



# **An Investigation on the Distribution Channels and Demand Analysis for National Fertilizers Limited (NFL) Products in Sri Ganganagar District of Rajasthan, India**

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## **ABSTRACT**

Fertilizer is one of the strategic inputs for enhancing productivity which enables the farmers to meet the growing demand for food in the country. Distribution of various fertilizers is very active and dense, chiefly done by cooperative societies, some public and private sectors. The study analyzed the distribution system of fertilizers in the Sri Ganganagar district of Rajasthan. Total number of

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respondents were 95 in which 75 farmers, 15 dealers and 5 wholesalers participated in the study. Farmers sought information about various fertilizers from dealers, peer experiences, company officers, demonstrations, and pamphlets. Farmers predominantly purchased fertilizers from dealers, retailers, wholesalers and though some also obtained them from other sources such as government agencies.

**Keywords:** Distribution channels; fertilizers; cooperative societies; demonstration.

## 1. INTRODUCTION

Fertilizers have played an essential role in agricultural production, providing vital nutrients for crops and registering increasing demands over the years. As an agrarian country, India is home to numerous small and marginal farmers and is often plagued by low productivity and low quality [1,2]. Crops are mainly rain-fed and cultivated on a single piece of land over time, decreasing soil fertility in many regions. Thereby, increasing quantities of nitrogen fertilizers have been used in the country. Because of this, the Indian government has brought about economic reforms and has ensured that fertilizers are available at affordable prices to increase productivity [3,4]. Due to subsidy eligibility on notified fertilizers, the Indian fertilizer industry has been able to provide enhanced food security for the country. While agriculture is heavily dependent on the use of fertilizers, the government has met almost all demand for chemical fertilizers (Source: Statista Research Department [www.statista.com](http://www.statista.com)).

The success of the agricultural sector in India is mainly dependent on the fertilizer industry. The benchmark that the food industry in India has set is primarily due to the many technically competent fertilizer producing companies in the country (Source: <https://business.mapsofindia.com>). The global fertilizer market size was valued at USD 207.93 billion in 2022 and is expected to hit USD 271.6 billion by 2030 with a registered compound annual growth rate (CAGR) of 3.4% over the forecast period 2022 to 2030 (Source: [www.precedenceresearch.com](http://www.precedenceresearch.com)). The Indian fertilizer market size reached USD 10.86 Billion in 2022. Looking forward, IMARC Group expects the market to reach USD 14.36 Billion by 2028, exhibiting a growth rate (CAGR) of 4.85% during 2023-2028 (Source: [www.imarcgroup.com](http://www.imarcgroup.com)).

### 1.1 Key Statistics of the Indian Fertilizer Industry

- **Industry size:** 56 large-scale plants that produce phosphatic, nitrogenous, and

complex fertilizers 72 small and medium fertilizer companies that offer single super Phosphate (SSP).

- **Product offerings:** The main products offered by the fertilizer sector in India include nitrogenous fertilizers, complex fertilizers and phosphate-based fertilizers.
- **Global ranking:** Indian fertilizer industry ranks 3rd in world production (Source: [www.fisdom.com](http://www.fisdom.com)).

Manufacturers generally use multiple marketing intermediaries to bring their products to users. Marketing intermediaries have different names such as traders, wholesalers, dealers & distributors and subsidiaries, retailers, authorized representatives [5-7]. All such intermediaries are distribution channels. Manufacturers /manufacturers' depots and other direct sales outlets are also part of the distribution network (Source: [www.britannica.com](http://www.britannica.com)).

## 2. METHODOLOGY

Sri Ganganagar district was selected purposefully as it is the food basket of Rajasthan. Due to favorable agricultural climate in Sri Ganganagar most of the crops are cultivated at commercial level. The methodology of the study was analytical and descriptive and thus survey method was adopted, Keeping in view the objectives of the study. This study was conducted through a sequential process as follows:

### 2.1 Nature and Sources of Data

To get positive results in specific objectives of the study both primary and secondary data was collected, for "An Investigation on the Distribution Channels and Demand Analysis for National Fertilizers Limited (NFL) products in Sri Ganganagar district of Rajasthan, India".

