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Agrochemicals Industry

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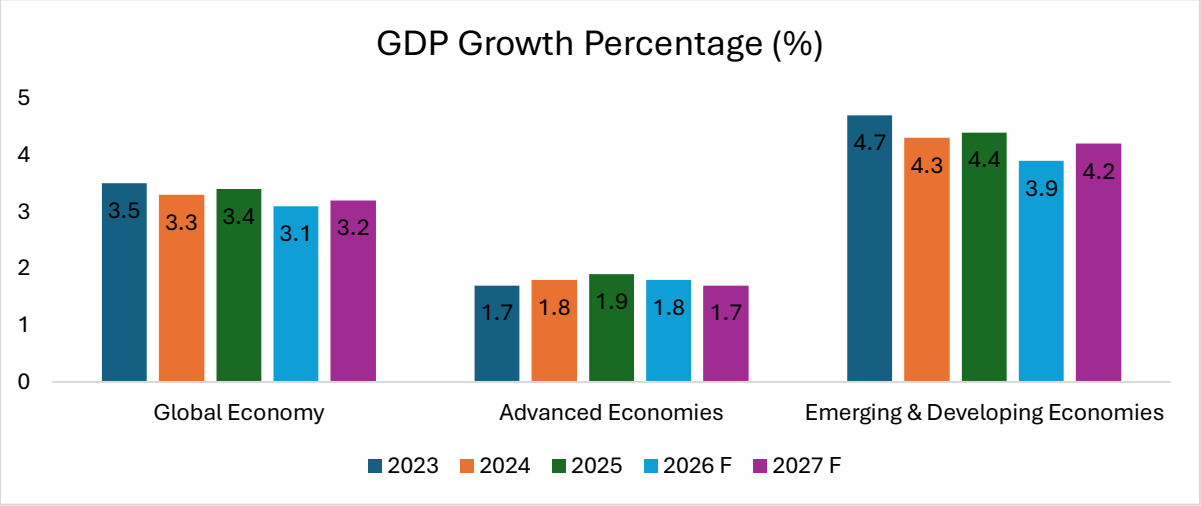
1. Global Economic Outlook

As per the IMF's World Economic Outlook (WEO) published in April 2026, global growth is projected to remain resilient at 3.1 percent in 2026 and at 3.2 percent in 2027. After withstanding higher trade barriers and elevated uncertainty last year, global activity now faces a major test from the outbreak of war in the Middle East. Assuming that the conflict remains limited in duration and scope, the outlook reflects the impact of heightened geopolitical tensions, trade disruptions and cautious investment sentiment, which are expected to weigh on global economic momentum.

Global headline inflation is projected to rise modestly in 2026 before resuming its decline in 2027. Slowdown in growth and increase in inflation are expected to be particularly pronounced in emerging market and developing economies. This is driven by elevated geopolitical tensions, commodity price volatility, external financing pressures and spillover effects from trade and policy uncertainty. Downside risks dominate the outlook, as a longer or broader conflict, worsening geopolitical fragmentation, renewed trade tensions, or a reassessment of expectations surrounding artificial-intelligence-driven productivity could significantly weaken growth and destabilize financial markets. Elevated public debt and eroding institutional credibility further heighten vulnerabilities, while faster-than-anticipated productivity gains from AI or sustained easing in trade tensions could provide upside support. Fostering adaptability, maintaining credible policy frameworks and reinforcing international cooperation remain essential to navigating current shocks and future disruptions.



Note: F = Forecast

Source: IMF World Economic Outlook April 2026

Note: Advanced Economies and Emerging & Developing Economies are as per the classification of the World Economic Outlook (WEO). This classification is not based on strict criteria,

economic or otherwise, and it has evolved over time. It comprises of 40 countries under the Advanced Economies including the G7 (the United States, Japan, Germany, France, Italy, the United Kingdom, and Canada) and selected countries from the Euro Zone (Germany, Italy, France etc.). The group of emerging market and developing economies (156) includes all those that are not classified as Advanced Economies (India, China, Brazil, Malaysia etc.)

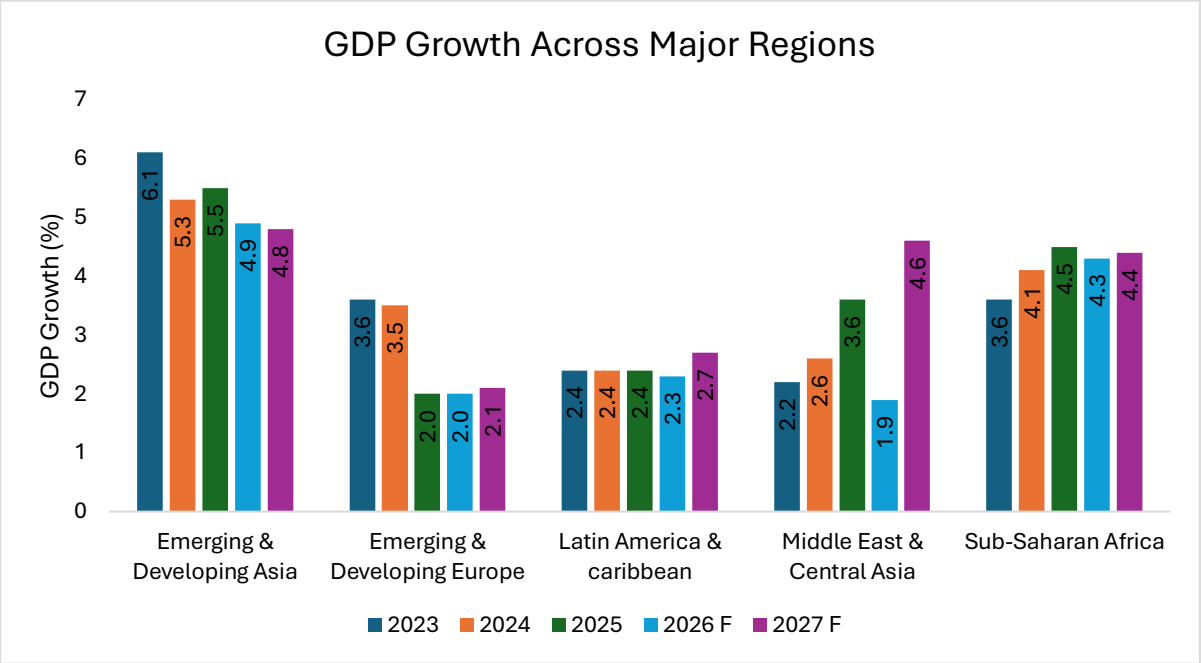
Growth across the global economy is projected to remain resilient, though moderate over the forecast period. Global GDP growth declined from 3.5 percent in 2023 to 3.3 percent in 2024, before increasing marginally to 3.4 percent in 2025. However, growth is projected to moderate to 3.1 percent in 2026 before recovering slightly to 3.2 percent in 2027, reflecting the impact of geopolitical uncertainty, trade disruptions and cautious investment sentiment.

Growth in Advanced Economies is expected to remain relatively subdued, increasing from 1.7 percent in 2023 to 1.8 percent in 2024 and 1.9 percent in 2025, before moderating to 1.8 percent in 2026 and 1.7 percent in 2027. This reflects persistent structural constraints, tighter financial conditions and slower demand conditions across developed markets.

Emerging and Developing Economies are expected to continue to outperform advanced economies and remain the key drivers of global growth. Growth declined from 4.7 percent in 2023 to 4.3 percent in 2024, before improving to 4.4 percent in 2025. However, it is projected to moderate to 3.9 percent in 2026 and recover to 4.2 percent in 2027, reflecting short-term pressures arising from geopolitical risks, commodity price volatility and external financing constraints, followed by a gradual improvement in macroeconomic conditions.

1.1 GDP Growth Across Major Regions

GDP growth across major global regions—including Europe, Latin America & the Caribbean, Middle East & Central Asia, and Sub-Saharan Africa—continues to display varied trajectories. The global outlook presents a mixed scenario, with emerging economies continuing to outperform advanced economies.



Note: F = Forecast

Source: IMF World Economic Outlook April 2026 update

Growth across Emerging Market and Developing Economies is projected to moderate from 4.4 percent in 2025 to 3.9 percent in 2026, before recovering to 4.2 percent in 2027, reflecting near-term pressures from global uncertainty, geopolitical risks and tighter financial conditions, followed by a gradual rebound.

Within this, Emerging and Developing Asia is expected to remain the fastest-growing region, although growth is projected to ease from 5.5 percent in 2025 to 4.9 percent in 2026 and 4.8 percent in 2027, reflecting moderation in regional momentum. China's growth is projected to decelerate from 5.0 percent to 4.4 percent and further to 4.0 percent over the period, driven by structural headwinds and softer domestic demand, while India is expected to remain resilient, with growth moderating from 7.6 percent in 2025 to 6.5 percent in 2026 and remaining at that level in 2027, supported by domestic demand and investment activity.

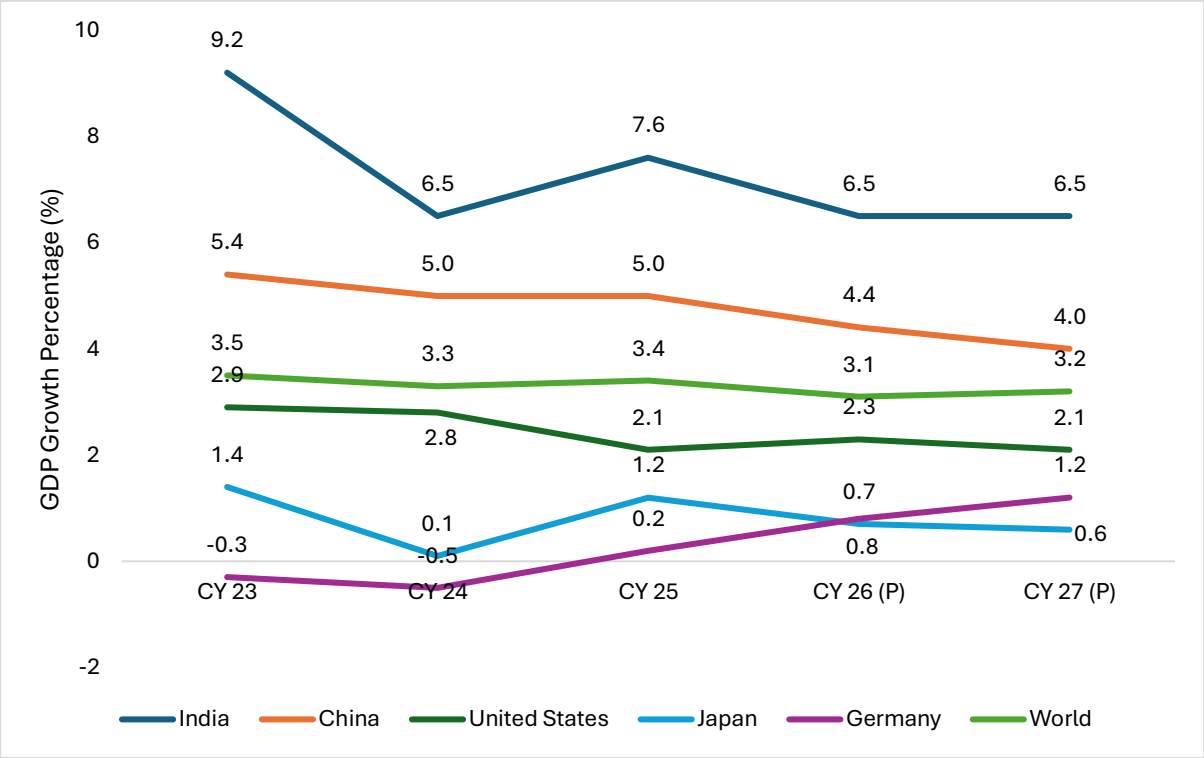
Emerging and Developing Europe is projected to remain relatively stable, with growth at 2.0 percent in 2025 and 2026, improving marginally to 2.1 percent in 2027. Russia is also expected to record modest growth, rising from 1.0 percent in 2025 to 1.1 percent in both 2026 and 2027.

Latin America and the Caribbean is projected to witness moderate growth, easing slightly from 2.4 percent in 2025 to 2.3 percent in 2026, before recovering to 2.7 percent in 2027. Within the region, Brazil's growth is expected to soften from 2.3 percent to 1.9 percent in 2026 before improving to 2.0 percent in 2027, while Mexico is projected to show a stronger rebound, increasing from 0.6 percent in 2025 to 1.6 percent in 2026 and 2.2 percent in 2027.

Growth in the Middle East and Central Asia is projected to slow sharply from 3.6 percent in 2025 to 1.9 percent in 2026, before rebounding significantly to 4.6 percent in 2027, indicating volatility linked to geopolitical conditions and oil market dynamics. Saudi Arabia mirrors this trend, with growth moderating from 4.5 percent in 2025 to 3.1 percent in 2026 before recovering to 4.5 percent in 2027.

Sub-Saharan Africa is expected to remain relatively stable, with growth moderating slightly from 4.5 percent in 2025 to 4.3 percent in 2026 and recovering marginally to 4.4 percent in 2027. Nigeria is projected to improve gradually from 4.0 percent to 4.3 percent over the period, while South Africa is expected to post subdued growth, easing from 1.1 percent in 2025 to 1.0 percent in 2026 before improving to 1.3 percent in 2027. Overall, the projections indicate that while emerging markets face short-term pressures, growth recovery is expected to strengthen in several regions by 2027.

