

# PLANT NUTRIENTS

## PRIMARY PLANT FOOD ELEMENTS

Element	Symbol	Function In Plant	Deficiency Symptoms	Excess Symptoms	Leaching In Sand	Best pH Range	Source
<b>Nitrogen</b>	N	Stimulates Growth.	Light green to yellow leaves. Stunted growth.	Dark green, soft growth Retarded maturity Loss of buds or fruit	Fast	5.5-7.0	Organics Synthetics Urea Ammonia Nitrates
<b>Phosphorus</b>	P	In enzymes. Hastens maturity. Aids respiration. Required in all cells	Red or purple leaves. Cell division retardation.	Tie-up of other essential elements.	Slow.	5.5-7.0	Superphosphate
<b>Potash</b>	K	Translocation of materials in plants. Regulates photosynthesis. Regulates formation of starch.	Reduced vigor. Susceptibility to diseases. Thin skin and small fruit.	Coarse, poor-colored fruit. Reduced absorption Of Mg and Ca.	Fast.	5.5-7.0	Sulphate of Potash

## SECONDARY PLANT FOOD ELEMENTS

Element	Symbol	Function In Plant	Deficiency Symptoms	Excess Symptoms	Leaching In Sand	Best pH Range	Source
<b>Magnesium</b>	Mg	Aids photosynthesis. Key element in chlorophyll.	Loss of yield. Chlorosis of old leaves.	Reduced absorption of Ca and K.	Fast in acid soils. Slower in limed soils.	5.5-6.5	Magnesium Sulphate Dolomite
<b>Manganese</b>	Mn	In enzyme system.	Mottled chlorosis of the leaves. Stunted growth.	Small dead areas in the leaves with yellow borders around them.	Fast in acid soils. Slower in limed soils.	5.0-5.5	Manganese Sulphate
<b>Copper</b>	Cu	Enzyme activator	Multiple budding. Gum pockets.	Prevents the uptake of Iron. Causes stunting of roots.	Slow.	5.5-6.0	Copper Sulphate Neutral Copper

# PLANT NUTRIENTS

## MICRO ELEMENTS

Element	Symbol	Function In Plant	Deficiency Symptoms	Excess Symptoms	Leaching In Sand	Best pH Range	Source
<b>Nitrogen</b>	N	Stimulates Growth.	Light green to yellow leaves. Stunted growth.	Dark green, soft growth Retarded maturity Loss of buds or fruit	Fast	5.5-7.0	Organics Synthetics Urea Ammonia Nitrates
<b>Phosphorus</b>	P	In enzymes. Hastens maturity. Aids respiration. Required in all cells	Red or purple leaves. Cell division retardation.	Tie-up of other essential elements.	Slow.	5.5-7.0	Superphosphate
<b>Potash</b>	K	Translocation of materials in plants. Regulates photosynthesis. Regulates formation of starch.	Reduced vigor. Susceptibility to diseases. Thin skin and small fruit.	Coarse, poor-colored fruit. Reduced absorption Of Mg and Ca.	Fast.	5.5-7.0	Sulphate of Potash
<b>Boron</b>	B	Affects absorption of other elements. Affects germination of pollen tube.	Small leaves, corkiness. Multiple buds	Leaves turn Yellowish-red	Fast.	5.5-6.5	Borax

## ELEMENTS FROM AIR AND WATER

Element	Symbol	Function In Plant	Deficiency Symptoms	Excess Symptoms	Leaching In Sand	Best pH Range	Source
<b>Carbon</b>	C	Keystone of all organic substances.	None known.	None Known.			Air.
<b>Oxygen</b>	O	Respiration.	White areas at leaf veins. High Nitrates	None known.			Air and Water.
<b>Hydrogen</b>	H	Necessary in all plant functions	Wilting.	Drowning.			Water.