

# Nutrient Deficiency Identification Guide

Nutrient deficiencies during the growing season can reduce yields. Identifying the symptoms early allows for timely correction, helping to preserve yield potential.



N

## Nitrogen Deficiency

Nitrogen is essential for plant growth and is part of every living cell. It plays many roles in plants and is necessary for chlorophyll synthesis.



### WHAT TO LOOK FOR:

- Chlorosis/yellowing of lower leaves ( Often begins in shape of a "V" )
- Stunted and slow plant growth
- Browning or death of older leaves



P

## Phosphorous Deficiency

Phosphorous is essential for plant growth, and a plant must access it to complete its normal production cycle.



### WHAT TO LOOK FOR:

- Dark green leaves and stems
- Stunted appearance
- Purplish discoloration of older leaves
- Browning or death of leaf tips
- Delayed maturity
- Small, curled leaves



K

## Potassium Deficiency

Potassium is vital for photosynthesis, protein synthesis and many other functions in plants.



### WHAT TO LOOK FOR:

- Reduced growth rate
- Yellowing on margins of older leaves
- Leaf burn on edges of older leaves
- Small white or yellow spots along leaf edges
- Eventually, entire leaf turns yellow
- Reduced stalk strength



S

## Sulfur Deficiency

Sulfur is part of every living cell and is important to the formation of proteins.



### WHAT TO LOOK FOR:

- Yellowing that initially occurs in younger leaves
- Light green to yellow leaves
- Whole plant turns pale green
- Small, spindly plants with thin stems



Mg

## Magnesium Deficiency

Magnesium is part of every molecule of chlorophyll, making the nutrient actively involved in photosynthesis.



### WHAT TO LOOK FOR:

- Interveinal chlorosis or yellowing
- Leaf margins turning yellow or reddish-purple



Zn

## Zinc Deficiency

Zinc is required for growth hormone production and is responsible for internode elongation.



### WHAT TO LOOK FOR:

- Symptoms first appear on younger leaves
- Interveinal yellowing with a striped appearance
- Leaves turn gray-white and fall early
- Premature leaf death
- Severe stunting
- Poor flowering and seed set



B

## Boron Deficiency

Boron is essential for cell wall formation and rapid growing points within the plant, such as reproductive structures.



### WHAT TO LOOK FOR:

- Yellowing of young leaves
- Death of the terminal bud
- Dark brown, irregular lesions on leaves
- Whitish-yellow spots at the base of leaves
- Brittle stems and leaves
- Thickened and curled leaf tips
- Slow, stunted growth due to shortened internodes
- Misshapen or missing buds
- Tip-back ears / poor pollination

## Correcting Nutrient Deficiencies

While recognizing the visual signs of deficiency is often the first step in identifying the problem, it is important to note that similarities exist between how various nutrient deficiencies impact plant tissue color and appearance. Soil and tissue testing can provide additional information that can help properly diagnose and correct nutrient deficiencies.

Once it is understood which nutrients are missing, steps can be taken to improve nutrient availability in the soil. Choosing performance fertilizers, like MicroEssentials® helps ensure plants get the right amount of nutrients at the right time. Adding a bio crop nutrition product like BioPath® or PowerCoat™ to fertilizer applications is another way to increase fertilizer efficiency and the return on fertilizer investment.

To learn more about how Mosaic products can help address nutrient deficiencies, visit [cropnutrition.com](http://cropnutrition.com).