India and Top 4 Global Economies GDP Growth Forecast



Note: P = Projections

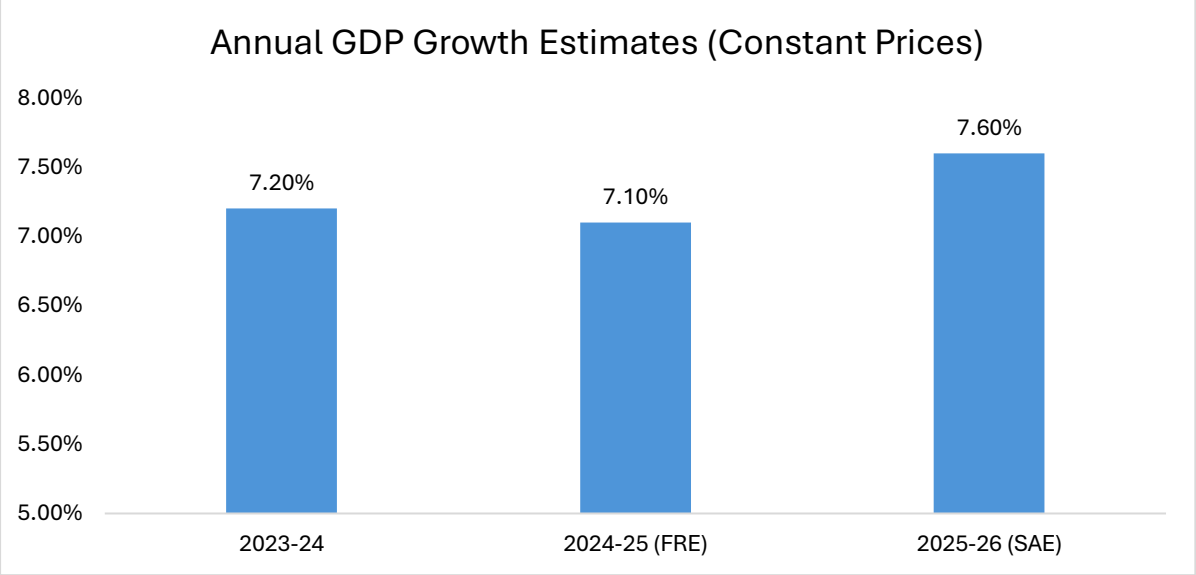
Source: IMF World Economic Outlook April 2026 update

Overall, the outlook indicates that while global growth is expected to soften in the near term, resilience in emerging markets and a gradual recovery thereafter are expected to support global economic momentum over the medium term.

2. India's Macroeconomic Scenario

2.1 Gross Domestic Product (GDP)

According to the latest Second Advance Estimates by MOSPI, GOI (27 Feb26), after replacing old base year 2011-12 by the new base year 2022–23, real GDP has been estimated to grow by 7.6% in FY 2025-26. Nominal GDP has witnessed a growth of 8.6%. These growth rates are revised upward from their respective First Advance Estimates computed using previous Base Year (2011-12).



Note: FRE - First Revised Estimates; SAE - Second Advance Estimate
Source: New Series of Gross Domestic Product (GDP) Estimates with Base Year 2022-23 by MOSPI, PIB Press Release dated 27 February 2026)

India's Economic Growth Momentum Remains Strong - Surpassed USD 4 Trillion.

In June 2025, India became the fourth-largest economy in the world and retained its position as the fastest-growing major economy. The country is projected to become the world's third largest economy by 2030, with an estimated GDP of USD 7.3 trillion.
Source: PIB, Press Release - India Becoming an Economic Powerhouse posted on June 16, 2025

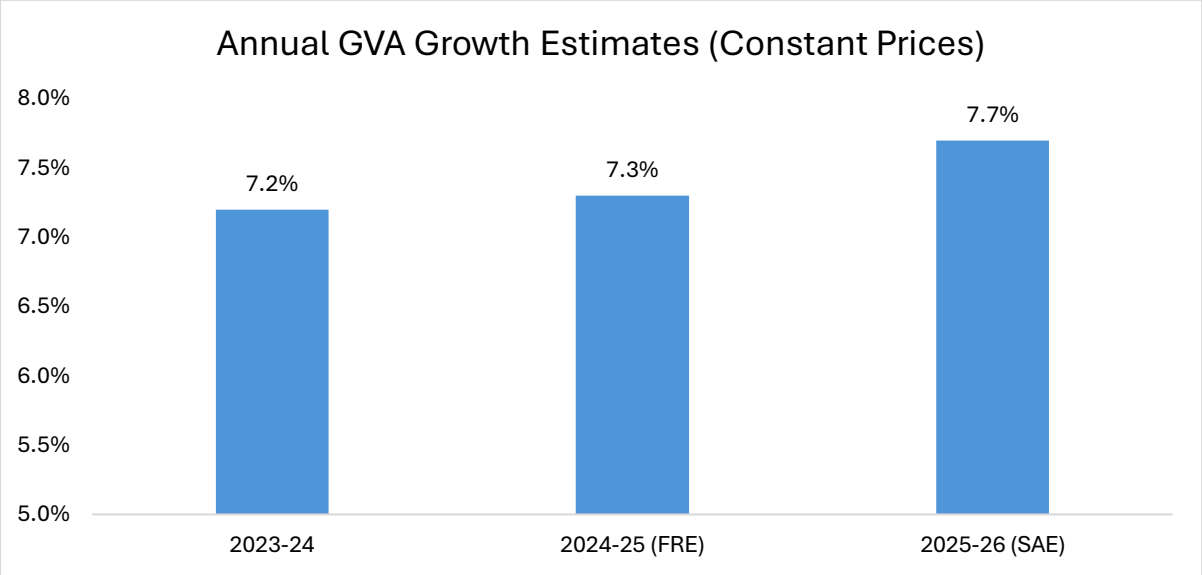
India achieved a significant milestone by overtaking Japan to become the *third most powerful nation in the Asia-Pacific region*, as per the Asia Power Index 2024. India's overall score rose to 39.1, reflecting a 2.8-point increase from the previous year, driven by growing influence across economic, military, and diplomatic dimensions.

Source: PIB, Press Release - India becomes 3rd Most Powerful Nation in Asia, Surpasses Japan in Asia Power Index posted on September 24, 2024

Key factors behind India's rise include its strong economic performance, expanding and youthful workforce, and increasing strategic engagement across the region. India's Economic Capability improved significantly, supported by its position as the world's third-largest economy in terms of purchasing power parity (PPP). Additionally, a notable increase in its Future Resources score highlights the demographic advantage that is expected to sustain its growth trajectory in the coming years.

2.2 Gross Value Added (GVA)

According to the Second Advance Estimate of GDP for 2025-26 by MOSPI, Govt. of India (GoI), Real GVA is estimated at INR 294.40 lakh crore in the year 2025-26, against INR 273.36 lakh crore in FY 2024-25, registering a growth rate of 7.7% as compared to 7.3% growth rate in 2024-25. Nominal GVA is estimated to attain a level of INR 313.61 lakh crore during FY 2025-26, against INR 288.54 lakh crore in 2024-25, showing a growth rate of 8.7%.



Note: FRE - First Revised Estimates; SAE - Second Advance Estimate

Source: New Series of Gross Domestic Product (GDP) Estimates with Base Year 2022-23 by MOSPI, PIB Press Release dated 27 February,2026)

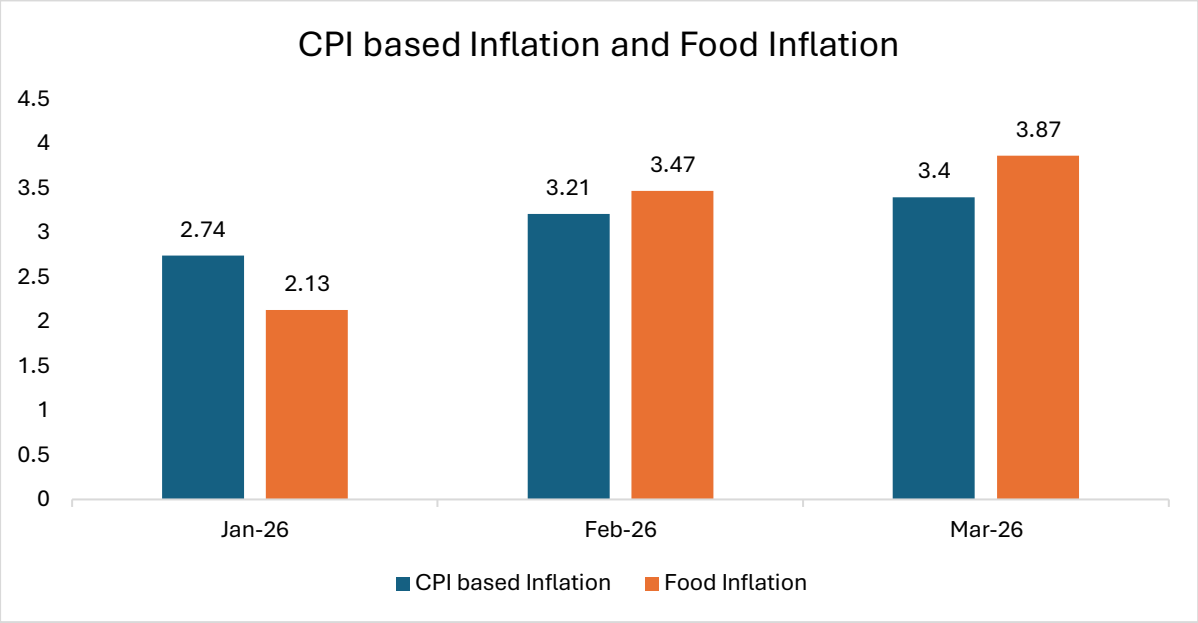
Major Highlights:

- Real GDP has been estimated to grow by 7.6% in FY 2025-26. Nominal GDP has witnessed a growth of 8.6%. These growth rates are revised upward from their respective First Advance Estimates computed using previous Base Year (2011-12).
- Overall Economic performance in FY 2025-26 is primarily on account of robust Real growth observed in Second Quarter (8.4%) and Third Quarter (7.8%).
- The Economy has exhibited sustained performance, recording Real GDP growth rates of 7.2% and 7.1% respectively during FY 2023–24 and FY 2024–25.
- Nominal GDP has registered 11.0% and 9.7% growth rates during FY 2023–24 and FY 2024–25 respectively.
- Manufacturing sector has been the major driver in contributing to the resilient performance of the economy in consecutive 3 financial years after rebasing. This sector has attained double digit growth rates in FY 2023-24 and FY 2025-26.
- Secondary and Tertiary sectors have boosted the performance of the economy by registering above 9.0% growth rate in FY 2025-26.
- 'Trade, Repair, Hotels, Transport, Communication & Services related to Broadcasting, Storage' sector has attained a growth rate of 10.1% at Constant Prices in FY 2025-26.
- On the Consumption side, both the Private Final Consumption Expenditure (PFCE) and Gross Fixed Capital Formation (GFCF) have exhibited more than 7.0% growth rate in FY 2025-26.

Source: MOSPI, Press Release, 27 February 2026, Govt. of India (GoI).

2.3 Consumer Price Index (CPI)

Year-on-year inflation rate based on All India Consumer Price Index (CPI) with base year 2024 for the month of March 2026 over March 2025 is 3.40%(Provisional). Corresponding inflation rates for rural and urban are 3.63% and 3.11%, respectively.



Source: MOSPI, GOI, 13 April 2026

Top 5 items with high inflation at All India combined level in February 2026 are given in table below:

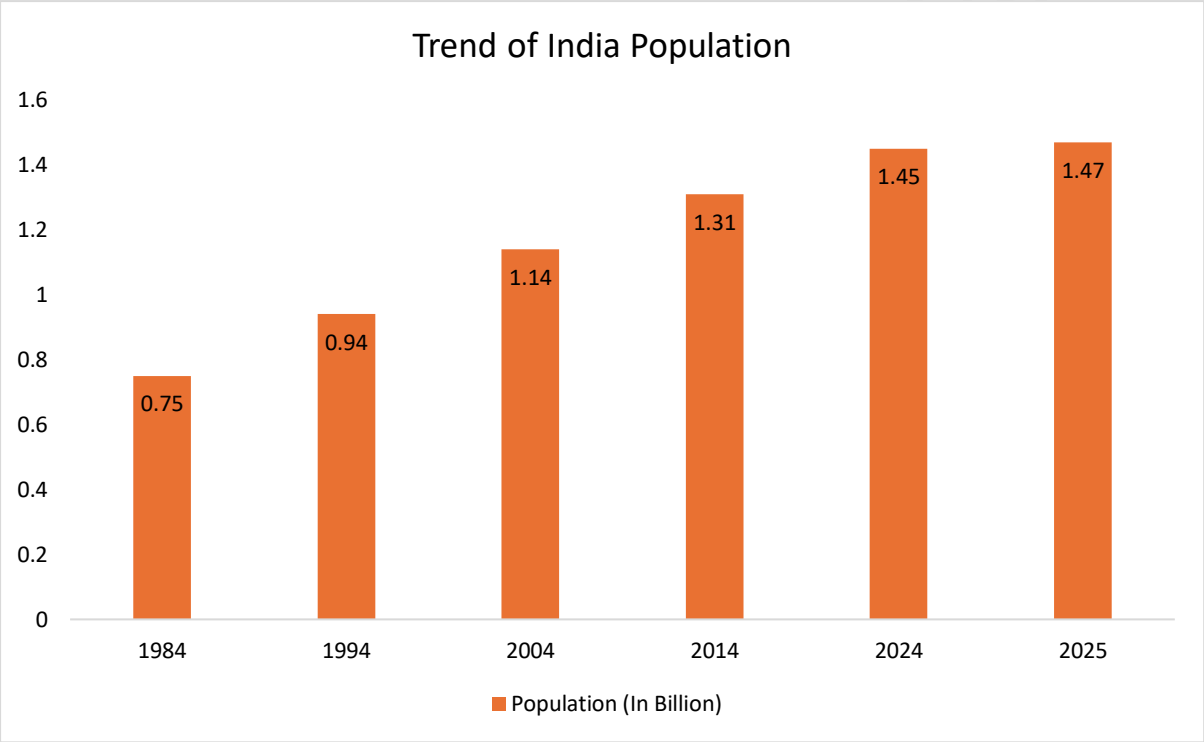
S.No.	Item	Weight	Inflation (%) February, 2026	Inflation (%) January, 2026
1	Silver Jewellery	0.3127	160.84	160.12
2	Gold/Diamond/Platinum Jewellery	0.6230	48.16	46.80
3	Coconut: copra	0.0854	46.16	47.17
4	Tomato	0.4961	45.29	64.58
5	Cauliflower	0.2330	43.77	37.83

Source: "Press Release of Consumer Price Index on Base 2024=100 for February, 2026" (12 March 2026), MOSPI, GOI.

