

Who uses pesticides efficiently?

Pesticide Use Efficiency (2021)			
Category	EU-27	Asia	India
Pesticide use per area of cropland (kg/ha)	3.2	1.71	0.37
Pesticide use per capita (kg/pc)	0.8	0.21	0.04
Pesticide use per value of agricultural production (kg/1000 Int. \$)	0.97	0.46	0.13

Source: FAOSTAT (Accessed on 15th December 2023)

- It is Asia as per the FAO data.
- Pesticide use intensity in kg active ingredient per 1000 constant international dollars of crop output and pesticide use per hectare, is a measure of the efficiency.
- Farming is more efficient when it produces higher level of output for every Kg of pesticide (ai) used.
- In agricultural productivity, efficiency is important.
- The EU uses **100%** more pesticides/ha when compared to Asia. The propagated perception is very different, though. As compared to India, EU's pesticide use per areas is **765%** higher.
- **Irrational elimination of several cost-effective broad-spectrum insecticides, fungicides, and weedicides since 1990s in favour of narrow spectrum pesticides cost the EU heavily.**
- **Asian farmers have access to a diverse range of pesticides* of various chemistries when compared to the EU.**

**Organo phosphorous, Carbamate, Pyrethroids, Neonicotinoids, Di thiocarbamates etc*

India's Global Prominence in Agrochemicals Export

Analysis of Export Enablers



1 Indian agrochemical companies began exports way back in 1960s. However the real momentum began only after 2000.

2 India's export of agrochemicals was **\$266 million** in 2000-01. It reached **\$1140 million (\$1.4 billion)** in 2010-11 and accelerated to **\$5372 million (\$5.37 billion)** in 2022-23. *Source:* Ministry of commerce and Industry

3 India has now risen to be the **second largest** in the global export of agrochemicals. (WTO, 2022)

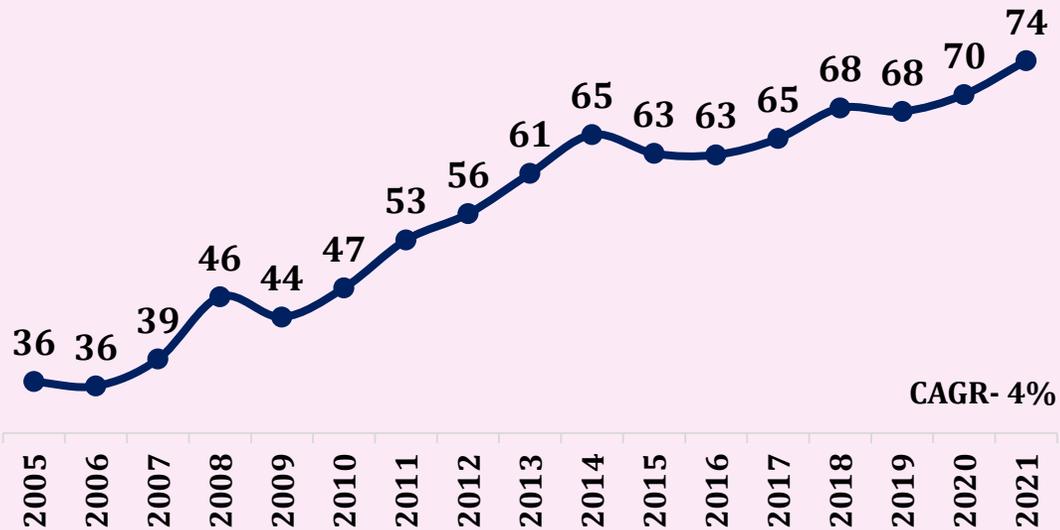
4 This presentation captures the ecosystem and the export enablers that helped Indian agrochemical companies to ascend to the global prominence.



Global Agrochemicals Use vs Agricultural Production



Global Agrochemicals* Use (US\$ bn)



CAGR- 4%

Source: Agrochemical Market Analysis Reports by Phillips McDougall (now S&P Global)

*Agrochemicals = Plant protection products.

Global Agricultural Production (US\$ Tril)



