



FARMERS RESPONSE TO FERTILIZER MARKETS IN THE DISTRICT (HARIDWAR - UTTARAKHAND - INDIA)

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ABSTRACT

Customer in any business is regarded as the pivot of the business around which the marketing activities of the dealer rotates. The dealers decide about their marketing activities focusing on the customer's needs and preferences. Unlike other markets, agricultural input markets are also consumer oriented markets. The dealers of input markets likewise decide about the type and brand of fertilizers while opening of outlets, making available the related agricultural inputs like insecticides, HYV Seeds, agricultural implements etc., according to the preferences of farmers of the region. No doubt, other endogenous and exogenous factors are considered while deciding about their marketing operations, but the main focus will be on the farmers buying from their outlets. It is the attitude and response of the farmers which decide the location and the number of outlets. Farmers are the best judges in deciding the quality of the inputs which in turn influences the performance of the dealers. They show their preferences to dealer's products and loyalty to his outlet through their demand for the products. The sustainability of business mainly depends upon the farmer's continued relationship. But only a detailed study would reveal whether the existing structural conditions of the markets are viable or not for different categories of farmers. A detailed study of the factors which influences the farmers buying behaviour will only give a satisfying and clear understanding of the subject. Taking into consideration these facts the present study addresses important issues such as:

- a) *Accessibility of markets to different categories of farmers.*
- b) *Factors influencing the buying behaviour of the farmers and*

c) *Reasons for difference in buying behaviour of the farmers particularly towards town and village level outlets. A detailed study on the buying behaviour and the responses of the farmers to the fertilizer market become quite essential and the study attempts at analysing the above issues.*

Keywords :

Rural Marketing , Agriculture Marketing, Fertilizer Marketing, Consumer Behaviour, Insecticides, Fertilizer

INTRODUCTION:

Primary data has been collected by administering the questionnaires to farmers by canvassing them in selected regions. (Table 1) out of 11 Janpads, 3 JANPADs viz., Dehradun, Pauri, Bijnor have less area under irrigation and 3 Janpads viz., Haridwar, Saharanpur, Muzaffernagar have considerable area under irrigation. Judgment sampling method has been adopted. One village in each JANPAD was selected (totally 6 Villages). These villages consist of nearly 3000 cultivators. 20 samples were drawn in each village totaling to 120 samples which forms 40 of the total cultivators.

Table 1: *Showing the selection of sample farmers on the basis of their categories in rained and irrigated areas-*

Categories of farmers selected as samples

Janpad	Marginal 0-3 acres	Small 3-5 acres	Medium 5-10 acres	Large 10 & above acres	Total number of samples/farmers
A-R	5 (4.16)	5 (4.16)	5 (4.16)	5 (4.16)	20 (16.66)
B-R	5 (4.16)	5 (4.16)	5 (4.16)	5 (4.16)	20 (16.66)
C-R	5 (4.16)	5 (4.16)	5 (4.16)	5 (4.16)	20 (16.66)
T-R	15 (12.50)	15 (12.50)	15 (12.50)	15 (12.50)	60 (50.00)
D-I	5 (4.16)	5 (4.16)	5 (4.16)	5 (4.16)	20 (16.66)
E-I	5 (4.16)	5 (4.16)	5 (4.16)	5 (4.16)	20 (16.66)
F-I	5 (4.16)	5 (4.16)	5 (4.16)	5 (4.16)	20 (16.66)
T-I	15 (12.50)	15 (12.50)	15 (12.50)	15 (12.50)	60 (50.00)
T= R+I	30 (25.00)	30 (25.00)	30 (25.00)	30 (25.00)	120 (100.00)

(Figure in brackets indicate percentage to total sample)

R= RAINFED; I = IRRIGATED AREAS; T= TOTAL

While selecting the villages, enough care was taken to select only those villages which represent the rainfed and irrigated JANPADs in respect of irrigation, cropping pattern, level of fertilizer use etc., which are similar in accordance with rainfed and irrigated regions. Further the samples are classified into 4 different categories such as marginal, small, medium and large farmers based on land holdings. Enough care was taken to select 15 farmers in each category to have uniform representation. The information received was mainly on recall basis of the farmers. However, attempts have been made to minimise the errors by cross checking.

