Study on Consumer's Buying Behaviour of FMC Corporation Pesticides in Meerut District of Uttar Pradesh

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Abstract

This thesis presents a comprehensive study on the consumer buying behavior of FMC Corporation pesticides within the dynamic agricultural landscape of Meerut District, Uttar Pradesh. The research delves into the intricate factors influencing farmers' decisions to purchase pesticides, including socio-economic factors, awareness levels, environmental concerns, and brand loyalty. Through a combination of surveys, interviews, and data analysis, the study provides valuable insights into the preferences and choices of farmers in this region.

The findings reveal a complex interplay of factors that impact the purchasing decisions, shedding light on the importance of effective marketing strategies, product quality, and sustainable agricultural practices. Additionally, the study explores the potential for improving pesticide usage efficiency and reducing environmental impact, aligning with modern agricultural sustainability goals.

This research contributes to a deeper understanding of the agricultural input market in Meerut District, offering actionable recommendations for FMC Corporation and other stakeholders in the agricultural industry. Ultimately, it serves as a valuable resource for those seeking to navigate the intricate terrain of consumer behavior in the pesticide market, with implications for both business strategies and sustainable agricultural practices.

Keywords: Marketing Margin, Price Spread , Marketing Cost , Buying Behavoir

Introduction

Pesticides are widely used throughout the developing world, and pesticide demand is increasing due to the current system of crop production, which prioritises high agricultural yields. Made up of chemicals that can control pests or regulate plant growth, pesticides have provided developing countries with one way to increase those yields. Many farmers in developing countries view pesticide use as the best means to protect their crops against pests, such as desert locusts in parts of Africa this year, which are often the main threat they face. As such, pesticides can provide the only form of crop insurance available.

This is especially the case as changeable weather conditions related to global warming increase the uncertainties associated with crop yields. This year, the COVID-19 pandemic has added another factor to the situation by pushing up costs for farmers while reducing income. The pandemic has also made it harder to get farm labour and more complicated to get crops to a functioning market. The pandemic has created shortages of Personal Protective Equipment (PPE) for farm workers in the United States, according to the University of Illinois, raising the possibility that a similar dynamic is occurring in developing countries, even if the use of high-quality PPE is generally much less common in developing countries than in North America.

Against this background, this report considers the issues surrounding the export from EU Member States to developing countries of some pesticides that have been banned from use within the European Union (EU), because it has recognised the hazardous nature of those pesticides. However, it remains possible to export pesticides that are currently banned from use within the EU. Four of the top ten destinations for this category of pesticide are countries in Latin America, led by Brazil. Although less than 5 % of pesticide sales currently go to Africa, the use of pesticides is growing sharply, especially in West Africa since the arrival of a major new crop pest, the Fall armyworm, in 2016.

Health and environmental impacts

Pesticides have generally been considered to be a contributor to global food security, although the importance of that contribution, and how it is balanced against their potential to cause harm to human health and that of the broader environment, is a subject of fierce debate, often pitting companies against consumers or non-governmental organisations (NGOs). Today, there is evidence that the use of some pesticides causes long-term severe negative effects on human health and the environment.

Moreover, health concerns associated with the handling and use of pesticides are greater in developing countries because farmers often do not have adequate personal protective equipment (PPE) and are often unable to read labels that are usually the only source of safety instructions. In-person education for farmers on these topics is rarely available.

Problems related to pesticide use can extend beyond the farming area when residential areas are nearby. Pesticides pose a particular danger to children, not only through their use but through their storage within the household. Statistics show that pesticides are involved in a significant number of suicides every year.

Research Methodology

The chapter deals with the methodology used in achieving the objectives of the study for the sake of ease understanding and clarity. The chapter is provided with the three board sections, that is sampling design, collecting of data, Tools of analysis and techniques applied. There are 75 districts in Uttar Pradesh. Out of them Meerut district was selected purposively for the study of marketing of FMC Corporation Pesticides.

Meerut district, is one of the districts of Uttar Pradesh state of India, and Meerut is the district headquarters. Meerut district is also a part of the Meerut division.

Chi -Square Test: A chi-square statistic tool is one way to show a relationship between two categorical variables. A chi-squared statistic is a single number that tells you how much difference exists between your observed counts and the counts you would expect if there were no relationship at all in the population. It is used for data that consist of variables distributed across various categories and is denoted by $\chi 2$.

