

PLANT NUTRIENT GUIDE

What each nutrient does - and what excess or deficiency can look like

MACRONUTRIENTS

ELEMENT	WHAT IT DOES	TOO MUCH	TOO LITTLE
Nitrogen (N)	Required in large quantities for the synthesis of proteins, chlorophyll and enzymes. Active, rapid growth requires more nitrogen.	Succulent, dark green growth; weak, spindly stems; few fruits; brittle growth, especially in high temperatures.	Reduced growth; chlorosis; intensified reds and purples; early flowering; leaf drop; reduced lateral branching. Appears first on older growth.
Phosphorus (P)	Improves root water uptake; helps resist cold and disease; supports blooming and fruiting; helps nitrogen uptake; promotes early, rapid root growth. Bone meal is a bioavailable source.	May appear as a deficiency of zinc, iron or cobalt.	Reduced growth; deep green leaves; chlorosis followed by necrosis; long, sparsely branched roots; brown or purple mottling; thin stems; lower-leaf loss; reduced flowering.
Potassium (K)	Crucial for root formation. Performs many of the same functions as phosphorus.	May cause nitrogen deficiency and affect uptake of other positively charged nutrient ions.	Rapid necrosis; reduced growth; shortened internodes; marginal burn or scorch; necrotic spots; reduced lateral branching; wilts readily.
Magnesium (Mg)	The central atom in the chlorophyll molecule. May be supplied with Epsom salts or as a weak foliar spray (1 tsp per gallon). Dolomitic limestone is another supplement.	Interferes with calcium uptake.	Reduced growth; interveinal chlorosis followed by mottling; reduced seed production; cupped leaves.
Calcium (Ca)	Fundamental to cell division and root development. Bone meal is a source.	Interferes with magnesium absorption. High calcium raises pH, which can make micronutrients unavailable.	Curling, chlorosis and necrosis of young leaves; incomplete flowers; fewer petals; distorted or dying flower buds; tissue breakdown; tomato blossom-end rot; apple cork spot; shortened primary and secondary roots.
Sulfur (S)	Combines with nitrogen to make protoplasm.	Excess may result from air pollution.	Rarely deficient. General yellowing; uniform chlorosis over the whole plant; stunted growth; necrosis; faded flowers; red pigmentation in leaves or internodes.

Symptoms can overlap and may also be caused by pH, drainage, root damage, temperature or disease. Use this chart as a diagnostic starting point, then confirm with a soil or tissue test.