

MICROBEBIO® NATURE FOLIAR™

*The Most Highly Advance Microbial Bio-
stimulants and Enzyme Formulations
Available on the market.*



INTRODUCTION

MicrobeBio® Nature Foliar™ is one of the most highly advanced microbial biostimulants and enzyme formulations available on the market. Its proprietary formulation was specifically engineered by a multi-disciplinary team of scientists to maximize agricultural crop quality and yields. It has been field tested at the root level as a drip and sprinkler irrigation and also as a foliar spray to sustain microbial populations in the root zone and increase nutrient availability via photosynthesis. This biodegradable, organic product has successfully passed a series of genotoxic, toxicological and eco-toxicological studies and is proven to be non-hazardous to humans, plants and animals if used as directed.

CHARACTERISTICS

- We offer MicrobeBio® Nature Foliar™ as an organically potent elixir featuring the highest quantity of active bio-stimulants in the world.
- By creating an abundant bio-mass and regulating the soil's pH between 5.5 and 7.5, Nature Foliar™ significantly increases the nutrient reservoir available for plant absorption, in addition to sustaining the life and growth of active microbial populations. Your crops can readily access vital nutrients such as nitrogen, phosphorus, potassium, calcium, magnesium, iron, boron, manganese and sulfur, among others.
- Simply put, it is a superior synthesis of soil enzymes which sustain microbial organisms for improving crop vigor, growth stages, yields, quality and tolerance of abiotic stresses.

BENEFITS

Maintains consistent results over the crop cycle, reduces metabolic stress, and achieves optimal microbial genetic potential by providing a healthy source of food and energy for soil microbes.

- Optimizes photosynthesis (light) by expanding chlorophyll content in leaves
- Increases photosynthesis (water uptake) by increasing microorganisms (microbes) in the soil media
- Aids photosynthesis by increasing nitrogen (and other nutrient) uptake to aid in photosynthetic CO₂ assimilation
- Sustains an increased level of health-giving microbes over a longer duration of time

BENEFITS (cont.)

- Promotes seed germination and increases early vigor of seedlings
- Integrates enzyme levels for the synthesis of nucleic acids, proteins, vitamins, and sugars
- Supports stress resistance under adverse environmental conditions
- Improves quality and growth of produce
- Enhances metabolic processes in plants
- Ameliorates the uptake and transport of energy and plant nutrients

**MICROBEBIO®
NATURE
FOLIAR™ BIO-
STIMULANT AND
ENZYMES
BENEFIT ALL
STAGES OF
PLANT GROWTH**



SPROUT DEVELOPMENT, SEEDLING & VEGETATIVE GROWTH PHASES

- Seed dormancy and germination regulation
- Photo morphogenesis for shade avoidance syndrome (SAS)
- Expanded leaf chlorophyll for efficient photosynthesis
- Delayed senescence
- Improved root and stolon development

SPROUT DEVELOPMENT, SEEDLING & VEGETATIVE GROWTH PHASES

- Exclusive mix of bio-stimulant promote stem elongation and cell division
- Greater food sources for microorganisms which increase nutrient absorption
- Increased nitrogen uptake for growing stems and foliage
- Enhanced dry matter accumulation
- Quicker absorption of vital micronutrients

REPRODUCTION: BUDDING, FLOWERING, RIPENING

- Potash ensures increased flowering by increasing potassium levels
- Increases readily accessible phosphorus (orthophosphate ions HPO_4^{-2} , H_2PO_4)
- Improves male and female fertility
- Greater seed development and seed filling
- Higher fiber production
- Increased potassium absorption for faster fruit ripening

STRESS TOLERANCE (OF)




- Abiotic stress: Reduces effects of excessive heat, cold, salt and drought by increasing protein and starch synthesis
- Thermo-tolerance
- Oxidative stress
- Pathogen resistance
- Heavy metals and Herbicide/Pesticide
- Disease – has immunostimulatory properties to inoculate the crop against disease up to 60 days

OTHER FUNCTIONS




- Enhanced nitrogen metabolism
- Protective gene expression
- Increased metabolic efficiency
- Reduction of the application of fertilizers and fungicides up to 20%
- Nutrition alteration capabilities
- Crop Quality: Increased sugar content, flavonoid content, and shelf life
- Boosts photosynthesis by regulating CO₂ uptake (opening/closing of stomata)
- Increased crop yield

NUTRIENTS FOR PLANT GROWTHS









Macronutrients

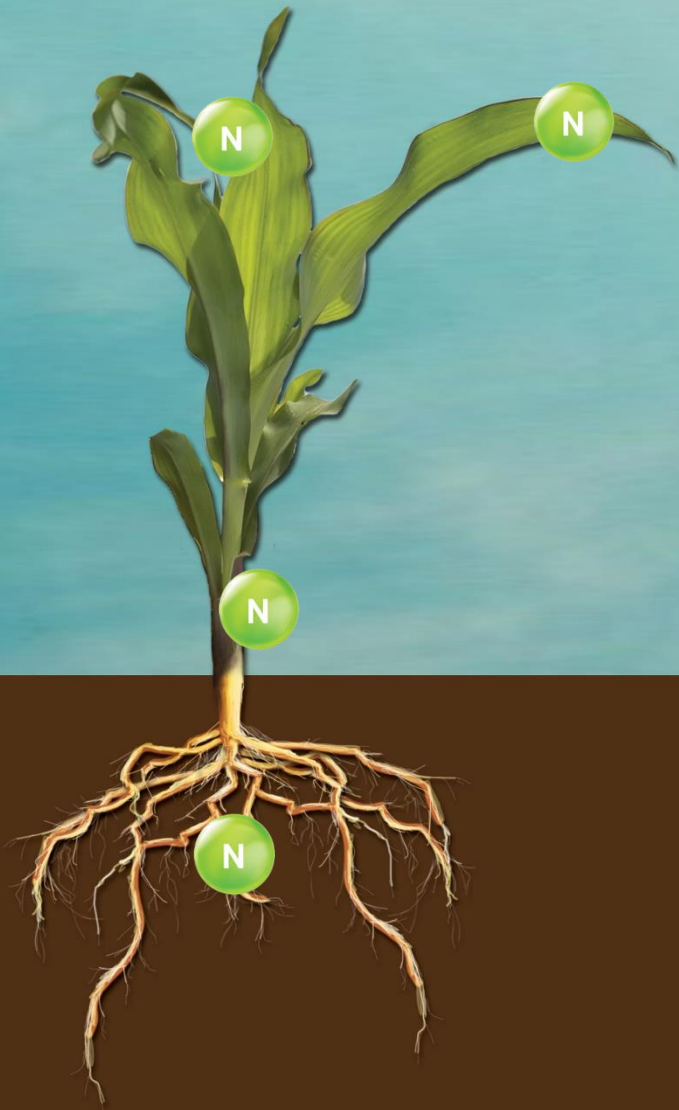
-  Nitrogen: Protein, amino acids
-  Phosphorus: Nucleic acids, ATP
-  Potassium: Catalyst, ion transport

