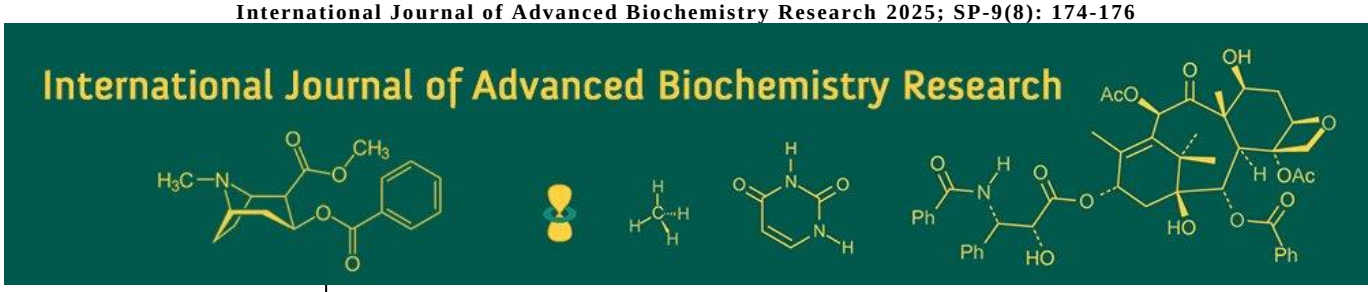

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Market share of major pesticide company in the Chhattisgarh

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Abstract
The analysis of pesticide companies in Chhattisgarh shows that the market is dominated by a few big companies and is highly competitive. Bayer Crop Science Limited is the top company with sales of ₹ 115 crore, making up 12.12% of the market. It is followed by Tropical Agrosystem Pvt. Ltd. with ₹ 93.3 crore (9.85%) and Syngenta Global AG with ₹ 85 crore (8.97%). These three companies alone hold over 30% of the total market, showing that big international firms have a strong presence due to their better technology, wide product range, and strong dealer networks. When we add Rallis India (7.92%) and Corteva Agriscience (7.71%), the top five companies together control about 47% of the total market value of ₹ 946.6 crore. This means that only a few companies have most of the market share, which is called an oligopoly. Mid-sized companies like PI Industries (6.49%), FMC (6.02%), and ADAMA (5.91%) are also doing well because of their product variety and local marketing. Smaller companies such as Best Agrolife (2.11%) and Willowood India (0.95%) face more difficulties. They have fewer dealers, weaker brand names, and struggle with rules and seasonal sales. The study suggests that to make the market more balanced and fair, there should be more innovation, better dealer support, and stronger policies to help small and mid-level companies grow.

Keywords: Pesticide market, Chhattisgarh, market structure, oligopoly, Bayer crop science, tropical Agrosystem, syngenta

Introduction
India is the fourth-largest producer of agrochemicals in the world and the second-largest in Asia**,** after China (FICCI, 2023). The Indian pesticide market is worth more than ₹40, 000 crore (about USD 5 billion) and is expected to grow by 8-10% every year (ICRA, 2023). Even though pesticide use in India is still low at 0.6 kg per hectare**,** compared to the global average of 2.6 kg/hectare (MoA&FW, 2022), it is slowly increasing as more farmers shift to commercial farming**.**

The market includes both multinational companies and Indian manufacturers. Leading companies like UPL Ltd, Bayer Crop Science, Syngenta India, PI Industries, and Rallis India have a strong presence in both local sales and exports. In India, insecticides are still the most used type of pesticide, especially for crops like cotton and rice. However, herbicides and fungicides are also becoming more popular, especially in areas with labor shortages or where machines are used for farming (CIBRC, 2023).

India also exports more than 50% of the pesticides it produces to countries like Latin America, Africa, Southeast Asia, and the USA. To meet international standards, Indian companies are now focusing more on product quality, new technologies, and research and development (R&D). This has helped India grow stronger in the global agrochemical market.

This study is necessary to explore how pesticide market structures and company strategies affect farmers' decisions and industry outcomes. The research focuses on marketing methods, the role of retailers, and farmer perceptions in Chhattisgarh. It also addresses concerns over counterfeit products and the ethical implications of promotion strategies.

Key challenges facing the industry include fragmented landholdings, lack of awareness, and proliferation of fake products, regulatory delays, environmental issues, and inadequate training for agro-dealers. Tackling these requires coordinated efforts across government, industry, and extension services.

Materials and Methods

Sampling Procedure and Sample Size

A multi-stage sampling method was used for this study. Out of the 33 districts in Chhattisgarh, five important districts Raipur, Dhamtari, Durg, Mahasamund, and Raigarh were selected because they together account for about 20% of the pesticide sales in the study area. From these areas, the researchers randomly selected 200 farmers**,** 100 input retailers**,** and 20 major pesticide companies. The study looked at the market share of pesticide companies**,** farmers' opinions about buying pesticides**,** and the promotional methods used by companies.

Nature and Source of Data

Primary data

Primary data was gathered directly from 100 input retailers to understand the marketing strategies adopted by pesticide companies.

Secondary data

Secondary data was collected from research papers, books, journals, and reports from government and non-government agencies to support and complement the findings.

Analytical tools

The study employed simple percentage and arithmetic mean methods to analyze the data.

Percentage Method

The percentage method was used to standardize data, allowing comparison across categories by expressing values as a portion out of 100.

$$\text{Percentage } (\%) = (X / N) \times 100$$

Where
X is the number of respondents in a category, a
N is the total number of respondents.

