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**For Immediate Release**

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## **Did You Know This About Magnesium?**

Mg is an essential macronutrient! This and other macronutrients, such as nitrogen (N), phosphorus (P), potassium (K), calcium (Ca) and sulfur (S), are necessary in large amounts - usually up to 50 mg/kg in the plant material.

Magnesium composes 6.7% of each molecule of chlorophyll. In fact, it's the heart of the pigment containing molecule. Without it, chlorophyll would not be able to trap sunlight and harness its energy for plant growth during the process of photosynthesis.

Mg has a co-dependent relationship with Phosphorus in soils. In plants, Mg acts as a P carrier, such that P uptake is impossible without Mg...and vice versa.

In addition to being a constituent of chlorophyll, magnesium also is involved with other metabolic functions, such as protein synthesis, enzyme activation and cell division. These attributes make it an essential element - replaceable by no other.

If soil test levels are below 50 to 100 lb/acre (25 to 50 parts per million), Mg application is recommended to increase these low exchangeable levels.

Mg is not the most plentiful of nutrients in soil, particularly since much of the roughly 2% of soil Mg is tied up in the form of Mg-containing minerals-unavailable to plants. In some areas of Mg loss, Mg fertilization has improved crop response.

Most productive soils lie in a pH range of 5-8. But beware. Below pH 5.8, more aluminum and hydrogen come into the soil solution, preventing the proper plant uptake of Mg.

High Ca inputs can actually promote Mg deficiencies by encouraging growth in plants, causing Mg demands to increase. Caution to calcitic lime connoisseurs - this form of lime usually contains less than 1% Mg. As with most things in fertility management, balance is key!

For soils with good nutrient exchange rates, a 10 to 1 between Ca and Mg is a good rule of thumb to follow. Balance between nutrients is key.

Leaching and erosion are both principle culprits in losing available Mg and Ca from the soil, dependant on a number of variables. Leaching of these nutrients often is much worse in acidic soils. Management practices, including conservation tillage practices, can go a long way to reducing losses via erosion.

Being mobile within the plant, Mg deficiency symptoms occur first on the older leaves. The loss of a healthy green color can be the first indication of a Mg deficiency. Typical symptoms

include a yellowing between the veins of older leaves. Tissue analysis is useful for confirming a suspected Mg deficiency.

Excessive applications of Ca, K or  $\text{NH}_4^+$  can induce Mg deficiencies! Just goes to show how much there is to know about Mg fertility.

Regions of high precipitation are most prone to leaching Mg, Ca and K, but any acidic soil can readily leach these nutrients. Areas in the drier portions of the West are usually well-stocked with these nutrients. K-Mag, for instance, is mined from a deep source in the New Mexican desert.

Striped, curved, or reddish purple leaves are all indicators of Mg deficiency. Since Mg deficiency first affects chlorophyll levels, loss of green pigment is the most immediate signal.



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