Special notes on macronutrients and trace elements

GeleeVital®

	FUNCTION	DEFICIENCY	EXCESS
N Nitrogen	Nitrogen is a building block of protein and chlorophyll and promotes growth and leaf formation.	A deficiency shows as light green to yellow older leaves, weak growth and fewer flowers and fruits.	An excess makes the tissue soft and more susceptible to disease, plants lodge more easily, ripening is delayed and more nitrate is leached. A lot of ammonium inhibits the uptake of potassium and magnesium.
P Phosphorus	Phosphorus is essential for root development, flower formation and the plant's energy balance.	A deficiency can lead to weak root growth, delayed flower and fruit development and dark green to purple-reddish older leaves.	An excess mainly inhibits the uptake of zinc, and also of iron and copper. Phosphorus washed off the field pollutes waters.
K Potassium	Potassium regulates the water balance, strengthens the cell walls and increases the plant's resilience.	A deficiency shows as brown, dried-out margins of older leaves, quick wilting in dry weather and lower fruit quality.	An excess inhibits the uptake of magnesium and calcium. Magnesium deficiency can then occur even though there is enough magnesium in the soil.
Ca Calcium	Calcium stabilises cell walls and cell membranes and is important for the growth of roots and shoot tips.	A deficiency can lead to dying shoot tips, deformed young leaves and rot and spots on the fruit.	An excess can inhibit the uptake of potassium and magnesium and, through a rising pH value, reduce the availability of phosphorus, iron, manganese, zinc and boron.
Mg Magnesium	Magnesium is the central building block of chlorophyll and therefore essential for photosynthesis.	A deficiency shows as yellow to reddish discolouration between the leaf veins of older leaves and can reduce the yield.	An excess can reduce the uptake of potassium and calcium. If the share of magnesium is very high in relation to calcium, the soil can tend to compact.
S Sulphur	Sulphur is a building block of amino acids and protein and important for nitrogen utilisation.	A deficiency can lead to light green to yellow leaves, stunted growth and poorer nitrogen utilisation.	An excess is rare, but can acidify the soil and inhibit the uptake of molybdenum.
Na Sodium	Sodium is not an essential nutrient but a beneficial element. It supports the water balance and can partly replace potassium in some crops.	A deficiency is not critical for most crops. In sodium-loving crops it can reduce yield and quality.	An excess can cause salt stress, inhibit the uptake of potassium and calcium and degrade the soil structure.
B Boron	Boron is important for cell wall formation, flower and fruit development and sugar transport in the plant.	A deficiency shows as dying shoot tips and roots, poor flower and fruit set and deformed, brittle leaves.	With boron there is little margin between requirement and too much. An excess is toxic and shows as yellow to brown leaf margins.
Cu Copper	Copper is essential for enzyme activity, the strength of cell walls and photosynthesis.	A deficiency shows as wilted, deformed young leaves, delayed flowering and poor fruit set.	An excess can inhibit root growth, impair the uptake of iron and zinc and weaken soil life.
Mn Manganese	Manganese is essential for photosynthesis and a component of important enzymes.	A deficiency shows as pale areas between the leaf veins of young leaves, later as brown spots. Common on calcareous, loose soils.	An excess occurs mainly on acidic or waterlogged soils: brown spots on the leaves. It inhibits the uptake of iron and magnesium.
Fe Iron	Iron is essential for the formation of chlorophyll and for electron transport in photosynthesis and respiration.	A deficiency shows as yellow young leaves with green veins. The cause is usually not too little iron in the soil, but a high pH value, a lot of lime or waterlogging.	An excess is rare, mainly with waterlogging. It can inhibit the uptake of manganese and bind phosphorus.
Zn Zinc	Zinc is needed for the growth hormone auxin and for enzyme activity.	A deficiency can lead to stunted growth, small, narrow leaves and rosettes at the shoot tips.	An excess can inhibit the uptake of iron and manganese and have a toxic effect.

As of: November 2026

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