Metsulfuron Potentially Damaging Oak Species When Applied to Turfgrass

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In spring 2013 numerous complaints have been made regarding damage to oak species in areas treated with metsulfuron for broadleaf weed control. Symptoms include stem die back, delayed leaf appearance, and stem and leaf proliferation at the base of old stems and branches. In extreme cases, trees have not fully leafed out or leaf appearance has been delayed up to two months. More commonly, trees appear bushy due to excessive stem and leaf proliferation at the base of old stems with the top 18 to 24 inches of stem failing to leaf out (see pictures).

Metsulfuron is a sulfonylurea herbicide commonly used for broadleaf weed control in numerous turfgrass species. It is very effective for general broadleaf weed control and control of bahiagrass. Metsulfuron has low drift potential and has not been reported previously to move off-target causing damage to non-target species. Metsulfuron is typically used between 0.25 and 2.0 oz/a of formulated product. Metsulfuron is sold as a 60% water dispersible with a net package weight normally measured in the ounces of product per bottle. Metsulfuron has no noticeable odor which often detracts mangers from using phenoxy-based chemistry for broadleaf weed control. Metsulfuron is sold and has been sold in the past under various product names including: Amtide MSM 60 DF, Manor, Blade, and MSM Turf. With all the characteristics, metsulfuron is an ideal herbicide for turfgrass management—low use rate, small product size, effective weed control, excellent turfgrass safety, low potential for off-target movement, and it does not smell—a laundry list of reasons to use the product.

To further increase the use of metsulfuron, it is now extremely cheap. While a cost comparison of products is beyond the scope of this short report, metsulfuron is typically sold at less than $20 per acre of use—just to give some perspective. New active ingredient products typically range in the $100 per acre of product. Thus, using metsulfuron can save mangers money. The drop and price, from our observations only, have seemingly increased the use of this herbicide. Metsulfuron has gone from a higher priced, marginally used herbicide to one of the primary broadleaf weed control herbicides used in warm-season turfgrass. Further, applications were normally made at a maximum of 0.5 ounces per year or possibly two applications made during the summer for bahiagrass control. In our observations for 2012 and 2013, multiple applications are now being made in spring and fall for broadleaf weed control, a practice that was not common until recently.
It is noteworthy to point out that all of these applications are perfectly legal and are made according to label recommendations. In no cases have we observed any evidence of over application or pesticide mismanagement.

Metsulfuron Induced Oak Toxicity

It is our conclusion after extensive investigation, in collaboration with industry representatives, lawn and landscape managers, and pesticide distributor that metusulfuron is inducing toxic effects on the following oak species, Nuttall oak, Shumard oak and willow oak. In our observations, the following trees and ornamentals have been minorly affected: crape myrtles, hollies, red maple, and southern magnolia. Lastly, the following species have shown no signs of injury: lacebark elm and Japanese zelcova. But, until we have more information we recommend using metsulfuron with caution around trees not listed above.

In areas of observed injury, fall followed by spring metsulfuron application were the most likely to induce injury. However, we have observed only spring or fall applications inducing oak injury. In no instances have we observed injury from summer applications, however, such a situation remains a possibility.

Please note that only observations of injury and alignment with historical pesticide records have been investigated. This investigation has been a process of elimination of all possible injury suspects including all possible herbicides used, insect induced damage, and potential plant pathogens. At this time we have no empirical (research-based) data to substantiate these observations, which is needed for future recommendations. It is quite possible that 2013 has been an aberration and that the level of oak injury we have observed this year will not be seen again. It is also quite possible that such injury will occur next year if changes are not made.

Our Recommendations

The most prudent course of action is to limit the use of metsulfuron to no more than one application per year at a maximum rate of 0.5 oz per acre. Do not make applications directly to roots of sensitive oaks or under the canopy of these trees. We do not recommend discontinuing the use of metsulfuron, but we want you to be aware of the potential damage that could occur.

In all cases, read and review the herbicide label carefully for any product you buy. Always follow the herbicide label and treat the label as a contract between you and the manufacturer. The label always supersedes any recommendations you may hear for how to use a product.