Secondary Nutrients

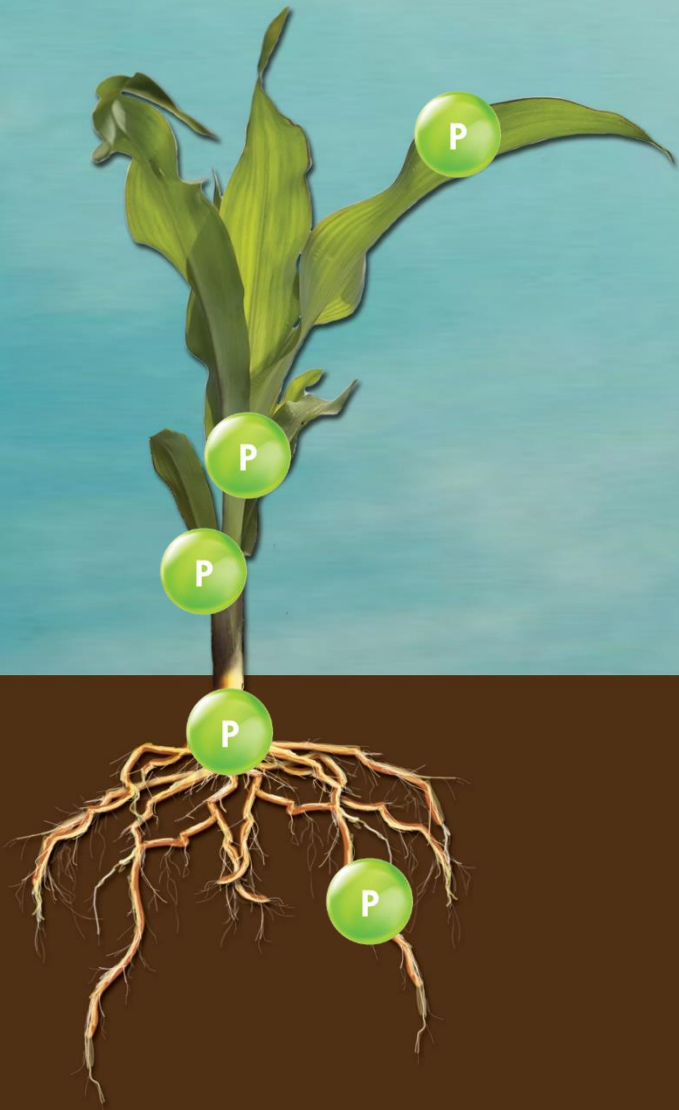
-  Calcium: Cell wall component
-  Magnesium: Part of chlorophyll
-  Sulfur: Amino acids

Micronutrients

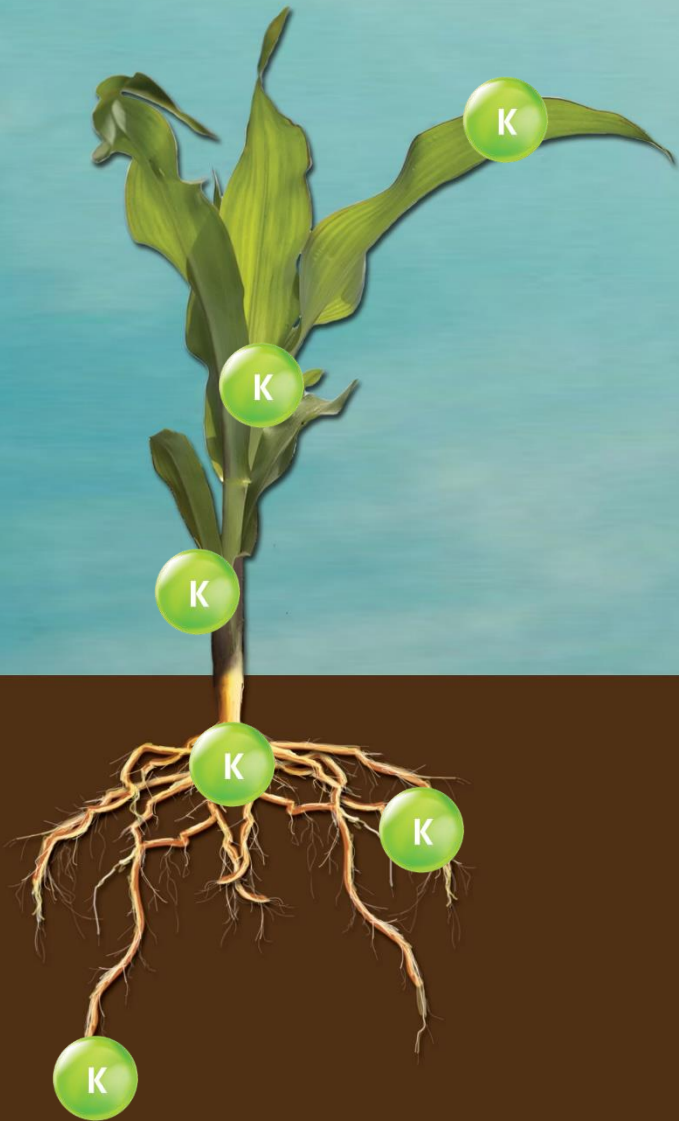
-  Iron: chlorophyll synthesis
-  Copper: Component of enzymes
-  Manganese: Activates enzymes
-  Zinc: Activates enzymes
-  Boron: Cell wall component
-  Molybdenum: Involved in N fixation
-  Chlorine: Photosynthesis reaction
-  Nickel: Activates enzymes



