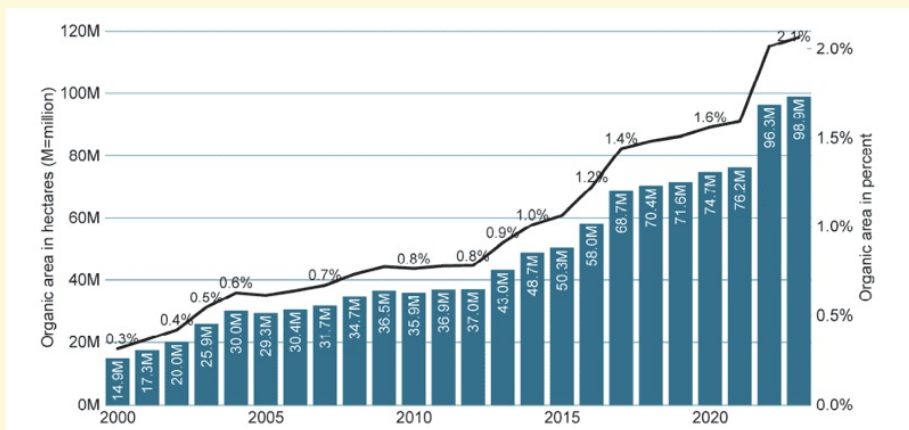


# Effective Nitrogen Solutions for Organic Agriculture

## Global Growth in Organic Farming

Organic agriculture continues to expand worldwide as demand for sustainable food production grows. According to The World of Organic Agriculture 2025 (Schlatter et al.), nearly 99 million hectares are now farmed organically worldwide, representing about 2.1% of total agricultural land.

Europe and Oceania currently lead in organic agricultural area, followed by Latin America, Asia, Africa, and North America. This steady expansion highlights the increasing importance of sustainable crop nutrition strategies that support both productivity and environmental goals.



**Figure 1: World: Growth of Organic Agricultural Land and Organic Share (2000–2023)**

Source: FiBL-IFOAM-SOEL surveys 2001-2025

## Limiting Factors in Organic Crop Production

Despite the strong growth of organic agriculture, farmers often face agronomic challenges that can limit crop productivity. Among these challenges, nutrient availability, particularly nitrogen, is one of the most critical constraints in organic farming systems.

Unlike conventional systems where mineral fertilizers provide readily available nutrients, organic farming relies largely on biological processes and organic inputs to supply plant nutrients. As a result, nutrient release can be slower and less predictable, making efficient nutrient management essential for maintaining yields and crop quality.

## Nitrogen: The Key Nutrient Challenge

Nitrogen plays a fundamental role in plant growth, directly influencing biomass production, crop yield, and overall plant health. However, managing nitrogen in organic systems is particularly challenging because organic nitrogen sources are not immediately available to plants. Instead, nitrogen must first be transformed by soil microorganisms through a biological process known as mineralization.

## Key Factors Affecting Nitrogen Availability

The rate at which nitrogen becomes available through mineralization depends on several soil and environmental factors, including:

**Soil Organic Carbon & Microbes:** Higher organic matter levels stimulate microbial activity, which increases the rate at which nitrogen is released into plant-available forms.

**Temperature and Soil Moisture:** Warm and moist soil conditions promote microbial activity and accelerate mineralization, while drought or waterlogged soils can significantly slow the process.

### Soil pH and Structure

Optimal soil pH levels (around 6–7) and well-structured soils support active microbial communities and a more stable nitrogen supply.

### Weather and Seasonal Conditions

Temperature fluctuations and rainfall patterns influence microbial activity and determine how quickly nitrogen becomes available during the growing season.

### Crop Residue Quality (C:N Ratio)

Residues with a high carbon-to-nitrogen ratio (C:N) tend to slow nitrogen release, whereas residues with a lower C:N ratio mineralize more rapidly.

## Matching Nitrogen Supply with Crop Demand

Because nitrogen release in organic systems depends on biological processes and environmental conditions, growers often face difficulties synchronizing nitrogen availability with crop demand. Selecting organic fertilizers with the appropriate carbon-to-nitrogen (C:N) ratio can help improve nitrogen efficiency and provide a more predictable nutrient supply throughout the growing season.

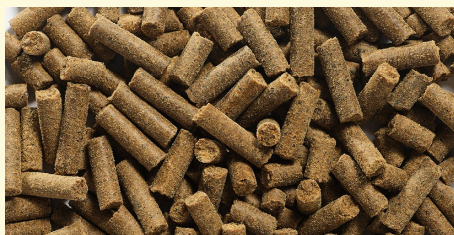
MeMon certified organic fertilizers are designed to support different crop requirements by providing flexible organic nitrogen solutions for different crops, growth stages, and application methods. Our portfolio includes pelleted, granulated, and liquid organic nitrogen fertilizers, giving growers the flexibility to select the most suitable formulation based on crop needs, soil conditions, and application strategies.