OBJECTIVES OF THE STUDY:

Fertilizers are channelized through The Agro Kendras, Co-operatives and Private Traders. Almost all the town outlets possess good infrastructure facilities. Farmers make visit to the town outlets for their purchases. There are minimum of 7 to 8 outlets in each town and these outlets are situated in central places where there are excellent transport facilities. Almost all the outlets are within the range of 1-2 kms from the transportation point. However, there are some exceptions where the outlets are situated 3 kms. away from the transportation centres, but they are situated on the main roads leading to other towns and villages where the farmers pass through regularly. It can be observed that in almost all the villages even in irrigated areas, there are no evidence of fertilizer outlets located in all the villages. In the case of rainfed JANPADs, it was mainly the town level outlets which were catering to the needs of the farmers.

Almost all categories of farmers buy fertilizers from town outlets and the quantity varies according to their size of holdings, economic strength and the crops they grow. It is evident, that farmers in the irrigated areas grow prominently sugarcane and rice. On the other hand, farmers in the rainfed areas grow tobacco, cotton, ragi and jowar. With regard to dispersion of outlets, the irrigated areas had more number of outlets at the village level compared to the rainfed Janpads.

(a) Farmers Buying Requirements from JANPAD and Village Outlets :

Irrespective of the categories that they belong to, farmers visit both town and village level outlets. However, the present study focuses on the transactions of the farmers for a particular season/crop (Table 2) (where the bulk purchases are made). Before going to the details an attempt has been made to find out the reasons for visiting either JANPAD or village level outlets. It can be observed that the number of outlets located at the village level is significant in irrigated areas. Small and marginal farmers buy fertilizers mainly from village level outlets. It is only large and medium farmers who purchase from outlets located either in towns or cities.

Table 2: Showing number of farmers visiting Janpad and village level outlets in rainfed and irrigated areas

Outlets	Marginal	Small	Medium	Large	Total
A-R	5(8.33)	4 (6.67)	0	0	9 (15)
B-R	8 (13.33)	8 (13.33)	9 (15)	0	25 (41.67)
C-R	2 (3.33)	3 (5)	6 (10)	13 (21.66)	24 (40)
D-R	0	0	0	2 (3.33)	2 (3.33)
T-R	15 (25)	15 (25)	15 (25)	15 (25)	60 (100)
E-I	9 (15)	6 (10)	2 (3.33)	0	17 (28.33)
F-I	2 (3.33)	6 (10)	1 (1.67)	0	9 (15)
G-I	4 (6.67)	3 (5.00)	8 (13.33)	11 (18.33)	26 (43.33)
H-I	0	0	4 (6.67)	4 (6.67)	8 (13.33)
T-I	15 (25)	15 (25)	15 (25)	15 (25)	60 (100)

R- Rainfed; I – Irrigated Area

(Figures in the bracket indicate percentages to the total sample)

Village level outlets :

As observed earlier marginal and small farmers are the main buyers from village outlets and it is more or less same in both rainfed and irrigated regions. However a negligible percentage of 3.33% medium farmers buy from village level outlets in irrigated areas. In both cases (rainfed and irrigated) the marginal farmers constituted 8.33% in rainfed and 15% in irrigated areas followed by small farmers with 6.67% in rainfed and 10% in irrigated JANPADs. Comparatively the marginal and small category farmers purchasing from village level outlets were high constituting 28.33% to that of 25% in irrigated areas.

Hobly level outlets :

All the categories excepting a negligible percentage of large farmer's category made their purchases from hobly level outlets. In rainfed areas it was marginal and small farmers forming equal percentage of 8.34% respectively made their purchases from these outlets. They are followed by the medium farmers constituting 5.00%. In the case of irrigated areas it was mainly the marginal and medium category farmers constituting 8.33% made their purchases at hobly level outlets. However, small farmers forming 10.00% were the main purchasers. Comparatively it is in the rainfed region where almost all the three categories of farmers buy from these outlets mainly because of non-existence of adequate outlets at village level. In irrigated areas adequate numbers

of outlets are located at the village level which enables the farmers of all categories except large farmers to buy from village level outlets only.