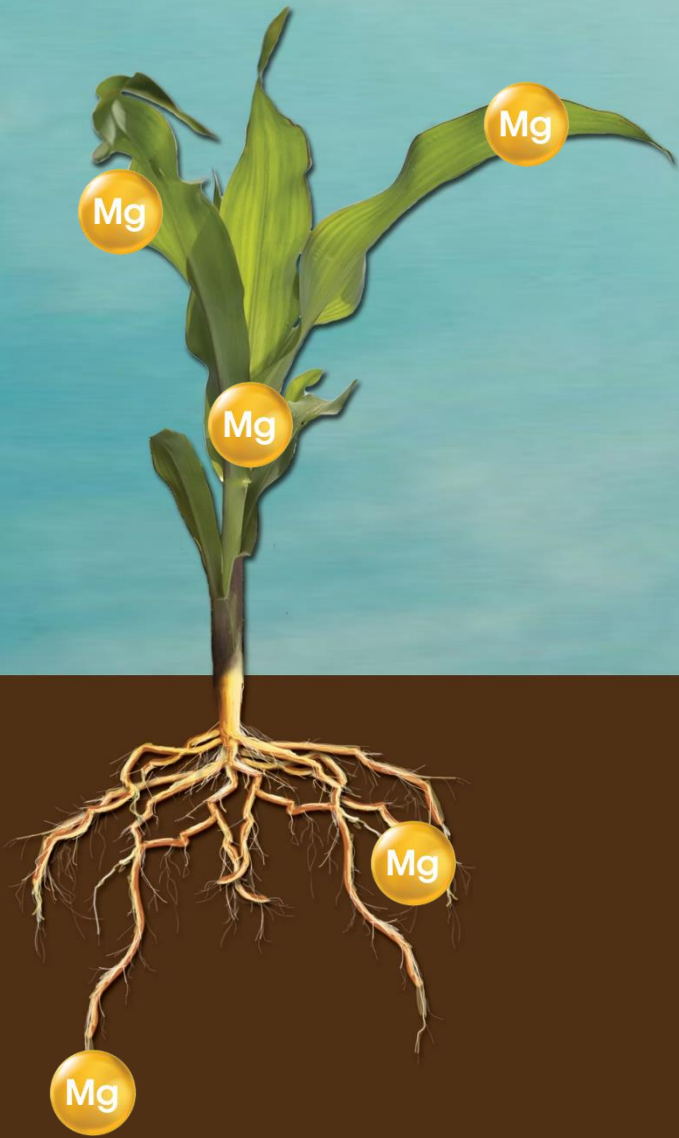
- Nitrogen is a component of vitamin, amino acid, and energy system. Nitrogen is mainly responsible for increasing protein content in plants.
- Nitrogen helps plant to utilize sunlight as an energy source to carry on essential functions such as nutrient uptake.
- Nitrogen is necessary for chlorophyll molecules, is involved in photosynthesis.
- Nitrate is very mobile in the soil and moves with soil water to roots mass for the plant absorb.



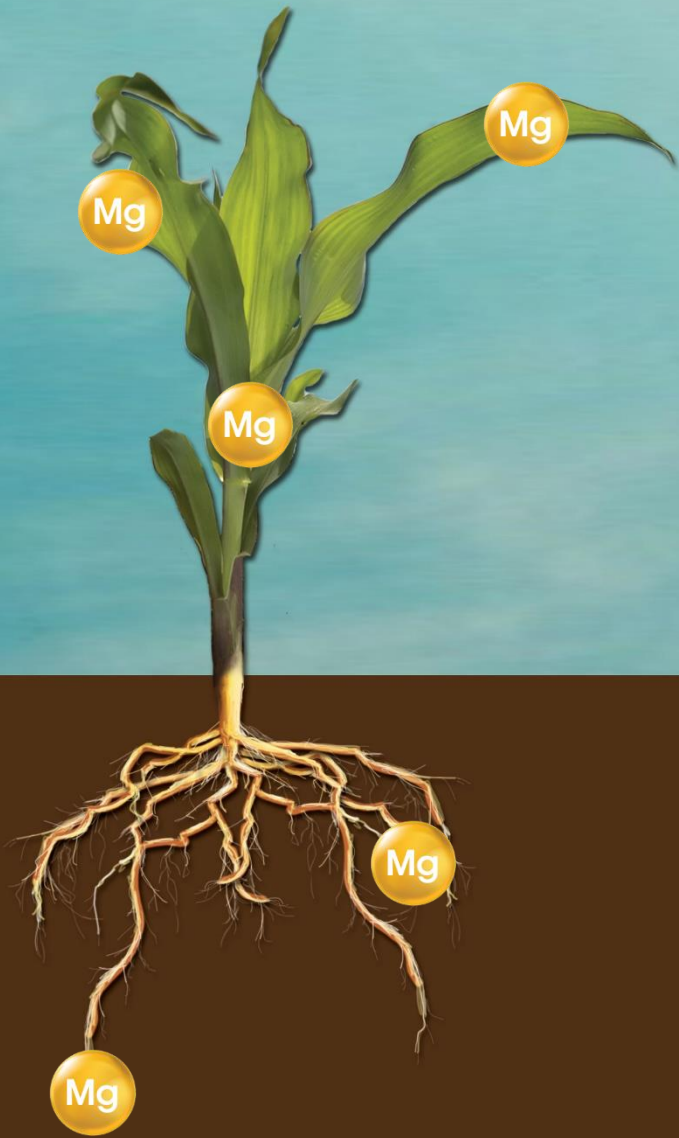
- Most P moves into the seeds, fruit, or both
- Under P deficiency, some crops, such as corn, tend to show abnormal discoloration.
- Phosphorus captures and converts the sun's energy into useful plant compounds.
- Phosphorus promotes root development and early seedling growth.
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- Phosphorus helps to increase stalk and stem strength.
- Phosphorus improves flower formation and seed production.