This formula will be use for identifying the demographic pattern of the consumers. The chi-square formula is: $\chi 2 = \sum(Oi - Ei)2/Ei$, were,

Oi = observed value (actual value)

Ei = expected value.

Marketing Cost: The total cost incurred on marketing by various intermediaries involved in the sale and purchase of the commodity till it reaches the ultimate consumer was computed as follow.

C=Cf+Cml+Cm2+Cm3 +.....+ Cmn

Where

C= Total cost of marketing

Cf = Cost borne by the producer farmer from the produce leaves the farm till the sale of the produce.

Cmn = Cost incurred by the middlemen in the process of buying and selling.

Marketing Margin of Middleman

Absolute margin = PRi - (Ppi+Cmi)

Pri – (Ppi + Cmi)

(b) Percentage margin =----------x**100**

Where,

Pri = Total value of receipts

Ppi = Total purchase value of goods (purchase price) and

Cmi = Cost incurred in Marketing

The margin includes profit to the middlemen and returns to storage, interest on capital, overheads and establishment expenditure.

Price Spread: Price spread is defined as the difference between the price paid by the consumer and the net price received by the producer for an equivalent quantity of farm produce.

$$\text{Price spread} = \frac{(\text{Consumer price} - \text{Net price of producer})}{\text{Consumer price}} * 100$$

Results And Discussion

Distribution of the respondent on the basis of age

Table 4.1: Age of Respondents

Sr. No.	Age (in years)	Farmers (Numbers)					Total	Total Percentage
		Marginal	Small	Semi-medium	Medium	Large		
1	Below 30 years	11	8	5	6	4	**34**	**28%**
2	Between 30 to 50 years	15	12	8	4	6	**45**	**38%**
3	Above 50 years	8	5	3	3	2	**21**	**18%**
	Total	**34**	**25**	**16**	**13**	**12**	**100**	**100%**

