

Secondary Macronutrients Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, 2019-2029 Segmented By Nutrient (Calcium, Magnesium, Others), By Crop Type (Cereals And Grains, Oilseeds And Pulses, Fruits And Vegetables, Others), By Region and Competition

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Abstracts

Global Secondary Macronutrients Market was valued at USD 37.65 billion in 2023 and is anticipated to project robust growth in the forecast period with a CAGR of 3.68% through 2029. Secondary macronutrients play a crucial role in plant cultivation, aiding distressed plants and promoting overall growth. These essential nutrients, including calcium (Ca), magnesium (Mg), and sulfur (S), have a lower requirement compared to nitrogen, phosphorus, and potash, but are still more vital than micronutrients. Calcium facilitates nutrient absorption from the soil, magnesium acts as an enzyme activator, boosting growth, and sulfur protects leaves from premature aging and yellowing.

The growth of the agriculture industry and the increasing popularity of macronutrients for healthy plant growth are the primary drivers of the secondary macronutrients market. The demand for high-value crops, such as fruits and vegetables, along with expanded applications for industrial crops, further accelerate market growth. The need to enhance agricultural yield, driven by the growing global population and food requirements, also contributes to the market's growth.

Additionally, the pollutant resistance property offered by macronutrients to plants increases their demand. The increasing awareness of the benefits of secondary macronutrients, coupled with limited arable land, positively impacts the secondary macronutrients market. Furthermore, the adoption of site-specific nutrient management

through precision agriculture, the growing demand for industrial crops, and investments in agricultural operations in developing nations present lucrative opportunities for market players.

On the other hand, the prevalence of forged products and limited availability of macronutrients in the market pose challenges to market growth. The shift in regulatory frameworks towards environmentally friendly agricultural practices, along with a lack of awareness about the product, is expected to hinder the secondary macronutrients market in the forecast period.

In summary, secondary macronutrients are essential for plant growth and offer numerous benefits to the agriculture industry. Despite some challenges, the market is poised for growth due to increasing demand, awareness, and investment in agricultural operations.

Key Market Drivers

Growing Emphasis on Soil Health

Secondary macronutrients, namely calcium (Ca), magnesium (Mg), and sulfur (S), are crucial for optimal plant growth and development. They play a vital role in various biological processes, including photosynthesis, enzyme activation, and cell division. Despite their significance, secondary macronutrients often take a backseat to primary macronutrients such as nitrogen, phosphorus, and potassium.

However, with increasing awareness of the importance of balanced nutrition for crops, secondary macronutrients have started gaining the attention they deserve. This shift in focus can be attributed to the growing emphasis on maintaining soil health, as healthy soil forms the foundation of productive agriculture. Besides supporting plant growth, healthy soil facilitates water filtration, acts as a buffer against pollutants, and serves as a biodiversity hotspot. Achieving and maintaining soil health requires a balanced supply of both primary and secondary macronutrients.

As the global agricultural community becomes more enlightened about the crucial role of secondary macronutrients, the demand for these nutrients has witnessed a substantial increase. Farmers and agronomists now recognize that deficiencies in secondary macronutrients can lead to decreased crop yield and compromised quality.

Moreover, government initiatives worldwide are playing a pivotal role in promoting soil

health and balanced fertilization. For instance, the United States Department of Agriculture (USDA) has implemented the Soil Health Initiative, aimed at educating farmers about the importance of soil health and its direct impact on crop productivity. Similarly, the European Union's 'Farm to Fork' strategy is focused on reducing nutrient losses and ensuring balanced fertilization, thereby encouraging the use of secondary macronutrients.

Surge in Crop Diversification

Crop diversification, the practice of growing multiple crop species in the same area, is gaining popularity worldwide. It is seen as a crucial strategy to secure the global food supply and build resilience against future shocks. By diversifying crops, farmers can reduce the risk of crop failure due to pests, diseases, or adverse weather conditions. Additionally, crop diversification promotes sustainable agriculture by reducing the dependency on a single crop and minimizing the negative environmental impacts associated with monocultures.

Secondary macronutrients - calcium, magnesium, and sulfur - play a pivotal role in supporting diversified cropping systems. Different crops have varying nutritional requirements, and secondary macronutrients are crucial in fulfilling these needs. Calcium, for example, is essential for strong cell walls and proper nutrient uptake in plants. Magnesium is a central component of chlorophyll, the pigment responsible for photosynthesis, while sulfur is necessary for protein synthesis and enzyme activity. These secondary macronutrients support vital plant functions such as photosynthesis, enzyme activation, and cell division, thereby contributing to healthy and diverse crop production.

Moreover, as crop diversification often involves rotating different species in the same field at different times, the balanced supply of secondary macronutrients helps maintain soil health and fertility over time. By replenishing these secondary macronutrients, farmers can prevent nutrient imbalances and ensure optimal plant growth and productivity in their diversified cropping systems.

With the continued surge in crop diversification, the secondary macronutrients market is set for substantial growth. As farmers and agronomists increasingly recognize the importance of balanced plant nutrition for diverse crops, the demand for secondary macronutrients is expected to rise. This presents an opportunity for manufacturers and suppliers of secondary macronutrients to meet the growing needs of farmers worldwide, contributing to sustainable and resilient agricultural practices.

Key Market Challenges

Surge in Environmental Concerns

While secondary macronutrients are vital for plant health, their overuse and misuse can lead to severe environmental issues. Excessive application of these nutrients can cause nutrient runoff into water bodies, leading to eutrophication, a process where water bodies become overly enriched with nutrients, causing algal blooms that deplete oxygen and harm aquatic life.

Moreover, the production of these macronutrients often involves energy-intensive processes, contributing to greenhouse gas emissions and global warming. As we strive for more sustainable agricultural practices, finding eco-friendly alternatives for secondary macronutrients becomes imperative.

