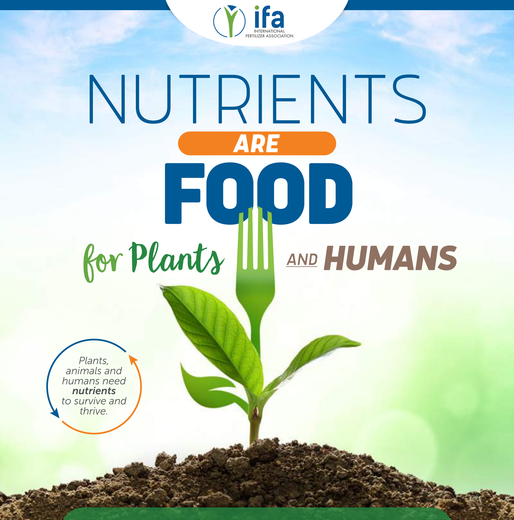
ifa
INTERNATIONAL FERTILIZER ASSOCIATION

NUTRIENTS ARE FOOD for Plants AND HUMANS



*Plants, animals and humans need **nutrients** to survive and thrive.*

Plants need 16 essential mineral nutrients. While they receive Carbon and Oxygen from the air and Hydrogen from water, the remaining **13 come from the soil**. A lack of any one of these nutrients in sufficient quantities can affect plant health, growth and yield.

Fertilizers contain essential plant nutrients. As harvested crops remove nutrients from the soil, they are used to reliably replenish its nutrient content and feed plants.

Humans, meanwhile, need more than 40 different nutrients for good health. Apart from Oxygen from the air and Hydrogen from water, these come from the food that we eat. Not getting enough of them can cause serious health issues.

Fertilizers provide crucial essential nutrients to plants which are partly passed on to people when consumed. Here's a look at the **13 essential plant nutrients** that crops derive from soils and fertilizers and some of the many ways that they benefit plants and humans.

ESSENTIAL 13 NUTRIENTS

Nitrogen

BENEFITS for PLANTS
- Vital for amino acids, proteins, DNA and RNA for growth and reproduction.
- Helps leaves grow strong and green by assisting with chlorophyll production.

BENEFITS for HUMANS
- Is part of all proteins that humans consume.
- Food proteins supply essential amino acids that we need to produce proteins.

PLANT SOURCES: Legumes, nuts and some grains and seeds are all high in protein

Phosphorus

BENEFITS for PLANTS
- Assists with the growth of early seedlings, roots and flowers.
- Helps store and transport the sun's energy.

BENEFITS for HUMANS
- Important for regulating calcium and building strong bones.
- Plays a key role in molecules involved in energy transfer in the body.

PLANT SOURCES: Whole grains, nuts, seeds, legumes, cauliflower, mushrooms

Potassium

BENEFITS for PLANTS
- Enhances tolerance to stresses such as drought and diseases.
- Required for moving sugars and carbohydrates within plants.

BENEFITS for HUMANS
- Helps control heart rhythm, build proteins and use carbohydrates.
- Central to blood pH balance and supports normal growth.

PLANT SOURCES: Sweet potatoes, pumpkins, lentils, potatoes, bananas, prunes

Calcium

BENEFITS for PLANTS
- Helps resist disease through the growth and development of cell walls.
- Stimulates microbial activity and nutrient uptake.

BENEFITS for HUMANS
- Required to build and maintain strong bones and teeth.
- Plays a role in nerve transmissions and muscle contractions.

PLANT SOURCES: Leafy vegetables, nuts, seeds, soy products

Sulphur

BENEFITS for PLANTS
- An essential component for some amino acids and proteins.
- Important in photosynthesis and for winter crop hardiness.

BENEFITS for HUMANS
- Necessary for insulin production and part of an important antioxidant.
- Helps keep hair, skin and nails strong and healthy.

PLANT SOURCES: Cabbage, onions, mushrooms, garlic, asparagus, kale

Magnesium

BENEFITS for PLANTS
- Key for photosynthesis which captures the sun's energy for growth.
- Improves root formation and nutrient and water efficiency.

BENEFITS for HUMANS
- Supports muscle and nerve function and keeps your heart beating regularly.
- Builds strong bones and needed for energy production.

PLANT SOURCES: Spinach, legumes, nuts, seeds, whole grains, avocado

Boron

BENEFITS for PLANTS
- An essential component of cell wall formation.
- Important for flowering and fruiting.

BENEFITS for HUMANS
- Contributes to healthy bone development and cell membrane maintenance.
- Alleviates arthritic symptoms and facilitates hormone action.

PLANT SOURCES: Raisins, nuts, legumes, prunes, dates

Chlorine

BENEFITS for PLANTS
- Helps minimize water loss during stressful dry periods.
- Assists nutrient transportation within plants.

BENEFITS for HUMANS
- Regulates the balance of fluids in the body.
- Necessary for the absorption of vitamin B12.

PLANT SOURCES: Salt, cabbage, cauliflower, tomatoes, potatoes, seaweed

Copper

BENEFITS for PLANTS
- Plays a major role in photosynthesis and activates several enzymes.
- Is closely linked to Vitamin A production and helps produce protein.

BENEFITS for HUMANS
- Essential for the immune and nervous system and skeletal health.
- Supports iron metabolism and the formation of red blood cells.

PLANT SOURCES: Leafy vegetables, whole grains, legumes, prunes, avocados

Iron

BENEFITS for PLANTS
- Vital for the formation of chlorophyll and acts as an oxygen carrier.
- Required for energy transfer and nitrogen reduction and fixation.

BENEFITS for HUMANS
- A key component of hemoglobin in red blood cells.
- Needed to maintain healthy cells, skin, hair, and nails.

PLANT SOURCES: Legumes, chocolate, soy products, leafy vegetables, whole grains

Manganese

BENEFITS for PLANTS
- Aids in chlorophyll synthesis which affects photosynthesis.
- Regulates carbohydrate metabolism and stimulates growth.

BENEFITS for HUMANS
- Regulates blood sugar and enhances the absorption of calcium.
- Helps the body form connective tissue and bones.

PLANT SOURCES: Grains, legumes, seeds, nuts, leafy vegetables, tea, coffee

Molybdenum

BENEFITS for PLANTS
- Helps turn nitrates into usable forms.
- Required for nitrogen fixation in legume plants.

BENEFITS for HUMANS
- Helps the liver break down drugs and toxins.
- Prevents the dangerous buildup of sulphites in the body.

PLANT SOURCES: Legumes, whole grains, nuts, leafy vegetables, tomatoes

Zinc

BENEFITS for PLANTS
- Used for critical early stage chlorophyll and carbohydrate production.
- Aids stress tolerance, growth hormones and the enzyme system.

BENEFITS for HUMANS
- Helps the immune system fight off invading bacteria and viruses.
- Plays a vital role in cognitive development and cellular growth.

PLANT SOURCES: Nuts, whole grains, legumes, soy products, potatoes, chocolate

Because mineral fertilizers are a reliable, precise and efficient way to nourish the soil and supply essential nutrients to plants, they enable farmers to produce more food on existing land and feed the world's growing population.

Read more about how fertilizing crops can improve human, as well as plant health, **here**.

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16 OCTOBER
GLOBAL FERTILIZER DAY
GROW FOOD, NOT HUNGER