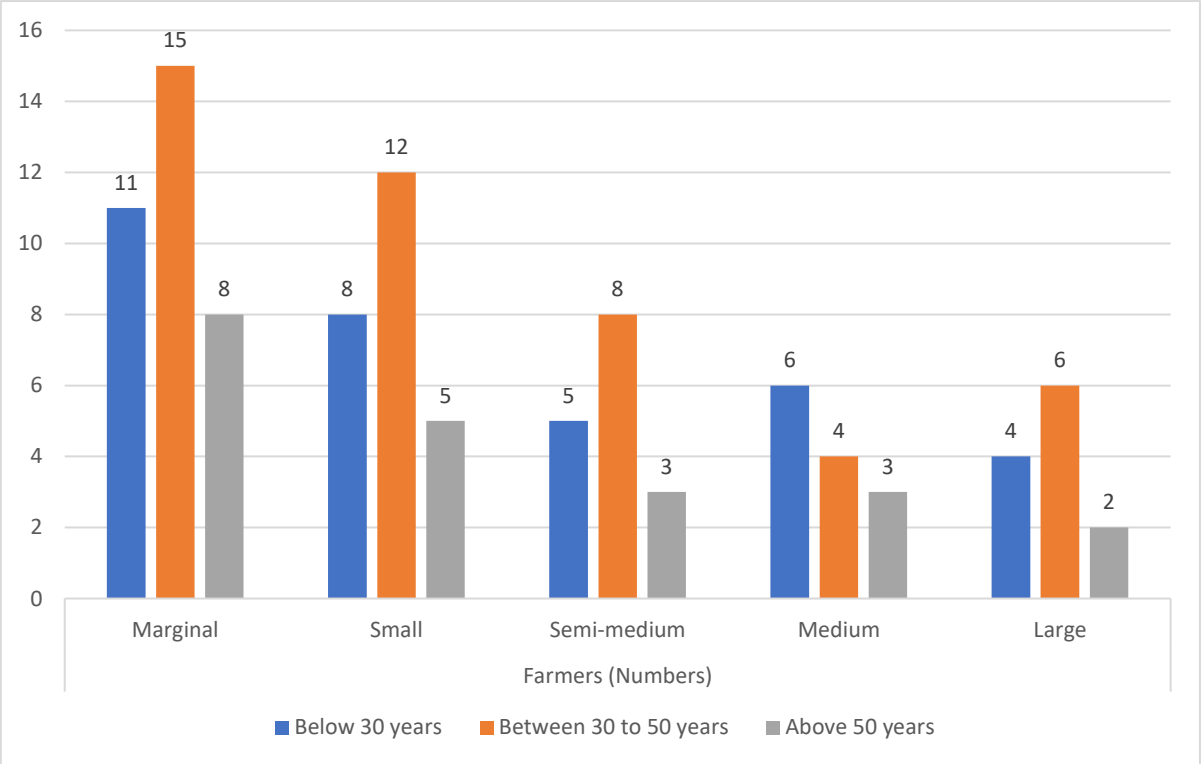


Table 4.1 reveals about the age of respondents in which 8% were between 30 years to 50 years followed by 28% were below 30 years and 18% were above 40 years.

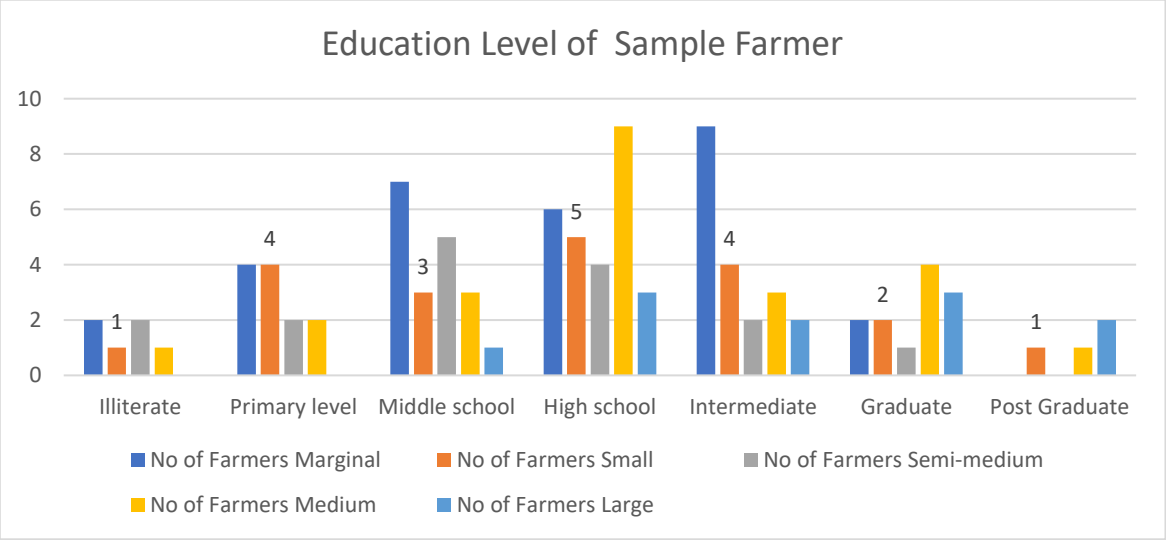
Distribution of the respondent on the basis of education

Table 4.2 Education qualification of the respondents

Sr. No.	Education	No of Farmers					Total	Percentage
		Marginal	Small	Semi-medium	Medium	Large		
1	Illiterate	2	1	2	1	0	6	6%

2	Primary level	4	4	2	2	0	12	12%
3	Middle school	7	3	5	3	1	19	19%
4	High school	6	5	4	9	3	27	27%
5	Intermediate	9	4	2	3	2	20	20%
6	Graduate	2	2	1	4	3	12	12%
7	Post Graduate	0	1	0	1	2	4	4%
	Grand Total	**30**	**20**	**16**	**23**	**11**	**100**	**100%**

Table 4.2 reveals about the literacy of farmers in which 27% had done high schooling followed by 20% intermediate, 19% middle school, 12% graduate and primary level, 6% were illiterate and 4% had done post graduate.



