

Biostimulants - A Global Market Overview

Market Report | 2025-07-09 | 267 pages | Industry Experts

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Report description:

Global Biostimulants Market Trends and Outlook

Biostimulants, also known as plant conditioners or bioeffectors, are substances or microorganisms that are utilized on plants or in soils to improve nutrient absorption, enhance stress resilience, and boost overall crop quality. Unlike fertilizers and pesticides, they concentrate on improving the physiological functions of plants. The primary categories encompass humic and fulvic acids, amino acids and protein hydrolysates, seaweed and plant extracts, beneficial microorganisms, and inorganic compounds. Acid-based biostimulants are effective in promoting root nutrition and are applied to soil or foliage. Amino acid-based products facilitate nitrogen metabolism and aid in stress resilience. Seaweed extracts enhance soil structure, nutrient absorption, and interactions with microorganisms, while plant extracts provide allelochemical advantages. Microbial biostimulants improve nutrient processing, promote soil health, and increase tolerance to abiotic stresses. Inorganic elements such as silica and selenium play a role in bolstering stress resistance and plant defense mechanisms. These products act as enhancers of ecosystems, fostering both plant vitality and sustainable agricultural practices.

The global market for Biostimulants is estimated at US\$3.9 billion in 2024 and is projected to reach US\$8.2 billion by 2030, with a CAGR of 13% during the forecast period 2024-2030. The biostimulants market is witnessing significant growth driven by a rising demand for sustainable agricultural practices and environmentally friendly alternatives to traditional inputs. Growing awareness about soil health, environmental issues, and the negative impacts of chemical fertilizers has led to a higher acceptance of biostimulants among farmers. These products enhance nutrient uptake, crop resilience, and soil fertility, providing a practical solution in the face of diminishing arable land and rising food demand. Supportive regulations, such as organic transition programs and classification standards in the EU and the US, are promoting broader adoption of these products in the market. Technological advancements and ongoing R&D initiatives have led to the development of enhanced biostimulant formulations tailored to specific crops and climatic conditions, thereby improving their efficacy and driving greater adoption among farmers. Leading agricultural producers such as China, India, the US, and Brazil are increasingly adopting biostimulants to enhance crop production and meet rising food demand. Europe's steady demand, on the other hand, is driven by its extensive use in high-value crops like fruits, flax, and horticultural products, supported by strong sustainability initiatives. The shift toward organic food and sustainable farming practices across various regions is accelerating the adoption of biostimulants. Moreover, strategic partnerships and increasing investment in bio-based agriculture further strengthen the market's growth trend.

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Biostimulants Regional Market Analysis

Europe leads the global biostimulants market with an estimated 39.2% share in 2024, driven by widespread adoption among farmers, favorable regulations, and strong demand for organic and sustainable agriculture. Countries like Germany, France, Italy, and Spain benefit from supportive government initiatives, heightened awareness of eco-friendly practices, and a focus on enhancing crop yield and quality. Germany, a leading producer of rapeseed and protein crops, faces strong domestic demand, prompting increased use of biostimulants to improve productivity. Regulatory clarity has encouraged R&D and innovation in products like protein hydrolysates and humic substances. In contrast, Asia Pacific is projected to register the fastest CAGR of 14.4% during the forecast period 2024-2030, led by China and India, where biostimulants address soil degradation and support climate-resilient farming. Rising demand for seaweed-based inputs, government initiatives, and the push for organic farming further support this region's market expansion. Growing food demand, declining soil quality, and awareness of harmful agrochemicals are key drivers, with countries like Japan, Thailand, and Indonesia offering additional growth opportunities.

Biostimulants Market Analysis by Active Ingredient

The acid-based active ingredients segment is the largest in the global biostimulants market with a 42.2% share in 2024, driven by low processing costs and abundant raw materials. Humic and fulvic acids improve soil aeration, water retention, microbial activity, and pH balance. Sourced from plant, animal, and microbial residues, they enhance nutrient uptake, root growth, and soil fertility while boosting resistance to abiotic stress, supporting sustainable agriculture. Conversely, the seaweed extracts segment is projected to grow at a CAGR of 13.9% from 2024 to 2030. Seaweed-based biostimulants, especially from brown algae like *Ascophyllum nodosum*, are rich in auxins, cytokinins, gibberellins, and trace minerals. They stimulate seed germination, nutrient absorption, and stress resistance while improving soil structure and aeration. Microbial biostimulants, including bacteria, fungi, and yeasts, are also gaining ground for their moderate growth potential and ability to enhance plant nutrition and stress tolerance.

