



STUDY ON FARMER'S BUYING BEHAVIOUR TOWARDS WEEDICIDES IN DEORIA DISTRICT OF UTTAR PRADESH

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ABSTRACT

A study in Uttar Pradesh's Deoria district found that 97% of farmers use weedicides in their fields, with most aged 30-35 and having 1-2 hectares of land. The majority of farmers buy weedicides on credit from retailers. Factors affecting farmers' buying behaviour include prior experience, price, packaging, availability, and company executives' follow-up. The most important factors for evaluating weedicide products were the spray machine offering, price, prior experience, and brand name. Farmers look for visible and instant results from the weedicide product. The study also found that the majority of farmers use weedicides as a preventive measure against pests, with disease or pest presence being a significant motivation. The study suggests that understanding these factors can help develop effective marketing strategies for weedicide products and address the challenges farmers face in managing pests and diseases.

Keywords: *Weedicide, Company, Credit, Marketing, Disease*

INTRODUCTION

India's agriculture sector is the backbone of the economy, employing around 52% of the population and significantly impacting socioeconomic development. The development of contemporary agriculture has been greatly influenced by technology, with high-quality inputs such as seeds, chemicals, irrigation techniques, fertilisers, insecticides, and genetic engineering contributing to increased yields. However, excessive and indiscriminate use of weedicides in agriculture poses significant health risks to farmers, farm workers, and

consumers, leading to environmental pollution and resistance among pests. India is one of the world's largest users of weedicides, with an annual consumption of over 75,000 metric tonnes of active ingredients. The government has implemented measures to regulate the use of weedicides in agriculture, such as the Weedicides Management Bill, 2020, and launched programs to promote alternative pest management methods like integrated pest management (IPM) and organic farming. The agrochemical market in India has grown over the decades, with farmers

adopting agrochemicals to protect their crops. Weedicides play a major role in improving soil fertility, protecting crop produce, and raising productivity. India has one of the lowest rates of weedicide consumption at 0.65 kg/ha, compared to the global average consumption of 3 kg/ha. Despite India's growth in the global export market, its export market share is still low due to the potential of Indian manufacturers. With quality products offered and competitive pricing, India is expected to gain further market share in exports. Farmers need to choose the right weedicide for their crops to ensure optimal yield and quality, influenced by factors such as pest or disease type, availability, pricing, and brand reputation.

The Weedicide industry is a crucial part of modern agriculture, contributing to food security and economic growth. The global market is expected to reach over \$90 billion by 2026, with the Asia-Pacific region being the largest market, accounting for over 40% of global demand. China and India are the largest markets for Weedicides in the Asia-

Pacific region. Insecticides account for over 40% of global demand, followed by herbicides and fungicides. The growing demand for food, pest and disease pressure, and improving crop yields are key drivers of growth. However, the industry faces challenges such as environmental and health risks associated with its use. The industry is also under pressure to develop sustainable alternatives, such as biological control agents and integrated pest management strategies. Precision agriculture technologies are driving innovation and growth in the Weedicide industry. In Uttar Pradesh, the Weedicide market is dominated by large companies like Syngenta, Bayer Crop Science, and UPL, producing a wide range of Weedicides. Deoria, a district in Uttar Pradesh, is a significant market due to its importance in protecting crops from pests and diseases. The agrochemical market is an important support industry, boosting agriculture output. However, judicious use of the best chemicals and minimizing their impact are essential for the growth of the market.

OBJECTIVES OF THE STUDY

- To study the Socio-economic profile of respondents in the study area.
- To evaluate the market share, price spread and marketing efficiency in marketing of weedicide in the study area.
- To evaluate the market factor affecting in consumer buying behaviour of weedicide in the study area.
- To find out the constraints in marketing of weedicide and suggest suitable remedial measures.

DATA INTERPRETATION

Objective 1: -To Study the Socio-Economic Profile of Respondents in the Study Area.