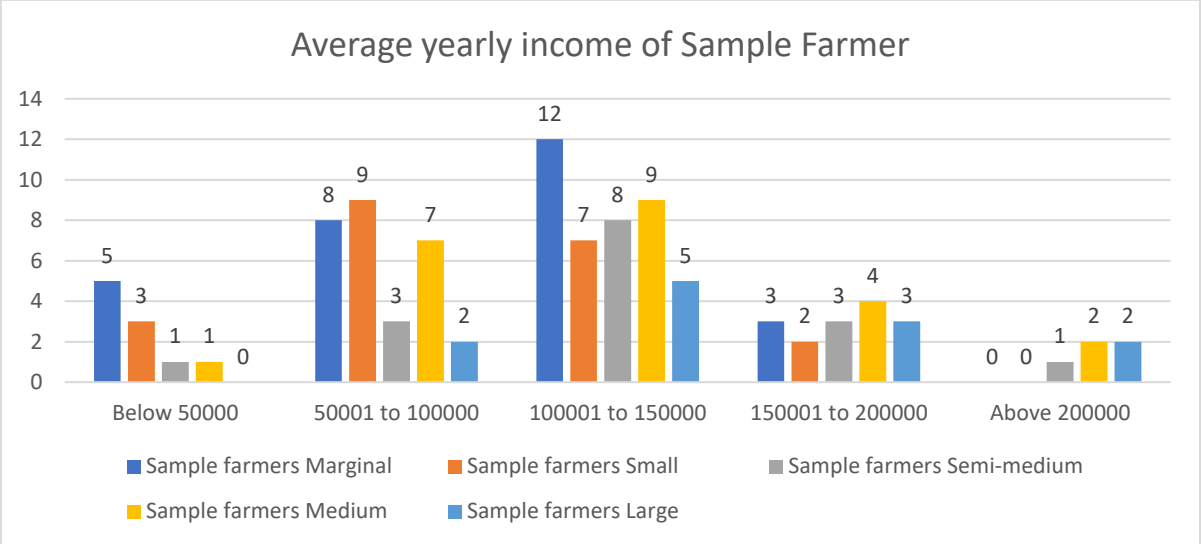
Distribution of the respondent on the basis of income

Table 4.3 Yearly average income level wise distribution of the growers (Rs/Yr)

Sr. No.	Income	Sample farmers					Total	Percentage
		Marginal	Small	Semi-medium	Medium	Large		
1	Below 50000	5	3	1	1	0	10	10%
2	50001 to 100000	8	9	3	7	2	29	29%
3	100001 to 150000	12	7	8	9	5	41	41%

4	150001 to 200000	3	2	3	4	3	15	15%
5	Above 200000	0	0	1	2	2	5	5%
	Total	**28**	**21**	**16**	**23**	**12**	**100**	100%

Table 4.3 reveals about the income level of respondents in which 41% has income of Rs.100001 to Rs.150000 followed by 29% has income of Rs 50001 to 100000, 15% has income of Rs. 150001 to 200000, 10% has income below Rs 50000 and 5% has income above Rs.20000.