Janpad/district level outlets:

Almost all the categories of farmers in both dry and wet areas obtained their supplies from Janpad level outlets. In both the areas it was mainly the medium and large farmers who visited the Janpad level outlets. Majority of the large farmers in both rainfed and irrigated areas constituting 21% and 18% respectively frequented these outlets. The farmers from the rainfed belts purchase from Janpad level outlets since, they buy in bulk and also majority of them are brand and type specific. Farmers in the irrigated areas are in an advantageous position regarding the accessibility to outlets. The farmers in the rainfed areas mainly made their purchases from holly and Janpad level outlets. Whereas the farmers of irrigated areas are purchase fertilizers from village level outlets apart from Ganga and Janpad level outlets.

Reasons for preferring Janpad level outlets:

- i) Availability of all brands and types of fertilizers and other related inputs.
- ii) Excellent transport facilities.
- iii) Credit facilities are available to large farmers, since they buy in bulk and also have a good rapport with the Janpad level dealer.
- iv) Economies of scale operate in case of bulk purchases.
- v) Prices are comparatively lower than the village level outlets.
- vi) Location of credit dispersing institution and money lending agencies in adequate number at Janpad level.
- vii) Attending to other work apart from purchasing fertilizers.
- viii) Availability of technical guidance as the agricultural Departments and Extension facilities are located only at Janpad level.

There are some advantages of purchasing fertilizers from town outlets. The facilities provided at the Janpad level proves to be better for all the categories of farmers, but for farmers of small and marginal category, credit facilities extended by village level dealers appears to be more attractive. This has become an important incentive which helps the village level dealer to run his business. But credit facilities are mainly restricted to the farmers of that specific village.

(b) Farmers preferences over brand and type of fertilizers :

Analysis (Table 3) reveals that majority of the farmers constituting more than 41% were particular in buying fertilizers mainly on the basis of brands, among them medium and small farmers constitute 16% and 13% respectively. Farmers have inadequate knowledge about the dosage and are also influenced by the assumption that using a specific brand of fertilizers on a specific

type of crop will increase the yield or upgrade the quality of the produce etc. Hence they prefer to buy fertilizers chiefly on the basis of brands. For e.g., RCF - Urea, SPIC - DAP, etc., and generally the brands of fertilizers they purchase is associated with type.

Table 3: Showing the brand and type preference of farmers while buying fertilizers.

Category	Specific/ Brand No. of Farmers	Specific/ Type No. of Farmers	Both brand and type specific No. of Farmers	Total No. of Farmers
Marginal	8 (6.67)	22 (18.33)	0	30 (25)
Small	16 (13.33)	12 (10)	2 (1.67)	30 (25)
Medium	20 (16.67)	0	10 (8.33)	30 (25)
Large	6 (5)	8 (6.67)	16 (13.33)	30 (25)
Total	50 (41.67)	42 (35)	28 (23.33)	120 (100)

(Figures in brackets indicates percentages to the total sample)

It was observed that 35% of the farmers preferred types of fertilizers rather than the brands.

Farmers in this group buy fertilizers mainly on the basis of types more than the brands for eg., they prefer to buy fertilizers as Urea, DAP, Complex, Mixture etc., irrespective of the brands. Among the farmers in this group it is mainly the marginal and small category constituting 18.33% and 10% farmers buy in this pattern and this is because they buy fertilizers in small quantity. Secondly they buy from village level outlets where all the brands are not available interesting part observed was that an insignificant percentage of large farmers who are type specific buy mainly straight fertilizers. Large farmers adopting this pattern of buying have adequate knowledge about the dosage. Hence irrespective of the brands, they buy fertilizers of different types and they blend them on the basis of the nutrient requirements of their soils and crops.

However, there was 23.33% of respondents who are specific about the brand and type of fertilizers they purchase. It was chiefly the large farmers and medium farmers constituting 13% and 8% respectively who follow this pattern. Farmers in this group visit mainly JANPAD level outlets since all the brands are available only in towns. Medium farmers are totally brand specific. The main reason being that they have certain notions such as good yields, good quality of grains etc., that can be obtained by using specific brand of fertilizers. Hence, they decide the type of

fertilizer to be used on the basis of brands. Switching over to other brands were observed only in those cases where the specific brands were not available.

