



Crystal Green®  
by OSTARA

## Delivering Critical Nutrients

### Magnesium

**Mg**

Magnesium (Mg) is an essential plant nutrient with an important role in many fundamental physiological and biochemical plant processes. It is critical for photosynthesis and carbohydrate accumulation in crop production. Crystal Green® phosphate fertilizer provides **100% plant-available magnesium** all season to promote growth and yield results.

Magnesium is the central atom of the chlorophyll molecule, where light energy is captured and used to create sugars that drive growth and yield. Magnesium's other major function is to support moving carbohydrates produced in the leaves to reproductive tissues such as seeds and tubers. Sufficient magnesium at grain fill or tuber bulking will result in a higher yield.

### How Crystal Green® Provides Magnesium

Crystal Green has an analysis of 5-28-0 with 10%Mg. Every granule of Crystal Green is packed with **100% plant-available magnesium**. Due to Crystal Green's organic acid solubility, nitrogen, phosphate and magnesium are **only released** in response to plant demand. As a result, crops avoid critical nutrient deficiencies to achieve enhanced crop quality and performance.



### The Magnesium Challenge

Plants can be deficient in magnesium due to various causes.

- While there isn't an ideal ratio, magnesium problems are more frequent or severe when the soil potassium to magnesium ratio exceeds 1.5:1.
- Magnesium deficiencies are common in low pH soils, soils that are low in organic matter, and light-textured soils.
- Magnesium that is in the soil solution can easily be leached with excessive rainfall events or over-irrigation.
- Soil pH levels below 6.5 decrease magnesium availability and high soil pH increases availability.
- Soil Mg:Mn ratio – high available manganese can also reduce magnesium uptake.
- Low CEC soils contain less magnesium.
- Soils with high potassium or calcium will typically provide less magnesium to the crop.
- High application rates of other fertilizers, especially potash, can reduce magnesium uptake.
- Low soil temperatures can decrease magnesium availability.

## Benefits of Magnesium

- **Photosynthesis** – Magnesium is the central element of the chlorophyll molecule necessary for photosynthesis.
- **Contributes to overall plant health** – Lack of magnesium has been shown to promote some diseases.
- **Works with phosphate** in the plant to carry out vital plant processes.
- Acts as both an enzyme activator and is a constituent of many enzymes.
- Important in sugar synthesis.
- Improves starch translocation and plant oil and fat formation.
- Nutrient uptake regulation.
- Increases iron utilization.
- Aids in nitrogen fixation of legume nodules.



Photo credit: Michigan State University

## Symptoms of Mg Deficiency

- ✓ Yellow or white stripes between the veins of lower leaves.
- ✓ Reduced plant growth with stunted plants and smaller root systems.
- ✓ Inhibition of photosynthesis results in the striping turning into dead, round spots appearing as beaded streaks.
- ✓ Chlorosis appears on the tips of older leaves first and moves inward.
- ✓ Plants experience necrosis, leaves droop and premature fruit drop may occur.

