

## IN ADDITION TO SOLVING NUTRIENT DEFICIENCIES, THE STOLLER GROUP SPECIALIZES IN THE FOLLOWING:

- ✓ Crop Health Therapy.
- ✓ Growing crops in soil that is very salty.
- ✓ Correction of fruit disorders.
- ✓ Correction of post harvest storage problems.
- ✓ Increasing disease resistance in plants.
- ✓ Increasing insect resistance in plants.
- ✓ Weather proofing crops against drought.
- ✓ Movement of sugar from the leaves to grain or storage tissue.
- ✓ Stop plants from “early dying”.

POTATO

# Nutrient Deficiency Identification Guide



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# Nutrient Deficiency Identification Guide

Potato

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## MICRONUTRIENTS



### Zinc

Plants with a zinc deficiency have limited growth with short internodes and small new leaves. These leaves may be lance-shaped and the borders may curl upward. The leaves at the growing point are generally seen in a vertical position. New leaves may also be chlorotic.



### Boron

Plants with boron deficiency normally have retarded growth. The new leaves are small and badly formed with short internodes appearing on the leaf. Deficient new leaves are generally thicker and more fragile. They may curl upwards and show marginal necrosis. A dark area may occur in the form of striping along petiole base. In certain cases, the main shoots may die causing excessive lateral shoot formation.



### Copper

Copper deficiency is usually not prominent on potatoes unless they are grown in high organic soil. In deficient plants, there is an initial occurrence of a darkening of the veins in the younger leaves. In deficient plants, there is an initial occurrence leaves may become less turgid and even dry as the



### Manganese

Young leaves show internervous chlorosis. They may also tend to have a bronze colour and as the deficiency increases in severity, dark spots may appear along the leaf veins.



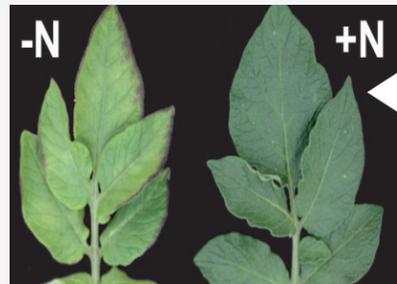
### Iron

The deficiency starts as a symptom of internal necrosis on new leaves. The leaf veins still remain green. The chlorosis may increase and cover up the entire leaf. This problem will occur mainly on high pH soils.

### Molybdenum

Molybdenum is necessary for nitrogen use efficiency. This deficiency resembles that of nitrogen which can lead to leaf death. Molybdenum deficiencies usually occur in acid soils which reduces availability.

## MACRONUTRIENTS



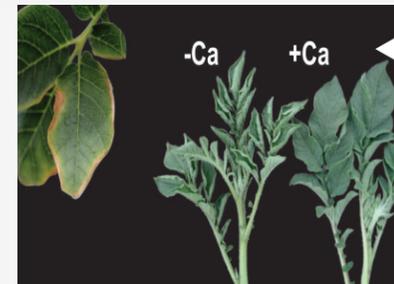
### Nitrogen

Symptoms begin on the older leaves, which acquire a pale green or yellowish colour. As the deficiency increases, these leaves may turn completely yellow and die. The plants normally grow slower and are greatly reduced in size.



### Potassium

The older leaves become yellow and later suffer necrosis along the edges and the apex. Deficient leaves become arched downwards as if they become wilted. The internodes are short and tuber production can be greatly reduced.



### Calcium

The symptoms of deficiency initiates with internal chlorosis of the older leaves. The chlorosis may increase to where necrotic spots appear on the leaves of which margins remain green.



### Phosphorus

The borders of older leaves are yellowish and necrotic. The deficiency may lead to the appearance of wrinkles or badly formed leaves, which have a very dark green colour. These dark green leaves will lose their glossiness and be curved upwards. A purple colour may appear on older leaves. Plants will have reduced growth with a loss in yield.



### Magnesium

Smaller development of the newer leaves where margins appear to be curled upwards. Stems are generally quite thin. Yellowing may occur and late necrosis may appear on leaf margins. Necrosis may appear at the tuber apex, which will then have sprouts. Death of roots may also occur.



### Sulfur

Chlorosis begins on the borders of new leaves until it progresses and covers the whole leaf. These leaves may also show slight curling of the leaf blades.