CAGR- 6%

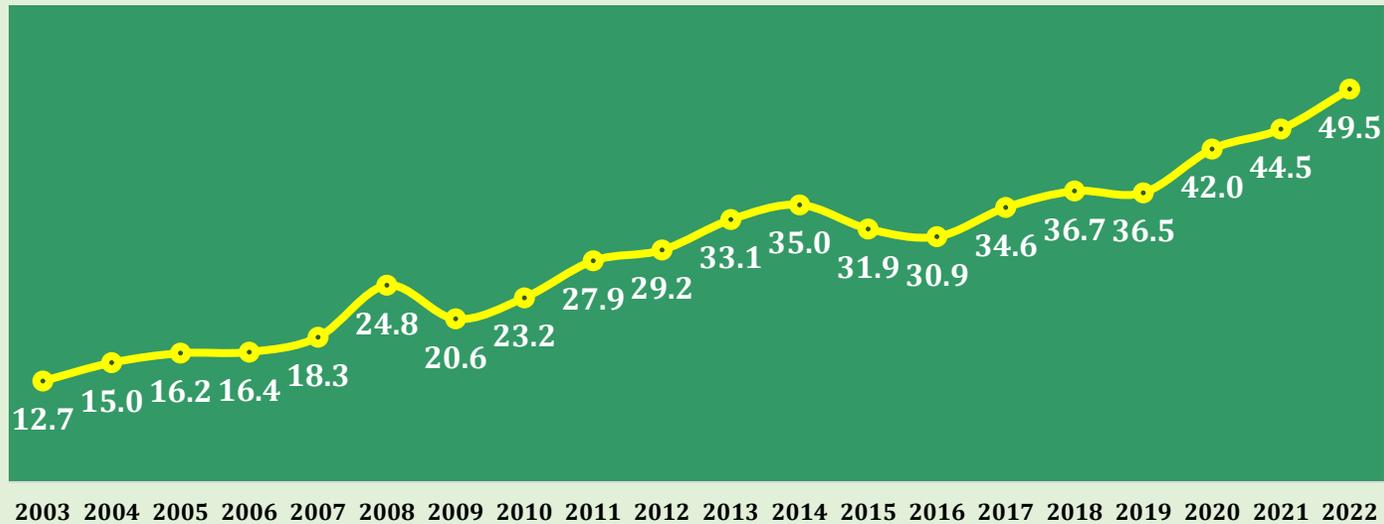
Source: World Bank Database (Accessed on 28th August 2023)

- ❑ There is a discernible correlation between agrochemicals use and agricultural production.
- ❑ Introduction of Bt crops, promotion of organic farming, natural farming etc. have not reduced farmers' reliance on agrochemicals.
- ❑ Every dollar spent on agrochemicals now gives better value than before, thanks to increasing use of generics.
- ❑ Increasing population and decreasing labour & land availability contribute to the demand for agrochemicals in farming operations.

Global Agrochemicals Export



Global Agrochemicals Export



Source: WTO's International Trade Centre (Accessed on 22nd August 2023)

Unit: \$ bn

Top five exporters of agrochemicals in the world 2022

Rank	Country	Export Value	Share
1	China	11.1	22%
2	India	5.5	11%
3	USA	5.4	11%
4	France	4.1	8%
5	Germany	3.9	8%
World		49.5	

Source: WTO's International Trade Centre (Accessed on 15th August 2023)

Unit : \$ bn

In the year 2003, the top 5 exporters were **France > Germany > USA > UK > China**.

The global order has since undergone a significant change.

Growth of India's Agrochemicals Export



India's Agrochemical Trade (\$ mn)

Year	Export	Import	Trade Surplus
2000-01	266	48	218
2010-11	1140	630	510
2022-23	5372	1799	3573

