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The Role of Agro-Chemical Company Marketing In Shaping Farmer Behavior: A Study of Trends and Patterns in Amravati District

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Abstract

Examining patterns and trends in the Amravati District, this research delves into the significant impact of agro-chemical business marketing on farmer behaviour. Because of changes in consumer tastes, market forces, and technology, the district's agricultural environment has changed dramatically during the last decade. Within this context of change, agro-chemical businesses continue to play an important role by supplying farmers with inputs like fertilisers, insecticides, and herbicides and by using different marketing methods to influence their decision-making.This research explores the complex interaction between agro-chemical industry marketing and farmer behaviour using a mixed-methods approach. The methodology includes surveys, interviews, and market analysis. The study investigates how marketing strategies like product positioning, distribution channels, pricing tactics, and promotional campaigns affect farmers' perceptions, preferences, and purchasing decisions through quantitative surveys given to farmers and qualitative interviews with important stakeholders.

In addition, the study examines patterns and trends in the marketing of agro-chemical companies during the research period, looking at strategy adjustments, new marketing trends, and how they affect farmer behaviour. This research delves deeply into the factors influencing the Amravati District's agri-input industry by combining quantitative data on market trends with qualitative insights gleaned from interviews with key stakeholders.By illuminating the complex relationship between the marketing strategies of agro-chemical companies and the actions of farmers, this study adds to what is already known about agricultural marketing and rural development. Researchers hope that agro-chemical businesses, lawmakers, and others will use the study's findings to guide strategic decision-making in the Amravati District and beyond, leading to more effective marketing, easier access to markets, and more sustainable farming methods.

Keywords –Promotional Campaigns, Distribution Channels, Pricing Strategies, Product Positioning, Market Analysis

Introduction

In areas like the Amravati District, where agriculture is vital to people's lives, food security, and rural development, the agricultural sector provides the economic backbone. The use of agro-chemical inputs, such as fertilisers, pesticides, and herbicides, has become fundamental to contemporary agricultural methods in this sector, allowing for higher productivity and crop yields. Because they provide vital inputs and also use their marketing methods to influence farmer behaviour, agro-chemical businesses have considerable influence in the Amravati District's ever-changing agricultural environment.

The purpose of this research is to examine how the marketing strategies of agro-chemical companies significantly impact farmer actions in the Amravati District. Changes in technology, new policies, and the local environment have all contributed to dramatic changes in farming methods, market dynamics, and consumer tastes in the last ten years in this area. To promote long-term agricultural growth in the area, it is crucial to comprehend how the marketing methods of agro-chemical companies impact farmers' decision-making in light of these changing patterns.

This research aims to thoroughly examine the marketing strategies of agro-chemical companies and how they influence the actions of farmers in the Amravati District. This

research aims to uncover the mechanisms driving farmer perceptions, preferences, and purchase decisions regarding agro-chemical inputs by examining the various dimensions of marketing strategies, such as promotional campaigns, distribution channels, pricing strategies, and product positioning.

This goal is accomplished via the study's mixed-methods methodology, which involves both quantitative surveying of farmers and qualitative interviews with important players in the agri-input supply chain. The study's overarching goal is to shed light on the complex interplay between agro-chemical firm marketing and farmer behaviour by analysing survey data quantitatively and interview transcripts thematically. The goal is to uncover new trends, problems, and possibilities in the industry.

In addition, the research delves into larger patterns in the marketing of agro-chemical companies during the research period, looking at changes in tactics, new marketing trends, and how they affect farmer actions and agricultural progress. This study aims to fill a gap in our knowledge of the Amravati District's farmers and the intricate relationship between agro-chemical companies' marketing and their actions by combining quantitative data on market trends with qualitative insights from interviews with relevant stakeholders.

Finally, by shedding light on how agro-chemical firm marketing influences farmer behaviour, our research adds to what is already known about agricultural marketing and rural development. Promote sustainable agricultural practices, improve farmer livelihoods, and foster rural prosperity in the Amravati District and beyond by understanding the dynamics of marketing strategies and their impact on farmer decision-making processes. Stakeholders can then develop more effective interventions in this area.