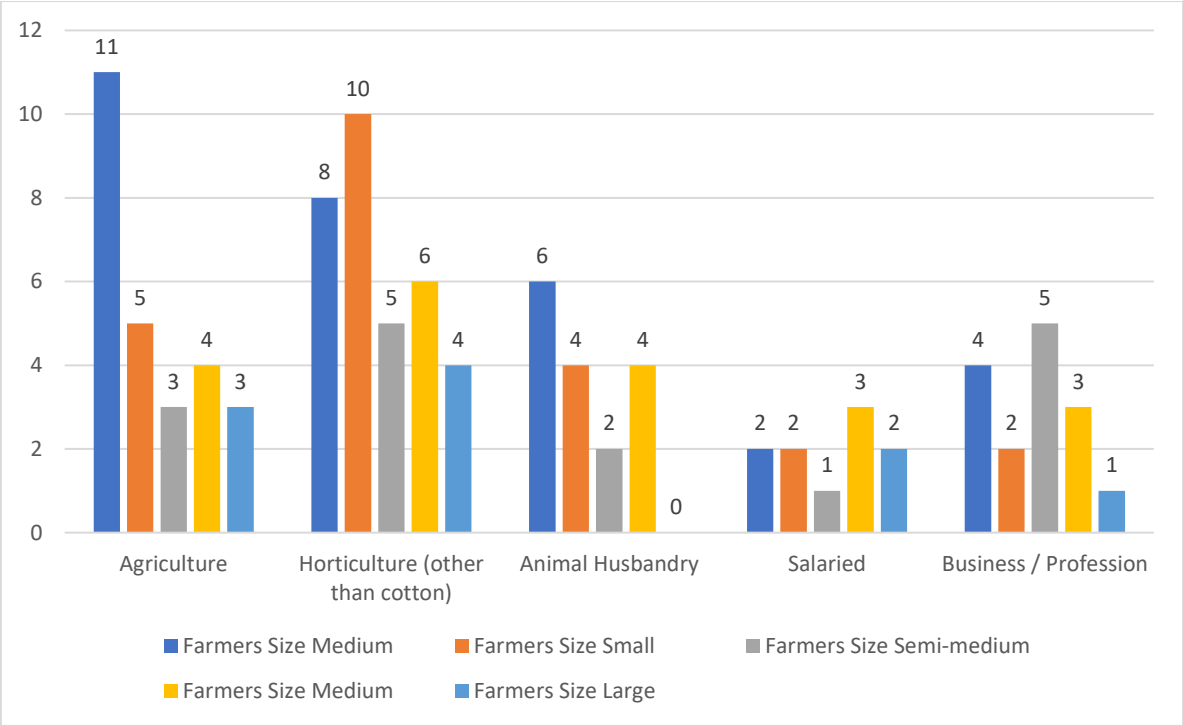


Distribution of the respondent on the basis of occupation

Table 4.4 Occupation of respondents

Sr. No.	**Particular (Occupation)**	**Farmers Size**					**Total**	**Percentage**
		Medium	**Small**	**Semi-medium**	**Medium**	**Large**		
1	Agriculture	11	5	3	4	3	**26**	**26%**
2	Horticulture (other than cotton)	8	10	5	6	4	**33**	**33%**
3	Animal Husbandry	6	4	2	4	0	**16**	**16%**
4	Salaried	2	2	1	3	2	**10**	**10%**
5	Business / Profession	4	2	5	3	1	**15**	**15%**
	Total	**31**	**23**	**16**	**20**	**10**	**100**	**100%**

Table 4.4 reveals about the occupation of farmers in which 33% has occupation of horticulture followed by 26% responded for agriculture, 16% responded for animal husbandry, 15% responded for business and 10% were salaried respondents.



Awareness of respondents about Food Machinery Corporation Brand

Table 4.5 Awareness of respondents about Food Machinery Corporation Brand

Sr. No.	Do u know Brand	Respondents	
		Numbers	Percentage
1.	Yes	65	65%
2.	No	35	35%
	Total	**100**	**100%**

Table 4.5 found that majority (i.e., 78%) of farmers knew about the product and 22% did not know about product. This shows average using and awareness about company product was good in the study area.

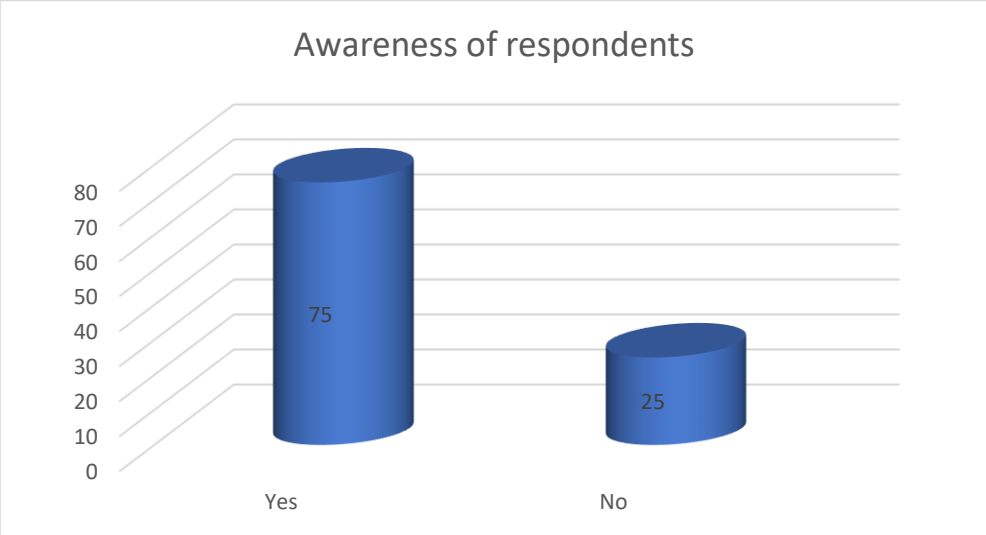


Fig 4.7: Awareness of respondents about FMC Corporation Brand

Evaluation of the Buying Behaviour of the Farmers with Respect to the Company Product (Coragen Pesticide)