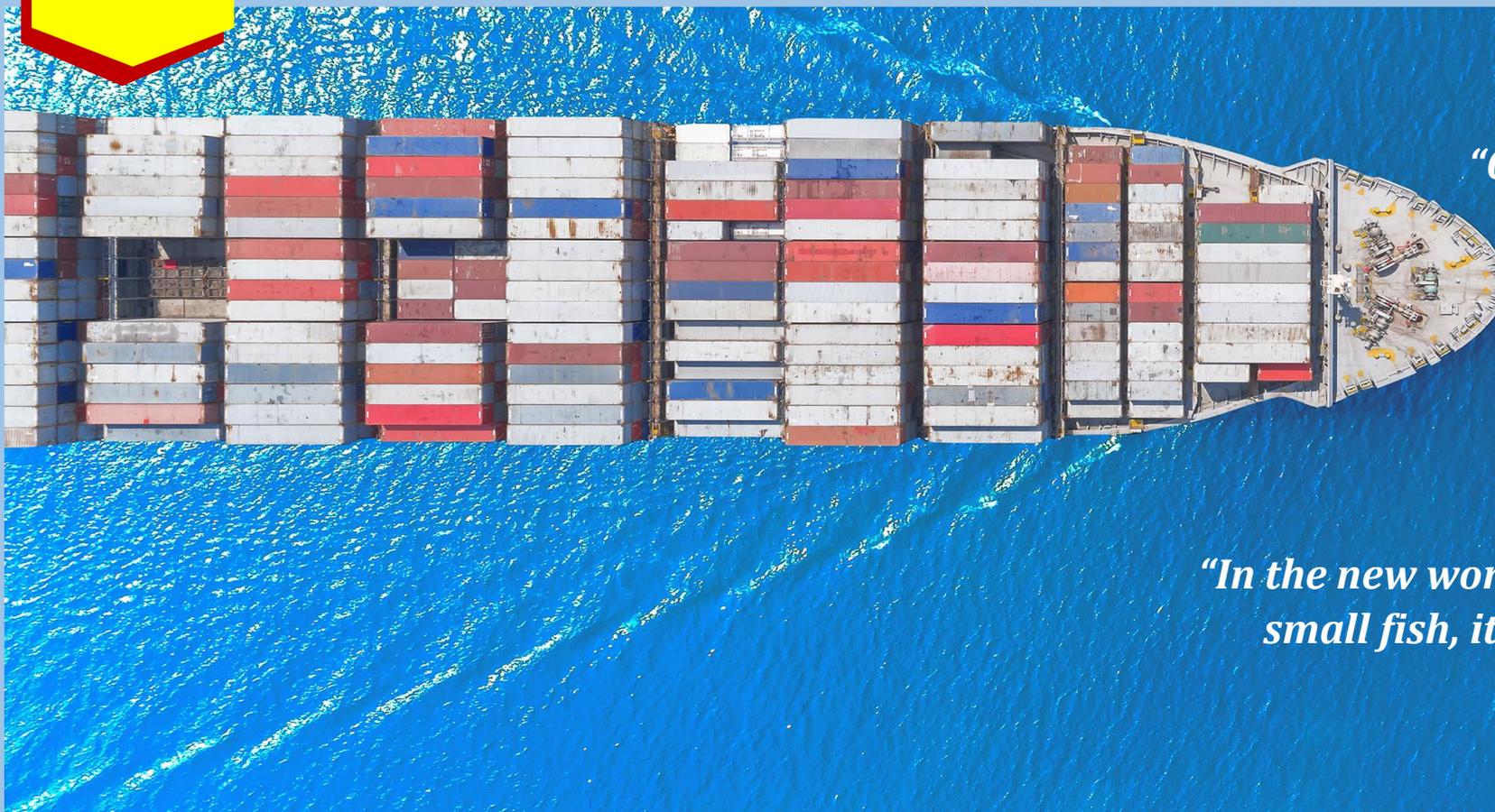
Top 5 importers of India's agrochemicals (2022-23)



Source: Ministry of Commerce Database (Accessed on 24th August 2023)

In terms of USD, the trade surplus increased 16 times between 2000-01 and 2022-23.

In terms of Rupees, it increased from Rs 994 Cr to Rs 28,908 Cr.



“Globalization is the increased flow goods, services, capital, people and ideas across international boundaries”

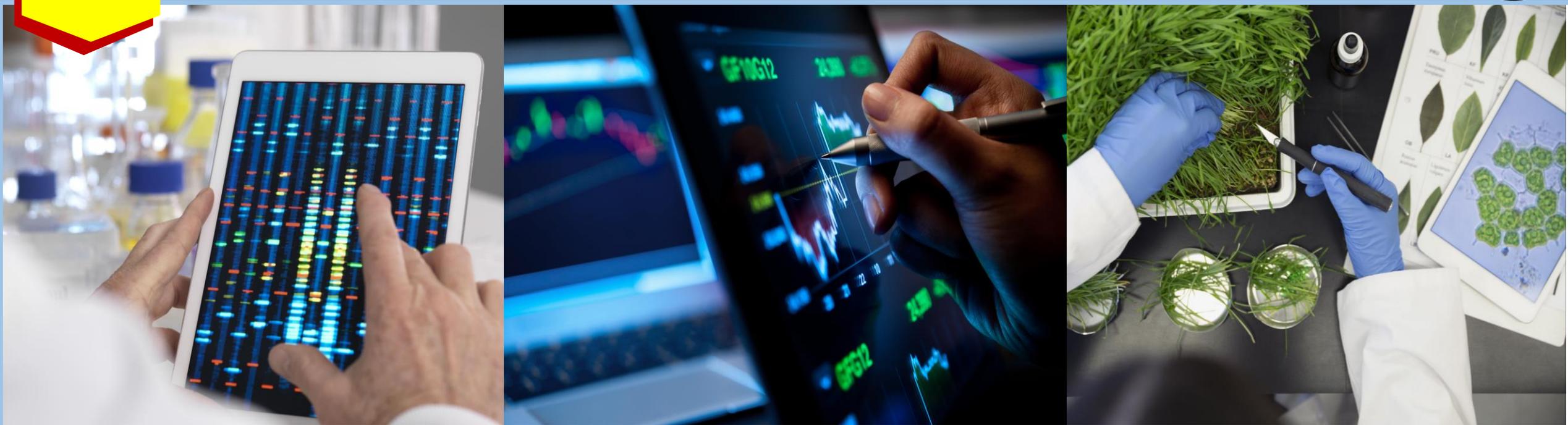
- Prof. Forest Reinhardt, Harvard Business School

“In the new world , it is not the big fish which eats the small fish, it is the fast fish that eats the slow fish”

- Klaus Schwab, Founder and Executive Chairman
of World Economic Forum

Globalization helped Indian agrochemical companies to fast expand the customer base across the world.

