

Crop Protection Chemical Market in India.

Mains: *GS III - Effects of Liberalization on the Economy| Conservation, Environmental Pollution and Degradation| Major Crops - Cropping Patterns in various parts of the country*

Why in news?

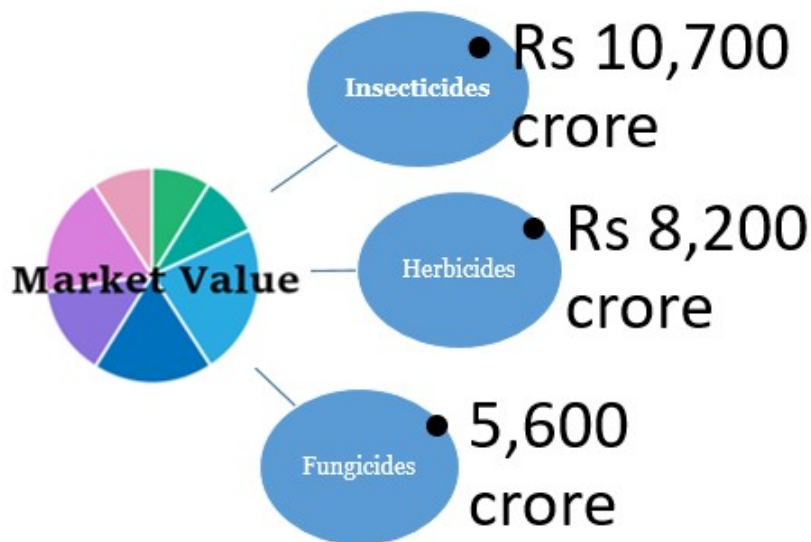
Recently, there has been a tremendous growth in the herbicides usage which is emerging as the largest segment of the crop protection chemical market in India.

What are crop protection chemicals?

- **Crop protection chemicals** - They are substances used to manage and protect crops from pests, diseases, and weeds.
- **Types** - They include pesticides, herbicides, insecticides, and fungicides.
- **Pesticides** - These are basically substances sprayed on crops to protect against insects (pests).
 - Pests cause damage, whether directly by feeding on them or indirectly by transmitting disease.
 - **For example**, *white-backed plant hopper, a pest that both feeds on rice plants and also spreads the Fiji virus disease, resulting in their stunted growth.*
- **Fungicides** - Used to control fungal diseases such as blast and sheath blight in rice or powdery mildew and rusts in wheat.
- **Herbicides** - Used to kill or inhibit the growth of weeds.

What is the status of crop protection chemical market in India?

- **Total value** - India's organised domestic crop protection chemicals market is valued at roughly Rs 24,500 crore.



- **Emerging segment** - The market for herbicides is growing at the highest rate over 10% annually

INDIA'S CROP PROTECTION CHEMICALS MARKET		
	Market Size	Annual Growth
Insecticides	₹10,706 cr	5.3%-5.5%
Fungicides	₹5,571 cr	5.5%-6%
Herbicides	₹8,209 cr	10%-11%

Source: Industry estimates for 2024-25. Growth is for last five years.

- **Important players**

Companies	Country of origin	Market share
Bayer AG	German	15%
Syngenta	Chinese	12%
ADAMA	Chinese	10%
Sumitomo Chemical	Japan	7%
Corteva Agriscience	US	7%
Crystal Crop protection Ltd	India	4%
Dhanuka Agritech	India	6%

- **Sales rights with MNC's** - Crystal Crop protection Ltd (CCPL), recently purchased the rights to Ethoxysulfuron from Bayer AG for sales in India, Pakistan, Bangladesh and Southeast Asian countries.

Ethoxysulfuron is an herbicide used against broad-leaved weeds and sedges in rice and sugarcane.

- The deal also covered the Bayer's sunrice trademark for mixture products containing this active ingredient.
- CCPL had also acquired Gramoxone from Syngenta for sale in India.

Gramoxone is a broad-spectrum herbicide containing the active ingredient Paraquat.

Why there is an increase in the use of herbicide?

- **Traditional method** - Weed control has traditionally been through manual removal by hand or simple lightweight short-handled tools with flat blades such as **khurpi**.
- **Time-consuming** - Manual weeding labourer taking 8-10 hours to cover one acre.
- **Repetitive task** - Since the weeds regrow, the process has to often be repeated during the crop's lifecycle.
- **Increased labour wages** - According to the Labour Bureau's data, the all-India daily wage rate for plant protection workers averaged Rs 447.6 in December 2024, as against Rs 326.2 five years ago.
- **Labour shortage** - The number of people in rural India prepared to do this work of bending, digging and uprooting plants for long hours are getting fewer by the day.
- **Inefficiency of power weeders** - Power weeders take only 2-3 hours per acre, but aren't effective in pulling out weeds with deep roots or growing within densely planted crop areas.
- **Alternates solution** - Herbicides have become more like tractors and other labour-saving farm machinery a substitute for manual weeding.
- **Shift in approach** - Farmers tend to mostly spray herbicides only after the weeds appear and are seen (post-emergence).
- Recently farmers have been resorting to prophylactic application of pre-emergent herbicides around or just after crop sowing.

Prophylactic method is used for guarding or preventing the spread or occurrence of disease or infection.

- These stop the weeds from coming out, helping keep the field clean from the beginning.
- Alternatively, they may use early post-emergent herbicides to control weeds at the crop's initial sensitive growth stage.
- In both cases, the spraying is preventive, as opposed to being reactive.

Pre-emergent herbicides are applied before weeds germinate, creating a barrier in the soil to prevent weed seeds from sprouting.

Post-emergent herbicides are applied to control weeds that have already emerged from the soil.

- **Increase in market** - The all-India market for herbicide segment grew by 10% in 2024-25 (from Rs 7,460 crore to Rs 8,209 crore).
- The sales of a Delhi-based company rose over 47%, from Rs 229 crore to Rs 337 crore.
 - It recorded a turnover of Rs 2,201 crore from crop protection chemicals last fiscal year.
- **Substantial market share** - Out of the estimated Rs 1,500-crore paddy herbicide market, *the pre-emergent sub-segment accounts for roughly Rs 550 crore.*
- That share is about a fifth in the Rs 1,000-crore market for wheat herbicides.
- **Monopoly** - The crop protection chemicals industry is practically *a multinational monopoly.*
- Some Indian companies, are attempting to acquire the rights to active ingredients and brands from big global majors or even introducing innovative formulations.
 - **For instance**, CCPL has collaborated with the Ohio (US) - based Battelle and Japan's Mitsui AgriScience to develop a new paddy herbicide called *Sikosa*.

Sikosa

- **Active ingredients** - Bensulfuron-methyl and Pretilachlor
 - **Method** - Oil-dispersion formulation (patented).
- Oil dispersion formulation method** is commonly used for water-sensitive active ingredients and require specific products with unique properties that aim to ensure long-term stability for pesticide applications.
- **Working** - Spreads quickly in water and works well when sprayed within 0-3 days after transplanting.
 - **Uses** - With a single 500-ml bottle, farmers can control narrowleaf, broadleaf and sedge weeds in transplanted paddy.
 - **Cost effective** - Rs 850-900 per acre, compared to Rs 2,000-plus with manual weeding.

What lies ahead?

- India industries could actively engage in innovation and indigenous production of crop protection chemicals.
- Government and agro industries could find an alternate, innovative and sustainable solution to weed management.

Reference

[The Indian Express| Crop Protection Chemical Market in India.](#)



SHANKAR
IAS PARLIAMENT
Information is Empowering