

PLANT NUTRITIONAL INSIGHTS

Understanding Plant Nutritional Needs

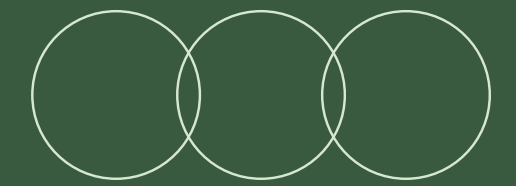
Presented by Shelter International e.V.



Co-funded by the
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Primary Macronutrients: N, P, K



Essential Nutrients for Growth

Nitrogen (N)

Nitrogen promotes **leafy growth** and protein synthesis in plants, essential for healthy foliage. Deficiencies lead to yellowing older leaves and stunted growth, impacting overall plant vigor.

Phosphorus (P)

Phosphorus is vital for **root development**, flowering, and seed formation. Its deficiency can cause poor flowering and weak roots, leading to reduced yields in crops like tomatoes and peppers.

Potassium (K)

Potassium enhances overall **plant health**, disease resistance, and fruit quality. Deficiency results in brown leaf edges and weak stems, negatively affecting the quality of fruits and vegetables.

NPK Deficiencies

Understanding nutrient imbalances
in plant health

Nitrogen Deficiency

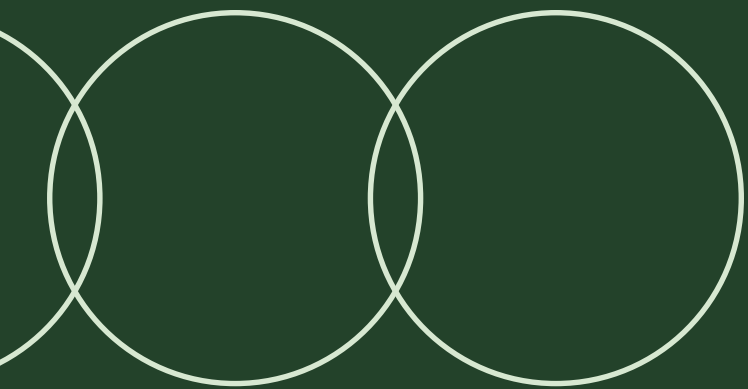
Plants with nitrogen deficiency exhibit **yellowing older leaves** and stunted growth, indicating a lack of essential nutrients for development.

Phosphorus Deficiency

A phosphorus deficiency often results in **purple/red leaf tint** and weak roots, impacting flowering and overall plant vigor.

Potassium Deficiency

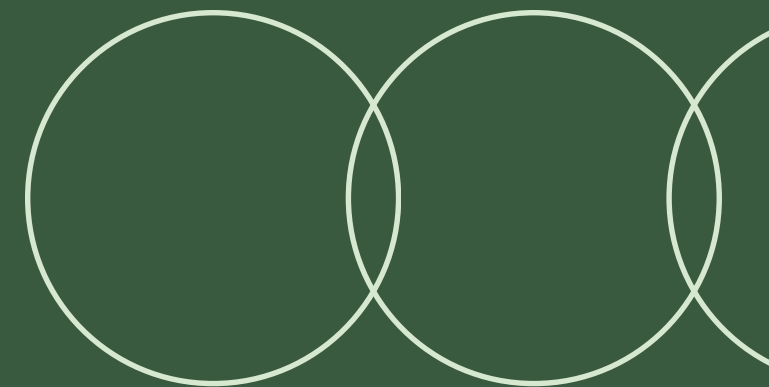
Symptoms of potassium deficiency include **brown leaf edges** and weak stems, leading to poor fruit quality and reduced disease resistance.



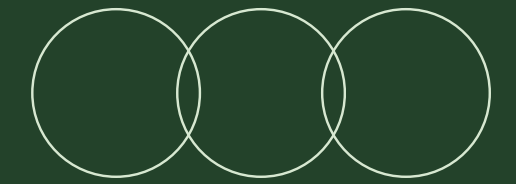
Secondary Macronutrients Explained

Importance of Calcium, Magnesium, Sulfur

Calcium strengthens cell walls, magnesium is crucial for chlorophyll, and sulfur aids protein synthesis. Understanding these nutrients helps ensure optimal growth and resilience in plants for healthy gardening.