1. **Primary Data:** The required information was collected with the help of structured and unstructured interview schedule and through discussions with the respondents.

Both Qualitative and quantitative data was collected.

2. **Secondary Data:** The secondary data was collected from various references which already exist in published form such as Research dissertations and Research Reports, Published Research Papers, Books, Journal articles, magazines, Government reports, newspapers and websites pertinent to objectives of the study.

## 2.2 Research Design

Multi-stage purposive sampling technique was adopted for selection of sample farmers/respondents, in the first stage Sri Ganganagar district was selected based on the area under cultivation. In the second and third stage Block and villages was selected respectively, in the third stage respondents was selected from the selected villages.

### 2.2.1 Stage 1: Selection of district

There are 33 Districts in Rajasthan, out of which Sri Ganganagar District was selected purposively for the study as it has maximum area under cotton, wheat, mustard, moong bean cultivation.

### 2.2.2 Stage 2: Selection of block

Out of total 9 blocks in Sri Ganganagar district, one block that is Sri Ganganagar itself was selected purposively based on large amount of production of various crops in that area for the current study.

### 2.2.3 Stage 3: Selection of villages

A complete list of all villages (314) was obtained from related Gram Panchayat office thereafter, villages arranged in ascending order based on area under mustard, cotton, wheat, moong bean cultivation, and then 5% villages was selected randomly.

### 2.2.4 Stage 4: Selection of respondent

A village wise list of all respondents consuming major portion of fertilizer for crop production in

sample villages were prepared along with the size of their operational holdings. Further these respondents were stratified on the basis of their land holding size. Out of complete list 5% respondents were selected randomly for the study i.e., total 75 respondents (Table 1).

### 2.2.5 Stage 5: Selection of market and market functionaries

Primary market is where fertilizers are brought up for sale and distribution to different parts of Sri Ganganagar district.

#### Marketing functionaries

1. Selection of wholesaler: 5 wholesalers were randomly selected
2. Selection of retailers: retailers were randomly selected.
3. Number of dealers: 15 dealers are covered in my survey information regarding market share of NFL fertilizers, suggestion are also taken from the dealers.

#### Distribution channels of fertilizer Companies

1. Company→Wholesaler→Dealer→Farmer
2. Company→Wholesaler→Farmer
3. Company→Dealer→Farmer

## 2.3 Analytical Tools Used for Analysis

**Garrett's Ranking Technique:** Garrett's Ranking Technique was used in order to rank the problems faced by the farmers during their course of using E-commerce Company. According to this, the respondents were asked to assign rank to different problems by using the following formula.

**(Garrett and Woodsworth, 1969):**

$$\text{Per cent position} = [100 (R_{ij} - 0.5)] / N_j$$

Where,

$R_{ij}$ = rank given for  $i$ th problem by  $j$ th individual;

$N_j$ = number of problems ranked by the  $j$ th individual.

**Table 1. Selection of respondents (Farmers)**

Size Group -1	Marginal Farmer	Less Than 1 Hectare
Size Group -2	Small Farmers	1 to 2 Hectare
Size Group -3	Semi Medium Farmers	2 to 4 Hectare
Size Group -4	Medium Farmers	4 to 10 Hectare
Size Group -5	Large farmers	Above 10 Hectare

(Source: PIB, Ministry of Agriculture and Farmers welfare, GOI)

**Percentage formula:** The percentage formula was used to find the share of a whole in terms of 100. Using this formula, you can represent a number as a fraction of 100.

$$\text{Percentage} = \frac{\text{Value/Total Value}}{\text{Original number}} \times 100$$

$$\% \text{ increase} = \frac{[\text{New number} - \text{Original number}]}{\text{Original number}} \times 100$$

**A Likert Scale:** It is a type of rating scale used to measure attitudes or opinions. With this scale, respondents are asked to rate items on a level of agreement. Likert scales are popular in survey

research because they allow to easily operationalize personality traits or perceptions.