Factor consider by farmers while purchasing Coragen Pesticide

Table 4.6: Factor consider by farmers while purchasing Coragen Pesticide

Sr. No.	Parameter	Strongly Disagree	Disagree	Moderate	Agree	Strongly Agree	Cumulative Score	Rank
1.	Quality	(0)0	(0)0	(75)25	(140)35	(300)60	515	1
2.	Price	(0)0	(40)20	(150)50	(200)50	(0)0	390	5
3.	Packaging	(0)0	(20)10	(180)60	(120)30	(100)20	420	3
4.	Relation with the Dealer	(0)0	(40)20	(90)30	(180)45	(125)25	435	7
5.	Promotional Strategies	(0)0	(60)30	(120)40	(120)30	(100)20	400	4
6.	Brand Image	(10)10	(40)20	(180)60	(80)20	(50)10	360	6
7.	Source of Information	(10)10	(40)20	(30)10	(160)40	(200)40	440	2

Max. Rating (Max.Scale x 100 Respondents) =5x100=500 (Max.)

From the Table 4.6 it can be concluded that farmer consider quality as important factor while purchase pesticide, second source of information, third promotional strategies, fourth relation with the dealer, fifth price, sixth brand image and seventh packaging. So, it is clear that majority of respondents consider quality as most important factor at time of purchasing pesticide followed by source of information, promotional strategies, relation with dealer, price, brand image, packaging.

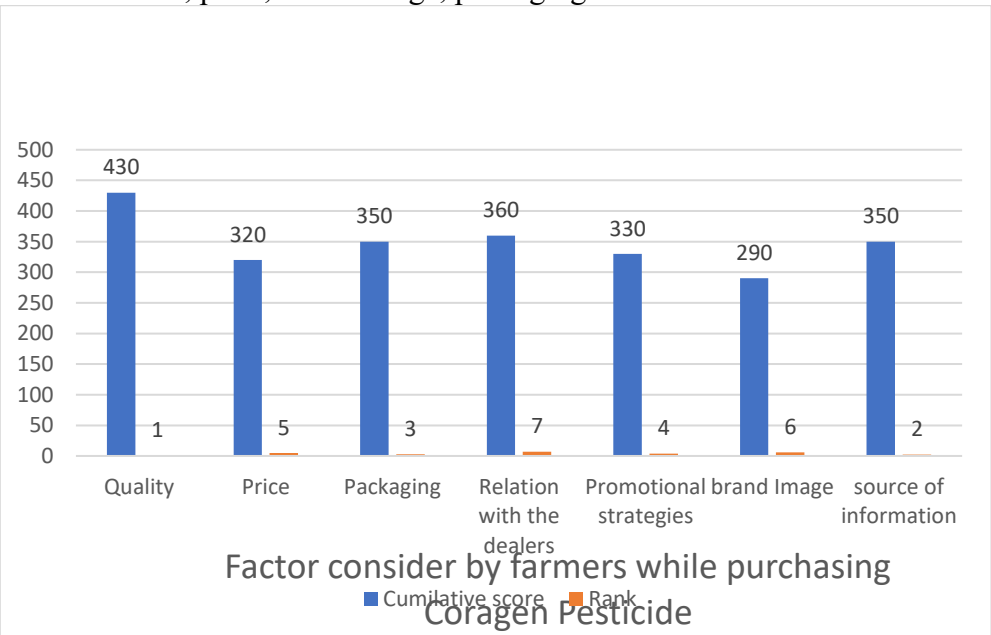


Fig 4.10: Factor consider by farmers while purchased Coragen Pesticide

Expectation by respondent from the company

Table 4.7: Expectation by respondent from the company

Sr. Nos.	Expectation from Company	No of respondents	Percentage
1.	Reasonable Price	33	33%
2	Good Quality	12	12%
3	Demonstration	30	30%
4	Experts Visit	25	25%
	Grand Total	**100**	**100%**

Table 4.7 shows detail about that which thing expect by respondent from company. A majority (i.e., 33%) of respondent expect a reasonable price, following other 30% respondent expect Demonstration, 25% respondent expect experts visit and 12% farmer expect good quality of the product from the company.