2.4 Overview on Key Demographic Parameters

2.4.1 Population growth

India's economic trajectory and consumption dynamics are closely tied to its demographic shifts. India's population expanded from approximately 0.75 billion in 1984 to 1.45 billion in 2024 and is further reached around 1.47 billion in 2025, consolidating its position as the world's most populous nation. This sustained growth underlines the emergence of a vast labour force and consumer base, which is essential for driving long-term economic growth, supporting rising consumption demand, and strengthening the country's overall economic potential.



Source: World Bank Database. Population Data 2025 - Worldometer, Infomerics Analytics & Research

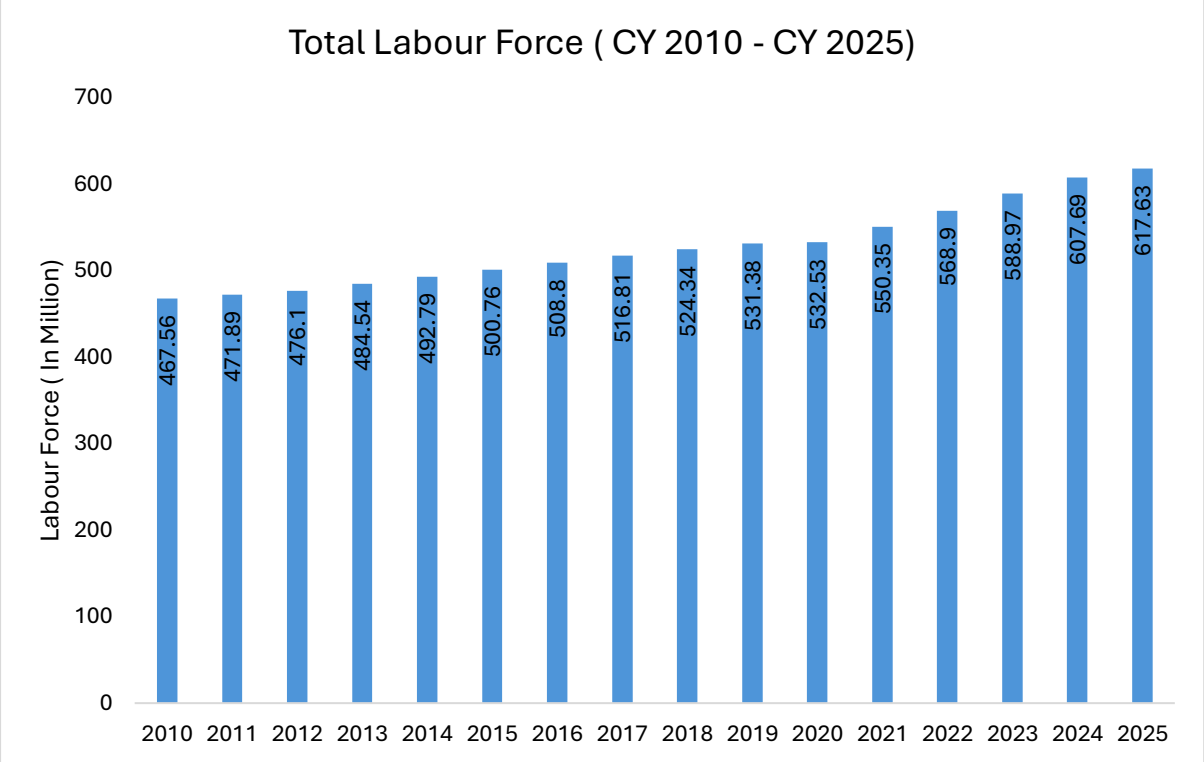
2.4.2 Labour Force in India

India's labour force has experienced steady growth over the past decade. In 2010, the total labour force was approximately 467.56 million. By 2025, this number had increased to 617.63 million.

This upward trend underscores the expanding working-age population, improving labour force participation, and gradual recovery in employment post the pandemic period. The sharp increase observed after 2020 highlights the rebound in economic activity and rising workforce engagement across sectors. However, it also emphasizes the need for sustained job creation to effectively absorb the growing labour pool.

The labour force participation rate (LFPR) has also witnessed variations over time due to changing socio-economic conditions, including urbanization, education levels, and sectoral employment shifts.

These trends highlight the importance of implementing policies that not only generate employment opportunities but also improve job quality, productivity, and inclusivity across key sectors of the economy.

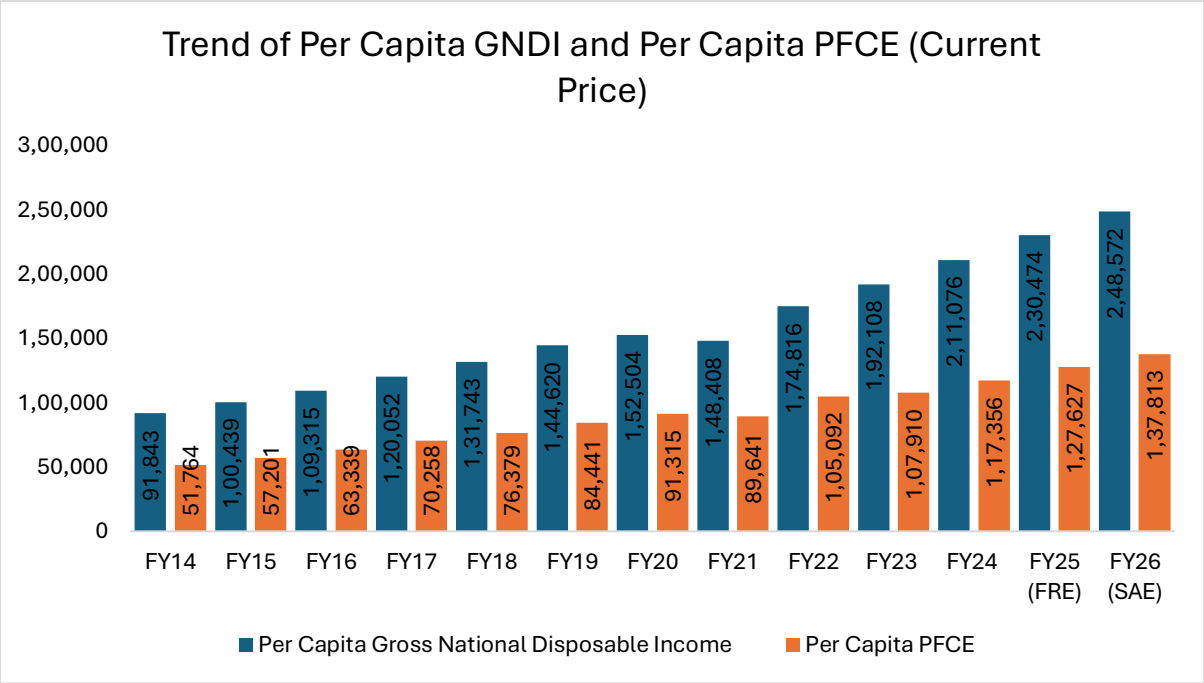


Source: World Bank Database

2.4.3 Disposable Income and Consumer Spending

Gross National Disposable Income (GNDI) represents the total income available to a nation's residents for consumption and saving after accounting for income transfers with the rest of the world. Per Capita GNDI has shown a consistent upward trajectory, rising from INR91,843 in FY14 to INR2,48,572 in FY26 (SAE). In FY25 (FRE), Per Capita GNDI stood at INR2,30,474, which further increased to INR2,48,572 in FY26 (SAE), reflecting a growth of approximately 7.9%. This steady increase indicates that households and businesses had more income at their disposal, which is critical for supporting both consumption and savings: key components of economic resilience and expansion.

The rise in GNDI has translated into higher consumer spending, as reflected in the growth of Private Final Consumption Expenditure (PFCE), which measures the total value of goods and services consumed by households. Per Capita PFCE has also maintained a consistent upward trend, growing from INR51,701 in FY14 to INR1,37,813 in FY26 (SAE). In FY25 (FRE), Per Capita PFCE stood at INR1,27,627, which further increased to INR1,37,813 in FY26 (SAE), reflecting a growth of approximately 8.0%, highlighting strong consumer confidence and robust domestic demand.



Note: Data mentioned is in INR, FRE – First Revised Estimates, SAE – Second Advanced Estimates

Source: PIB, New Series of Gross Domestic Product (GDP) Estimates with Base Year 2022-23

2.5 Union Budget FY26-27 Highlights

The Union Budget FY 2026–27, presented by Finance Minister Nirmala Sitharaman, introduces a comprehensive set of measures aimed at stimulating economic growth, enhancing infrastructure, and fostering inclusive development. With a focus on sectors such as agriculture, MSMEs, infrastructure, innovation, and exports, the budget seeks to create a conducive environment for sustained economic expansion.

- **Capital Expenditure and Infrastructure Development**
  In FY2026-27, the Union Budget has increased the public capex towards to INR 12.2 lakh crore from the previous INR 11.21 lakh crore (3.1% of GDP) which was earmarked in FY 2025–26. To strengthen the confidence of private developers regarding risks during infrastructure development and construction phase, the budget proposed to set up an Infrastructure Risk Guarantee Fund to provide prudently calibrated partial credit guarantees to lenders.
- **Support for MSMEs**
  Recognizing the pivotal role of Micro, Small, and Medium Enterprises (MSMEs) in India's economic landscape, the budget introduced a three-pronged approach to support the sector. The budget introduced a dedicated INR 10,000 crore SME Growth Fund as well as proposed to top up the Self-Reliant India Fund set up in 2021, with INR 2,000 crore to continue support to micro enterprises and maintain their access to risk capital. With TReDS, more than INR 7 lakh crore has been made available to MSMEs. To leverage its full potential, the budget further proposed four measures: (i) mandate TReDS as the transaction settlement platform for all purchases from MSMEs by CPSEs, serving as a benchmark for other corporates; (ii) introduce a credit guarantee support mechanism through CGTMSE for invoice discounting on TReDS platform; (iii) link GeM with TReDS for sharing information with financiers about government purchases from MSMEs, encouraging cheaper and quicker financing; (iv) introduce TReDS receivables as asset-backed securities, helping develop a secondary market, enhancing liquidity and settlement of transactions. Moreover, Government will facilitate Professional Institutions such as ICAI, ICSI, ICMAI to design short-term, modular courses and practical tools to develop a cadre of 'Corporate Mitras', especially in Tier-II and Tier-III towns, which will help MSMEs meet compliance requirements at affordable costs.
- **Establishment of dedicated Rare Earth Corridors**
  A Scheme for Rare Earth Permanent Magnets was launched in November 2025. In line with that, the budget proposed to support the mineral-rich States of Odisha, Kerala, Andhra Pradesh and Tamil Nadu to establish dedicated Rare Earth Corridors to promote mining, processing, research and manufacturing.

- **Integrated Programme for the Textile Sector**
  The following Schemes have been announced:
  (a) The National Fibre Scheme for self-reliance in natural fibres such as silk, wool and jute, man-made fibres, and new-age fibres.
  (b) Textile Expansion and Employment Scheme to modernise traditional clusters with capital support for machinery, technology upgradation and common testing and certification centres.
  (c) A National Handloom and Handicraft programme to integrate and strengthen existing schemes and ensure targeted support for weavers and artisans.
  (d) Tex-Eco Initiative to promote globally competitive and sustainable textiles and apparels.
  (e) Samarth 2.0 to modernize and upgrade the textile skilling ecosystem through collaboration with industry and academic institutions.
- **Carbon Capture Utilization and Storage (CCUS)**
  Aligning with the roadmap launched in December 2025, CCUS technologies at scale will achieve higher readiness levels in end-use applications across five industrial sectors, including, power, steel, cement, refineries and chemicals. An outlay of INR 20,000 crore is proposed over the next 5 years.
- **Municipal Bonds**
  To encourage the issuance of municipal bonds of higher value by large cities, the budget proposed an incentive of INR 100 crore for a single bond issuance 10 of more than INR 1000 crore. The current scheme under AMRUT which incentivises issuances up to INR 200 crore, will also continue to support smaller and medium towns.
- **Ease of Doing Business**
  Individual Persons Resident Outside India (PROI) will be permitted to invest in equity instruments of listed Indian companies through the Portfolio Investment Scheme. It is also proposed to increase the investment limit for an individual PROI under this scheme from 5% to 10%, with an overall investment limit for all individual PROIs to 24%, from the current 10%.
- **Hubs for Medical Value Tourism**
  To promote India as a hub for medical tourism services, the budget proposed to launch a Scheme to support States in establishing five Regional Medical Hubs, in partnership with the private sector. These Hubs will serve as integrated healthcare complexes that combine medical, educational and research facilities. They will have AYUSH Centres, Medical Value Tourism Facilitation Centres and infrastructure for diagnostics, post-care and rehabilitation. These Hubs will provide diverse job opportunities for health professionals including doctors and AHPs.