Demographic details of study area

The data shows that agriculture in Deoria is predominantly male, with 93% of respondents being male and 7% being female. This data is accurate but limited due to the sample size. To increase participation,

a promotion strategy targeting farmers could be beneficial. However, broader social factors, such as cultural norms and gender roles, may limit women's participation. Therefore, a promotion strategy addressing these factors and aiming for community participation may be more effective in promoting agriculture in Deoria.

Age of respondents

The Deoria district's 18-55-year-old population is primarily involved in farming, suggesting a targeted promotional activity could increase farming participation. However, the survey data may not be representative and the specific needs and challenges of different age groups may influence their willingness and ability to participate. A comprehensive promotional strategy addressing these factors may be more effective.

Educational qualifications of respondents

The data reveals that the majority of people in Deoria have a low level of education, with only 19% holding an intermediate level, 43% having a metric level, and 26% having primary education. Only 7% completed their graduation, and only 5% had a post-graduation degree. This suggests a need for improved educational opportunities and resources to equip farmers with necessary skills and knowledge.

Annual income of the respondents

Most farmers in the study area earn between 5 to 10 lakhs annually, with larger land holdings earning more. This is due to the potential for modern farming technologies, machinery, and investment in irrigation systems, fertilizers, and weedicides. The majority of farmers have medium and large land holdings, which allow them to produce more and earn higher incomes. However, income also depends on factors like crop diversification, market access, and government policies, which can influence farm profitability and income, regardless of the size of the landholding.

Major Crops of the study area

Study shows that in India, 42% of farmers sow cotton during the Kharif season, while 54% sow paddy. The Rabi season is predominantly wheat, with 4% cultivating

Mustard. Kharif and Rabi are the two primary cropping seasons, with Kharif crops sown during the monsoon season and Rabi crops during the winter months.

Land holdings of Farmers

The study area's land holdings reveal a significant variation among farmers. 38% have medium to large-sized holdings, while 35% have larger holdings. A small minority, 12%, has very small holdings, potentially limiting productivity and profitability. 15% have large holdings, potentially leading to unequal distribution of resources. This highlights the need for policies and initiatives to promote equitable land resource distribution in the agricultural sector for sustainable and inclusive growth. The data underscores the need for policies and initiatives to address land holdings distribution in the agricultural sector.

Weedicide Usage

The majority of farmers use weedicides in their crop cultivation practices, with only 3% not using any. This highlights the need for responsible weedicide management, as overuse can harm human health and the environment. Farmers should educate themselves on proper weedicide use and implement integrated pest management strategies. Consumers can promote sustainable farming by supporting organic practices.

Source of Weedicide Purchase

The study in Deoria District of Uttar Pradesh reveals that 89% of farmers prefer to buy weedicides from retailers, while only 8% choose from distributors. The remaining 3% use other sources like company demonstrations or government demonstrations. This suggests the need to strengthen relationships between retailers and farmers to ensure access to the right products at the right time.

Mode of payment adopted for Weedicide purchase

Study shows that over 85% of Indian farmers prefer to purchase insecticides on credit, a trend common due to limited cash flow and credit availability from input dealers. However, this method can lead to debt traps and high interest rates, affecting profitability. Cash payments can help avoid debt and negotiate better prices with input dealers, but may not always be feasible for farmers with limited cash flow or if dealers do not offer cash discounts.

Stage of Using Weedicide

The study reveals that over 85% of farmers in India prefer to purchase insecticides on credit, primarily due to limited cash flow and credit availability from input dealers. Cash payments can help farmers negotiate better prices and avoid debt traps. In the Deoria District of Uttar Pradesh, 72% of farmers use weedicides as a preventive measure, with herbicides and fungicides being the primary preventive measures. The findings could inform interventions to improve pest management practices and reduce crop losses.

Quantity of Weedicide use in different crops

The study reveals that 42% of weedicides are used in cotton fields in the Deoria District of Uttar Pradesh, primarily due to pest-related challenges. This information could help develop effective interventions to improve pest management practices and reduce weedicide use.

Kind of Pesticide Use

The study reveals that 98 out of 150 farmers in Deoria District use all types of weedicides, with 21 using insecticides, fungicides, herbicides, and only two using rodenticides, indicating potential risks.