### 3. RESULTS AND DISCUSSION

#### 3.1 Distribution Channel

##### 3.1.1 Distribution channels of fertilizer

National Fertilizers Limited (NFL) and other fertilizer companies are practicing the below mentioned distribution channels for supply and procurement of their products.

##### 1. Channel No.1



In the first channel, Wholesalers and Dealer are the two middlemen between the company and the farmer. The company sells fertilizers to wholesalers, wholesalers to dealers and finally farmers buy from dealers [8].

##### 2. Channel No.2



In the second channel, the wholesaler is the sole intermediary between the company and the farmer. The company sells fertilizers to wholesalers who in turn sell to farmers [8].

##### 3. Channel No.3



In the third channel, the company sells fertilizer to dealers who in turn sell it to farmers. Here dealers buy fertilizers in bulk and then sell them to farmers at retail prices [8].

##### 3.1.2 Procurement and Supply of Fertilizer by Wholesaler

Maximum number of wholesalers procure the fertilizers directly from the company, followed by both i.e., both from the company to distributor to wholesaler and company to wholesaler.

**Table 2. Procurement and Supply of NFL Fertilizers by Wholesalers**

Distribution Channel	Frequency	Percentage
Company -Distributor- Wholesaler	0	0
Company- Wholesaler	4	80
Both	1	20
<b>Total</b>	<b>5</b>	<b>100</b>

Source: National Fertilizers Limited (NFL)

Distribution Channel	Frequency	Percentage
Wholesaler-Dealer-Farmer	2	40
Wholesaler-Farmer	0	0
Both	3	60
<b>Total</b>	<b>5</b>	<b>100</b>

Source: National Fertilizers Limited (NFL)

### 3.1.3 Channels for the procurement and supply of fertilizer by dealers

Maximum number of dealers procure and supply the fertilizers from the company to wholesaler to dealer to farmers and other is company to dealer to farmer [9].

### 3.2 Demand Analysis of NFL Fertilizers

In this objective studied about the brand preference, supply, requirement, and availability of particular fertilizer brand, wholesalers, dealer and farmer's point of view and factors influencing them on purchase decision.

#### 3.2.1 Fertilizer's brand preference

Data on brand preferences by most farmers, brand loyalty, and other significant elements that

affect the sale and brand name are available. These factors include time availability, demand, quality, credit policy, packaging, and others. There were 75 responders in all. These are shown in Fig. 1 as answers. In the research area, we have observed that farmers, wholesalers, and dealers choose NFL fertilizers over IFFCO, IPL, and CFCL brand names.

#### 3.2.2 Factors regulating wholesaler's purchase of NFL Fertilizers

The following explanations are based on data collected on wholesaler purchases of NFL fertilizer. Fig. 2 shows the proportion of responses based on selected criteria. Five wholesalers made up the total number of responses.

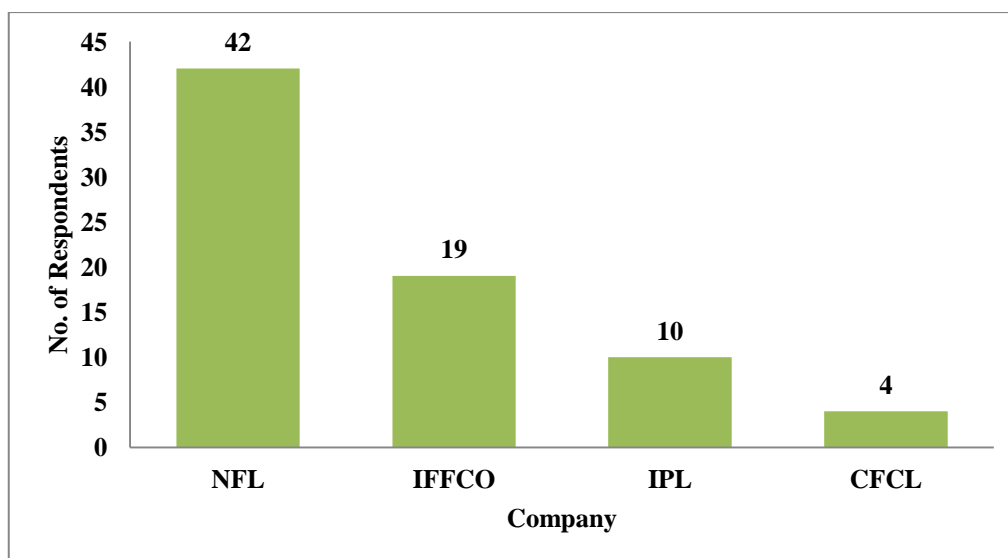
**Table 3. Procurement and supply of fertilizer by Dealers**