Literature review

Worldwide, agricultural output is essential for two main reasons: food security and economic growth. As a result, it helps keep the economy stable by ensuring food security. Additionally, it ensures consistent revenue for farmers worldwide. According to Nematollahi and Tajbakhsh (2020), the agricultural sector helps stabilise economies and provides opportunities for people to overcome poverty. An increasing worldwide population is putting a strain on agricultural productivity, and millions of people continue to be hungry (FAO, IFAD, UNICEF, WFP and WHO 2018). Furthermore, many farmers use chemical inputs, which harm both humans and the environment, in order to boost agricultural output (Bourguet and Guillemaud 2016, Tang and Maggi 2021). Thus, ecological sustainability, food sovereignty, and ethical considerations are only a few of the difficulties that the agriculture industry must contend with (Feindt et al., 2021). The input providers, farmers, food producers, and consumers are all impacted by these difficulties (Möhring et al., 2020). Traditional state-led agricultural and environmental policies have often included self-regulation or co-regulation as a means to control the actions of these players (Daugbjerg and Feindt 2017). Financial incentives to use sustainable agricultural methods or clean technology, certificates to prove compliance, and output quotas to control overproduction are common examples of state-led initiatives (Greer 2005, Möhring et al 2020).

On the other hand, these regulations often wind up having little impact or causing unforeseen consequences (Chang 2009). Human and environmental health, together with the shift towards more sustainable food value chains, are jeopardised by ineffectual policies. In order for agri-environmental policies to have an impact, it is necessary to study the different decision-making rationales used by the participants in these value chains (Dessart et al., 2019). A mismatch between the policy tools used to alter behaviour and the factors (such as costs, knowledge, and motives) that drive the desired behaviour may lead to ineffective policies for agricultural productivity. For instance, because habit rather than cost determines behaviour, individual actors may continue to behave in the same way despite a recently implemented tax. Research has shown that decision-makers fail to take into account the

elements that influence the actions of certain groups (Flury-Kleubler and Gutscher 2001, Howlett 2018). Burger et al. (2015) state that in order to maximise the efficacy of policies, it is important to address the psychosocial drivers of the target group's behaviour via the application of behavioural modification strategies in policy design.

Various factors influence how individuals act. These include aversion to risk (Von Neumann and Morgenstern 2007), the actions of one's social circle (Kollmuss and Agyeman 2002), one's own set of beliefs and attitudes (Ajzen 1991, Diekmann and Preisendörfer 2003), and one's own set of habits and routines (Stern 2000). The theory of planned behaviour (Ajzen, 1991) and the health action process approach (Schwarzer, 2008) are two examples of the extensive theories and models established by behavioural science fields that define the factors that influence behaviour change. (Senger et al., 2017; Rosas et al., 2022; Zaremohzzabieh et al., 2022) have shown that these models may be employed to explain behaviours associated with agricultural productivity and difficulties. Before proposing treatments to encourage behavioural change, psychological techniques seek to understand the factors that contribute to a particular behaviour of interest. Intervention for changing behaviour based on theoretical principles is the name given to this approach. Figure 1 shows the behaviour change wheel (BCW), a framework that has been developed over the last decade to help with the accurate characterisation of current treatments and the creation of new ones (Michie et al., 2011). It connects behavioural determinants ('conditions') to nine intervention functions that can alter these determinants, and seven policy categories that can facilitate the implementation of interventions, and it is based on a comprehensive review of nineteen different intervention frameworks for behaviour change (Michie et al., 2011). It has a wide range of applications and has proven to accurately describe interventions aimed at changing behaviour (e.g., protecting biodiversity; Marselle et al., 2021) and to guide the creation of interventions (e.g., for the prevention of COVID-19; West et al., 2020b).

Objectives of the study

- To analyze trends and patterns in agro-chemical company marketing strategies within the Amravati District over the past decade.
- To examine the impact of agro-chemical company marketing strategies on farmer behavior, including perceptions, preferences, and purchase decisions regarding agri-inputs.
- To identify key factors influencing farmer responses to agro-chemical company marketing, such as promotional campaigns, distribution channels, pricing strategies, and product positioning.