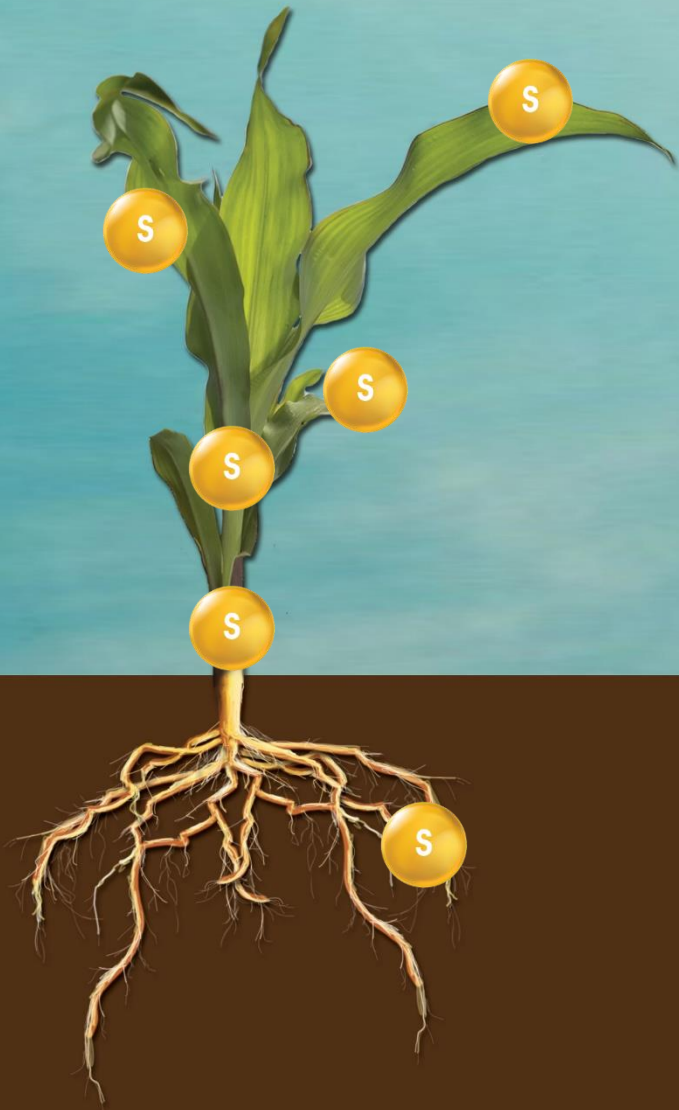
- Potassium enhances many enzymes actions that aids in photosynthesis and food formation. Potassium builds cellulose and helps translocate sugars and starches. Its vital role to produce grains right in starch.
- Potassium maintains turgor and reduce water loss and wilting. Increasing root growth and improving drought tolerance.
- Potassium is known as the “quality nutrient” that is effect to size, color, shape, taste, shelf life, and fiber.
- Potassium is absorbed by plants getting the high-yielding crop. Preventing diseases, insects, and pests.



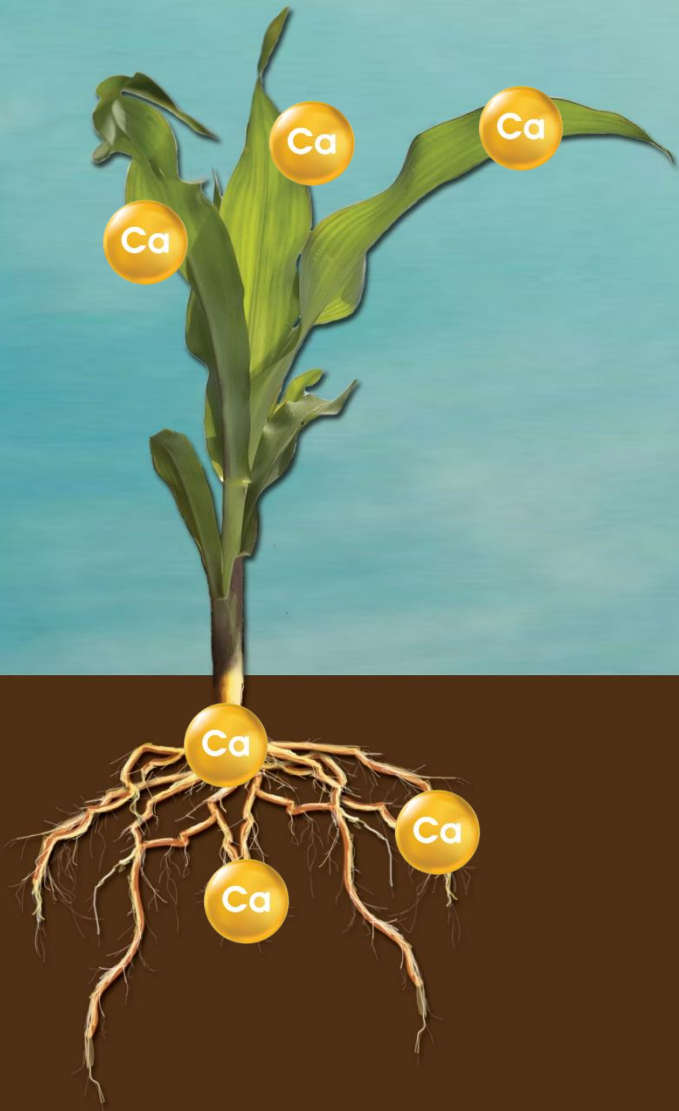
- Magnesium is mobile within the plant and move rapidly from older to younger tissues.
- Magnesium capture the sun's energy for growth and production through photosynthesis.
- Magnesium acts as a phosphorus carrier in plants and is required for better root mass.