In response to these environmental concerns, regulatory bodies worldwide have implemented stringent regulations on nutrient management. For example, the European Union's Nitrates Directive aims to protect water quality by preventing nitrates from agricultural sources from polluting ground and surface water. These regulations pose a challenge to the secondary macronutrients market as they require manufacturers and farmers to adopt sustainable practices, which may involve additional costs and complexity.

However, such challenges also present opportunities for innovation. Many companies are now focusing on developing eco-friendly macronutrient products. For instance, some are exploring the use of organic waste as a source of secondary macronutrients. By repurposing waste materials, we not only reduce environmental impact but also create a circular economy where resources are maximized, and waste is minimized.

Key Market Trends

Growing Focus on Sustainable Agriculture

Sustainable agriculture is an approach that aims to ensure that the current food and textile requirements of society are met, while also safeguarding the ability of future generations to meet their own needs. It encompasses three key objectives: maintaining environmental health, ensuring economic profitability, and promoting social and economic equity.

In the context of sustainable agriculture, secondary macronutrients play a crucial role. These nutrients are essential for promoting plant health and productivity, thereby contributing to the economic viability of farming practices. Moreover, their balanced application can effectively prevent soil degradation and nutrient runoff, thus supporting overall environmental health.

As the global community becomes increasingly aware of the environmental impacts associated with conventional farming methods, there is a growing trend towards adopting sustainable agricultural practices. This shift in mindset is evident in the rising demand for secondary macronutrients that support sustainable agriculture.

Farmers are recognizing the importance of balanced fertilization, which involves providing plants with appropriate quantities of all necessary nutrients, including secondary macronutrients. This holistic approach not only enhances crop yield and quality but also minimizes potential harm to the environment. By prioritizing sustainable practices and focusing on the precise nutrient requirements of crops, farmers can contribute to a more resilient and environmentally conscious agricultural system.

Segmental Insights

Nutrient Insights

Based on the category of nutrient, the calcium segment emerged as the dominant player in the global market for secondary macronutrients in 2023. Calcium plays a crucial role in plant growth by providing structural support to cell walls. Additionally, it acts as a secondary messenger in response to physical or biochemical stress experienced by plants. In Mississippi soils, calcium deficiencies are rare, especially in soils with favorable pH levels. However, acid soils with calcium contents of 500 pounds per acre or less may be deficient in calcium, particularly for legumes such as peanuts, alfalfa, clovers, and soybeans.

At this level of deficiency, even limited root system crops like tomatoes, peppers, and cucurbits may require additional calcium. Peanuts, in particular, benefit from soluble calcium during pegging time, while peppers and tomatoes rely on it to prevent blossom end rot. It's important to note that available calcium can be lost from the soil through various means, including dissolution and removal in drainage water, uptake by plants, absorption by soil organisms, leaching in rainwater, or absorption by clay particles.

Crop Type Insights

The fruits and vegetables segment is projected to experience rapid growth during the forecast period. Vegetables, being a rich and affordable source of essential vitamins and minerals, offer numerous health benefits. Their consumption in sufficient quantities not only enhances taste and palatability but also boosts appetite, thanks to their fiber content. Proper plant nutrition is crucial for the successful production of vegetable crops, as each macronutrient plays a distinct role in various metabolic processes of plant life.

In this comprehensive review, we aim to provide detailed insights into the significance of macronutrients in the production and quality of vegetables. By including vegetables in our diet, we not only fulfill our energy requirements but also ensure the intake of vital protective nutrients such as minerals and vitamins, which play a vital role in maintaining a well-balanced and healthy lifestyle.

Regional Insights

Asia Pacific emerged as the dominant player in the Global Secondary Macronutrients Market in 2023, holding the largest market share in terms of value. Countries such as India and China play a significant role in the agricultural landscape of the Asia Pacific region. They are major producers of key crops including rice, sugar beet, fruits & vegetables, cereals, and grains. It is noteworthy that the region itself consumes a staggering 90% of the global rice production.

In addition, the demand for the Secondary Macronutrients market in Asia Pacific is substantial. This is primarily driven by the direct use of micronutrients to address plant deficiencies, often through spraying in combination or as additives. Micronutrients are crucial elements that are required by plants in small quantities. While crop uptake of micronutrients is typically less than one pound per acre, their availability is essential for critical plant functions. In the absence of sufficient micronutrients, plants may exhibit abnormalities, experience reduced growth, and ultimately yield lower harvests.

Key Market Players

Nutrien Ltd

Yara International ASA

The Mosaic Company

Israel Chemicals Ltd

K+S Aktiengesellschaft

Nufarm Ltd

Southern Petrochemical Industries Corp Ltd

Koch Industries Inc

Coromandel International Ltd

Deepak Fertilisers and Petrochemicals Corporation Ltd

Report Scope:

In this report, the Global Secondary Macronutrients Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Global Secondary Macronutrients Market, By Nutrient:

- o Calcium
- o Magnesium
- o Others

Global Secondary Macronutrients Market, By Crop Type:

- o Cereals And Grains
- o Oilseeds And Pulses

- o Fruits And Vegetables

- o Others

Global Secondary Macronutrients Market, By Region:

- o North America

- ? United States

- ? Canada

- ? Mexico

- o Europe

- ? France

- ? United Kingdom

- ? Italy

- ? Germany

- ? Spain

- o Asia Pacific

- ? China

- ? India

- ? Japan

- ? Australia

- ? South Korea

o South America

? Brazil

? Argentina

? Colombia

o Middle East & Africa

? South Africa

? Saudi Arabia

? UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Secondary Macronutrients Market.

Available Customizations:

Global Secondary Macronutrients Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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