 bag = 50 kg	Respondents	Percentage
1	16 bags or less	124	62%
2	16 – 20 bags	58	29%
3	20 or more bags	18	9%

## 5. CONCLUSION

We conclude the following points:

- (i) In the Sangli district, most of the farmers have less land-holding, and numbers of marginal farmers are present.
- (ii) Most of the farmers have land with black alluvial soil which have more amount of organic carbon. Less amount requires nitrogenous fertilizers.
- (iii) Sugarcane cultivator farmers are more in the Sangli district due to the presence of the sugarcane factories so this crop is an 18-month crop so it requires more fertilizers than another crop.
- (iv) Most farmers use drip irrigation technology to save water and improve crop yield.
- (v) The farmers use both organic and chemical fertilizers for crop production.
- (vi) Most farmers get influenced by agriculture consultants for purchasing the fertilizers
- (vii) Also, most of the farmers near about 32% of farmers prefer to purchase fertilizers on credit.
- (viii) And there is a significant relationship between land-holding and fertilizer utilization. Or correlated with each other.

Suggestions are in the following:

- (i) For the marketing of the product, the company should require to arrange consultancy forums that should influence the farmers to buy their products of fertilizers.
- (ii) The farmers are now adopting drip irrigation so the term fertigation is now in trend so focus on water-soluble fertilizers as a future.
- (iii) The company should require changing its credit policy which favors the farmers.
- (iv) Find the demand from the market by knowing how much land is now under cultivation and by this data farmers should formulate a production strategy.

## 6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

## 7. REFERENCES

- Amaliyar, K., and Singh, R. (2016). A study on market potential, farmers' buying behavior, and satisfaction level towards water soluble fertilizers in anand and narmada districts of Gujarat. *Impact: International Journal of Research in Business Management*, 4(9), 27-36.
- Komarudin, K., Latif, R., and Abdullah, M. R. H. (2021). Development of science and technology areas in Koi Fish cultivation. *International Journal of Regional Planning*, 1, 27-34.
- Kumar, N., and Kapoor, S. (2017). Extensiveness of farmers' buying process of agri-inputs in India: implications for marketing. *Journal of Agribusiness in Developing and Emerging Economies*, 7(1), 35-51.
- Ramya, M. N., and Kaliyamurthy, K. (2019). The buying behavior of farmers towards micronutrients in the digital age: A review. *A Journal of Composition Theory*, 12(9), 966-972.
- Sukamto, S., and Rahmat, A. (2023). Evaluation of FTIR, macro and micronutrients of compost from black soldier fly residual: In context of its use as fertilizer. *ASEAN Journal of Science and Engineering*, 3(1), 21-30.