In the case of small farmers, majority come under the category of type specific. The main reason being that they make their main purchases from village outlets. Specific brands which are in great demand will not be available in village outlets. The village level dealers carry the burden of moving stocks which have low demand. Marginal and small farmers have a low level of knowledge regarding input use.

In the case of large farmers, nearly 13% of the farmers are brand and type specific. 6% of the samples are type specific. These farmers have good knowledge of N.P.K dosage.

(c) Channels of purchase :

Farmers buy fertilizers from different channels. The important channels are Private dealers, Agro Kendras and Cooperatives (Refer Table 4). Different quantities of fertilizers are purchased from different channels by different categories of farmers. None of the large farmers buy from Agro Kendras, but whereas they mainly buy from Private dealers and from the Marketing Federation at district level.

Table 4: Showing the purchases pattern of fertilizers by farmers through different channels

Categories of farmers	Pvt. Dealers (%)	Govt. Agencies (%)	Co-operative (%)	Total (%)
Marginal	20 (16.67)	9 (7.5)	1 (0.83)	30 (25.00)
Small	20 (16.67)	6 (5.00)	4 (3.33)	30 (25.00)
Medium	25 (20.83)	5 (4.16)	0	30 (25.00)
Large	21 (17.50)	0	9 (7.5)	30 (25.00)
Total	86 (71.66)	20 (16.66)	14 (11.66)	120 (100)

(Figures in the brackets indicates percentages to the total sample)

Negligible percentages of marginal and small farmers are purchase from Co-operative outlets. Medium farmers do not make any purchase from village level Co-operatives or Marketing Federation located at the district. Large farmers do not make any purchases form Co-operative outlets at village or JANPAD level. (During 2011-12, analysis reveals that none of the Co-operative outlets or Agro-Kendras were working at the village level and also at the JANPAD level. This has been discussed thoroughly in the previous chapters). Private dealers account for

71% of the purchases made by different categories of farmers followed by an insignificant percentage of farmers purchasing from ' Agro-Kendras and Cooperatives.

The main drawbacks for the farmers in purchasing from the Co-operative or Agro Kendras are: all types and brands of fertilizers are not available and the prices are marginally higher compared to the private outlets in the area.

(d) Purchase pattern :

The purchase pattern of the farmers differed from rainfed areas to irrigated areas. The main reasons being: high accessibility to outlets by the farmers of irrigated areas farmers of the irrigated area (irrespective of the categories) was economically better.

It was (Table 5) observed that buying different types and brands of fertilizers from different channels more or less had a consistent pattern. The figures presented in Table 5 are the purchases made by different categories of farmers in rainfed and irrigated areas pertain to a single season and for a single crop.

Table 5: Showing the quantity purchased by different categories of farmers of rainfed and irrigated areas

Categories of farmers	0-8 (%)	8-15 (%)	15-30 (%)	30-50 (%)	50 & above	Total (%)
Marginal– R	4(6.67)	7(11.67)	4(6.67)	0	0	15(25)
Small – R	3(5.00)	6(10.00)	4(6.67)	2(3.33)	0	15(25)
Medium– R	0	0	3(5.00)	12(20.00)	0	15(25)
Large – R	0	0	0	8(13.33)	7(11.66)	15 (25)
Total – R	7(11.67)	13(21.67)	11(18.34)	22(36.66)	7(11.66)	60(100)
Marginal– I	2(3.33)	7(11.67)	4(6.67)	2(3.33)	0	15(25)
Small – I	0	4(6.66)	7(11.67)	4(6.67)	0	15(25)
Medium – I	0	0	6(10.00)	9(15.00)	0	15(25)
Large – I	0	0	0	7(11.67)	8(13.33)	15 (25)
Total – I	2(3.33)	11(18.33)	17(28.34)	22(36.67)	8(13.33)	60(100)

(Figures in brackets indicates percentage to the total sample)

R= Rainfed areas; I = Irrigated areas

Purchase pattern in rainfed areas:

It was observed (table 5) that marginal farmers constituting 11% purchased fertilizers ranging from 8-15 bags. Other farmers in the same category purchased fertilizers in the range of 0-8 and 15-30 bags. Those farmers buying in these ranges constitute 4% each. In the case of small farmers their major quantities purchased were 8-15 bags. However a very negligible percentage of this category purchased more than 30 bags. This category of farmers use fertilizers ranging from 0-8 to 15-30 bags. In the case of medium farmers majority of the sample purchased more than 30-50 bags of fertilizers and nearly 6% of farmers purchased more than 50 bags. In the case of large farmers it was observed that majority of the sample farmers purchased fertilizers ranging from 30-50 bags and 11% of the sample purchased more than 50 bags.

However, it was observed that the marginal and small farmers use low quantities of fertilizers because of non-availability of irrigation facilities. Medium and large farmers who are better endowed with using fertilizers in the range of 30-50 bags and good irrigation facilities and technical support big farmers purchase considerable quantity of fertilizers because their land holding itself is quite substantial.

(e) Frequency of visits :

The frequency of purchases of different categories of farmers irrespective of the region was found to be similar. Hence, the question of comparison did not arise. The frequency of purchase analysed here is for a single crop/season.

Table 6: Showing frequency of visits of different categories of farmers for purchase of fertilizers (Figures in brackets indicates percentages to the total sample)

Category of farmers	No. of visits made for purchase of fertilizers					Total
	1	2	3	4	More than 4 visits %	
Marginal	0	0	2(1.67)	4(3.33)	24(20.00)	30(25)
Small	0	0	6(5.00)	8(6.67)	16(13.33)	30(25)
Medium	0	6(5.00)	8(6.67)	10(8.33)	6(5.00)	30(25)
Large	20(16.67)	10(8.33)	0	0	0	30(25)
Total	20(16.67)	16(13.33)	16(13.33)	32(26.67)	46(38.33)	120(100)

Farmers of different categories visit various outlets to buy fertilizers. The number of visits depends upon the:

- a) volume of purchase
- b) economic position of the farmers
- c) Purchase of other inputs along with fertilizers.
- d) Farmers combining the purchase of fertilizer with other personal work.

The category of marginal farmers form the majority (Table 6) with 20% followed by small farmers 13.33% and a negligible percentage of medium farmers are frequenting the outlets more than four times in a season. Marginal and small farmers buy in very small quantities, they are not brand specific and it is the credit incentive or their economic position which is the deciding factor and also the volume of purchase. The same pattern is observed among small farmers constituting nearly 13%. The analysis reveals that marginal and small farmers frequent Janpad level outlets mainly to attend to other personal works. Majority of the marginal and small farmers frequent town and Ganga level outlets (only when their volume of purchase will be more than 10 to 20 kgs).

(f) Distance of outlets :

The distance traveled by the farmers to buy fertilizers mainly depend upon the location of outlets. The issue that needs to be analysed is the location of outlets which satisfies the needs in terms of accessibility to farmers. In most of the villages adequate numbers of outlets are not available especially in dry belts. Even the outlets located at the village level in rainfed parts of the region are not capable of satisfying the farmers to the fullest extent. Hence farmers have to travel long (Table 7) distance to Ganga or town outlets to purchase fertilizers.

Table 7: Showing the distance traveled by different categories of farmers to purchase fertilizers

Distance	Marginal	Small	Medium	Large	Total
Rainfed Region					
0-5 Km.	4(6.67)	5(8.33)	0	0	9(15.00)
5-10 Km.	7(11.67)	6(10.00)	6(10.00)	2(3.33)	21(35.00)
10-15 Km.	4(6.67)	2(3.33)	5(8.33)	3(5.00)	14(23.33)
15& above	0	2(3.33)	4(6.66)	10(16.66)	16(26.66)
Total	15(25)	15(25)	15(25)	15(25)	60(100)
Irrigated Region					
0-5 Km.	9(15)	8(13.33)	0	0	17(25)
5-10 Km.	6(10)	4(6.67)	7(11.60)	5(8.33)	24(40)
10-15 Km.	0	3(5.00)	5(8.33)	6(10.00)	14(23.33)
15& above	0	0	3(5.00)	4(6.67)	7(11.67)
Total	15(25.00)	15(25.00)	15(25.00)	15(25.00)	60(100)

Rainfed areas : Majority of the farmers constituting nearly 35 percent travel to a distance of 5-10 kms to buy fertilizers. Among them the majority are marginal farmers

(11.67%) followed by small and medium farmers. The existing outlets are not able to cater to the specific requirements of the farmers and farmers are forced to travel (especially marginal and small who are residing far away from these outlets) long distance.

