



Retailer Bulletin

Research Update: Manganese and glyphosate-tolerant soybeans (part 1 of 2)

This is part 1 of a 2 part series examining manganese inefficiencies in glyphosate-tolerant soybeans. This bulletin summarizes recent research and explores how Wolf Trax® Manganese DDP® can help.

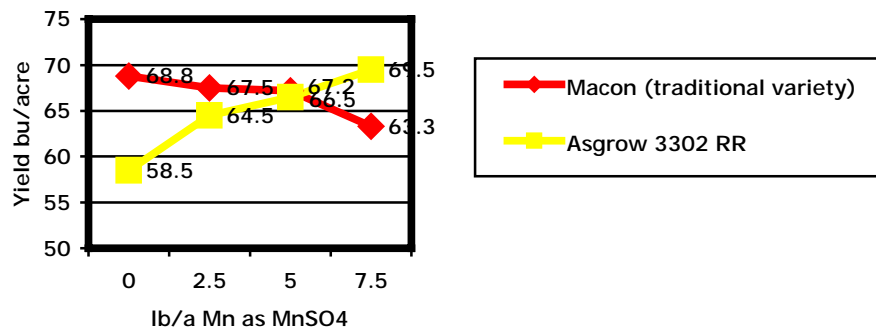
Part 2 will look at Manganese DDP as a seed treatment.

Recent studies have shown that glyphosate-tolerant soybeans seem to be less efficient in manganese uptake, which can seriously reduce yields in manganese deficient fields.

Manganese plays an important role in photosynthesis, carbon and nitrogen metabolism as well as disease resistance. In fact, thirteen different processes are affected by manganese, from seed formation to root growth.

Researchers at two different universities have come to the conclusion that glyphosate-tolerant soybeans can be deficient in manganese, and that this tendency can significantly impact soybean yield to the tune of 11 bu/acre.

In independent testing at Kansas State University, researchers compared glyphosate-tolerant soybeans to conventional soybeans. They found that adding manganese gave a significant boost to glyphosate-tolerant soybean yield (see chart below). The workers found that yield increases occurred when soil applied manganese was applied as a broadcast treatment at rates up to 7.5 lbs/acre. The research also indicates you need at least 5 lbs per acre manganese when applied as a traditional granular type of micronutrient.



Kansas State University shows a need to correct manganese deficiency in glyphosate-tolerant soybeans

Fertilizer coating with Manganese DDP Micronutrients feeds growing seedlings early

Wolf Trax Manganese DDP may provide a better solution for addressing the manganese inefficiencies in glyphosate-tolerant soybeans. The proprietary formulation and micro-static adhesion allow Wolf Trax Manganese DDP Micronutrients to easily and evenly coat dry fertilizer. This means that the micronutrient is distributed throughout 100% of a fertilizer blend

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(compared to just 5% when a granular micronutrient is used in a fertilizer blend). This superior distribution throughout the rooting zone provides up to 50 times the interception points for roots to access micronutrients compared to granular micronutrients.

Growing plants can access the micronutrient earlier, and the formulation ensures that it is in a plant-available form. Third party testing has shown that when coated on dry fertilizer, Wolf Trax DDP micronutrients demonstrate significantly greater uptake as early as 7 days after emergence. This indicates that fertilizer coated with Manganese DDP could offer an exciting approach to feeding glyphosate-tolerant soybeans.

Foliar manganese applications

The Wolf Trax DDP formulation combines the immediate availability of sequestered products, with the extended availability of suspension products. Your customers have more flexibility in timing applications, and the growing plant can access the micronutrient when it's needed most.

Researchers at Purdue University looked at several types of foliar manganese applications on glyphosate-tolerant soybeans. They found that an application of glyphosate reduced manganese translocation in tissues, and manganese at times affected herbicidal efficacy. *Their recommendation was to wait until at least eight days after spraying a glyphosate, before applying manganese.*

The unique Dual Action™ formulation may help avoid separate field operations, as the component providing later availability would become available after this 8-day window.

Further, Wolf Trax has found no decrease in herbicide effectiveness when a few simple recommendations for Manganese DDP use are followed (See Retailer Bulletin June 2005, available at www.wolftrax.com).

Wolf Trax Manganese DDP – an idea for the innovative retailer

Wolf Trax Manganese DDP can be used as a coating on seed, as a coating on fertilizer and as a foliar application. Wolf Trax Manganese DDP is the only formulation to provide this flexibility in use.

Wolf Trax Manganese DDP presents a great opportunity for you to set yourself apart in your market. If you have growers interested in glyphosate-tolerant soybeans on manganese deficient soils, you have the opportunity to carry one inventory item and use it in different combinations to develop a customized solution to help them maximize their yield and profit opportunity.

You and Wolf Trax...Growing Forward® together.

For more information on the Wolf Trax DDP family of Innovative Micronutrients, please call 204-237-9653, or visit us at www.wolftrax.com.