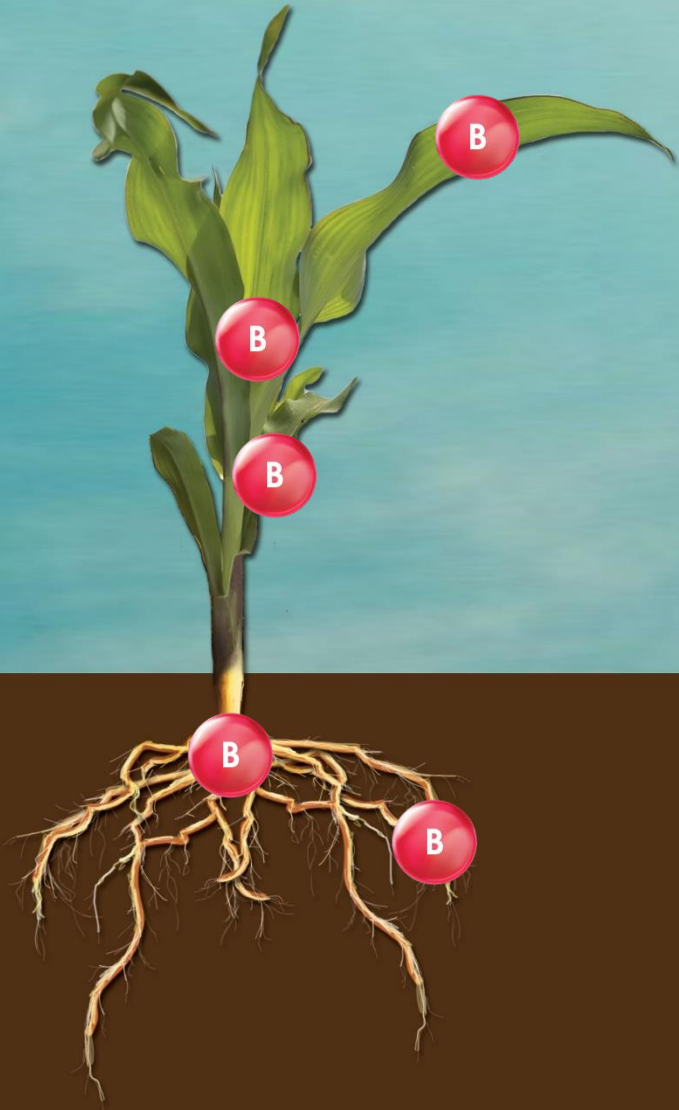
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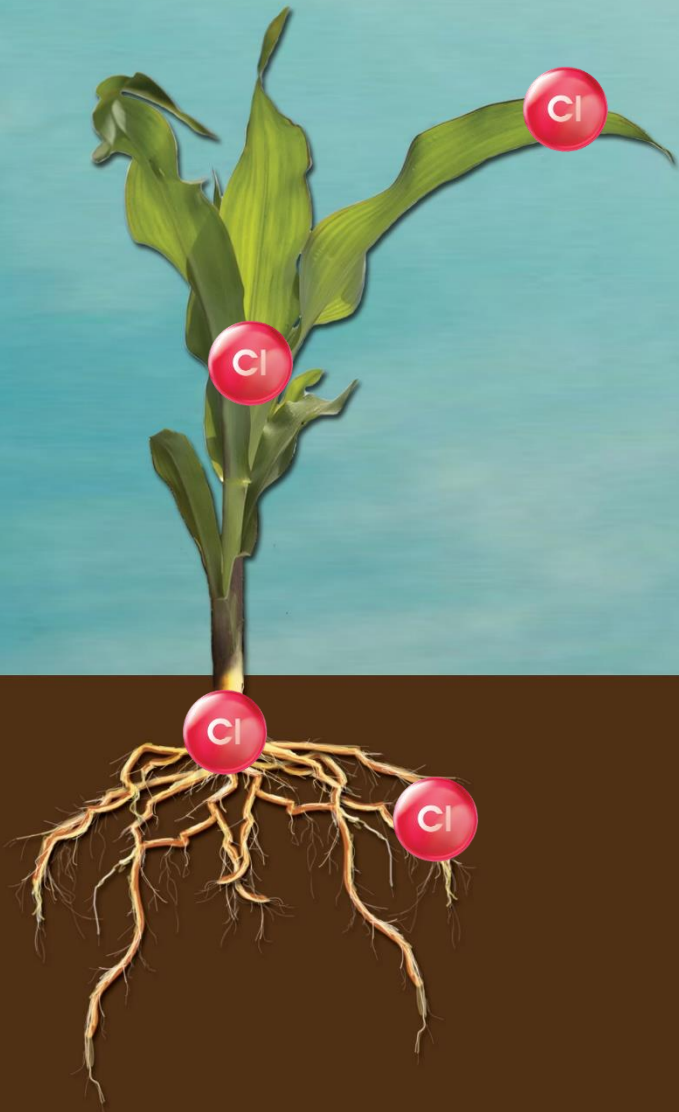
- Sulfur is present in several organic compounds that give the characteristic flavors to garlic, onion, and mustard.
- Sulfur is present in every living cell and is required for the synthesis of certain amino acids (methionine and cysteine), and proteins.
- Sulfur is very important for photosynthesis.
- Sulfur is essential for chlorophyll formation.
- Sulfur aids in seed production.
- Leguminous plants need Sulfur for efficient nitrogen fixation.