- **Agriculture Related Schemes**

  To diversify farm outputs, increase productivity, enhance farmers' incomes, and create new employment opportunities, the budget announced support schemes related to high value crops such as coconut, sandalwood, cocoa and cashew in coastal areas. Agar trees in Northeast and nuts such as, almonds, walnuts and pine nuts in hilly regions will also be supported. India is the world's largest producer of coconuts.

  About 30 million people, including nearly 10 million farmers, depend on coconuts for their livelihood. To further enhance competitiveness in coconut production, the Budget proposed a Coconut Promotion Scheme to increase production and enhance productivity through various interventions including replacing old and non-productive trees with new saplings/plants/varieties in major coconut growing States. A dedicated programme is proposed for Indian cashew and cocoa to make India self-reliant in raw cashew and cocoa production and processing, enhance export competitiveness and transform Indian Cashew and Indian Cocoa into premium global brands by 2030.

  Further, the Central Government will partner with State Governments to promote focused cultivation and post-harvest processing to restore the glory of the Indian Sandalwood ecosystem. To rejuvenate old, low-yielding orchards and expand high-density cultivation of walnuts, almonds and pine nuts, the budget announced to support a dedicated programme to enhance farmer incomes and in bringing value addition by engaging youth.

The Union Budget FY 2026–27 presents a balanced approach to economic growth by addressing immediate consumption needs and laying the foundation for long-term sustainability. Through targeted investments in infrastructure, support for MSMEs, and sector-specific initiatives, the budget aims to foster an inclusive and resilient economy. These measures are expected to create new opportunities for financial institutions, as the growing demand for investment products will provide avenues for expansion and innovation in the financial services sector.

3. Industry Overview – Agrochemicals Industry

3.1 Introduction

The agrochemicals industry comprises a range of chemical and biological formulations used in agricultural practices to support crop production and farm productivity. Agrochemicals are applied across various stages of cultivation with the objective of enhancing crop yield, improving crop quality, and supporting efficient agricultural output.

Agrochemicals primarily include fertilizers and pesticides, along with related inputs such as herbicides, fungicides, and other crop protection chemicals. Agrochemicals are primarily categorised into fertilizers and pesticides, which together form the core inputs applied during the crop production cycle. These products are used to enhance crop output, maintain crop health, and support efficient agricultural operations across a wide range of crops and farming systems.

Fertilizers constitute a major segment of the agrochemicals industry and are used to improve soil fertility and provide essential nutrients required for plant growth. Fertilizers supply primary nutrients such as nitrogen, phosphorus, and potassium, as well as secondary and micronutrients, depending on crop and soil requirements. They are applied at various stages of cultivation to support crop development, improve yield potential, and maintain soil nutrient balance. Fertilizers are available in multiple forms, including straight, complex, and specialty formulations, and are used across diverse agricultural applications.

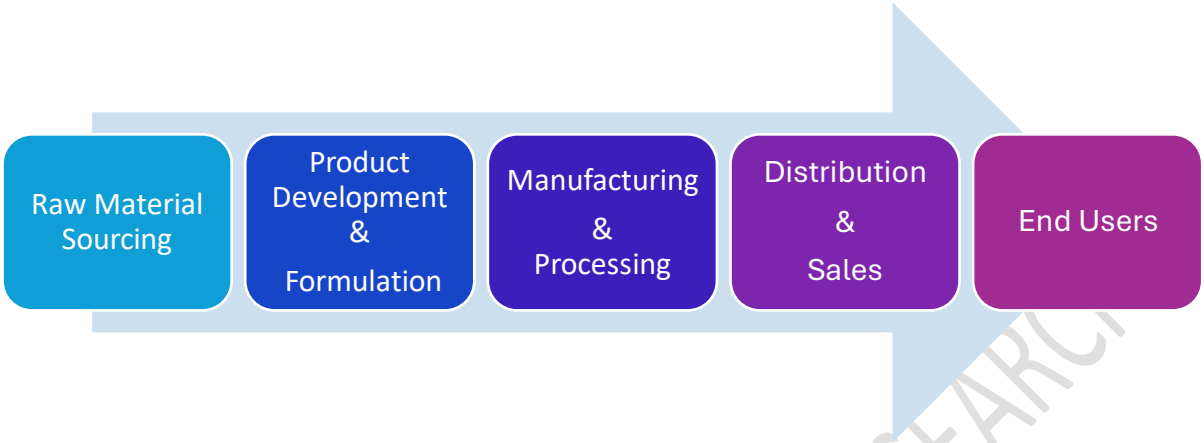
Pesticides represent another key segment of the agrochemicals industry and are used for crop protection purposes. Pesticides include insecticides, herbicides, and fungicides, which are applied to control, prevent, or eliminate pests, weeds, and diseases that may affect crop health and productivity. These products play an important role in safeguarding crops during different stages of growth by reducing potential losses arising from biological factors. Pesticides are formulated for use on a wide variety of crops and are distributed through established agricultural input supply channels.

Overall, the agrochemicals industry represents a defined segment of the agricultural inputs sector, encompassing products used to support crop nutrition and crop protection. The industry includes a range of formulations designed for use at different stages of the cultivation cycle and across diverse agricultural practices. Agrochemicals form a foundational component of agricultural production systems and are utilized as part of routine farm management to support consistent crop output and quality

3.2 Market Segmentation

Segment	Category	Description
By Product	Fertilizers	Chemical inputs used to enhance soil fertility and supply essential nutrients such as nitrogen, phosphorus, and potassium, thereby improving crop growth, yield, and quality.
	Pesticides	Crop protection chemicals used to prevent, control, or eliminate pests, weeds, and diseases, including insecticides, herbicides, and fungicides, to safeguard crop productivity.
	Micronutrients	Products formulated to supply trace elements required for plant growth in small quantities, used to correct nutrient deficiencies and support crop development.
	Bio-stimulants	Biological or bio-based inputs used to enhance plant growth, nutrient efficiency, and stress tolerance, without directly providing nutrients or pest control.
By Application	Cereals and Grains	Agrochemicals applied to staple food crops such as rice, wheat, and maize, which constitute a major share of global agricultural output.
	Oilseeds and Pulses	Use of agrochemicals in crops such as soybean, mustard, lentils, and pulses to improve yield, oil content, and resistance to pests and diseases.
	Fruits and Vegetables	Application of agrochemicals in high-value horticultural crops, with growing emphasis on quality, yield protection, and pest management.
By Distribution Channel	Distributors and Retailers	Traditional channel involving agro-input distributors, dealers, and retailers supplying products directly to farmers.
	Direct Sales	Sales made directly by manufacturers to large farmers, cooperatives, institutional buyers, or agribusiness entities.
	Online Sales	Digital platforms and e-commerce channels facilitating direct access to agrochemical products, supported by increasing digital adoption in agriculture.

3.3 Industry Value chain analysis

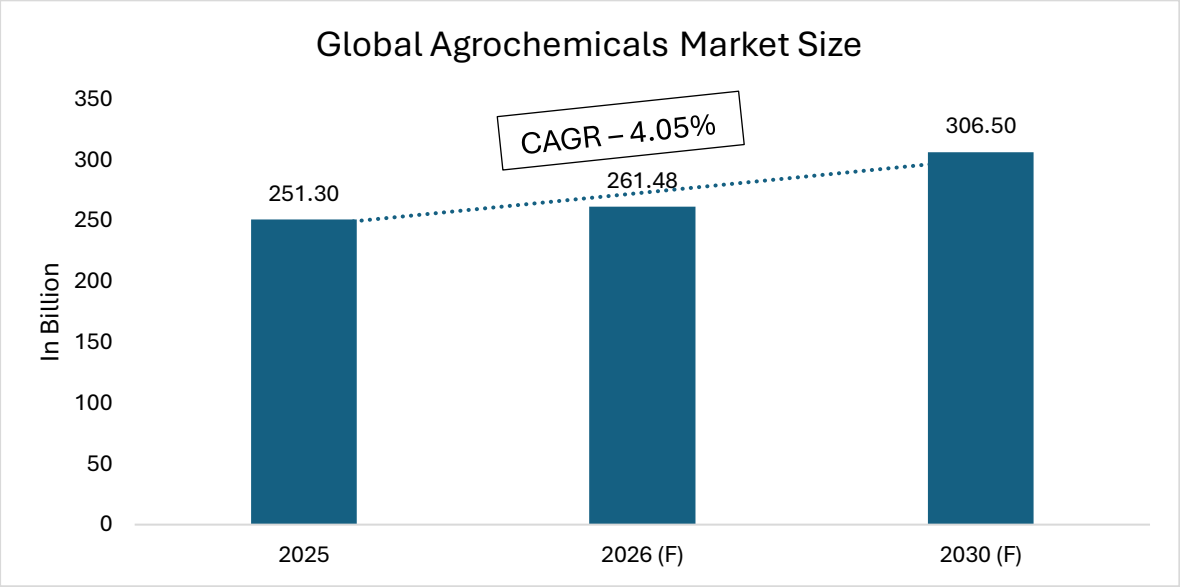


1. **Raw Material Sourcing**
   The value chain of the agrochemicals industry begins with the procurement of raw materials, including chemical intermediates, mineral-based inputs, biological substances, additives, and packaging materials. These inputs are sourced from domestic and international suppliers and are used in the manufacture and formulation of agrochemical products such as fertilizers, pesticides, micronutrients, and bio-stimulants.
2. **Product Development and Formulation**
   This stage involves the development and formulation of agrochemical products through processes such as blending, processing, and formulation in accordance with prescribed specifications. Activities at this stage focus on ensuring product stability, consistency, and suitability for agricultural application, supported by testing and quality control procedures as required under applicable regulations.
3. **Manufacturing and Processing**
   Manufacturing and processing activities involve the conversion of raw materials into finished agrochemical products. This stage includes production, formulation, packaging, and storage of agrochemical products in compliance with applicable safety, quality, and environmental standards.
4. **Distribution and Sales**
   Finished agrochemical products are distributed through established supply channels, including distributors, dealers, retailers, cooperatives, and direct sales arrangements. Distribution networks facilitate the movement of products from manufacturing facilities to end users across agricultural markets.
5. **End Users**
   The final stage of the value chain comprises end users, primarily farmers and agricultural enterprises, who utilize agrochemical products as part of routine agricultural practices for crop nutrition and crop protection across various crop categories.

4. Global & Indian Agrochemicals Industry

4.1 Global Agrochemicals Industry

The global agrochemicals industry is estimated at USD 251.30 billion in 2025 and is expected to reach USD 261.48 billion in 2026. The market is further projected to reach USD 306.50 billion by 2030, reflecting a compound annual growth rate (CAGR) of 4.05% over the forecast period.



Source: Infomerics Analytics & Research

The growth of the agrochemicals industry is underpinned by the increasing requirement for higher agricultural productivity to meet rising food demand from a growing global population. As urbanization continues to expand, the availability of arable land has become constrained, necessitating more efficient use of existing farmland. In this context, agrochemicals such as fertilizers and pesticides support crop nutrition and crop protection, thereby contributing to improved agricultural output.

Further, evolving dietary preferences and the need for consistent food supply have led to greater emphasis on yield optimization and crop management practices. The adoption of modern agricultural technologies and improved farming practices has resulted in increased application of agrochemical products across various crop categories.

Additionally, rising usage of agricultural chemicals in emerging economies, supported by increasing awareness of crop productivity requirements and government initiatives aimed at enhancing agricultural output, has contributed to sustained demand for agrochemical products, including fertilizers and crop protection chemicals.

Regional Insights

- **Asia Pacific**

  Asia Pacific represents the largest regional market for agrochemicals, supported by extensive agricultural activity and the cultivation of a wide range of food and commercial crops. The region demonstrates broad-based usage of fertilizers and crop protection products across diverse farming systems. Agrochemical application is an integral part of agricultural practices in countries such as India, China, and other parts of Southeast Asia, reflecting the scale and intensity of crop production in the region.

- **North America**

  North America is characterised by large-scale commercial farming and the widespread adoption of mechanised and technology-enabled agricultural practices. Agrochemicals are applied to support crop productivity, nutrient management, and pest control across multiple crop types. The region benefits from established supply chains and the presence of organised agrochemical manufacturers, which support the continued use of agricultural input products.

- **Europe**

  Europe's agrochemicals market operates within a structured regulatory environment governing agricultural input usage. Agrochemical products are used across various crops to maintain yield stability and crop protection, with increasing emphasis on controlled application practices. Market participants in the region focus on formulations that align with prevailing regulatory and sustainability frameworks.

- **South America**

  South America's agrochemicals market is driven by extensive cultivation of commercial and export-oriented crops. The application of agrochemicals supports crop nutrition and crop protection across large farming areas, contributing to consistent demand for agricultural input products. The region remains an important participant in global agricultural production systems.

- **Middle East and Africa**

  The Middle East and Africa region reflects developing agrochemical usage across agricultural practices. Agrochemicals are applied to support crop production in both irrigated and rain-fed farming systems. Select markets within the region contribute to demand for fertilizers and crop protection products, particularly in areas focused on commercial agriculture.

Industry Risk Disclosures

1. **Regulatory and Compliance Risks**

The agrochemicals industry is subject to extensive regulatory oversight across jurisdictions governing product approval, manufacturing, distribution, labelling, and usage. Changes in regulatory frameworks, approval timelines, or usage restrictions may affect the availability, formulation, or application of agrochemical products and may require industry participants to modify product offerings or processes.

Country	Compliance Risk
United States	Agrochemical products must be registered prior to import and sale, and are subject to periodic review, residue tolerance reassessment, and updated labeling requirements. Regulatory reviews or litigation related to active ingredients may result in usage restrictions or cancellation.
European Union	Crop protection products are governed under Regulation (EC) No. 1107/2009, which follows a hazard-based approval system. Non-renewal of active substances, stricter environmental norms, and evolving sustainability targets may lead to withdrawal of approvals or reduced market access.
Canada	Agrochemicals are subject to re-evaluation under national pest management and environmental safety regulations. Revised risk assessments, changes in maximum residue limits (MRLs), and updated mitigation measures may affect product usage conditions.
China	Strengthened environmental compliance inspections, production licensing requirements, and regulatory tightening in chemical manufacturing may disrupt supply of technical materials and affect export continuity.