Calcium: Essential Nutrient



Key Functions and Sources

Function

Calcium is crucial for strengthening cell walls, promoting structural integrity and overall plant health, and preventing disorders like blossom end rot, particularly in sensitive crops like tomatoes.

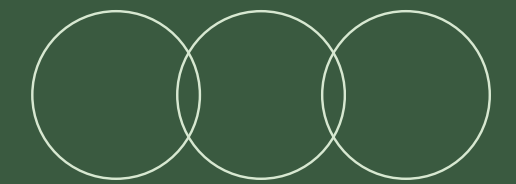
Deficiencies

A deficiency in calcium manifests through symptoms such as blossom end rot in tomatoes and tip burn in lettuce, which severely impacts plant development and yield quality.

Organic Sources

Effective organic sources of calcium include crushed eggshells, lime, bone meal, and gypsum, which not only enrich the soil but also enhance the nutrient availability for plants.

Magnesium Essentials



Importance for Plant Health

Key Function

Magnesium is a **central component** of chlorophyll, vital for photosynthesis, enabling plants to convert sunlight into energy. Without sufficient magnesium, plants struggle to thrive and grow effectively.

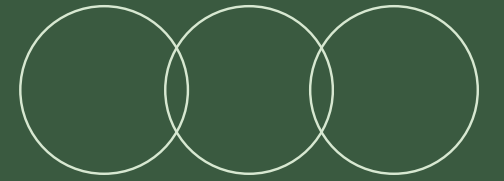
Deficiency Symptoms

A magnesium deficiency results in **interveinal chlorosis**, where yellowing occurs between leaf veins on older leaves first. This condition leads to weakened plants and reduced overall health if not addressed.

Organic Sources

To boost magnesium levels, incorporate organic sources like **Epsom salts** and dolomitic lime into the soil. These amendments enhance nutrient availability and support healthier plant growth and development.

Sulfur (S) Essentials



Importance for Plant Health

Key Function

Function: Protein synthesis, enzyme function

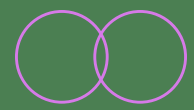
Deficiency Symptoms

A magnesium deficiency results in yellowing of young leaves

Organic Sources

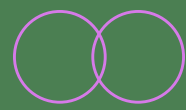
Compost, manure, elemental sulfur

Micronutrients for Plant Health



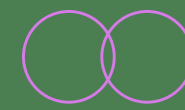
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Iron is vital for chlorophyll production and prevents yellowing.



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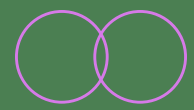
Zinc aids in hormone production and supports plant growth effectively.



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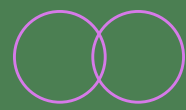
Manganese activates enzymes, essential for efficient photosynthesis processes.

Micronutrients for Plant Health



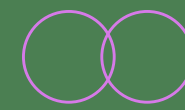
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Copper (Cu) is vital for
Photosynthesis, reproduction



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Boron (B) supports Cell division,
and supports fruit development

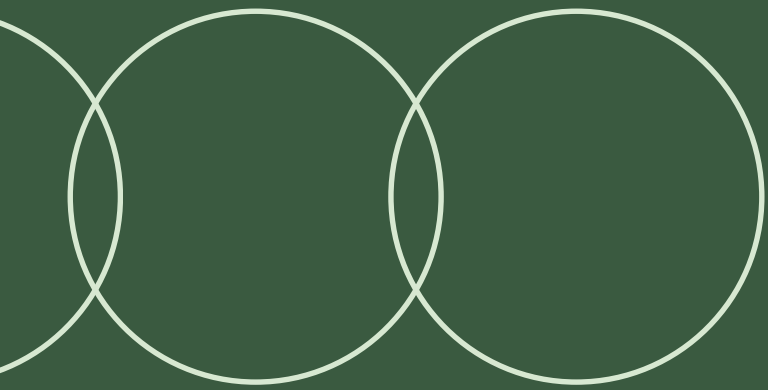


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Molybdenum (Mo): Nitrogen
fixation

Organic Sources and Monitoring

Kelp meal, rock dust, compost provide most micronutrients



Kelp Meal

Kelp meal is rich in nutrients and supports overall plant health.



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NPK Overview & Management Tips

