

Controlled-Release Fertilizers Market - Forecast from 2026 to 2031

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Abstracts

Controlled-Release Fertilizers Market, at a 6.54% CAGR, is expected to grow from USD 3.408 billion in 2025 to USD 4.983 billion in 2031.

Controlled-release fertilizers (CRFs) and slow-release fertilizers (SRFs) encompass polymer-coated, sulfur-coated, and matrix-type products, alongside nitrogen stabilizers (urease and nitrification inhibitors). These technologies synchronize nutrient delivery with crop demand, typically extending availability from 3 to 15 months while reducing losses via leaching, volatilization, and denitrification. Conventional granular fertilizers lose 40–70 % of applied nitrogen; CRFs routinely achieve 80–90 % utilization efficiency, making them a cornerstone of modern nutrient stewardship programs.

Primary Growth Drivers

1. Adoption of precision nutrient management and 4R principles The Right Source, Right Rate, Right Time, and Right Place framework is increasingly mandated by regulation and retailer sustainability schemes. CRFs uniquely satisfy the “Right Time” requirement at scale, enabling single pre-plant or early-side-dress applications that eliminate multiple in-season passes.
2. Structural shift toward higher-value cropping systems Fruits, vegetables, nursery/container stock, and turfgrass — segments with low tolerance for phyto-toxicity and high labor costs — continue to drive premium CRF consumption. Rice, maize, and horticulture in Asia-Pacific are the fastest-adopting field crops.
3. Regulatory pressure on nutrient losses EU nutrient-management directives, North American 4R certification programs, and watershed-specific restrictions on nitrate

discharge are accelerating substitution of conventional urea and UAN with coated products and stabilized formulations.

Technology and Product Trends

Polymer-coated urea (PCU) and polymer-sulfur-coated urea (PSCU) remain the volume leaders, with new generations (e.g., ICL Osmocote 5, 2022 launch) incorporating optimized trace-element release and peat-reduced formulations.

Nitrogen stabilizers (NBPT, DCD, and nitrapyrin combinations) dominate row-crop acreage where full coating is cost-prohibitive.

Biodegradable and bio-based coatings are gaining regulatory acceptance and commercial traction in high-value horticulture.

Regional Dynamics

Asia-Pacific holds the largest and fastest-growing share, propelled by:

Intensive rice, vegetable, and fruit production systems in China, India, Japan, and Southeast Asia

Government extension programs promoting balanced fertilization and reduced environmental impact

Rapid mechanization and consolidation that favor one-shot CRF applications

Japan has emerged as a particularly strong market for high-performance coated products in paddy rice, where yield response and labor savings are pronounced.

North America is the second-largest consumer, driven by polymer-coated urea in corn, specialty crops, and professional turf/landscape segments. Abundant shale-gas-derived urea capacity keeps base fertilizer costs competitive, making incremental coating expenditure economically viable.

The controlled-release fertilizer market has moved beyond niche status into mainstream nutrient management. With conventional fertilizers facing escalating environmental

scrutiny and labor costs continuing to rise, CRFs and stabilized nitrogen products are becoming the default choice in high-value segments and an increasingly common component of row-crop programs. Technologies that deliver predictable 90+ day release profiles at competitive cost premiums will capture the majority of future growth as global agriculture reconciles productivity demands with tightening nutrient-loss regulations.

Key Benefits of this Report:

Insightful Analysis: Gain detailed market insights covering major as well as emerging geographical regions, focusing on customer segments, government policies and socio-economic factors, consumer preferences, industry verticals, and other sub-segments.

Competitive Landscape: Understand the strategic maneuvers employed by key players globally to understand possible market penetration with the correct strategy.

Market Drivers & Future Trends: Explore the dynamic factors and pivotal market trends and how they will shape future market developments.

Actionable Recommendations: Utilize the insights to exercise strategic decisions to uncover new business streams and revenues in a dynamic environment.

Caters to a Wide Audience: Beneficial and cost-effective for startups, research institutions, consultants, SMEs, and large enterprises.

What do businesses use our reports for?

Industry and Market Insights, Opportunity Assessment, Product Demand Forecasting, Market Entry Strategy, Geographical Expansion, Capital Investment Decisions, Regulatory Framework & Implications, New Product Development, Competitive Intelligence

Report Coverage:

Historical data from 2021 to 2025 & forecast data from 2026 to 2031

Growth Opportunities, Challenges, Supply Chain Outlook, Regulatory Framework, and Trend Analysis

Competitive Positioning, Strategies, and Market Share Analysis

Revenue Growth and Forecast Assessment of segments and regions including countries

Company Profiling (Strategies, Products, Financial Information, and Key Developments among others.

Controlled-Release Fertilizers Market Segmentation:

By Nutrient

Nitrogen

Phosphorous

Potassium

By Product

Coating & Encapsulated CRF

Matrix-Based CRF

By Method

Foliar

Fertigation

Soil Incorporation

Others

By Crop Type

Cereals & Grains

Fruits & Vegetables

Oilseed & Pulses

Others

By Geography

North America

USA

Canada

Mexico

South America

Brazil

Argentina

Others

Europe

Germany

France

United Kingdom

Spain

Italy

Others

Middle East and Africa

Saudi Arabia

UAE

Israel

Others

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India

Japan

South Korea

Indonesia

Thailand

Others

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