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### Selected highlights from our portfolio

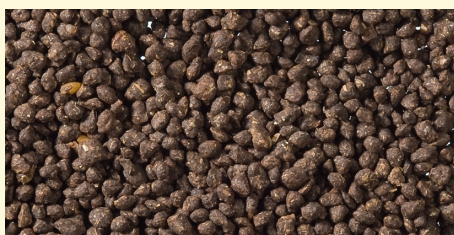
#### MONTERRA® Grow 13-0-0

Provides both quick- and slow-release organic nitrogen for sustained crop nutrition while improving soil vitality.



#### SIFORGA® Grow 10-1-3

Supplies quick organic nitrogen for strong early crop growth while supporting soil structure and uniform field application.



#### FONTANA® Grow 7.5-0-0

A concentrated liquid organic nitrogen fertilizer for rapid plant response and vigorous vegetative growth.



## Matching Nitrogen Supply with Crop Demand

Crops require nitrogen from early growth stages through periods of rapid vegetative development. However, applying nitrogen too early or in excessive amounts can lead to losses through leaching or volatilization ([See our previous newsletter](#)), reducing nitrogen-use efficiency and potentially limiting crop yield.

## Best Management Practices

### 1. Combine fast- and slow-release nitrogen sources

Using a combination of nitrogen sources helps align nutrient availability with crop demand throughout the growing season and provides a more consistent nitrogen supply.

### 2. Apply nitrogen when and where crops need it most

Position applications close to the root zone and time them around peak crop demand periods to maximize nitrogen uptake and efficiency.

### 3. Consider the mineralization pattern of organic fertilizers

Organic nitrogen becomes available through microbial mineralization. Timing fertilizer applications so that nitrogen release coincides with crop demand improves nitrogen efficiency.

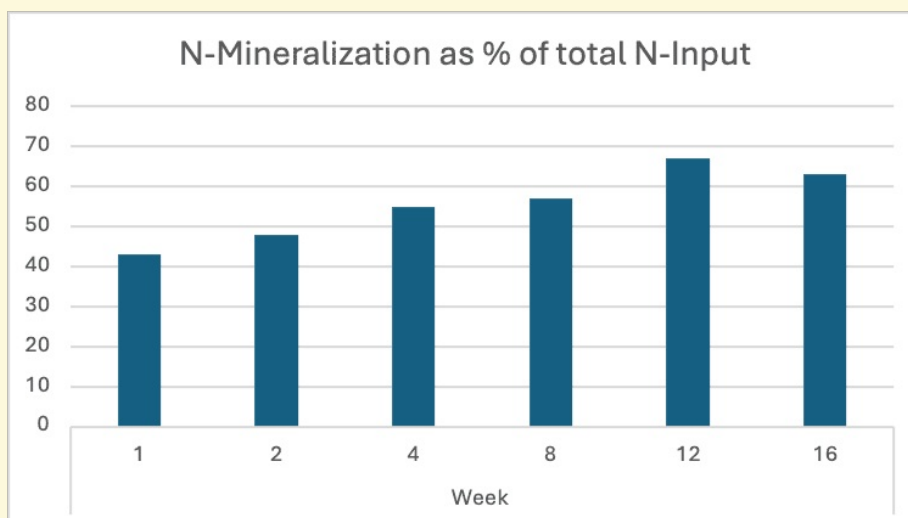


Figure 2: Mineralization behavior of MONTERRA Grow 13-0-0

## Best Management Practices

### Organic Wheat Trial: Nitrogen Management in Action

Cereal species are the most frequently grown crops in organic farming systems, with bread wheat (*Triticum aestivum* L.) being the most important market cereal. Organic farms often use limited nutrient inputs, especially nitrogen, making it challenging to achieve the high protein levels needed for baking quality.

To illustrate the impact of proper nitrogen management, consider a trial conducted on spring wheat:

- Early-season application of a plant based nitrogen source: Provided a steady nitrogen supply during vegetative growth, supporting both yield development and baseline protein formation
- **MONTERRA Grow 13-0-0** applied during flowering: Supplemental nitrogen applied at flowering increased grain protein by approximately 1.5%, helping

improve baking quality.

This example demonstrates how combining nitrogen sources with different release patterns allows growers to better synchronize nitrogen availability with crop demand.

At MeMon, we offer a wide range of certified organic fertilizers designed to deliver nitrogen efficiently. Our products are carefully formulated using different nutrient sources and mineralization patterns, allowing growers to select solutions tailored to their crops' specific needs. In addition to nitrogen, our portfolio also includes phosphorus and potassium fertilizers, supporting balanced plant nutrition and healthy crop development.

Our portfolio includes the **MONTERRA**® Soil- and Nutri-Lines, **SIFORGA**® Bio-Line, and **FONTANA**® range, offering organic fertilizers with diverse formulations and nutrient profiles to support flexible crop nutrition strategies. All products comply with EU organic agriculture regulations (EU 2018/848 and EU 2021/1165), helping growers meet certification requirements while supporting healthy crop development and optimal performance.

### Contact

Get in touch with our technical team to find the best nutrient strategy for your crops!

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