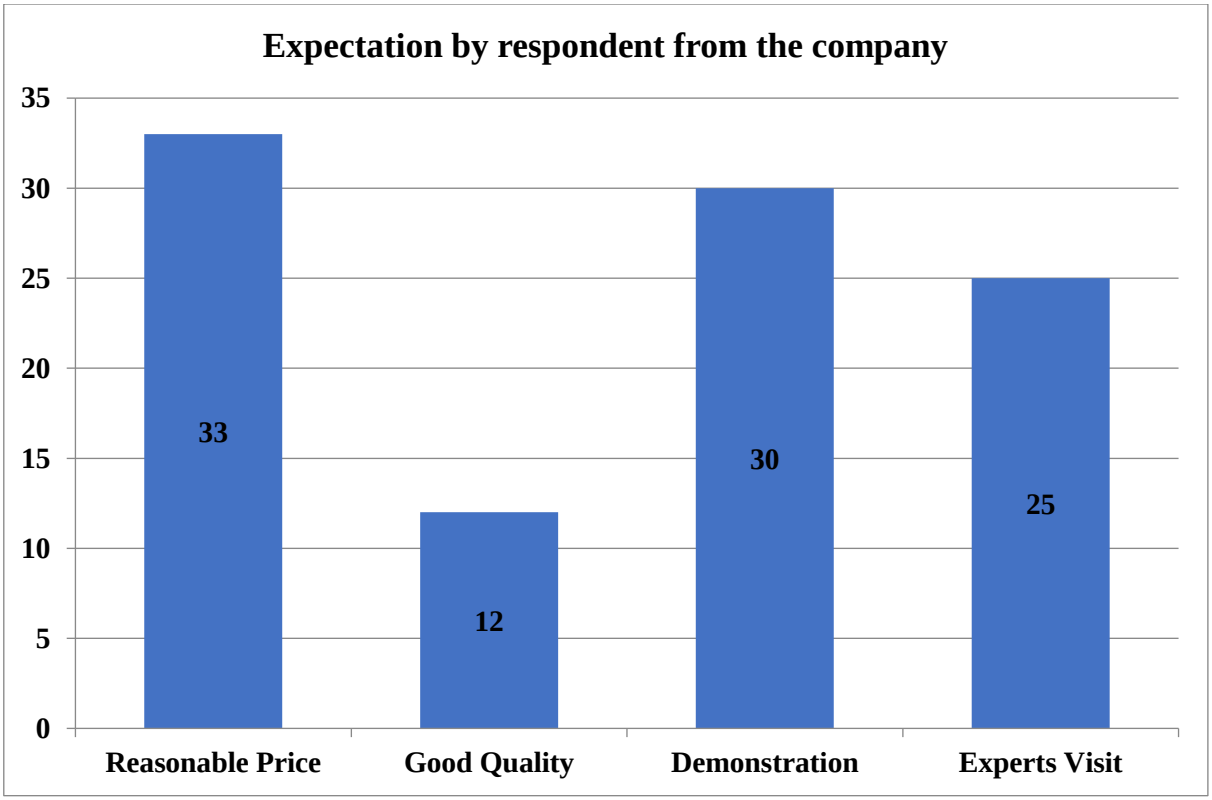


Fig 4.11: Expectation by respondent from the company

Market Margin, Market Share and Market Efficiency

Table 4.8: Price Spread of Pesticide (Coragen) In Channel I

Channel-I

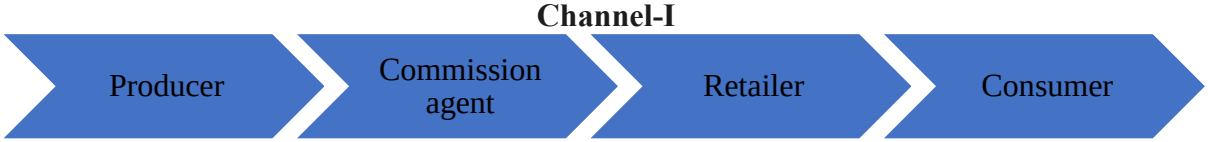


Table 4.9: Price Spread of Pesticide (Coragen) Channel Ii

S. No	Particulars	Price/Ltr.
1	Net price received by producer	1550
2	**Cost incurred by the producer**	
	Packing cost	10
	Packing material cost	20
	Transportation cost	20
	Loading and unloading charges	30
	Miscellaneous charges	10
3	Marketing cost	90
4	Sale price of producer/Purchase price of Commission agent	1640
5	**Cost incurred by the Commission agent**	
	Loading, Unloading and repacking cost	30
6	Marketing cost	30
	Margin of Commission agent	20
7	Sale price of commission agent/ purchase price of retailer	1720
	Loading and unloading Charges	25
	Carriage up to shop	10
	Grading and sorting charges	20
	Miscellaneous charges	10
8	Marketing cost	65
9	Margin of retailer	60
10	Sale price of retailer/ purchase price of consumer	1810
	Total Marketing cost	**185**
	Net margin	**80**
	Price Spread	**6.19**
	Producer's share in consumer rupee	**81.05%**

Channel II:

S. No	Particulars	Price/Ltr.
1	Net price received by producer	1550
2	**Cost incurred by the producer**	
	Packing cost	10
	Packing material cost	10
	Transportation cost	15
	Loading and unloading charges	20
	Miscellaneous charges	30

3	Marketing cost	85
4	Sale price of producer/Purchase price of Commission agent	1635
5	**Cost incurred by the Commission agent**	
	Loading, Unloading and repacking cost	25
	Spoilage and losses	15
6	Marketing cost	40
	Margin of commission agent	25
7	Sale price of Commission agent/ purchase price of wholesaler	1700
8	**Cost incurred by the wholesaler**	
	Loading and unloading and repacking charges	40
	Grading and sorting charges	30
	Spoilage and losses	10
9	Marketing cost	80
10	Margin of wholesaler	20
	Sale price of Wholesaler/Purchase price of retailer	1800
	Loading and unloading Charges	20
	Carriage up to shop	10
	Miscellaneous charges	10
	Marketing cost	40
	Margin of Retailer	60
11	Sale price of retailer/ Purchase price of consumer	1900
	Total Marketing cost	**245**
	Net margin	**105**
	Price Spread	**7.97**
	Producer's share in consumer rupee	**77.62%**

Table 4.10: Marketing Efficiency of Coragen Pesticide in Different Marketing Channels

