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When Do Crops Need Zinc or Sulfur?

DeltAg Product Brief
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In recent days, we have received several inquiries about additions of sulfur to crops like wheat, corn and cotton as well as questions about additions of zinc for corn and rice. With over three plus decades of hands-on experience with soil and tissue testing and detailed crop monitoring, below are our thoughts.

ZINC in Corn or Rice: There is no doubt that zinc is a critical micro-nutrient for all crops. However, some crops struggle more than others to take in and metabolize zinc. Zinc plays a major role in development of enzymes that are necessary for other processes to take place, including the ability of the plant to metabolize nutrients. When zinc is deficient, the plant struggles using other nutrients. All plants will produce their own enzymes in the amounts needed, but only after the plant has developed a good root structure and begun a healthy rate of photosynthesis. For this reason, issues with zinc tend to occur in the seedling stages in most crops, particularly corn and rice.

When to Apply Zinc: At DeltAg, our best results on corn come when zinc is applied in-furrow with a phosphate starter, or as a foliar on two to three leaf plants. When we wait until four to six leaf, we occasionally experience visual symptoms of zinc deficiencies before the zinc application is made.

Bottom Line: In corn, get your zinc out as early as possible in an in-furrow, 2x2 or as a seedling foliar. In rice, **Zinc Plus** is best applied either as a seed treatment or early seedling foliar.

Side-Dressing zinc with nitrogen on corn can also be beneficial. However, we need to be sure and get that side-dressing done as quickly as we get a stand. This allows for response to that zinc. But remember, it is placed six inches from the young developing root mass and roots have to grow to the zinc. So with side-dressing, the earlier we make that application, the better chance for a good response.

Compatibility: When adding **Zinc Plus** to liquid phosphate starters, it is best to have a slight recirculation or agitation as it takes a few minutes for the **Zinc Plus** to dissipate in the solution. There are no compatibility issues when **Zinc Plus** is added to liquid nitrogen, whether UAN or 28-0-0-4.

Sulfur: Sulfur is critical in plant protein production and is critical in crop response to nitrogen. However, much of the sulfur needed comes from organic matter and old crop residue. Tissue test labs look for a ratio of sulfur to nitrogen in the plant tissue to be around 1 to 10. Sometimes I feel this ratio is the reason our industry has adopted sulfur recommendations of 10 to 20 pounds/acre.

Simply put, sulfur is critical when nitrogen is critical. Seedling crops have very little need for high amounts of nitrogen until they begin to move into rapid growth. **In Row Crops**, the best method is in with the side-dress. If no liquid side-dress is being applied, a foliar application is helpful. **In Rice**, where availability of sulfur can be reduced in a water-logged environment, ammonium sulfate is a great tool for supplying much needed sulfur along with nitrogen.

Sulfur Plus is frequently used in side-dress under corn, cotton and other row-crops. This application is designed to aid crop response to residual sulfur from organic matter. But remember, in coarse sandy soils or soils extremely low in organic matter (heavy cuts) there may not be ample residual sulfur from organic matter. This is a situation when additional sulfur is needed. In rice, especially "old rice ground" we have been recommending ammonium sulfate pre-plant or pre-flood with great results for years.

On a final note, **Zinc Plus** is 10% zinc and 4.7% sulfate sulfur. So in an in-furrow or 2x2, the use of **Zinc Plus** will also provide initial needs for sulfur. We have many growers that are using **Zinc Plus** in their early season side-dress at 2-3 pints. They have found it to be less expensive than other purely zinc materials applied at one quart, provides Zinc and Sulfate and is in one product that easily mixes.

Zinc Plus Early..... and Side-Dress with Sulfur Plus or 3 Pts - Zinc Plus

For more information or to receive DeltAg Product Briefs,
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