2. **Exposure to Variability in Agricultural Activity**

   Demand for agrochemical products is dependent on agricultural activity and farmer input decisions, which may vary across seasons and crop cycles. Factors such as changes in cropping patterns, shifts in cultivation practices, or variations in farm-level input usage may result in fluctuations in demand for fertilizers, pesticides, micronutrients, and bio-stimulants.

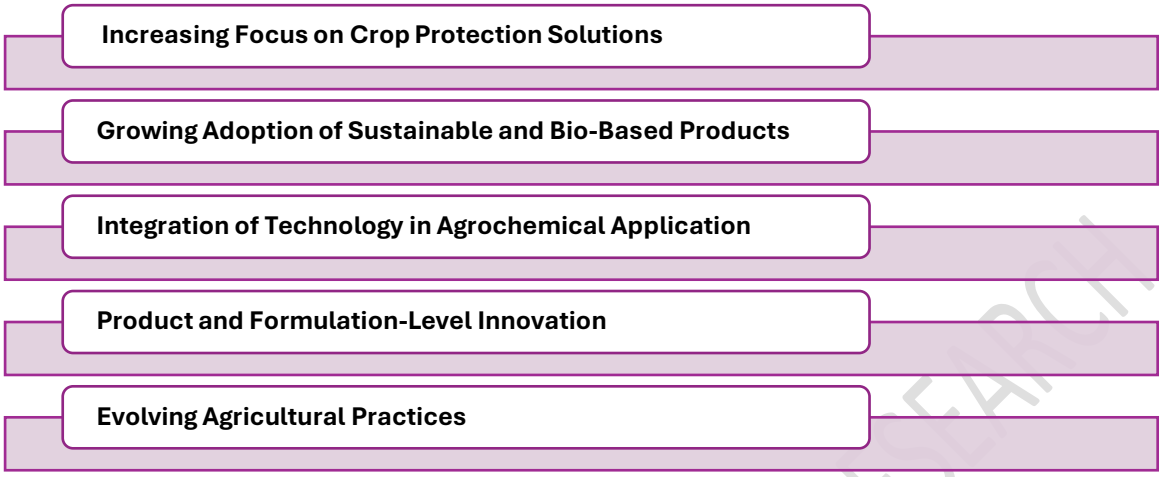
3. **Raw Material Supply and Cost Risks**

   The manufacture of agrochemical products requires chemical intermediates, mineral inputs, biological materials, and other raw materials. Disruptions in supply, dependence on external suppliers, or volatility in raw material prices may impact production planning, cost structures, and supply availability within the industry.

4. **Environmental, Safety, and Usage-Related Risks**

   The agrochemicals industry operates in an environment of heightened scrutiny regarding environmental impact, product safety, and responsible usage. Concerns relating to environmental effects, residue levels, or improper application may influence regulatory actions, user preferences, and adoption of certain agrochemical products, which could affect demand patterns within the industry.

Global Trends



1. **Increasing Focus on Crop Protection Solutions**
   Crop protection chemicals, including insecticides, herbicides, and fungicides, continue to represent a significant component of the agrochemicals industry. The crop protection segment reflects ongoing emphasis on managing pests, weeds, and diseases to support crop health and reduce potential yield losses across agricultural systems.
2. **Growing Adoption of Sustainable and Bio-Based Products**
   The agrochemicals industry has witnessed increasing development and adoption of bio-based inputs such as biopesticides and bio-stimulants. These products are being used alongside conventional agrochemicals as part of integrated crop management practices, reflecting a broader focus on sustainability-oriented agricultural inputs.
3. **Integration of Technology in Agrochemical Application**
   Technological advancements have influenced the manner in which agrochemical products are developed and applied. The use of precision agriculture tools, digital monitoring systems, and data-enabled farming practices has supported more targeted application of agrochemicals, contributing to improved input management and application efficiency.
4. **Product and Formulation-Level Innovation**
   Industry participants continue to develop improved formulations aimed at enhancing stability, application efficiency, and regulatory compliance. Such developments include formulation techniques designed to support controlled release and optimized delivery of agrochemical products across different crops and cultivation practices.
5. **Evolving Agricultural Practices**
   Changes in agricultural practices and farm management approaches have influenced agrochemical usage patterns. The industry continues to adapt its product offerings to align with evolving cultivation methods and input application requirements across regions.

4.2 Indian Agrochemicals Industry

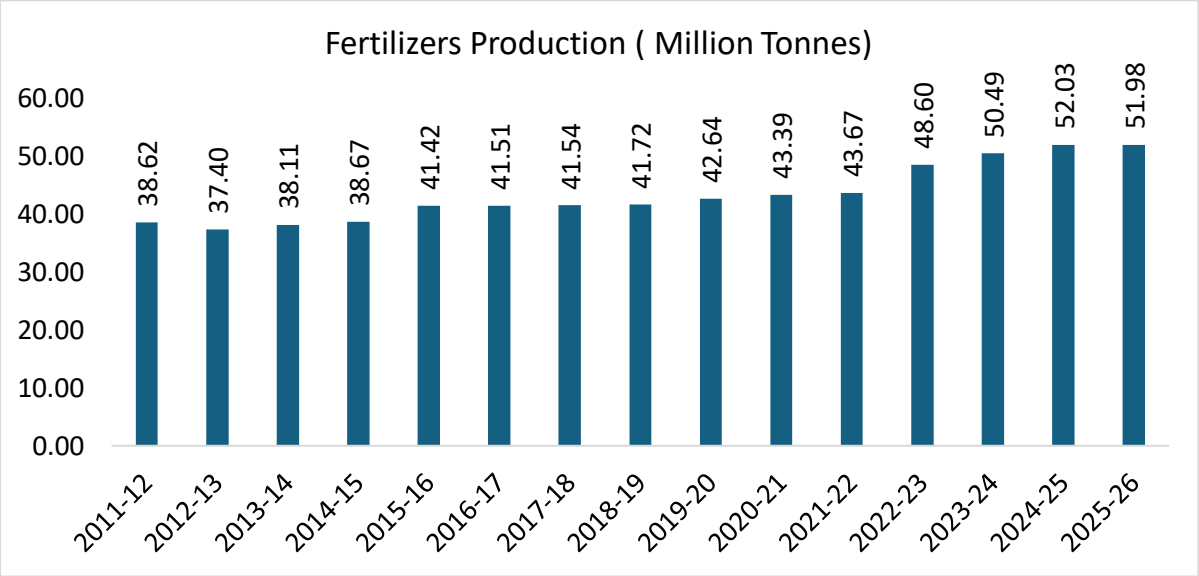
India's agrochemicals sector is one of the strategically significant segments within the broader chemicals and agriculture ecosystem, supporting crop productivity, food security, and export growth. The sector benefits from strong formulation capabilities, a well-established manufacturing base, and a wide distribution network catering to diverse agro-climatic conditions across the country. Its growth is supported by increasing farm productivity requirements, export competitiveness, and policy support for agricultural development.

As per data published by Invest India, the Indian agrochemicals sector:

- **Was estimated at approximately USD 5.5 billion in 2023**
- **Is projected to account for nearly 40% of India's overall chemical exports by 2040**
- **Is the fourth-largest producer of agrochemicals globally**
- **Is the second-largest exporter of agrochemicals worldwide**

The industry plays a significant role in strengthening India's position in the global crop protection and agricultural inputs market, supported by cost-competitive manufacturing, skilled technical expertise, and a strong export-oriented formulation base.

Production Trend – Fertilizers



Source: CMIE, Infomerics Analytics & Research

Fertilizer production in India remained largely stable during the initial part of the period under review, with production levels ranging between 37.61 million tonnes in 2012–13 and 38.72 million tonnes in 2014–15. This phase reflected steady production activity, indicating stable operating conditions and consistent capacity utilisation within the domestic fertilizer manufacturing sector.

Subsequently, production witnessed an upward shift, increasing to 41.60 million tonnes in 2015–16 and remaining at comparable levels through 2018–19, with production recorded at 41.56 million tonnes in that year. The relative stability during this phase suggests a balance between production capacity and domestic demand, with limited volatility in output levels.

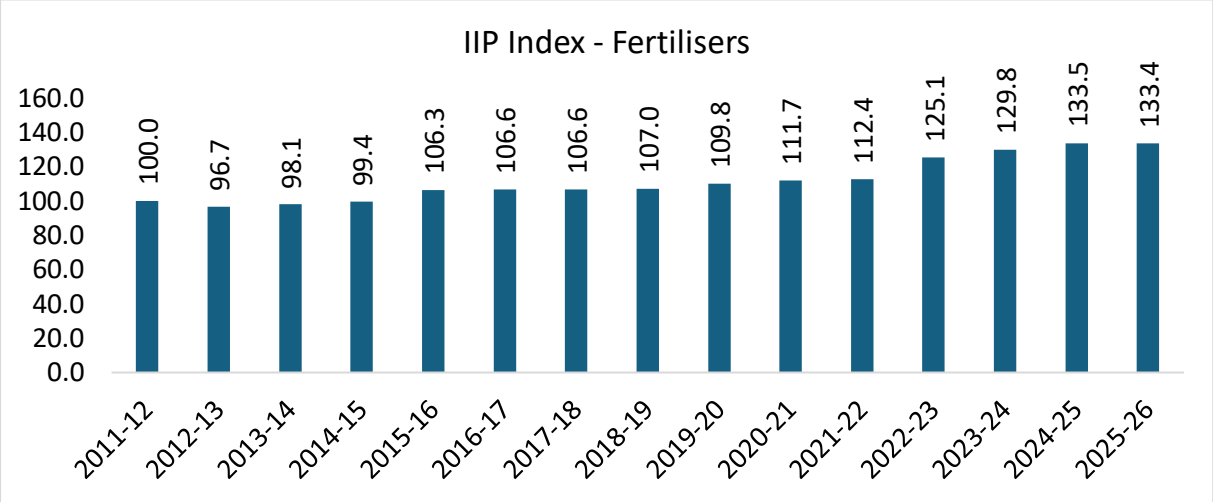
From 2019–20 onwards, output demonstrated a gradual increase, rising from 42.75 million tonnes in 2019–20 to 43.47 million tonnes in 2020–21, and further to 43.54 million tonnes in 2021–22. This progression reflects an improvement in production volumes compared to earlier periods.

In the more recent years, output recorded a sharper increase, reaching 48.29 million tonnes in 2022–23 and further increasing to 50.22 million tonnes in 2023–24. Production peaked at 52.03 million tonnes in 2024–25, followed by a marginal moderation to 51.98 million tonnes in 2025–26, while remaining at elevated levels compared to historical averages.

Overall, the sector has exhibited a long-term trend of stability followed by gradual growth, with volumes increasing from 38.86 million tonnes in 2011–12 to 51.98 million tonnes in 2025–26, reflecting sustained importance within the agricultural input ecosystem and the ability to scale output over time.

IIP Index – Fertiilisers

The Index of Industrial Production (IIP) is a macro-economic indicator that measures changes in the level of industrial output in an economy over a period of time. It reflects the performance of the industrial sector, including manufacturing, mining, and electricity, by tracking variations in production volumes relative to a specified base year. IIP is used as an indicator of industrial activity and production momentum and provides insights into trends in industrial output. The index captures changes in physical production levels and does not reflect price movements, profitability, or company-specific performance.



Source: CMIE, Infomerics Analytics & Research

The Index of Industrial Production (IIP) for the fertilizer segment indicates that industrial output experienced a brief moderation during the initial years of the period under review. The index declined from 100 in 2011–12 to 96.7 in 2012–13, before gradually recovering to 98.1 in 2013–14 and 99.4 in 2014–15, reflecting a return towards base-year production levels.

From the mid-period onwards, fertilizer-related industrial production demonstrated a sustained improvement. The index increased to 106.3 in 2015–16 and remained broadly stable at 106.6 during 2016–17 and 2017–18, indicating consistency in production activity and output levels remaining above the base year.

In the later years of the period under review, the IIP showed a marked strengthening in output. The index rose from 107.0 in 2018–19 to 112.4 in 2021–22, followed by a sharper increase to 133.5 in 2024–25. The index remained broadly stable at 133.4 in 2025–26, indicating sustained high levels of industrial output.

Overall, the IIP trend reflects a long-term upward trajectory in fertilizer manufacturing activity, with industrial output expanding materially over the period under review relative to the base year.

WPI Index – Fertilisers

The Wholesale Price Index (WPI) measures changes in the prices of goods at the wholesale level over time. It reflects movements in the price environment faced by producers and suppliers and is commonly used to assess inflationary trends in input and output prices. WPI captures price variations relative to a specified base year and does not represent production volumes or consumption levels.

