

## 10. MAGNESIUM-The Minor Major

A lot of literature exists on magnesium deficiency in agricultural crops. When this literature is reviewed, it is found that most magnesium deficiencies occur on acid, sandy soils in areas of moderate to high rainfall. There are many reports of magnesium deficiency from the southeastern U.S. but comparatively few from the western U.S., although magnesium deficiency is a possibility on alkali soil. Magnesium is abundant in most soils and occurs in many minerals which, when weathered, continually contribute to the soil's Mg supply. Irrigation waters also can contribute significant magnesium to soils.

Of the cases of magnesium deficiency reported in the western U.S., most have been caused by heavy applications of potassium and/or manure (which is high in potassium). It has been well established that potassium reduces Mg uptake. In some cases Mg deficiency has been corrected simply by ceasing potassium fertilization.

Fieldmen in the western U.S. should be aware that Mg deficiency can exist but should also be aware that it is highly unlikely. Plant analysis for Mg can be useful in diagnosing a suspected Mg deficiency.

If magnesium is needed, it can be applied directly to the soil or by foliar spray. For soil application either dolomitic lime or magnesium sulfate can be used; dolomite lime is cheaper but is only effective on acid soils and there is evidence that on some acid soils it is not effective.

A grower that knows he will eventually have to apply lime to his soil for pH control would be well off to apply dolomitic lime with the idea that it can't hurt and it might help to maintain Mg levels.

Magnesium toxicity caused by a high Mg:Ca ratio can be a problem on soils derived from serpentine parent material. Adding calcium to the soil is recommended in such cases.