

Nutrients Requirement for the Plants

Macronutrients

Nutrient	Function	Symptoms of Deficiency	Symptoms of Excess
Nitrogen (N)	Important in photosynthesis, metabolism, protoplasm reactions. Important for many growth and development processes. A necessary part of all proteins, enzymes, and metabolic processes involved in the synthesis and transfer of energy.	Slow growth, stunting and yellow-green color, more pronounced in older tissue, (bottom of plant). "Firing of tips and margins, (turning brown and dying). Premature death. Nitrogen is mobile within plants and moves from older to younger tissue when in short supply	Excessive vegetative growth, dark green color, excessive transpiration, reduced yield, delayed maturity, few fruits.
Phosphorus (P)	Important for energy systems. Stimulates early growth and root formation. Promotes seed formation and important in photosynthesis. Involved in the formation of all oils, sugars, starches, etc. Encourages blooming and root growth	Slow growth, stunting, and purplish color on foliage or dark green color; dying leaf tips; marginal *interveinal chlorosis; delayed maturity, poor fruit or seed development.	Excess can interfere with micronutrient absorption, may mimic zinc deficiency
Potassium (K)	Affects membrane permeability and relationships; Stomata opening/closing internal water relations, cell division, starch and protein synthesis, increases quality and size of fruits and vegetables; Increases disease resistance	Slow growth, leaf tip and marginal burn and necrosis, (starts on more mature leaves); weak stalks; small fruits and shriveled seeds.	Light green leaves; tendency for calcium and magnesium deficiency symptoms to appear.

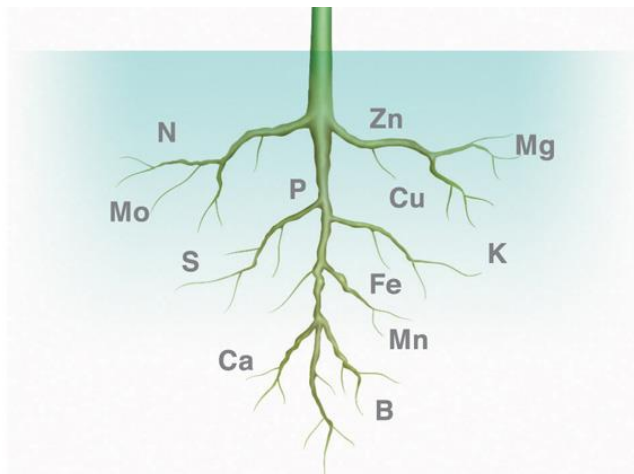
Micronutrients

Element	Function in plant
B	Important in sugar transport, cell division, and amino acid production
Cl	Used in turgor regulation, resisting diseases and photosynthesis reactions
Cu	Component of enzymes, involved with photosynthesis
Fe	Component of enzymes, essential for chlorophyll synthesis, photosynthesis
Mo	Involved in nitrogen metabolism, essential in nitrogen fixation by legumes
Mn	Chloroplast production, cofactor in many plant reactions, activates enzymes
Zn	Component of many enzymes, essential for plant hormone balance and auxin activity

PUSAT TUISYEN SKOR MINDA AYER ITAM

Macronutrients	Functions
Carbon Hydrogen Oxygen	
Nitrogen	
Phosphorus	
Potassium	
Calcium	
Magnesium	
Sulphur	

Micronutrients	Functions
Boron	
Molybdenum	
Zinc	
Copper	
Manganese	
Copper	



Macro Elements
N - Nitrogen
P - Phosphorous
K - Potassium

Secondary Elements
Ca - Calcium
Mg - Magnesium
S - Sulphur

Micro Elements
Fe - Iron
B - Boron
Zn - Zinc
Cu - Copper
Mn - Manganese
Mo - Molybdenum

Signs of Nutrient Deficiency

Plants can suffer from malnutrition if not taken care of properly. Here are some common signs of nutrient deficiency:

