TRINEXAPAC-ETHYL (PRIMO): MAKE IT WORK BETTER FOR YOU!

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Trinexapac-ethyl (Primo) is a foliar applied turfgrass growth regulator that can provide a 50% reduction in clippings without fear of aesthetic reduction. The focus of this research is from a weed science standpoint and, as such, involves looking at issues such as water quality, rainfastness, and spray carrier volume. This allows comparisons to be made between trinexapac-ethyl and herbicides that are commonly applied using the same types of equipment.

The influence of water quality on trinexapac-ethyl efficacy with perennial ryegrass over a four week period was evaluated using a single 0.5 oz./M rate applied in distilled water or in water hardened with 500ppm calcium or 500ppm magnesium. Ammonium sulfate was added at a 0.5% w/v rate to 50% of the treatments to attempt to counteract any negative hard water effects. It was discovered that both hard water salts did negatively effect the efficacy of trinexapac-ethyl, as compared to the distilled water control. However, it was also found that ammonium sulfate could eliminate this negative impact on efficacy when it was added to the tank mix. Implications with this research could have particular relevance in Michigan where hard water is all too common.

Rainfastness of trinexapac-ethyl is published as being one hour after application. Compared to many other foliar-applied chemicals, this is pretty good but improvements could be significant to a superintendent wanting to spray under the threat of rain. Perennial ryegrass treatments were given a constant 0.5 oz./M rate of trinexapac-ethyl and then given a simulated 0.5 inch rainfall event at 0, 15, 30, and 60 minutes after application. Additions of Sylgard 309 at 0.5% v/v, ammonium sulfate at 0.5% w/v, or both were included to determine if these tank mix partners could positively influence rainfastness. It was found that trinexapac-ethyl alone was rainfast at 60 minutes after application; these results are consistent with earlier reports. Tank mix partners, specifically Sylgard 309, were found to significantly improve the rainfastness of trinexapac-ethyl, presumably through enhanced absorption of the chemical. Our results suggest possible rainfastness within 15 minutes of application when such additives are present.

Studies were also conducted to evaluate the effects of tank mix partners on spray carrier volume differences in 0.5 oz./M applications of trinexapac-ethyl to perennial ryegrass. Sylgard 309 and ammonium sulfate were again the additives of choice. Results suggested a positive impact on efficacy when ammonium sulfate was included at the 20 gal/A spray volume. Concurrently, ammonium sulfate at the 180 gal/A spray volume had a negative impact on efficacy. Sylgard 309 treatments had inconclusive results. The implication is that a spray volume threshold exists, above which potentially beneficial tank mix partners may lose their efficacy.