Particulars	**Units**	**Channel I**	**Channel II**
Consumer purchase price	Per Litre	1900	1810
Total marketing price		245	185
Total net margin of intermediaries		105	80
Net price received market intermediaries		1550	1550
Marketing efficiency by Conventional method		8.66	6.60

Table 4.10 reveals about the marketing efficiency of different marketing channels in which marketing efficiency of channel I by conventional method is 0.509, marketing efficiency of channel II is 8.66 and marketing efficiency of channel III is 6.60. The total marketing price was high in channel II in comparison of other channels. The maximum net price received by the farmers is high in channel I & II. The maximum net margin received by market intermediaries is highest in Channel I i.e., 105.

Constraints in Buying of Pesticides

Table 4.11 Constraints in Buying of Pesticides

S. NO.	Constraints	Garrett Mean Score	Garrett Rank
1	Unawareness about hazardous effect of agrochemical on human health	85.2	II
2	Lack of technical guidance	82.1	VII
3	Poor quality of pesticide	84.36	III
4	Lack of pesticide application equipment	82.33	V
5	Lack of easy availability	79.58	IX
6	High price of agrochemicals	86.25	I
7	Residual effect on the crop/next crop	84.25	IV
8	Poor quality of agrochemicals	82.32	VI
9	Lack of finance	80.14	VIII

Table 4.11 reveals about the constraints in buying of pesticides in which High price of agrochemicals ranks I, Unawareness about hazardous effect of agrochemical on human health ranks II, Poor quality of pesticide ranks III, Residual effect on the crop/next crop IV, Lack of pesticide application equipment ranks V, Poor quality of agrochemicals ranks VI, Lack of technical guidance ranks VII, Lack of finance ranks VIII and Lack of easy availability ranks IX.

Conclusion

Globalization of agrochemical industry has a huge impact on the Indian market. 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 agro-centres 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 FMC brand. So, the company must concentrate in utilization of more of these two factors to increase the awareness of the farmers towards the brand quality maintenance. The followings were the major findings of the study: -Study reveals that the age of respondents in which 8% were between 30 years to 50 years followed by 28% were below 30 years and 18% were above 40 years.

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