Year	Fertilisers
2011-12	100
2012-13	113.5
2013-14	116.5
2014-15	118.9
2015-16	121.4
2016-17	118.7
2017-18	117.1
2018-19	121.1
2019-20	123.1
2020-21	123.6
2021-22	129.6
2022-23	144.8
2023-24	142.8
2024-25	143.1
2025-26	143.6

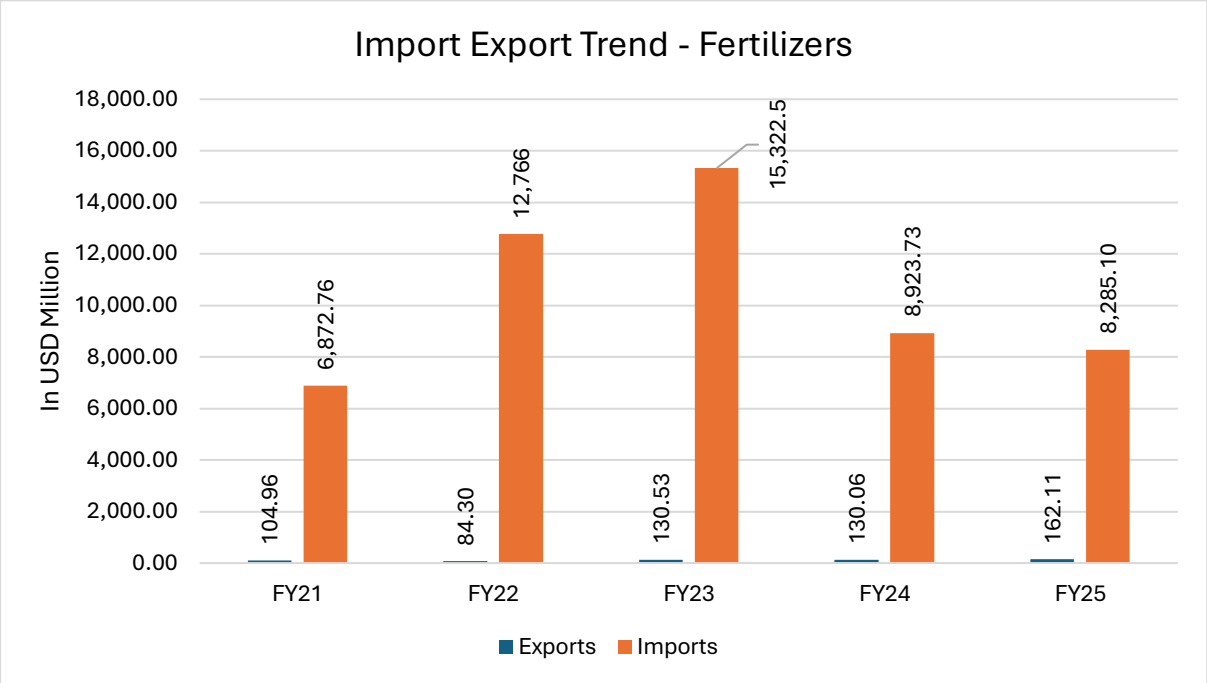
Source: CMIE, Infomerics Analytics & Research

The WPI for fertilisers indicates a clear upward movement in wholesale prices over the long term, relative to the base year 2011–12 (Index = 100). In the initial phase, the index increased to 113.5 in 2012–13 and further to 121.4 in 2015–16, reflecting a strengthening price environment during the early and mid-period. This was followed by a phase of moderation, with the index easing to 117.1 in 2017–18, indicating temporary softening in fertiliser prices.

From 2018–19 onwards, fertiliser prices resumed an upward trajectory, with the index rising to 123.1 in 2019–20 and remaining elevated thereafter. A sharp increase was observed in 2022–23, when the index reached 144.8, reflecting significantly higher wholesale price levels compared to earlier years. In the most recent period, the index moderated marginally to 143.1 in 2024–25 and remained broadly stable at 143.6 in 2025–26, indicating stabilisation at elevated price levels.

Overall, the WPI trend suggests a structurally higher wholesale price environment for fertilisers over the period under review. This indicates sustained pricing strength in the segment, influenced by input cost dynamics, supply–demand conditions, and global commodity trends.

Trade Dynamics – Fertilisers



Source: MEIDB, Infomerics Analytics & Research

Fertilizer exports exhibited variability over the period under review. Exports stood at USD 104.96 million in FY 2021 and declined to USD 84.30 million in FY 2022. Thereafter, exports increased significantly to USD 130.53 million in FY 2023 and remained largely stable at USD 130.06 million in FY 2024, before rising further to USD 162.11 million in FY 2025. The upward movement in FY 2023 and FY 2025 indicates strengthening outbound trade performance in the fertilizers segment during the latter part of the period.

Fertilizer imports, however, remained substantially higher than exports throughout the period, reflecting structural import dependence in the segment. Imports increased from USD 6,872.76 million in FY 2021 to USD 12,766.00 million in FY 2022 and further to USD 15,322.50 million in FY 2023. Thereafter, imports moderated to USD 8,923.73 million in FY 2024 and further to USD 8,285.10 million in FY 2025. Despite the decline in FY 2024 and FY 2025, import levels remain materially higher than export levels.

Overall, the fertilizers segment reflects a trade deficit position over the period under review, with imports significantly exceeding exports, notwithstanding the improvement in export performance and moderation in import levels in the most recent financial years.

The fertilizer sector's import dependence is primarily driven by limited domestic availability of key raw materials such as rock phosphate and potash, which are essential for the production of phosphatic and potassic fertilizers. In addition, insufficient domestic production capacity relative to overall consumption requirements necessitates supplemental imports to bridge the demand supply gap. Rising demand for fertilizers ensure adequate availability across regions.

Metric	FY24	FY25	Growth (%)
Exports (USD Million)	130.06	162.11	24.64%
Imports (USD Million)	8923.73	8285.1	7.16%

Source: MEIDB, Infomerics Analytics & Research

During FY25, fertilisers exports recorded a notable increase, rising to USD 162.11 million from USD 130.06 million in FY24, reflecting a year-on-year growth of approximately 24.64%. The increase in export value indicates a strengthening of outward trade activity and suggests higher shipment volumes and/or improved realizations during the year. The expansion in exports highlights continued participation of domestic fertiliser producers in international markets and reflects the ability to service overseas demand across multiple geographies.

In contrast, fertilisers imports declined during FY25, decreasing to USD 8,285.10 million from USD 8,923.73 million in FY24, representing a reduction of approximately 7.16%. The decline in import value indicates moderated procurement levels during the year, which may reflect adjustments in sourcing volumes, inventory management, or substitution through domestic availability. Overall, the combined movement of higher exports and lower imports during FY25 resulted in a relatively improved trade position compared to the previous year, indicating a favourable shift in external trade dynamics for the fertilisers segment.

Top Export and Import Destinations - Fertilisers

Top Export Destinations

Major Countries	FY 2025	Market Share (%)
Nepal	46.64	28.80%
Brazil	32.43	20.00%
U.S.A	14.57	9.00%
U.A.E	9.93	6.10%
Mozambique	6.45	4.00%
Total	162.11	100

Top Import Destinations

Major Countries	FY 2025	Market Share (%)
Russia	1,839.91	22.20%
Saudi Arabia	1,477.16	17.80%
Oman	1,069.35	12.90%
China	875.84	10.60%
Morocco	806.76	9.70%
Total	8,285.10	100

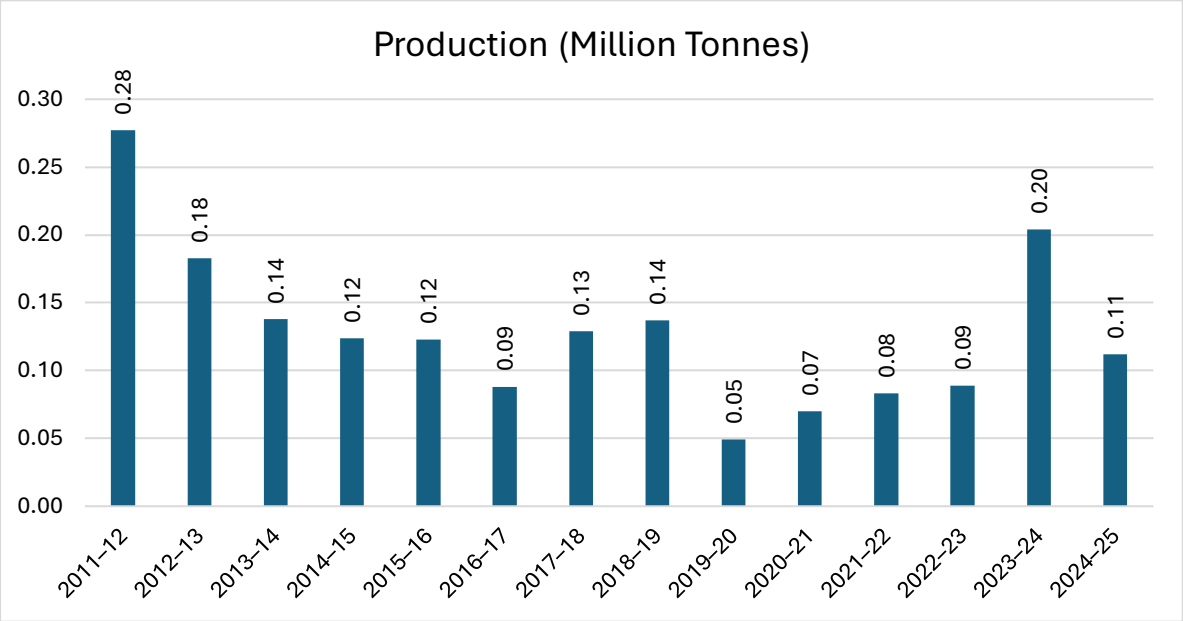
Source: MEIDB, Infomerics Analytics & Research

On the export side, fertilisers exports during FY25 were primarily directed towards Nepal, which accounted for exports of USD 46.64 million, representing approximately 28.8% of total fertiliser exports. Brazil emerged as the second-largest destination, with exports valued at USD 32.43 million, contributing around 20.0% of total exports. The United States of America accounted for exports of USD 14.57 million, representing about 9.0%, while exports to the United Arab Emirates and Mozambique stood at USD 9.93 million (6.1%) and USD 6.45 million (4.0%), respectively. Collectively, these destinations accounted for a significant portion of total

exports, while the remaining exports were spread across other markets, indicating a diversified export base with no single destination accounting for an overwhelming share.

On the import side, fertilisers sourcing during FY25 remained relatively concentrated. Russia was the largest import source, with imports valued at USD 1,839.91 million, accounting for approximately 22.2% of total fertiliser imports. This was followed by Saudi Arabia at USD 1,477.16 million (17.8%) and Oman at USD 1,069.35 million (12.9%). Additional imports were sourced from China and Morocco, with import values of USD 875.84 million (10.6%) and USD 806.76 million (9.7%), respectively. Together, these countries accounted for a substantial share of total imports, reflecting a concentrated import structure with dependence on a limited number of key supplying regions.

Production Trend - Pesticides



Source: CMIE, Infomerics Analytics & Research

Pesticides production in India declined during the early part of the period under review, decreasing from 0.28 million tonnes in 2011–12 to 0.12 million tonnes by 2014–15, and further to 0.09 million tonnes in 2016–17, reflecting reduced output levels. Production subsequently stabilised and showed a modest recovery to 0.13 million tonnes in 2017–18 and 0.14 million tonnes in 2018–19.

A sharp contraction was observed in 2019–20, with production declining to 0.05 million tonnes, followed by a gradual improvement to 0.09 million tonnes in 2022–23. In 2023–24, production increased to 0.20 million tonnes, before moderating to 0.11 million tonnes in 2024–25. Overall, the trend indicates variability in pesticides production over the period under review, with intermittent recovery following periods of decline.

WPI Index - Pesticides

Year	Pesticides
2011-12	100
2012-13	107.5
2013-14	111.1
2014-15	120.7
2015-16	122.6
2016-17	116.8
2017-18	115.3
2018-19	120.2
2019-20	122.6
2020-21	124.4
2021-22	132.1
2022-23	143.4
2023-24	132.8
2024-25	128.8
2025-26	131.8

Source: CMIE, Infomerics Analytics & Research

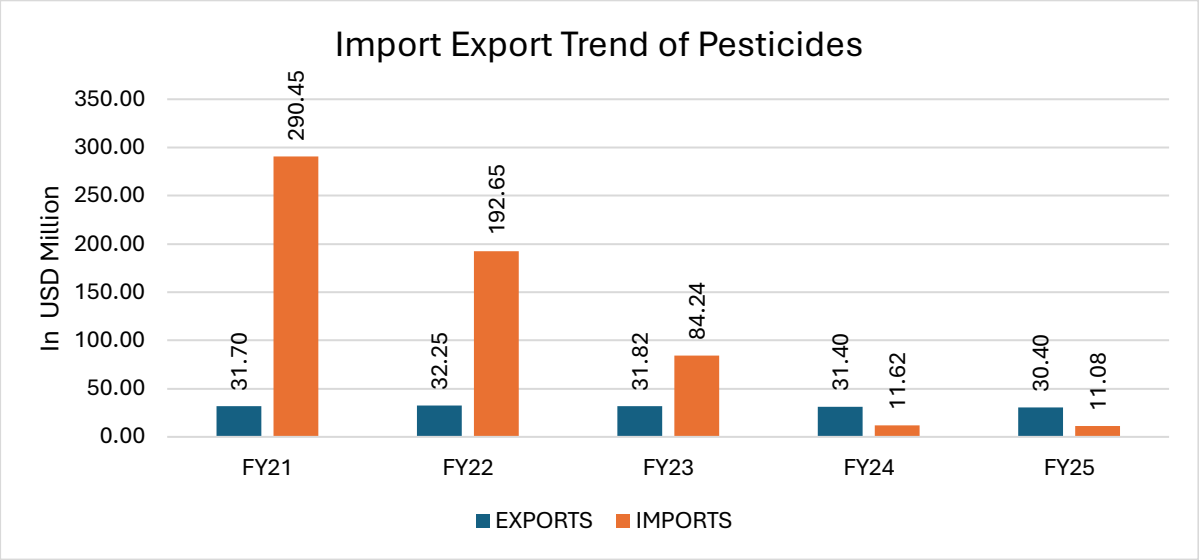
The Wholesale Price Index (WPI) for pesticides indicates a generally upward trend in wholesale prices over the period under review, relative to the base year 2011–12 (Index = 100). The index increased steadily in the initial years, reaching 120.7 in 2014–15 and 122.6 in 2015–16, reflecting a strengthening price environment.