Arithmetic Mean

The arithmetic mean was used to calculate the average value of observations.

$$\text{Mean } (\bar{X}) = \sum Xi / n,$$

Where
$\sum Xi$ is the sum of all values
N is the number of observations.

Results and Discussion

Market Share of Major Pesticide Company in the Chhattisgarh

The table presents the sales performance of various pesticide companies in Chhattisgarh, showing both the amount of sales in crores and their share of the market in percentage terms. This helps us understand how the market is structured and how competitive it is.

Bayer Crop Science Limited is the leading player, with the highest sales of ₹ 115 crore, accounting for 12.12% of the market. This strong position is likely due to its wide product range, international expertise, high-quality formulations, and strong network with distributors. Tropical Agrosystem Pvt. Ltd. comes next with ₹ 93.3 crore in sales (9.85%), followed by Syngenta Global AG, which sold ₹ 85 crore worth of products (8.97%). These companies, especially Syngenta and Bayer, show how global firms are influencing the local pesticide market.

Other important companies include Rallis India Limited and Corteva Agriscience, which hold 7.92% and 7.71% of the market, respectively. Their strong logistics, modern products, and good relationships with retailers help them stay competitive. In fact, the top five companies together control nearly 47% of the market, suggesting that the pesticide industry is dominated by a few big players, a structure often described as oligopolistic.

The next group of companies PI Industries (6.49%), FMC Corporation (6.02%), and ADAMA India (5.91%) fall into the mid-level range, showing steady growth with diverse products and local marketing efforts. Other companies such as Sumitomo (5.07%), UPL (4.75%), and Agrolife Science (3.52%) add to the mix of Indian and international brands actively competing for market share.

Smaller companies like Indofil, Dhanuka Agritech, Indian Insecticide, and Sunmukha Agritech have between 2.5% and 2.74% of the market. These businesses often focus on specific regions or customer needs. At the lower end, companies such as Gharda Chemicals (2.42%), NACL (2.32%), and SWAL Corporation (2.21%) hold smaller market shares. The smallest players in this list are Best Agrolife (2.11%) and Willowood India (0.95%).

While these lower-tier companies have less market share, they still serve important roles, especially in local and price-sensitive markets. However, they also face more challenges, such as limited access to large dealer networks, fewer resources for advertising, and dependence on seasonal demand.

Together, these 20 companies sold products worth ₹ 946.6 crore, which represents 100% of the recorded market. The fact that a few companies control most of the sales shows that market power is not evenly distributed. This is typical in the agrochemical industry, where success often depends on having strong brands, new product innovations, good farmer support, and efficient distribution systems.

Table 1: Market share of major pesticide company in the Chhattisgarh.

S. No.	Company name	Sale (cr)	Percentage
1.	Bayer Crop Science Limited	115	12.12%
2.	Tropical agrosystem pvt ltd.	93.3	9.85%
3.	Syngenta Global AG	85	8.97%
4.	Rallis India Limited	75	7.92%
5.	Corteva Agriscience	73	7.71%
6.	PI Industries	61.5	6.49%
7.	FMC Corporation	57	6.02%
8.	ADAMA India Private	56	5.91%
9.	Sumitomo corporation	48	5.07%
10.	UPL Limited	45	4.75%
11.	Agrolife Science pvt ltd	33.4	3.52%
12.	Indofil Industries Limited	26	2.74%
13.	Dhanuka Agritech Limited	25.9	2.73%
14.	Indian Lnsecticide Limited	24.1	2.54%
15.	Sunmukha Agritech Limited	23.9	2.52%
16.	Gharda Chemicals Limited	23	2.42%
17.	NACL	22	2.32%
18.	Swal Corrporation Ltd	21	2.21%
19.	Best Agrolife Limited	20	2.11%
20.	Willowood India	18	0.95%
	Total	100	100%
Source-Analysis of Primary Data			

Overall, the data shows that it is not easy for new firms to enter and compete in this market. Factors like regulatory requirements, the need for trust among dealers and farmers, and high competition from established brands make it tough for smaller players. Understanding this distribution gives useful insights into which companies are leading the industry and how competitive the environment really is.

Conclusion

The pesticide market in Chhattisgarh is mostly controlled by a few large companies, which shows an oligopolistic market structure—where only a few companies do most of the business. Out of the total sales of ₹ 946.6 crore, the top five companies—Bayer Crop Science (₹ 115 crore), Tropical Agrosystem (₹ 93.3 crore), Syngenta (₹ 85 crore), Rallis India (₹ 75 crore), and Corteva Agriscience (₹ 73 crore)—together sold products worth ₹441.3 crore. This is about 46.57% of the total market, which means nearly half of the sales are done by just five companies. These companies are strong because they have well-known brands, quality products, and large dealer networks.

Medium-sized companies like PI Industries (₹ 61.4 crore), FMC (₹ 57 crore), and ADAMA (₹ 55.9 crore) are also doing well with good product ranges and marketing. Smaller companies like Indofil, Dhanuka, and Indian Insecticide have only around 2.5% to 2.74% of the market. The smallest companies like Gharda, NACL, SWAL, and Willowood earn between ₹ 9 crore to ₹ 22.9 crore and face many problems such as weak dealer networks and low promotion budgets.

This uneven market shows that it is difficult for new or small companies to enter and grow. They face tough competition from big companies, need to build trust with farmers, and must meet government rules. This situation is also common in the overall Indian pesticide industry, where only a few strong companies lead the market. Growth in this field needs careful planning, new ideas, and strong relationships with farmers.

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