Which Brand Weedicide is on Demand in Market

Syngenta is the most popular company among farmers in India for weedicide products, followed by Bayer and ADAMA. These companies have a strong presence in India and are trusted for their effectiveness in protecting crops from pests and diseases. However, the popularity and demand for these companies may vary depending on regional and specific farmer needs.

Objective 2: To Evaluate the Market Share, Price Spread and Marketing Efficiency in Consumer Rupees.

Particulars	Channel 1	Channel 2	Channel 3	Channel 4
P price receivedby producer	950	950	950	950
MARKETING COST INCURRED BY				
Producer	950	Nil	Nil	100
Commission agent			-	-
Wholesaler			360	-
Retailer		94	94	-
Retailer (localmarket)	-	-	-	-
Sub total	950	94	454	950
MARKETING MARGIN				
Commission agent			-	49
Wholesaler			150	-

Retailer		150	200	
Retailer (localmarket)				
Sub total		150	350	49
Total	950	244	804	999
Price paid by consumers	1500	1400	1200	1050
Price spread		15	35	4.9
Marketing efficiency %	1.578	15.737	1.492	1.051

The table presents marketing efficiency for Calaris xtra syngenta product, showing that channel-I has the highest efficiency at 15.737% due to cost savings and low consumer prices, while channel-III has the lowest efficiency at 1.051%. Channel-II is the most efficient channel.

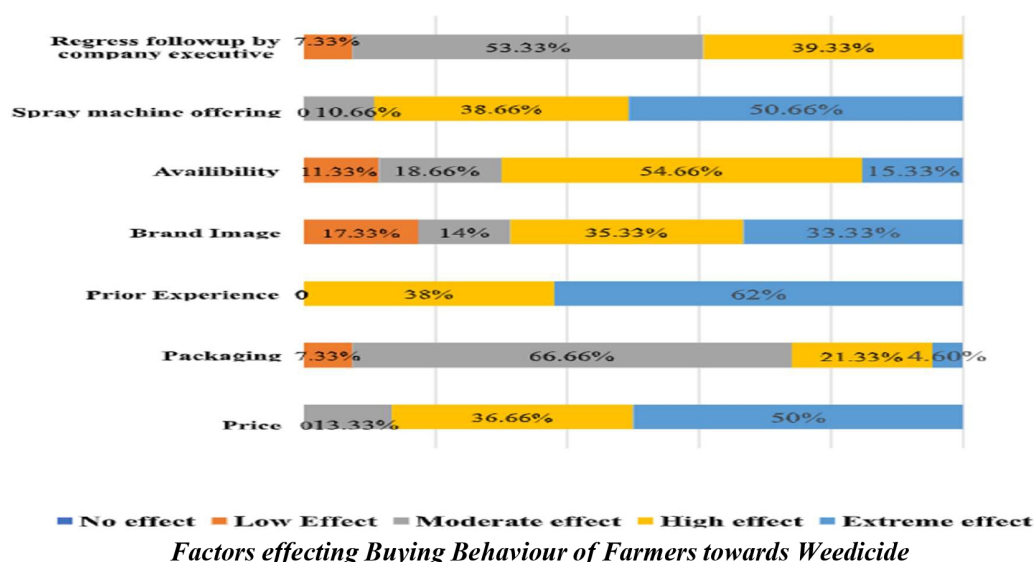
Producers share in consumers rupees in Deoria district of Uttar Pradesh

Name of block	Syngenta		Dupont (Fartera)		Bayer (Glamor)		PI(Osheen)		Total	
	Value (in lakh)	Market share	Value (in lakh)	Market share	Value (in lakh)	Market share	Value (in market)	Market share	Value (in lakh)	Market share
Meddipatti	146.3	20.1	440	60.5	42.5	5.8	98	13.4	726.8	100
Motipur	124.9	28.8	240	55.4	34	7.8	33.6	7.7	432.5	100
Malsi	46.5	37.6	60	48.6	8.5	6.8	8.4	6.8	123.4	100
kurmipatti	317.7	24.7	740	57.6	85	6.6	140	10.9	1282.7	100

Syngenta's marketing strategy involves importing raw materials from the UK to Mumbai, India, manufacturing final products, and distributing them to distributors or farmers. This eliminates middlemen and makes the product readily available to consumers, thereby reducing prices. The company's approach also helps to eliminate middlemen, making it more affordable for farmers.