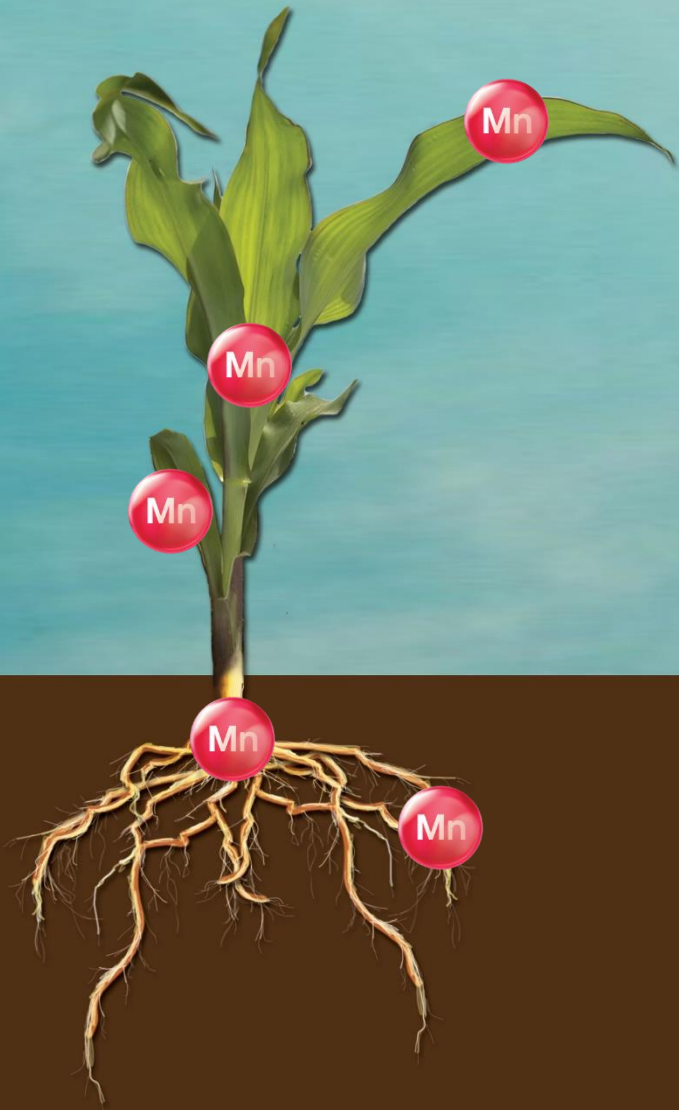
- Calcium helps balance organic acids within the plants and activate several plant enzyme systems.
- Calcium helps form the compounds that makes part of cell walls and the plant structure.
- Calcium build yields indirectly by improving root growth conditions and stimulating microbial activity.
- Calcium helps enable nitrogen fixing bacteria.
- Calcium stimulates root and leaf development.



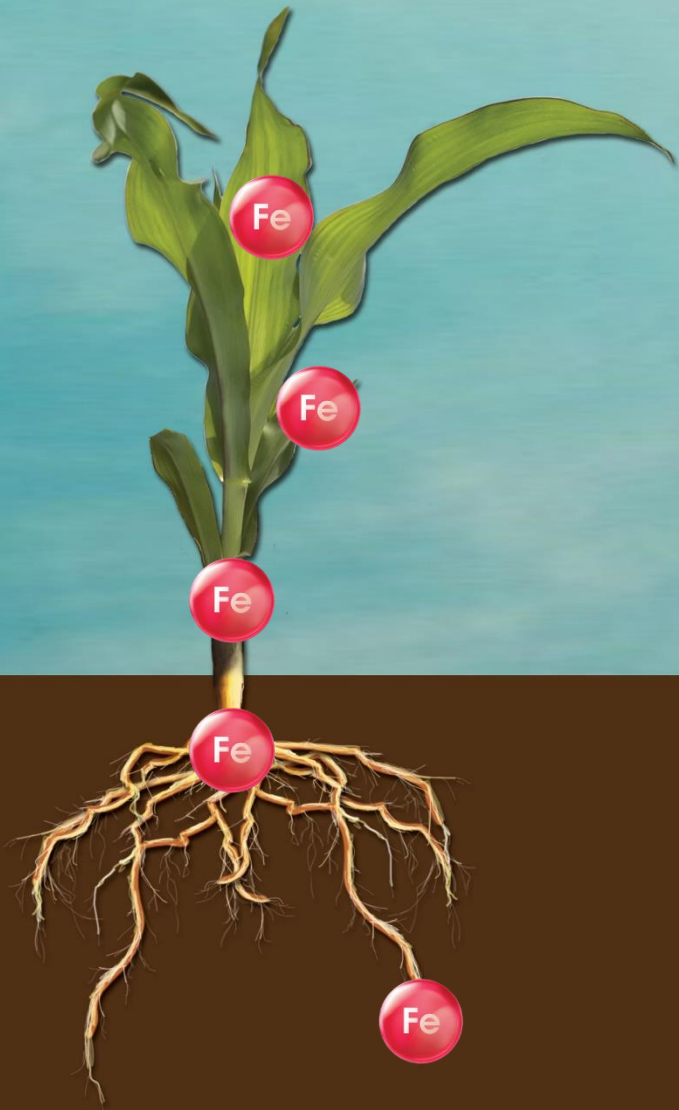
- Boron improves seed set under stressful condition.
- Boron in small amount is a component of all cell walls in the plant.
- Boron deficiencies are more pronounced during drought periods when root activity.
- Corn most effectively use Boron when it is applied through broadcast soil applications.



