

HOW PLANTS USE MICRONUTRIENTS

8 Essential Micronutrients

Boron

Boron is required for cell wall structure and cell expansion. It is also important for cell membrane stability. Boron deficiency disrupts reproductive growth, shoot and root growth, and pollen viability, thus, influencing seed set and yield. Boron deficiency can result in deformed leaves and poor quality of harvested product.

Manganese

Manganese is involved in a variety of plant processes including photosynthesis, enzyme activation, respiration, and nitrogen assimilation. Deficiencies can cause weaker structural resistance against pathogens and less tolerance to drought and heat stress.

Copper

Copper is involved in oxidation-reduction reactions in respiration and photosynthesis processes. It plays a role in many enzyme activities as well as in the nitrogen and hormone metabolisms. Deficiencies can lead to crop failure and increased susceptibility to diseases.

Iron

Iron is involved in oxidation-reduction reactions in respiration and photosynthesis processes. Several enzymatic transformations that require iron are involved in chlorophyll synthesis. When iron is deficient, chlorophyll production is reduced, which results in the characteristic chlorosis symptoms.

Molybdenum

Molybdenum is a component of enzyme nitrogenase essential to nitrogen fixation in legume crops. Lack of molybdenum will result in insufficient nitrogen fixation in legume crops, which impacts plant growth.

Chlorine

Chlorine is involved in photosynthesis and is needed for osmotic and ion charge balance. It can help to minimize water loss during stressful dry periods.

Nickel

Nickel is important in plant seed germination, photosynthesis, enzyme functions, and nitrogen metabolism in legume crops. A deficiency affects plant growth, antioxidant systems, and response to stress.

Zinc

Zinc is essential for the synthesis of tryptophane, a component of some proteins and needed for the production of auxins. Zinc is also involved in chlorophyll synthesis and enzyme activation. Typical deficiency symptom is shortened stem internodes resulting in stunted plants and rosetted leaves.