This was followed by a phase of moderation, with the index easing to 116.8 in 2016–17 and 115.3 in 2017–18, before recovering to 120.2 in 2018–19. In the subsequent years, pesticide prices continued to firm, with the index rising to 132.1 in 2021–22 and peaking at 143.4 in 2022–23.

In the most recent period, the index moderated to 132.8 in 2023–24 and 128.8 in 2024–25, before recovering slightly to 131.8 in 2025–26, indicating partial stabilisation in wholesale prices while remaining above historical levels.

Overall, the WPI trend for pesticides reflects a long-term increase in wholesale price levels relative to the base year, interspersed with periods of moderation. While prices have eased in the most recent years, the index remains elevated compared to earlier periods, indicating a structurally higher wholesale price environment for pesticides over the period under review.

Trade Dynamics – Pesticides



Source: MEIDB, Infomerics Analytics & Research

Pesticide exports remained relatively stable over the period under review, with exports amounting to USD 31.70 million in FY 2021, USD 32.25 million in FY 2022, and USD 31.82 million in FY 2023. Exports moderated marginally to USD 31.40 million in FY 2024 and further to USD 30.40 million in FY 2025. The trend indicates a largely steady export base with limited volatility over the five-year period, suggesting stable overseas demand and consistent export positioning.

In contrast, pesticide imports witnessed a significant decline during the same period. Imports stood at USD 290.45 million in FY 2021 and decreased to USD 192.65 million in FY 2022, followed by a sharper reduction to USD 84.24 million in FY 2023. Imports further declined substantially to USD 11.62 million in FY 2024 and remained at comparable levels at USD 11.08 million in FY 2025. The reduction in import levels over the period indicates a marked contraction in inbound trade for pesticides relative to earlier years.

Overall, while exports have remained relatively stable with marginal moderation in FY 2024 and FY 2025, imports have declined significantly over the five-year period, reflecting a shift in trade dynamics within the pesticides segment during the period under review.

The dip in pesticide imports during the period under review may be attributable to increasing regulatory scrutiny and quality control measures aimed at curbing the circulation of counterfeit and low-quality products. The pesticides sector faces challenges from such sub-standard products, which are often cheaper and more easily available in the market and may contain unsafe ingredients, posing risks to farmers, crops, the environment, and public health. In addition, uneven trade practices and weak regulatory oversight in certain markets can result in compliance issues and product rejections, thereby impacting.

Metric	FY24	FY25	Growth (%)
Exports (USD Million)	**31.4**	**30.4**	**3.2%**
Imports (USD Million)	**11.62**	**11.08**	**4.6%**

Source: MEIDB, Infomerics Analytics & Research

During FY25, exports of pesticides declined marginally to USD 30.4 million from USD 31.4 million in FY24, reflecting a year-on-year decrease of approximately 3.2%. The moderation in export value indicates a relatively stable external demand environment, with limited variation compared to the previous year. The decline appears moderate in nature and does not indicate a structural change in export performance over the period under review.

Imports of pesticides also registered a decline during FY25, decreasing to USD 11.08 million from USD 11.62 million in FY24, representing a year-on-year reduction of approximately 4.6%. The reduction in imports suggests a moderation in sourcing levels, which may reflect adjustments in procurement volumes or inventory management compared to the preceding year.

Overall, the pesticides trade profile during FY25 reflects a modest contraction in both exports and imports, indicating broadly stable trade activity with limited year-on-year volatility. The movement in trade values suggests continuity in cross-border operations, with no material deviation from recent trends.

Top Export and Import Destinations - Pesticides

Top Export Destinations

Major Countries	FY 2025	Market Share (%)
Brazil	3.99	13.1
U.S.A	3.99	13.1
Vietnam	3.58	11.8
Nepal	2.41	7.9
Indonesia	1.65	5.4
Total	**30.40**	**100.0**

Top Import Destinations

Major Countries	FY 2025	Market Share (%)
China	7.75	69.9%
Russia	1.06	9.6%
Hong Kong	0.91	8.2%
Japan	0.58	5.2%
U.S.A	0.49	4.4%
Total	**11.08**	**100.0%**

Source: MEIDB, Infomerics Analytics & Research

Exports are spread across a diversified set of international markets, indicating a balanced geographic distribution. Brazil and the United States of America are the largest export destinations, each accounting for approximately 13.1% of total exports. These are followed by Vietnam, which contributes about 11.8%, and Nepal at 7.9%, while Indonesia accounts for 5.4%. Overall, the export profile reflects broad-based market access across developed and emerging economies, with no single geography accounting for a disproportionate share.

In contrast, the import profile exhibits a higher degree of concentration. China constitutes the primary sourcing market, accounting for approximately 69.9% of total imports, indicating significant dependence on a single geography. Other countries such as Russia (9.6%), Hong Kong (8.2%), Japan (5.2%), and the United States of America (4.4%) contribute smaller shares. This import structure reflects a concentrated sourcing pattern, supplemented by secondary procurement from multiple regions.

5. Market Dynamics – Agrochemicals Industry

5.1 Growth Drivers

The agrochemicals industry forms a core component of modern agricultural systems by supporting crop nutrition, crop protection, and yield optimization. The industry's growth is supported by long-term structural shifts in agriculture, including the need to enhance productivity, manage crop risks, and adopt improved farming practices. These factors collectively contribute to sustained demand for fertilizers, pesticides, micronutrients, and bio-based agricultural inputs across global markets.

Market Drivers and Impact Assessment

(All values represent directional impact based on industry estimates and qualitative analysis)

Driver	1–2 Years	3–4 Years	5–7 Years
1. Increasing Need to Enhance Crop Yields	High	High	High
2. Expansion of Commercial Agriculture in Emerging Economies	Medium	High	High
3. Adoption of Modern Farming Practices	Medium	High	High
4. Technological Integration in Agriculture	Medium	Medium	High
5. Product Innovation and Formulation Development	Medium	Medium	High
6. Growth of Bio-Based and Sustainable Agrochemicals	Medium	High	High
7. Rising Use of Micronutrients and Specialty Inputs	High	High	High
8. Intensification of Protected and Greenhouse Cultivation	Medium	Medium	High

Source: Infomerics Analytics & Research

Detailed Driver Commentary

1. **Increasing Need to Enhance Crop Yields**
   Rising pressure on agricultural systems to improve output from limited arable land has increased reliance on agrochemical products. Fertilizers and crop protection chemicals continue to play an important role in supporting plant growth and minimizing yield losses.
2. **Expansion of Commercial Agriculture in Emerging Economies**
   Developing regions are witnessing a gradual shift from subsistence farming to commercial and semi-commercial agriculture. This transition has resulted in higher adoption of agrochemicals as farmers seek consistent yields, improved crop quality, and better farm productivity.

3. **Adoption of Modern Farming Practices**
   The adoption of improved agricultural practices, including mechanized farming and scientific crop management, has supported increased usage of agrochemical inputs. These practices emphasize efficient nutrient management and effective pest and disease control.
4. **Technological Integration in Agriculture**
   Advancements in agricultural technology, including precision farming and digital crop monitoring tools, have enabled more targeted and efficient application of agrochemicals. Technology-driven farming practices support optimized input usage and improved crop management outcomes.
5. **Product Innovation and Formulation Development**
   Continuous innovation in agrochemical formulations has supported the development of more efficient and application-specific products. Improved formulations enhance product effectiveness, stability, and ease of application across different crops and climatic conditions.
6. **Growth of Bio-Based and Sustainable Agrochemicals**
   The increasing focus on sustainability has encouraged the development and adoption of bio-based agrochemicals such as biopesticides and bio-stimulants. These products complement conventional agrochemicals and support environmentally compatible farming practices.
7. **Rising Use of Micronutrients and Specialty Inputs**
   Greater awareness of soil health and crop nutrition has driven demand for micronutrients and specialty agrochemical products. These inputs are increasingly used to address nutrient deficiencies and improve crop quality.
8. **Intensification of Protected and Greenhouse Cultivation**
   The expansion of greenhouse and protected cultivation practices has supported demand for specialized agrochemicals. Controlled farming environments require precise nutrient and pest management, increasing reliance on tailored agrochemical solutions.

5.2 Challenges

The agrochemicals industry operates within a complex regulatory, environmental, and operational environment. Several structural and external factors pose challenges that influence product development, market access, and adoption patterns across regions.

Market Challenges and Impact Assessment

(All values represent directional impact based on industry estimates and qualitative analysis)

Challenge	1–2 Years	3–4 Years	5–7 Years
1. Stringent Regulatory and Approval Requirements	High	High	High
2. Environmental and Health-Related Concerns	Medium	High	High
3. Rising Costs of Raw Materials and Manufacturing	High	Medium	Medium
4. Resistance Development in Pests and Weeds	Medium	High	High
5. Fragmented Market Structure and Competitive Intensity	Medium	Medium	Medium

Source: Infomerics Analytics & Research

Detailed Overview of Challenges

1. **Stringent Regulatory and Approval Requirements**
   Agrochemicals are subject to extensive regulatory oversight relating to product registration, usage norms, and environmental safety. Changes in regulations and lengthy approval processes may affect product availability and delay the introduction of new formulations.
2. **Environmental and Health-Related Concerns**
   Growing concerns regarding the environmental and health impacts of chemical-based agrochemicals have increased public and regulatory scrutiny. This has influenced usage patterns and contributed to growing preference for alternative farming practices in certain markets.
3. **Rising Costs of Raw Materials and Manufacturing**
   The production of agrochemicals depends on chemical intermediates and energy-intensive processes. Volatility in raw material prices and supply chain disruptions can impact production costs and pricing stability within the industry.
4. **Resistance Development in Pests and Weeds**
   The increasing resistance of pests, weeds, and diseases to existing agrochemical products presents a significant challenge. Addressing resistance requires continuous innovation and development of new or improved formulations.

5. **Fragmented Market Structure and Competitive Intensity**

The agrochemicals market comprises many global and regional participants offering a wide range of products. Intense competition and pricing pressures can impact margins and require sustained investment in research, branding, and distribution networks.

6. Government Initiatives and Policy Support

1. **Nutrient-Based Subsidy (NBS) Scheme**
   The Nutrient-Based Subsidy (NBS) Scheme governs the subsidy structure for phosphatic and potassic (P&K) fertilizers. Under this framework, subsidies are provided on a per-nutrient basis for essential nutrients such as nitrogen, phosphorus, potassium, and sulphur. The objective of the scheme is to promote balanced fertilization and improve nutrient use efficiency. The NBS regime allows fertilizer manufacturers and marketers to determine the retail price of P&K fertilizers, subject to applicable regulations, while receiving fixed subsidy support from the Government. The scheme influences nutrient consumption patterns and supports rationalized fertilizer application practices.
2. **Neem Coated Urea Policy**
   Under the Neem Coated Urea Policy, it is mandated that all domestically produced and imported urea for agricultural use be neem coated. The policy aims to enhance nitrogen use efficiency, reduce diversion of urea for non-agricultural purposes, and improve soil health outcomes. Neem coating slows the release of nitrogen, leading to better absorption by crops and reduced nutrient loss. This policy has had a structural impact on the fertilizer segment by standardizing formulation practices and influencing urea consumption dynamics.
3. **PM-PRANAM (Promotion of Alternate Nutrients for Agriculture Management)**
   PM-PRANAM is an initiative designed to encourage the balanced and judicious use of fertilizers and promote the adoption of alternative and bio-based nutrient sources. The scheme seeks to reduce excessive dependence on conventional chemical fertilizers and incentivize states to adopt nutrient efficiency measures. By encouraging balanced fertilization and alternative nutrient adoption, PM-PRANAM has implications for both traditional fertilizer usage and the growth of specialty inputs such as micronutrients and bio-stimulants. The initiative reflects a policy shift toward sustainability and improved nutrient management practices within the agricultural ecosystem.
4. **Dedicated Chemical Parks Scheme**
   The Union Budget 2026–27 proposed the establishment of three dedicated Chemical Parks with a budgetary allocation of ₹600 crore in the BE FY 2026-27 to support cluster-based manufacturing infrastructure. These parks are aimed at strengthening domestic chemical manufacturing, reducing reliance on imports, and enhancing competitiveness, including in segments such as crop protection chemicals and related agrochemical inputs

7. Technology and Digital Transformation in the Industry

Technological and digital transformation has increasingly influenced the agrochemicals industry by reshaping product development, manufacturing processes, and on-field application practices. The integration of digital tools and advanced technologies has enabled more efficient use of agrochemical inputs, improved decision-making in agriculture, and enhanced alignment with evolving farming practices. Key Technological and digital transformation in the industry are:

1. **Precision Agriculture and Input Optimization**
   Precision agriculture technologies enable site-specific and crop-specific application of agrochemicals. The use of advanced equipment and monitoring tools supports accurate dosing and efficient utilization of fertilizers and crop protection products, improving application effectiveness.
2. **Digital Farming Platforms and Advisory Tools**
   Digital farming platforms integrate data related to soil conditions, weather patterns, and crop health to support informed farm-level decision-making. These tools assist farmers in planning timely and appropriate agrochemical applications, improving overall crop management.
3. **Advancements in Agrochemical Formulations**
   Technological progress has supported the development of improved agrochemical formulations with enhanced stability and application efficiency. Innovations in formulation design contribute to better performance under varied agronomic and climatic conditions.
4. **Automation and Digitalization in Manufacturing Operations**
   The adoption of automation and digital process controls in manufacturing has improved operational efficiency and consistency. Digital systems support better monitoring of production processes, quality standards, and compliance requirements.
5. **Digital Integration Across Supply Chains**
   Digital tools are increasingly used to manage inventory, logistics, and distribution networks within the agrochemicals industry. These systems enhance traceability, improve coordination, and support timely availability of products across markets.
6. **Remote Sensing and Crop Monitoring Technologies**
   Remote sensing technologies, including satellite-based imagery and aerial monitoring tools, support real-time assessment of crop conditions. Early identification of pest or disease incidence enables targeted agrochemical intervention and improved response efficiency.

