

# Crop Protection Chemicals - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2024 - 2029)

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## Abstracts

The Crop Protection Chemicals Market size is estimated at 100.13 billion USD in 2024, and is expected to reach 125.68 billion USD by 2029, growing at a CAGR of 4.65% during the forecast period (2024-2029).

Rising pest and disease infestations are driving the market for crop protection chemicals

The global crop protection chemicals market is experiencing significant growth and is expected to continue expanding in the coming years. In 2022, the size of the market reached USD 92.4 billion, and it is expected to register a CAGR of 4.6% between 2023 and 2029, reaching USD 125.6 billion by 2029. This growth can be due to the rising pest and disease infestations, climate changes, and increasing focus on improving crop yield.

In the global crop protection chemicals market, herbicides hold the major share, accounting for 42.5% in 2022 by value. They are expected to be the fastest-growing segment, with a CAGR of 5.1% by value during 2023-2029. The rising crop losses and the need to ensure optimum yield, coupled with the expansion of cropland, are expected to fuel the growth of the herbicide segment.

The insecticide segment is projected to register a 4.4% CAGR between 2023 and 2029 by value. The risk of pest infestation in agriculture is increasing due to climate change. Plant pests such as armyworms, desert locusts, and several other pests attacking agriculturally important crops are posing a significant threat, which may drive the

demand for insecticides in the coming years.

The fungicide segment is expected to grow by USD 4.0 billion between 2023 and 2029. Wheat, soybeans, and potatoes are some of the major crops grown globally, which are currently under threat due to various fungal diseases. For instance, Septoria tritici blotch (STB) is a major disease in Europe. Rising infestations of such diseases cost UK growers approximately USD 263 million of yield losses each year.

The pesticide segment is expected to register a CAGR of 4.6% by value during 2023-2029 due to the rising need to protect crops from pest infestations.

The rise in yield losses by pests in major countries is driving the crop protection chemicals usage

Pests pose significant challenges to agriculture. They can damage crops, reduce yields, and compromise the quality of harvested produce. Pests like insects, weeds, fungi, and other organisms threaten agricultural productivity. Managing pests effectively is essential for ensuring food security and maintaining a stable food supply. During 2017-2022, the global crop protection chemicals market grew by 4.4%.

In 2022, South America held a substantial 42.2% share of the global pesticide market's value. This region, encompassing countries like Argentina, Brazil, and Chile, is witnessing growth in its pesticide market. Given their status as significant agricultural producers with extensive farmland, these nations rely on pesticides to effectively control pests and maximize crop yields. The South American crop protection chemicals sector is anticipated to experience a 4.7% CAGR between 2023 and 2029.

Agriculture in North America is highly diverse, with a wide range of crops cultivated across different countries. The region's diverse climate and fertile land enable the cultivation of crops such as wheat, corn, soybean, canola, and various fruits and vegetables. The region occupied the second-highest share of 24.6% by value of the overall crop protection chemicals market value in 2022. The United States occupied the highest share of 82.4% by value in 2022. However, yield losses due to weeds and pests are a major threat to the production and the economic well-being of farmers in the country. Herbicides occupied the highest share of 53.3% by value in 2022 in the country.

The market is projected to register a CAGR of 4.6% during the period 2023-2029. The rapidly expanding agriculture sector, with changing climate and pest infestations, is driving the growth of the market.

## Global Crop Protection Chemicals Market Trends

Unusual outbreaks of pests and diseases due to climate change are leading to higher application of pesticides

The global average consumption of crop protection chemicals was recorded at 117.9 kg per hectare in 2022. The average per hectare consumption of pesticides in the world is increasing due to factors like expanding agriculture and intensive and monoculture farming practices. Rising temperatures, altered precipitation patterns, and extreme weather events create more favorable conditions for pest proliferation and expansion into new areas, leading to increased usage of chemical pesticides.

In 2022, fungicides saw the highest per-hectare consumption at 48.4 kg, reflecting the critical need to combat fungal diseases that pose a significant threat to crop production. These diseases impact cereals, fruits, vegetables, and ornamentals, leading to substantial economic losses of approximately USD 220.0 billion despite the extensive use of fungicides, as reported by the Food and Agriculture Organization.

Herbicides were applied at the rate of 44.8 kg per hectare in 2022. Chemical herbicide usage has been escalating every year due to the growing adaptability, rapid reproduction, and herbicide resistance of weeds, causing them to outcompete crops and resulting in significant yield losses. Examples include glyphosate-resistant Palmer amaranth and common water hemp, as well as acetolactate synthase-inhibiting herbicide-resistant Kochia.

Changing climatic conditions caused by global warming create favorable conditions for certain pests, posing a severe threat to crop production. In 2020, a locust outbreak adversely impacted 23 countries, with nine in wider East Africa, 11 in North Africa & the Middle East, and three in South Asia, resulting in an estimated USD 8.5 billion loss.

Cypermethrin was the highest-priced pesticide, at USD 21.08 thousand per metric ton, in 2022

Cypermethrin belongs to the class of pyrethroid insecticides, which are synthetic chemicals designed to mimic the natural insecticidal properties of pyrethrins derived from chrysanthemum flowers. Cypermethrin is used to effectively manage a wide range of pests, including aphids, beetles, caterpillars, leafhoppers, and whiteflies. Its mode of action involves disrupting the nervous systems of insects, leading to paralysis and, ultimately, their death. In 2022, cypermethrin was priced at USD 21.08 thousand per metric ton.

Atrazine is an herbicide widely used for the control of broadleaf and grassy weeds like Echinocloa, Elusine spp., and Amaranthus viridis in maize and rice crops. The herbicide was valued at a price of USD 13.8 thousand in 2022. India is the world's largest importer of atrazine technical, with China being the largest exporter.

Malathion is an organophosphate insecticide belonging to the chemical class of organophosphates. Malathion's mode of action involves inhibiting acetylcholinesterase, an enzyme essential for proper nerve function in insects. It is the most affordable chemical among the three, priced at USD 12.5 thousand per metric ton in 2022.

Mancozeb is a fungicide belonging to the chemical class of dithiocarbamates. It is commonly used to control fungal diseases like late blight, downy mildew, early blight, and anthracnose in crops like potatoes, tomatoes, grapes, and bananas. Mancozeb has a broad spectrum of activity compared to other fungicides and acts on multiple sites within the fungal cell, making it more effective. Mancozeb was priced at USD 7.8 thousand in 2022.

Propineb and glyphosate are important fungicides and herbicides, priced at USD 3.5 thousand and USD 1.1 thousand per metric ton in 2022, respectively.

## Crop Protection Chemicals Industry Overview

The Crop Protection Chemicals Market is moderately consolidated, with the top five companies occupying 53.91%. The major players in this market are BASF SE, Bayer AG, Corteva Agriscience, FMC Corporation and Syngenta Group (sorted alphabetically).

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