Indian agrochemicals are used in over 160 countries.



1



Adoption of digital technologies transformed the business landscape (buying and selling) in the globalized world and added competitiveness. It helped Indian companies to unleash innovations and increase the efficiency in all fronts.

2



Many companies use customised software for monitoring changes in cropping pattern, weather, pest attack and regulatory policies in various geographies.



Increasingly, Indian companies set up subsidiary companies, production facilities, offices, extensive marketing and distribution network in other geographies.

An example.



UPL Ltd, India's largest exporter of agrochemicals has workforce drawn from all the 7 continents. Diverse workforce invariably comes with diverse talent pool leading to creativity and innovative problem solving skills.

UPL has 33 manufacturing units in 11 countries.



- ❖ It's well known that improved infrastructure produces multiplier effect.
- ❖ Recent improvements in transport infrastructure in India facilitate faster access to the ports. This in turn improves manufacturing and export competitiveness.

- ❑ Developing countries have become the major producers of agricultural commodities.
- ❑ Vast majority of the farmers in developing countries cannot afford expensive patented pesticides.
- ❑ 70% of global agrochemical market is of post patent products (generics).
- ❑ Ever since India became a member of WTO-TRIPS Agreement in 1995, Indian agrochemical companies have perfected the art of quickly introducing post patent agrochemicals - both active ingredients (AIs) and formulations.
- ❑ Large number of patent expirations offer conducive growth opportunity to Indian agrochemical companies.
- ❑ Emerging outsourcing market fuel the growth of Indian agrochemicals export.





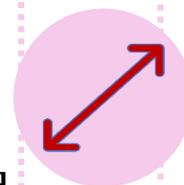
- **Backward integration.**
- **Indian companies effectively leverage well qualified and skilled workforce to create cost competitive production units.**
- **Excellent knowledge about complex regulatory requirement in each market.**
- **Presence of GLP labs help generating data for obtaining registration in various country markets.**



In the world of commerce, both the **invention** and **innovation** have unique role to play. Invention is creating something (product or process) that has not existed earlier. Innovation refers to adding value to the invention, usually for the consumers' benefit.



Innovation results in reduced costs, improved quality and performance than the originally invented product (patented). The innovation requires critical thinking, add-on research, clever use of available resources and market wisdom.



Indian agrochemical companies use the state-of-the-art process innovations to often introduce products with higher purity, at almost half the price of the patented ones. This helps especially the farmers in the developing countries.

Examples

Sr. no	Agrochemical	Purity when launched by the inventor (Patentee)	Purity when launched by innovative Indian companies
1	Dicamba Technical	89.00%	97.00%
2	Chlorantraniliprole Technical	93.00 %	95.50 %
3	Chlorpyrifos Technical	94.00%	99.00%
4	Metalaxyl-M Technical	94.00 %	95.30 %
5	Sulfentrazone Technical	90.00 %	95.00 %



- ❑ UN Sustainable Development Goal 2 (SDG 2) seeks to double the agricultural productivity to achieve zero hunger.
- ❑ Pesticides help farmers grow more food on less land by protecting crop yields from losses due to pests, diseases and weeds.

“Pesticides play a significant role in food production. They protect or increase yields and may increase the number of times each year a crop can be grown on the same land. This is particularly important in countries that face food shortages”.

- World Health Organization (WHO)
15th Sept 2022

Enhancing the Export Further



1

India's agrochemical sector is a **"trade surplus sector"**. Similar to pharmaceutical sector, it helps reducing India's current account deficit (CAD). It requires a structured and coordinated approach involving the Ministry of Environment, Agriculture, Chemicals and Commerce to create a sustainable export led strategy.

2

Regulatory revamp to achieve easier and quicker registrations. Simplification of regulations and compliance would greatly help.

3

Never grant TRIPS Plus measures with respect to agrochemicals in the Free Trade Agreements (FTAs). TRIPS Plus measure include data exclusivity, patent term extensions, patent linkage etc.

4

Include agrochemicals under the Production Linked Incentive (PLI) scheme.

5

Establish exclusive agrochemical manufacturing industrial parks. Such parks would further enhance the resource efficiency, environmental performance and economic competitiveness.

6

Disincentivize import of pesticide formulations without technical registration to boost **"Make in India"** and **"Atmanirbhar Bharat"** initiative.

With all these, India's agrochemical export can easily cross \$10 bn in next 3-4 years.



THANK YOU

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Crop Care Federation of India

Crop Care Federation of India (CCFI) is an apex trade body for Indian agrochemicals industry. Our members account for about 70% of agrochemical export from India.