8. PESTEL Analysis of the Industry

The PESTEL framework provides a structured assessment of the external macro environmental factors that influence the industry's operating landscape. It examines the political, economic, social, technological, environmental, and legal dimensions that collectively shape industry performance, regulatory evolution, and strategic direction. This analysis enables a comprehensive understanding of the opportunities and challenges impacting market stability, investment potential, and long-term sectoral growth.

Factor	Key Insights and Implications
Political	• Government focus on food security and agricultural productivity supports the continued use of fertilizers, pesticides, micronutrients, and bio-stimulants. • Agricultural subsidy and support frameworks influence affordability and consumption patterns of fertilizers and crop protection products. • Trade policies, import–export regulations, and tariff structures affect the sourcing and competitiveness of agrochemical products. • Geopolitical developments influence the availability of key raw materials used in fertilizer and pesticide manufacturing. • Public investment in irrigation, rural infrastructure, and farm mechanization supports higher agrochemical usage. • Policy initiatives promoting balanced nutrient management indirectly support specialty products such as micronutrients and bio-stimulants.
Economic	• Demand for agrochemicals is closely linked to farm income levels, cropping intensity, and agricultural profitability. • Volatility in raw material, energy, and logistics costs impacts production economics across agrochemical segments. • Foreign exchange fluctuations affect the cost of imported inputs and export realizations for agrochemical products. • Fertilizer and pesticide usage patterns vary with crop price realizations and seasonal agricultural cycles. • Capital intensity in manufacturing and distribution influences cost structures, particularly for specialty and formulated products. • Economic conditions in agrarian regions influence farmers' input purchasing decisions.

Social	• Increasing farmer awareness regarding crop yields and soil health supports adoption of fertilizers and micronutrients. • Growing emphasis on sustainable farming practices has increased interest in bio-stimulants and balanced input usage. • Concerns related to food safety influence pesticide usage norms and crop protection practices. • Education, extension services, and advisory programs impact adoption of modern agrochemical solutions. • Changing farmer demographics influence acceptance of new technologies and specialty agrochemical products. • Social perception of chemical usage affects regulatory scrutiny and product preference trends.
Technological	• Advancements in formulation chemistry improve the efficacy and stability of fertilizers and pesticides. • Precision agriculture technologies enable targeted and efficient application of agrochemicals. • Digital advisory platforms support data-driven nutrient and crop protection management. • Controlled release and specialty formulations improve input efficiency and reduce wastage. • Automation and process control technologies enhance manufacturing consistency and quality assurance. • Digital integration across supply chains improves inventory management and product traceability.
Environmental	• Soil health considerations support balanced fertilizer usage and increased adoption of micronutrients. • Water availability and irrigation practices influence fertilizer application efficiency. • Environmental impact concerns shape pesticide selection and application methods. • Climate variability increases the need for effective crop protection solutions.
Legal	• Agrochemical products are subject to registration, approval and compliance requirements • Manufacturing and quality standards govern fertilizer and pesticide production processes. • Usage restrictions apply to certain pesticide active ingredients based on regulatory assessments. • Re-registration on renewal processes impact the lifecycle management of agrochemical product. • Regulatory timelines and procedural requirements influence the introduction of new agrochemical formulations

9. Competitive Landscape

The agrochemicals industry operates in a competitive environment marked by the presence of various participants offering a wide range of crop nutrition and crop protection products. Competition exists across both high-volume products such as fertilizers and pesticides, as well as specialty segments including micronutrients and bio-stimulants. Market positioning is influenced by operational capabilities, regulatory readiness, market access, and the ability to serve diverse agricultural requirements across crop cycles.

9.1 Key Factors Shaping Competition

Competition in the agrochemicals industry is shaped by a combination of structural, operational, and market-oriented factors. These factors determine how effectively companies can sustain their presence, expand market reach, and respond to evolving agricultural practices across product categories.

1. **Product Portfolio and Range**
   Companies with a diversified product portfolio across fertilizers, pesticides, micronutrients, and bio-stimulants are better positioned to cater to varied crop needs and farming practices. A broader range of products allows manufacturers to address multiple stages of the crop cycle and engage more consistently with farmers.
2. **Regulatory Compliance Capabilities**
   Compliance with regulatory requirements related to product approvals, manufacturing standards, and usage norms plays an important role in shaping competition. Companies with established compliance systems are better equipped to ensure product continuity and manage regulatory changes across markets.
3. **Research and Product Development**
   Ongoing research and development supports improvement in product formulations and adaptation to evolving crop and soil requirements. In segments such as pesticides, micronutrients, and bio-stimulants, product effectiveness and consistency influence **competitive positioning and farmer acceptance.**
4. **Distribution Network and Market Access**
   A strong distribution network enhances market reach and product availability, particularly in rural and semi-urban regions. Effective distribution enables timely supply of agrochemical products and supports deeper penetration across key agricultural markets.
5. **Pricing and Cost Efficiency**
   Pricing remains an important competitive factor, especially in commodity fertilizer and crop protection segments. Companies with efficient sourcing, manufacturing scale, and cost management are better positioned to remain competitive in price-sensitive markets.

6. **Brand Presence and Farmer Relationship**

Brand recognition and trust built through consistent product performance influence purchasing decisions in the agrochemicals industry. Long-term relationships with farmers and distributors support repeat demand and strengthen competitive positioning.

9.2 Competitive Strategies

Participants in the agrochemicals industry adopt a range of competitive strategies to strengthen market presence, maintain relevance across crop cycles, and respond to evolving agricultural practices. These strategies focus on product positioning, operational efficiency, regulatory alignment, and market access, enabling companies to operate across both high-volume and specialty agrochemical segments. Key competitive strategies in the industry are:

1. **Diversification Across Product Categories**
   Companies pursue diversification across fertilizers, pesticides, micronutrients, and bio-stimulants to reduce dependence on any single product segment. A diversified portfolio enables participation across multiple stages of the crop lifecycle and supports stable revenue streams.
2. **Focus on Specialty and Value-Added Products**
   In addition to commodity products, companies increasingly focus on specialty offerings such as micronutrients and bio-stimulants. These products support differentiation, improve margins, and align with evolving nutrient management and crop care practices.
3. **Strengthening Distribution and Market Reach**
   Expanding and strengthening distribution networks remains a key strategy to improve product availability and market penetration. Strong channel relationships enable companies to reach a wider farming base and respond effectively to seasonal demand patterns.
4. **Cost Optimization and Operational Efficiency**
   Companies focus on optimizing procurement, manufacturing, and logistics to manage cost pressures. Operational efficiency supports competitive pricing, particularly in segments where price sensitivity remains high.
5. **Regulatory Alignment and Product Continuity**
   Maintaining compliance with regulatory requirements is a critical strategic focus. Companies invest in systems and processes to ensure product approvals, renewals, and adherence to usage norms, supporting uninterrupted market presence.
6. **Incremental Innovation in Formulations**
   Rather than disruptive changes, companies often pursue incremental improvements in formulations to enhance effectiveness, ease of application, and compatibility with farming practices. Such innovation supports product relevance without increasing complexity.

9.3 Barriers to Entry

The agrochemicals industry is characterized by multiple entry barriers arising from regulatory requirements, capital intensity, technical expertise, and market access constraints. These barriers influence the ability of new participants to enter the industry and scale operations across fertilizers, pesticides, micronutrients, and bio-stimulants. Key barriers to entry are:

1. **Regulatory Approvals and Compliance Requirements**
   The agrochemicals industry is governed by detailed regulatory frameworks covering product registration, manufacture, sale, and usage. Crop protection products are subject to approval and oversight under legislation such as the proposed Pesticides Management Bill, administered by the Ministry of Agriculture and Farmers Welfare, with regulatory supervision by bodies such as the Central Insecticides Board and Registration Committee. Compliance with testing, registration, labeling, and periodic review requirements involves significant time, cost, and procedural complexity, which acts as a meaningful barrier for new entrants.
2. **High Capital and Infrastructure Requirements**
   Manufacturing and distributing agrochemicals require significant investment in production facilities, quality control systems, storage infrastructure, and logistics. The capital intensity is higher for products such as fertilizers and formulated crop protection chemicals, creating entry constraints for smaller players.
3. **Technical and Formulation Expertise**
   Development of effective agrochemical products requires technical knowledge in chemistry, agronomy, and formulation science. In segments such as pesticides, micronutrients, and bio-stimulants, product efficacy and consistency depend on specialized expertise, which limits entry by inexperienced participants.
4. **Established Distribution and Market Access**
   Access to established distribution networks and dealer relationships is critical for reaching end users. New entrants face challenges in building last-mile connectivity and competing with existing players that have long-standing channel relationships.
5. **Brand Trust and Farmer Acceptance**
   Purchasing decisions in the agrochemicals industry are influenced by product performance and reliability. Established brands benefit from farmer trust built over time, making it difficult for new entrants to gain acceptance without demonstrated field performance.
6. **Economies of Scale and Cost Competitiveness**
   Existing players benefit from scale advantages in procurement, manufacturing, and logistics. New entrants may face cost disadvantages until sufficient scale is achieved, particularly in price-sensitive segments such as fertilizers and certain crop protection products.

9.4 Consolidation Trends

Consolidation in the agrochemicals industry is evolving as a strategic response to regulatory intensity, cost pressures, and changing demand patterns across fertilizers, pesticides, micronutrients, and bio-stimulants. These trends reflect how industry participants are reshaping scale, portfolios, and market access rather than merely expanding capacity. Various trends in the industry are:

1. **Consolidation of Registered Product Portfolios**
   There is a visible trend of consolidation of registered pesticide and specialty agrochemical portfolios, as maintaining registrations has become increasingly cost- and time-intensive. Players with limited compliance capabilities are divesting or discontinuing products, while larger participants consolidate approved actives and formulations under fewer entities.
2. **Shift of Consolidation Focus Toward Specialty Products**
   Consolidation activity is increasingly centered on micronutrients and bio-stimulants rather than bulk fertilizers. Companies are acquiring or absorbing specialty product lines to strengthen presence in higher-value segments.
3. **Distribution Networks Becoming Consolidation Targets**
   Market access is driving consolidation, with companies seeking to combine manufacturing or formulation capabilities with established dealer and retailer networks. Control over distribution is emerging as a key consolidation lever.
4. **Preference for Portfolio Expansion Over Capacity Expansion**
   Consolidation is increasingly driven by portfolio acquisition rather than greenfield capacity addition. Companies prefer acquiring existing products with market acceptance instead of developing new formulations from scratch.
5. **Rationalisation of Overlapping Brands and Products**
   Post-consolidation, companies are streamlining overlapping brands, formulations, and SKUs. This trend is leading to narrower but stronger product portfolios and lower regulatory maintenance burden.
6. **Exit of Small and Sub-Scale Manufacturers**
   Smaller players with limited scale or compliance capability are gradually exiting certain product categories. This trend is reducing fragmentation, particularly in regulated and formulation-heavy segments.

9.5 Key Indian Players

1. **UPL Limited**

UPL Limited is a diversified provider of agricultural solutions engaged in the manufacture and distribution of crop protection products, natural solutions, and related agricultural inputs. The Company operates across the agricultural value chain, with a sales presence in more than 140 countries and a portfolio comprising over 14,000 product registrations, enabling participation across multiple crops and geographies. Its operations are supported by 44 manufacturing facilities and 25 research and development facilities, reflecting its integrated production and innovation capabilities. UPL employs over 12,000 personnel globally and serves a broad customer base including smallholder farmers, large commercial farms, and agricultural cooperatives.

2. **Rallis India Limited**

Rallis India Limited is a subsidiary of Tata Chemicals Limited and is engaged in providing a wide range of agri-input solutions across crop protection, crop nutrition, seeds, and plant growth nutrients. The Company has established a presence across the agricultural value chain and offers a diversified product portfolio comprising pesticides, fungicides, insecticides, seeds, and nutrition solutions, catering to varied crop and farming requirements. Rallis follows a research- and science-led approach to product development, with a focus on innovation aimed at improving farm productivity. Its operations are supported by a well-established and penetrative distribution network, with a large base of dealers and retailers enabling extensive reach across agricultural regions, along with export presence across multiple overseas markets. The Company's emphasis on product quality, innovation, and farmer-centric solutions has contributed to its reputation as a trusted agri-input solutions provider.

10. Future Outlook

The Indian agrochemicals industry is expected to retain its strategic importance within both the domestic agricultural ecosystem and the broader chemicals sector. As the fourth-largest producer of agrochemicals globally and the second-largest exporter worldwide, India has established a strong position in formulation manufacturing and export-oriented production. This structural strength, supported by technical expertise and a diversified product portfolio, is expected to underpin continued industry stability and growth.

The sector's projected contribution of approximately 40% to India's overall chemical exports by 2040 reflects its increasing significance within the country's export framework. India's cost-competitive manufacturing base, compliance capabilities, and wide portfolio of registered products position it to benefit from evolving global supply chain realignments and sustained demand for crop protection solutions across multiple geographies.

Domestically, the industry is expected to evolve in line with changing agricultural practices, including greater emphasis on balanced fertilization, improved nutrient efficiency, and adoption of specialty inputs such as micronutrients and bio-stimulants. Regulatory oversight, sustainability-focused initiatives, and technological integration in farming practices may influence product mix and usage patterns. Overall, the Indian agrochemicals industry is expected to demonstrate steady expansion, supported by its integrated value chain, export competitiveness, and alignment with long-term agricultural productivity objectives.

Yours Faithfully,

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