Distribution Channel	Frequency	Percentage
Company-Wholesaler-Dealers-Farmers	12	80
Company-Dealer-Farmer	3	20
Both	0	0
<b>Total</b>	<b>15</b>	<b>100</b>

Source: National Fertilizers Limited (NFL)

**Table 4. Fertilizer brand preference**

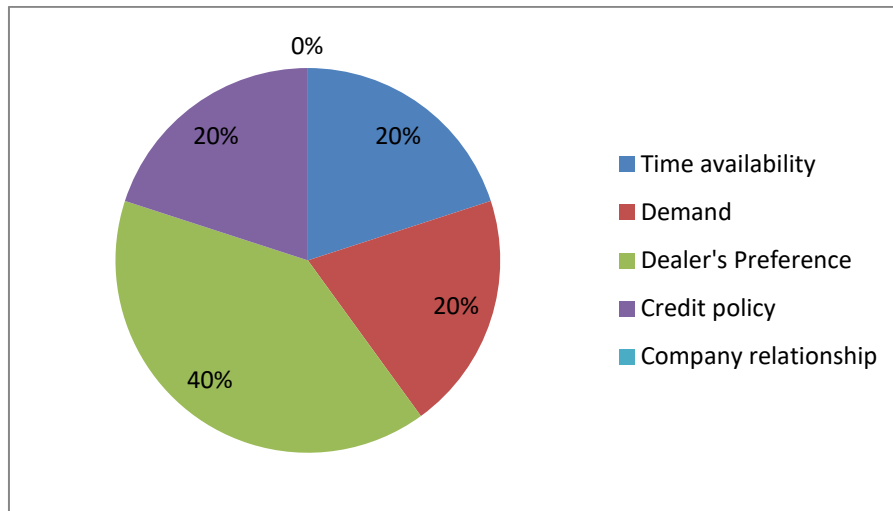
S. No.	Fertilizer's Company	No. of Respondents	Rank
1.	NFL	42	I
2.	IFFCO	19	II
3.	IPL	10	III
4.	CFCL	4	IV
<b>Total</b>		<b>75</b>	



**Fig. 1. Fertilizer Brand using by most of the Farmers**

**Table 5. Factors regulating wholesaler's purchase of NFL Fertilizers**

S. No.	Factors Influencing	No. of Respondents
1	Timely Availability	1
2	Demand	1
3	Dealer's preference	2
4	Credit policy	1
5	Company Relationship	0
<b>Total</b>		<b>5</b>



**Fig. 2. Factors regulating wholesaler's purchase of NFL Fertilizers**

**3.2.3 Factors influencing dealers on purchase NFL Fertilizers**

Reasons for selling NFL products from Dealer's point of view is discussed by considering several factors they are listed below. The number of Respondents were 15 that is dealers. The Fig. 3 depicts the number of respondents considering factors.

**3.2.4 Factors influencing to farmers on purchase NFL fertilizers**

Farmer's point of view is one of the important factors which decide the course of action for any producers. Fig. 4 depicts the farmer's perception in purchasing of fertilizer in Sri Ganganagar

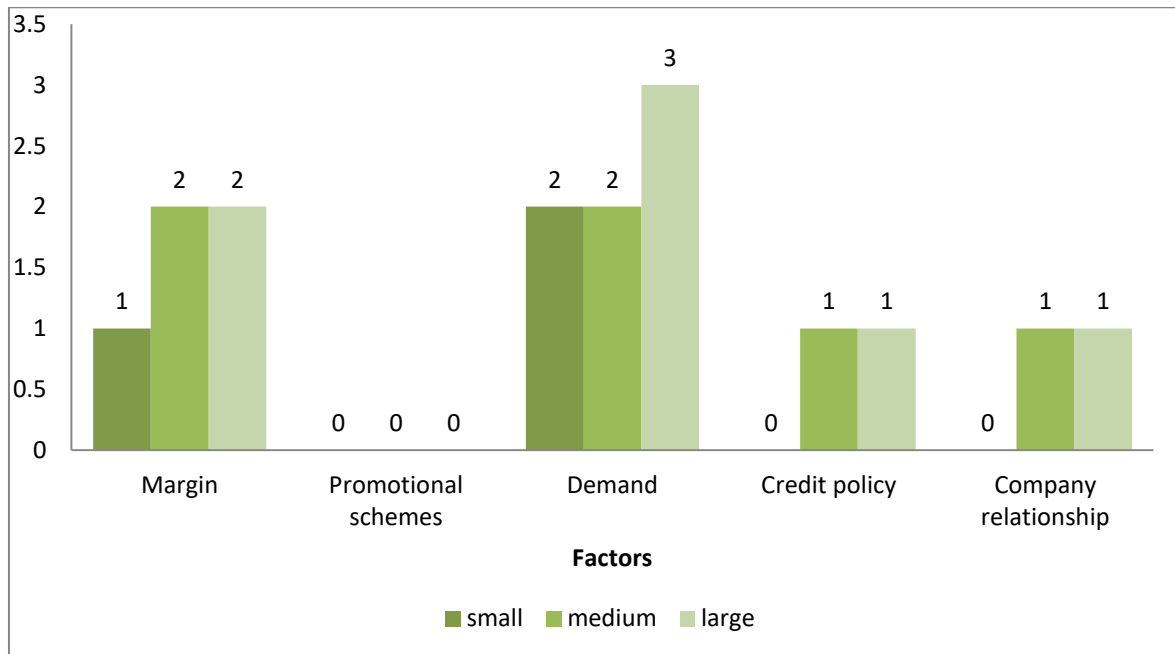
district for small and medium farmers, the timely availability and price of the product were the main attributes for purchasing fertilizer while in case of large farmers the company brand name of the product becomes the main factor. Total number of Respondents that is farmer were 75.

**3.2.5 Fertilizer's brand preference**

Fig. 5 indicates the data about the brand preference by most of the farmers, brand loyalty and some major factors depends the sale and name of the brand [10]. In study area we have seen that NFL fertilizers are preferred by the Wholesalers, dealers, farmers followed by IFFCO, IPL and CFCL companies' Brand name. Here are some responses of respondents.

**Table 6. Factors Influencing Dealers on Purchase NFL Fertilizers**

S. No.	Factors Influencing	No. of Respondents
1	Margin	4
2	Promotional Schemes	0
3	Demand	7
4	Credit policy	2
5	Company Relationship	2
<b>Total</b>		<b>15</b>