- Chloride is key in stomatal regulation.
- Chloride supports the transport of nutrients such as calcium, magnesium, and potassium within plant.
- Chloride helps acclimate the changing water availability (or make osmotic adjustment).



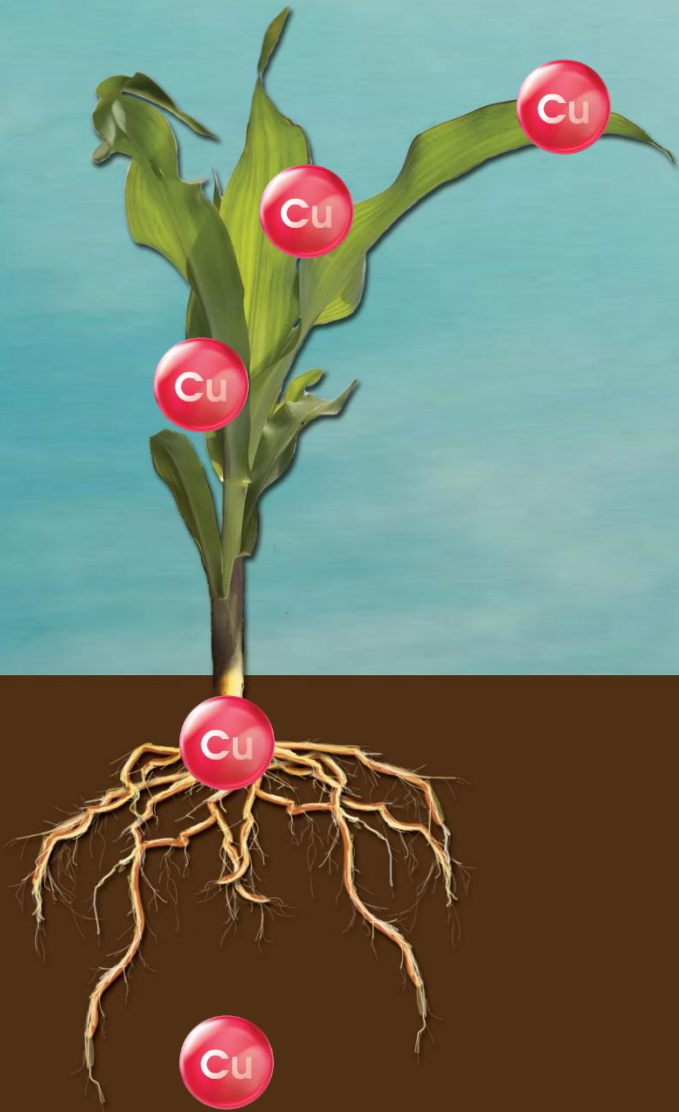
- Manganese plays a vital role in photosynthesis by aiding in chlorophyll synthesis.
- Soybean plant and wheat in particular require more Manganese.
- Manganese deficiencies are most common in high organic matter in soils.



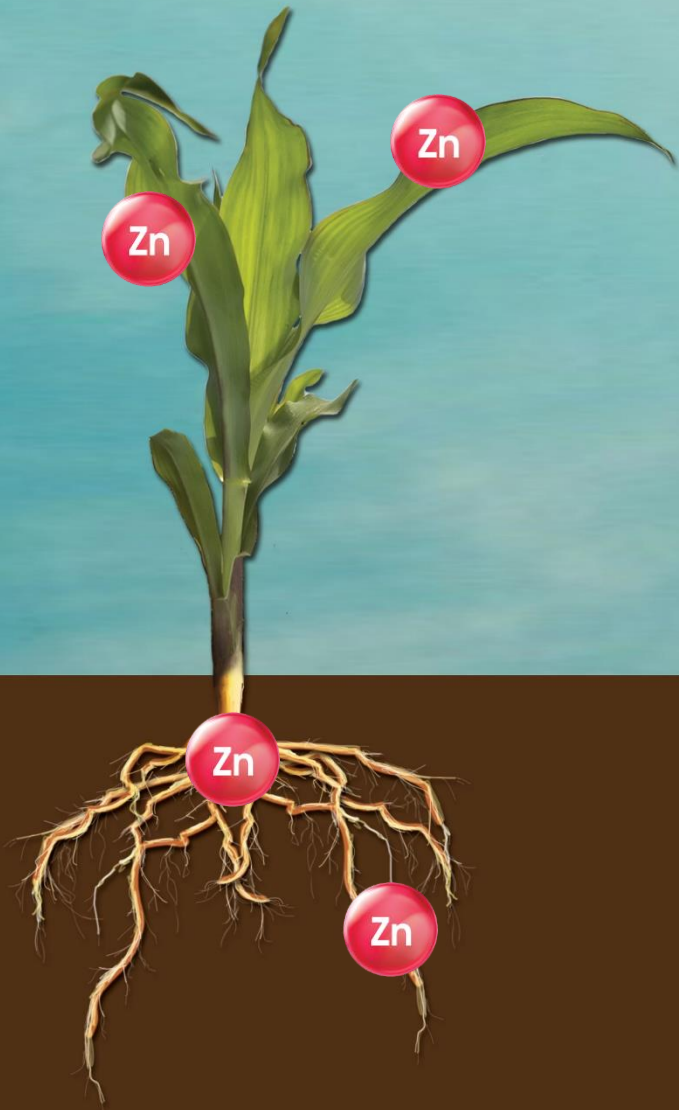
- Most of the iron fertilizer sources work best when they are applied as foliar sprays.
- Iron is catalyst to chlorophyll format.
- Iron acts as an oxygen carrier in the nodules of legume roots.
- Iron deficiencies maybe caused by an imbalance with other metal is Copper (Cu), Manganese (Mg), and Molybdenum (Mo).
- Iron deficiencies in plant display a pale green leaf color (chlorosis), sharp distinction between green veins and yellow interveinal tissues.



