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Take a Second Look at Secondary Nutrients

K-Mag helps growers get their soil nutrient account back in the black

Farmers may not get an "insufficient funds" slip when their soil nutrient bank accounts fall into the red, but they certainly will feel it in the pocketbook come harvest.

"If nutrient withdrawals have outpaced fertilizer deposits – as they have in many parts of the country over the past several years – crop yields and profits will suffer," says Dr. Ray Hoyum, vice president of market development and communications, IMC Global.

"With commodity prices higher than we've seen in years, now is the time to start reinvesting in the soil, meaning replenishing needed nutrients," he says. "But growers need to ensure that all essential nutrients are supplied, not just one or two."

Diversify Your Crop Nutrient Portfolio

"We've known for some time that levels of phosphorus (P) and potassium (K) have been decreasing throughout North America, but we're also hearing concerns about the secondary nutrients, including sulfur (S) and magnesium (Mg)," Hoyum says.

"Just like a sound investment strategy, a proper soil fertility program requires diversification," he continues. "Even when N, P and K are required in large quantities, the secondary nutrients are integral to the plant's health and vigor. If one or more nutrient is lacking, crop yields will be reduced even though the other elements are available."

To produce at optimum yields, crops must have an adequate supply of all 17 essential plant nutrients, he explains. While carbon, oxygen and hydrogen are supplied by the air or water, thirteen other nutrients are delivered to plants via the soil.

S and Mg Shortages Reported on Sandy U.S. Soils

Dr. Glen Harris, a professor in the crop and soil science department at the University of Georgia says five years of drought caused farmers in the Southeast to cut back on critical fertilizer and lime inputs. "When it comes to secondary nutrients, I'm most concerned about sulfur and magnesium shortages here in Georgia."

The coastal plains of the Southeast are largely characterized as extremely sandy, infertile and acid, he says. "You wonder how we can even grow anything on these soils, but with lime, fertilizer and water, we can make very good crops." He estimates that forty percent of row crops in the region are under irrigation.

Located too far from the industrialized Northeast to benefit from any atmospheric S fallout, Georgia growers usually benefit from applying between 10 and 20 lbs/A of S, either at planting or at sidedress, Harris notes.

Dolomitic lime applications help bring up the Ca and Mg levels, but K-Mag is one of the best sources when Mg shortages exist and soil pH is satisfactory, he says.

Oregon State University Professor Emeritus Dr. Neil W. Christensen says growers in the Pacific Northwest are keenly aware of the region's widespread sulfur shortages. Like the Southeast, the northwestern United States sees little atmospheric deposition of S; growers must rely on mineralized organic matter or fertilizer material to supply S for their crops.

"In almost every kind of cropping system – from the dry land small grains in eastern Oregon and Washington to the high rainfall areas of western Oregon – we almost always have some plan for sulfur additions," he says. "When sulfur has been forgotten or neglected for three or four years, we can get into a crisis situation. The crop just doesn't perform well without adequate sulfur."

Christensen recalls a spring wheat crop two years ago that had been planted on a sandy soil in western Oregon. "It looked terrible and was quite yellow, and there were splotches in the field, but not any discernable pattern. With analysis, we discovered a sulfur deficiency. Fortunately, it was early enough that a correction could be made."

K-Mag is an excellent S source, he says, particularly where Mg deficiencies also occur.

A premium fertilizer source, K-Mag is a naturally occurring source of three essential nutrients – potassium (21.5-22%), magnesium (10.5-11%) and sulfur (21-22%). Available in the highly available water-soluble sulfate form, K-Mag is low in chloride and will not affect soil pH. It is 100% natural, and the K-Mag NATURAL grade is listed by the Organic Materials Review Institute (OMRI) for use in organic crop production.

Filling the Mg and S Gaps

While soil sampling for secondary nutrients is not as common, or even as accurate, as testing for N, P and K, it is nonetheless important – especially for tracking soil fertility levels over the long run, Hoyum says.

"Shortages of magnesium and sulfur can be found nationwide," he says. "K-Mag is well suited as a site-specific provider of these essential nutrients when soil test levels are in the responsive range.

"Ignoring the secondary nutrients can lead to stunted growth, discolored leaves or delayed maturity," he continues. "As an example, magnesium deficiencies alone can cause costly pre-harvest fruit drop in tree fruits."

Hoyum encourages growers to take inventory this fall and plan to invest in needed secondary nutrients for the 2005 cropping season. For many crops, it's not too late to start building up your soil nutrient account with essential secondary nutrients, he adds. "Split applications are a great way to provide in-season magnesium and sulfur needs."

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