Plant Micronutrients

Nutrient	Function	Symptoms of Deficiency	Symptoms of Excess
Iron (Fe)	Required for formation of chlorophyll in plant cells. Plants may not be able to absorb enough in alkaline or water logged soil	Yellow-green color, but veins remain green; twig dieback; reduced growth, and death in severe cases.	Mimics phosphorus, manganese deficiency
Manganese (Mn)	Assists iron in chlorophyll formation and serves as activator for enzymes in growth process.	Yellow-green color of young leaves, but no sharp distinction between veins and interveinal areas as with iron.	Mimics iron deficiency; loss of foliage color, bronzing of leaf margins, necrotic areas.
Zinc (Zn)	Important plant growth regulator; essential in root and plant growth. Micronutrient most often deficient in San Diego crops. Plants may not be able to absorb enough in alkaline soil	Yellow-green color, but veins remain green; decrease in stem length; rosetting of terminal leaves; reduced fruit bud formation; twig dieback after first year	Not known.
Boron	Regulates metabolism of carbohydrates in plants. Critical for new growth in plants and assists in flower pollination, fertilization, fruit set.	Death of terminal growth; thickened, curled, wilted leaves; Reduced flowering.	Rare except in inland deserts with high boron contaminated water.

Copper (Cu)	Activator of enzymes in plants.	Stunted growth; dieback of terminal shoots in trees; death of leaf tips.	Reduced growth
Chlorine (Cl)	Required for photosynthesis and root growth.	Very rare; wilting followed by yellow-green color; leaf bronzing.	Poor growth; marginal leaf necrosis.
Molybdenum (Mo)	Required by plants for the utilization of nitrogen. Plants cannot transform nitrate nitrogen into amino acids without molybdenum.	Stunting; reduced yield; lack of vigor; marginal scorching; cupping, rolling of leaves.	Not known.
Nickel (Ni)	Needed to complete the life cycle of the plant and viable seed.	Leaf tip necrosis	Induces iron and zinc deficiency. Interveinal yellowing of foliage.