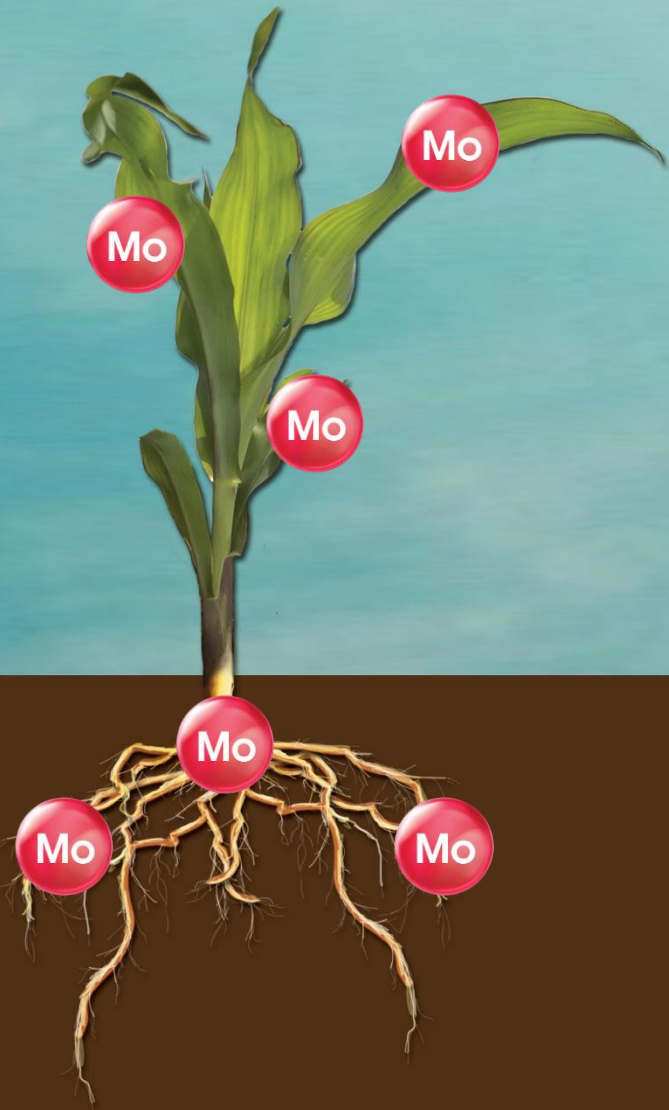
- Nickel is a component of the urease enzyme and is necessary for the conversion of urea to ammonia (NH_3) in plant tissue, making it important in plant nitrogen (N) metabolism.
- Nickel deficiency would affect trees that presents the mouse – ear, a condition marked by small, curled leaves, and stunted growth.



- Copper is the most immobile of the micronutrients
- Copper is necessary to chlorophyll format in plant and catalyzes several other plants reactions.
- Iron, Manganese, and Aluminum affects the availability of Copper for plant growth.
- Organic soils are the most vulnerable to Copper deficiency heavy, clay-type soils are least winerable.






- Protein synthesis and growth regulation require much Zinc. Plants are become the shortening of internodes and stunted leaf growth when reduced hormone production due to a Zinc – deficiency.
- Zinc deficiency first appears on the younger leaves.
- Zinc aids synthesis of plant growth substances and enzyme system, and is essential for promoting certain metabolic reactions that are particularly critical in the early growth stages.
- When the soil pH increases, Zinc is available to decrease.



- Molybdenum deficiency presents as a general yellowing and stunting of the plant. It also cause marginal scorching and rolling or cupping of leaves.
- NPK fertilizers supply Molybdenum that applies as the foliar sprays or use as the seed treatment.
- Seed treatment is the most common way of correcting Molybdenum deficiency because of the very small amounts of the nutrient required.
- Plants uptake Molybdenum as the MoO_4^{2-} – anion.
- Molybdenum becomes more available as soil pH goes up. The opposite of most other micronutrients.
- Excessive Molybdenum is toxic, especially to grazing.

NON-FERTILIZER ELEMENTS FOR PLANTS:

-  • Hydro: Most of all organic compounds contain H atoms, which means why plants need the H they get from water molecules throughout the photosynthesis. Hydrogen ions are vital in both aiding proton gradients to help drive the electron transport chain in photosynthesis, and for plant respiration. It is necessary for building sugar.
-  • Carbon: is the primary energy source and building block for plant tissues. It is converted from the simple sugar, crop residues, green manures, and animal wastes. Carbon helps plants build starches, cellulose, carbohydrates, protein, and lignin. The dry matter of plants is comprised of Carbon.
-  • Oxygen: is available to life on Earth to come to plants. Plants do not absorb Oxygen from the air. Plants acquire Oxygen during the breakdown of carbon dioxide (CO_2) as part of photosynthesis.