However a negligible percentage of medium and small farmers who grow commercial crops and who are very specific about types and brands also travel long distance particularly when their volume of purchase is considerably high. Nearly 35% of the farmers belonging to small and marginal category in dry region travel a distance of 5-10 kms. to buy their requirements.

Out of 26% of farmers nearly 16.66% of large farmers traveled more than 15 kms. to make their purchases at Janpad level outlets.

Irrigated areas :

Comparatively adequate number of outlets are located in irrigated areas, especially at the village and janpad levels. Majority of the farmers constituting 40% travel in the range of 5-10 kms. It was mainly the medium and marginal group constituting 11 and 10% travel in this range. These farmers make their purchases from janpad outlets. From the above observations it can be inferred that the farmers in the irrigated areas have better accessibility to outlets than the farmers of the rainfed areas irrespective of the categories.

(g) Transportation :

It was observed that there was no difference in the mode of transportation adopted by farmers of (Table 8) rainfed and irrigated areas while transporting their stocks. Various modes of transport are used by the farmers to transport fertilizers from the outlets to their storage point. Different categories of farmers use various modes of transport depending upon the volume of purchase the distance of outlet to their village storage point and cost involved in transportation. Medium and large farmers form themselves as a group to hire a transport depending on the volume of purchases. The above factors are taken into consideration before opting for the type of transport.

Table 8 Showing the mode of transportation in relation to distance of the sample farmers

Mode of transport	Distance of transportation in Kms.					Total
	0-5	5-10	10-15	15-20	20& above	
Bullock cart	8	4	6	8	0	26
Matadors	6	1	8	11	2	28
Buses	4	5	3	12	3	27
Tractors	0	0	2	9	4	15
Trucks	0	0	1	8	5	14

The	Others	8	2	0	0	0	10
	Total	26	12	20	48	14	120

analysis of 120 samples has been taken instead of categorizing them into two different groups. It was observed that large and medium farmers irrespective of the region they belong to, travel from one JANPAD to another JANPAD to get a specific brand and type of fertilizers. It was observed that most of the farmers in the rainfed region visit the irrigated JANPADs to buy specific type and brand of fertilizers. It was also observed that in the case of bulk buyers three or four farmers from together as a group and buy fertilizers in bulk from the retailer or wholesaler or wholesale-cum-retailer. This will help them to bargain and also for economising the transportation costs

The important modes of transport through which fertilizers are transported from the sellers godown to the buyers godown are bullock carts, matadors, buses, tractors, trucks and others like bicycle, head loads etc., The analysis revealed that (Table 8) all the modes of transport were employed to transport fertilizer particularly matador, buses and tractors were largely used. These modes of transport ply regularly within the JANPAD headquarters. Trucks are used for long distances.

CONCLUSIONS:

From the above analysis following conclusions are drawn:

1. Farmers are highly sensitive to the changes in the fertilizer market. Even a minor change in the market affects them substantially.
2. The application of fertilizer is dependent on various factors such as irrigation, types of crops grown, availability of specific brand and types of fertilizers, accessibility to infrastructural facilities, accessibility to credit, etc. are the factors which determine the quantity/dosage of fertilizer used by different categories irrespective of rainfed or irrigated areas.
3. Farmers irrespective of the categories and regions did not adhere to the prescribed dosages of application of chemical fertilizers. Chemical fertilizers were extensively used in Sugarcane and Paddy areas where the application exceeded the prescribed norms of dosage.
4. Almost all categories were using chemical fertilizers. The use of organic and chemical fertilizers depends on the irrigational status of the farmer. However, the formal market did not exist for organic manures. It was mainly the marginal and small farmers who depended heavily on organic manure. Farmers in rainfed JANPADs use organic manures along with chemical fertilizers.

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