Objective 3: To Evaluate the Market Factor Affecting in Consumer Buying Behaviour (Weedicide) in the Study Area.

Factors effecting Buying behaviour of Farmers towards Weedicide



The study reveals that the availability of spray machines significantly influences farmers' purchasing decisions for a particular brand of Weedicide. It accounts for 50.66% of the overall influence, suggesting that companies that offer spray machines may have a competitive advantage. Other factors like brand reputation, product effectiveness, and technical support also play a role. The study suggests that the availability of spray machines is a new and increasingly important factor for Weedicide companies to consider when developing their marketing strategies.

Effect of Different promotional activity on buying behaviour of farmers

Descriptive statistics of most effective promotional activities

	N	Minimum	Maximum	Mean	Std. Deviation
Demonstration	150	4.00	5.00	4.9133	.28229
Free Sample	150	1.00	4.00	2.5000	.65282
Product Campaign	150	3.00	5.00	4.4933	.54028
Coupon	150	1.00	4.00	2.7000	.73958
Jeep Campaign	150	2.00	5.00	4.0067	.63981
Field Assistant	150	4.00	5.00	4.7200	.45050
Literature Banner	150	3.00	5.00	3.7400	.59562
Star performer	150	1.00	5.00	2.8533	.80591
(Farmer)					
Farmer meeting	150	4.00	5.00	4.9333	.25028
Valid N (listwise)	150				

The research reveals that farmer meetings, product campaigns, and demonstrations are the most effective promotional activities for farmers. These activities build trust and credibility with farmers, providing them with first-hand experience and knowledge about the product's features and benefits. This leads to increased interest and preference for the product, ultimately resulting in higher sales. Other promotional activities like advertising and social media campaigns may also impact farmers' buying behaviour.

Satisfaction among farmers regarding Existing Weedicide in market

The study shows that 54% of farmers are satisfied with existing weedicides, while 46% are unsatisfied. This dissatisfaction is attributed to insect resistance and the lack of effective control of major weeds like phalaris minor. These issues can lead to crop

damage and yield losses. To improve pest and weed control, new, more effective weedicides and integrated pest management strategies are needed. This could involve a combination of methods to minimize resistance and enhance overall pest control efficacy.

Objective: - 4 - To Find Out the Constraints in Marketing of Weedicide and Suggest Suitable Measures.

S. No.	Constraints	Frequency	Ranking
1	High cost of transportation	41	I
2	Shortage of trading	28	II
3	Price fluctuation	25	III
4	High-cost storage	19	IV
5	High prices	17	V
6	Storage problems	14	VI
7	Delayed sales	6	VII

Suitable measures

Syngenta should enhance product awareness, price control, and quality, improve distribution policies, maintain warehouse stocks, organize training programs for marginal farmers, enhance

communication, promote cooperative development through research and technology, and collaborate with cooperative bodies.

CONCLUSION

A study in the Deoria district of Uttar Pradesh aimed to evaluate the buying behaviour of farmers towards weedicides. The research, conducted through questionnaires, found that 97% of farmers in the district use weedicides, with most aged 30-35 and having 8-10 acres of land. The majority of farmers use credit-based sales. Factors affecting farmers' buying behavior include prior experience, price, packaging, availability, and follow-up by company executives. The most important factors for evaluating the pesticide product were the spray machine offering, price, prior experience, and brand name. Farmers look for visible and instant results from the product. The study also found that the majority of farmers use weedicides as a preventive measure against pests, with disease or pest presence being a significant motivational factor. The study recommends introducing new technical advancements in the pesticide division to address pest resistance. However, most farmers are unsatisfied with existing weedicides due to insect resistance, lack of efficient herbicides, and higher pesticide rates. The study highlights the need for the pesticide industry to address these challenges and provide farmers with access to advanced pesticide products to enhance crop productivity and reduce losses.

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