Biostimulants Market Analysis by Application

The foliar spray segment holds a dominant position in the global biostimulants market, with a 63.4% share in 2024, fueled by the rising demand for food and the need to enhance crop productivity amidst soil degradation and limited water resources. This technique involves applying liquid biostimulants directly onto plant leaves, enabling swift nutrient uptake via stomata and epidermal layers. Common active ingredients such as glycine betaine, isopropyl alcohol (IPA), and chelated nutrients are utilized to enhance cellular functions, improve stress resilience, and quickly remedy nutrient shortages. Its advantages, including straightforward application, compatibility with pest and disease management strategies, and demonstrated effectiveness across crops such as maize and onions, bolster its leadership in the market. On the other hand, the seed treatment segment is expected to witness the fastest CAGR of 14.7% from 2024 to 2030, as it enhances germination rates and seedling development under adverse conditions. Methods such as seed coating and pelleting are increasingly popular due to their cost-effectiveness and reduced labor demands, making them a more appealing option for sustainable agricultural practices.

Biostimulants Market Analysis by Crop Type

Cereals and grains dominate the biostimulants market by crop type, capturing a 42.5% share in 2024, driven by rising global demand for staple crops such as wheat, rice, and maize. Increasing pressure on yield due to diminishing arable land, soil degradation, and climate-induced abiotic stress has accelerated biostimulant adoption. These inputs enhance nutrient uptake, soil health, and crop resilience, making them critical for sustaining output in high-demand regions such as China, India, and the US. Supportive policies promoting sustainable agriculture and food security further bolster their use. Meanwhile, the fruits and vegetables segment is projected to register the fastest CAGR of 14.4% from 2024 to 2030. Growth is fueled by increasing

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consumer preference for pesticide-free, high-quality produce, along with heightened awareness around food safety and environmental impact. Biostimulants enhance nutrient efficiency, stress tolerance, flavor, and shelf life in sensitive crops, aligning with EU sustainability goals and organic certification standards. The high economic value of fruits and vegetables justifies greater investment in biostimulant inputs to ensure quality, productivity, and regulatory compliance.

Biostimulants Market Report Scope

This global report on Biostimulants analyzes the market based on active ingredient, application, and crop type for the period 2021-2030 with forecasts from 2024 to 2030 in terms of value in US\$. In addition to providing profiles of major companies operating in this space, the latest corporate and industrial developments have been covered to offer a clear panorama of how and where the market is progressing.

Key Metrics

Historical Period: 2021-2024

Base Year: 2024

Forecast Period: 2024-2030

Units: Value market in US\$

Companies Mentioned: 13+

Biostimulants Market by Geographic Region

- ☐☐ North America (The United States, Canada, and Mexico)
- ☐☐ Europe (Germany, France, United Kingdom, Italy, Spain, and Rest of Europe)
- ☐☐ Asia-Pacific (Japan, China, India, South Korea, and Rest of Asia-Pacific)
- ☐☐ South America (Brazil, Argentina, and Rest of South America)
- ☐☐ Rest of World

Biostimulants Market by Active Ingredient

- ☐☐ Acid-based
- ☐☐ Seaweed Extracts
- ☐☐ Microbial
- ☐☐ Other Active Ingredients (Including Protein Hydrolysates, Chitosan and Biopolymers, Plant Extracts, Vitamins, Antioxidants, Biorationals, and Inorganic Compounds)

Biostimulants Market by Application

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- ☐☐ Soil Treatment
- ☐☐ Seed Treatment
- ☐☐ Other Applications (Including Drip Irrigation/Fertigation, Hydroponic or Controlled Environment Applications, and Others)

Biostimulants Market by Crop Type

- ☐☐ Cereals & Grains
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- ☐☐ Fruits & Vegetables
- ☐☐ Other Crop Types (Including Turf & Ornamentals, Plantation Crops, Medicinal Plants, and Others)

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- Biostadt India Limited

- FMC Corporation

- Haifa Group

- Hello Nature Italia S.r.l.

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