Research methodology

The researcher created a systematic questionnaire to collect quantitative data on how farmers feel about agro-chemical inputs, what they like, and how they buy them. Brand recognition, product quality, marketing channel efficacy, and decision-making variables were among the many subjects addressed in the poll. Conducted in-person interviews with a random selection of farmers to distribute the survey, taking into account their availability and personal preferences. Gathered information on a variety of factors pertaining to the marketing strategies of agro-chemical companies and the actions of farmers. Utilizeed statistical tools such as descriptive statistics, correlation analysis, and regression analysis to analyse survey data and uncover patterns, correlations, and variables impacting farmer behaviour.

Data analysis and discussion

Table 1 - Behavior of farmers with direct contact with pesticides.

Variable	Total (n=200)	Percentage
Respect the PHI (pre-harvest interval)		

Variable	Total (n=200)	Percentage
Yes	140	70
No	60	30
Prevention measure		
Wear special cloth	20	10
Wear a mask	60	30
Does not manipulate with bare hand	40	20
Does not eat during application	40	20
Does not smoke during application	40	20
Respecting the dose prescribed		
Yes	120	60
No	80	40

The table shows statistics on how farmers who come into direct touch with pesticides operate, with an emphasis on factors like adhering to dosage instructions, taking precautions during pesticide application, and respecting the pre-harvest interval (PHI). Let's have a look at the results and talk about them: Seventy percent of farmers said they follow the PHI, which means they wait the appropriate amount of time between applying pesticides and harvesting to make sure their produce is safe and to meet regulations. Nevertheless, 30% of respondents admitted to disregarding the PHI, which brings up worries over the possible presence of pesticide residues in the harvested products, which might affect the health of consumers and the sustainability of the environment.

Data reveals that farmers' adoption of preventative measures during pesticide application varies: Of all the preventative measures indicated, wearing a mask during application was the most popular, with 30% of farmers doing so. Only a minority of farmers said they took additional precautions, such as covering their hands with a specific cloth(10%), not eating (20%), or not smoking (20%) when applying the pesticide. While it's great to see more people taking precautions, we still have a way to go before we can say that everyone is safe from pesticides and their harmful effects. Adherence to required Application Rates and Dosage Instructions: According to the survey, 60% of farmers make sure to follow the required dosage while applying pesticides. Nevertheless, 40% of respondents admitted to not following the recommended dosage, which brings up worries about pesticide abuse or overuse that might cause pollution, insect resistance, and health risks for both farmers and consumers.

The results show that farmers may modify their behaviour when it comes to pesticide usage, and they also show that there are good practices. Many farmers are aware of the need of following safety and regulatory rules, as shown by their adherence to the pre-harvest interval and preventative measures, such as wearing masks during application. Tackling the issue of farmers not following the PHI and recommended dosage is crucial in order to encourage responsible pesticide usage and increase compliance with best practices. Educating farmers, via agricultural extension services, training programmes, and other means, may greatly contribute to a greater understanding of pesticide safety, correct application methods, and the significance of adhering to rules. Agricultural authorities, agro-chemical corporations, and farmer organisations must work together to ensure the appropriate and safe use of pesticides in agriculture, promote sustainable pest control techniques, and create and disseminate recommendations.

The data sheds light on the strengths and weaknesses of pesticide usage techniques, providing important insights into the behaviour of farmers who come into close touch with pesticides. Improving agricultural output, protecting the environment, and public health all depend on farmers adopting safer and more sustainable pesticide management methods, which in turn requires effective interventions and collaborations.

Conclusion

This study's results highlight the need for more focused educational efforts to raise knowledge and encourage appropriate pesticide usage among farmers. Pesticide safety, correct application methods, and regulatory compliance may be effectively disseminated via public awareness campaigns, agricultural extension services, and farmer training programmes. If we want to create and execute interventions that promote sustainable pest management practices, we need agricultural authorities, agro-chemical corporations, farmer organisations, and everyone else involved to work together. In order to keep farmers, consumers, and the environment safe, pesticide usage practices must be continuously monitored and evaluated, and regulatory standards and guidelines must be updated on a regular basis. To reduce pesticide-related health and environmental hazards, the research concludes that encouraging appropriate pesticide usage practices is crucial. Stakeholders can improve pesticide safety, agricultural sustainability, and the well-being of farming communities in the Amravati District and beyond by addressing the identified gaps and adopting targeted interventions.

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