**Fig. 3. Factors influencing to dealers on purchase NFL fertilizers**

**Table 7. Factors influencing farmers on purchase NFL Fertilizers**

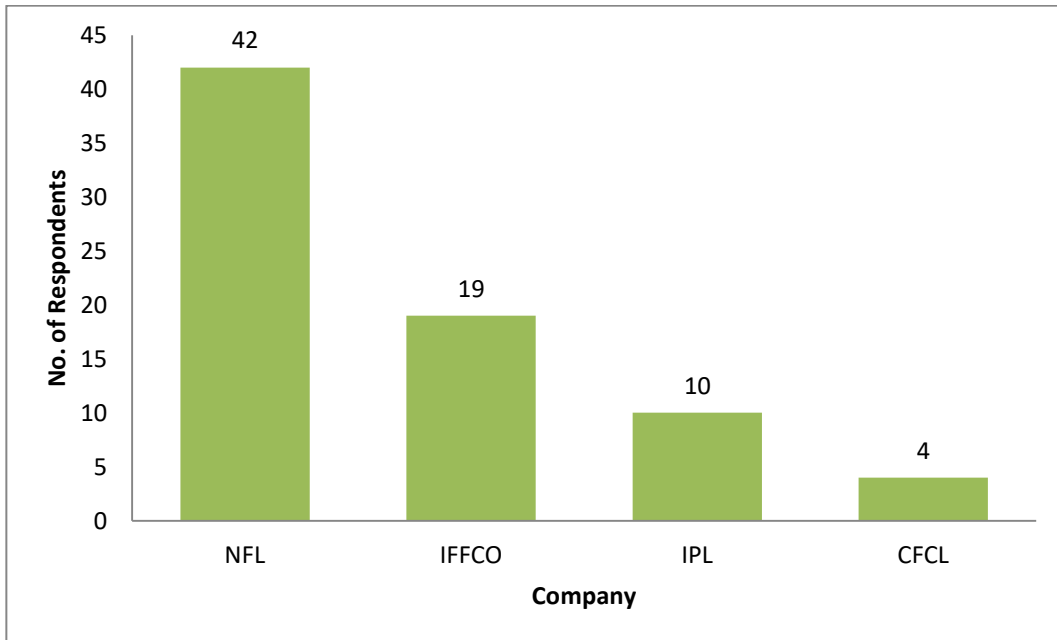
S. No.	Attribute	Farmer Category					No. of Respondents
		Marginal	Small	Semi - medium	Medium	Large	
1	Time availability	7	6	7	4	3	27
2	Price	3	4	5	4	2	18
3	Superior quality	2	2	3	3	2	12
4	Company brand name	2	3	2	2	1	10
5	Salesmen of NFL	1	2	2	2	1	8
<b>Total</b>		<b>15</b>	<b>17</b>	<b>19</b>	<b>15</b>	<b>9</b>	<b>75</b>



**Fig. 4. Factors influencing farmers on purchase NFL Fertilizers**

**Table 8. Brand preference by farmers**

S. No.	Fertilizer's Company	No. of Respondents	Rank
1	NFL	42	I
2	IFFCO	19	II
3	IPL	10	III
4	CFCL	4	IV
<b>Total</b>		<b>75</b>	



**Fig. 5. Fertilizer Brand using by most of the Farmers**

#### 4. CONCLUSION

- ❖ The study revealed that the distribution channel followed by NFL fertilizers in Sri Ganganagar district was off four tier & three tier i.e. from company to wholesaler to dealers to farmers. The study also revealed that the major preference and availability of fertilizer in the area of Sri Ganganagar is of the NFL Company followed by the IPL, then CFCL and IFFCO.
- ❖ The wholesalers procures the fertilizer directly from the company i.e. 4 (80 per cent) followed by 1 (20 per cent) i.e. both from company to distributor to wholesaler & company to wholesaler. The supply of fertilizer the maximum no. of channel being followed are both i.e. 3 (60 per cent) followed by 2(40 per cent) i.e. through wholesaler to dealers to farmers.
- ❖ About the dealers, the maximum number of dealers procurement and supply of fertilizer from the company to wholesaler to

dealer to farmer is 12 (80 per cent) followed by 3 (20 per cent) from company to dealer to farmer.

- ❖ Through the study we came to know that the demand of various fertilizers of many cooperative, private, public firms are participated to provide their services, out of them NFL fertilizers play a major role in the study area followed by IFFCO, IPL, CFCL, KRIBHCO, Coromandel fertilizers etc. Various Wholesalers, Dealers, Farmers prefer the NFL due to its easy availability and some other points discussed previously.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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