

# Metsulfuron Herbicide Damage on Woody Ornamentals

John Boyd,  
Visiting Professor -  
Crop Soil & Environmental  
Science

James Robbins  
Extension Horticulture  
Specialist-Ornamentals

Matt Bertucci  
Research Scientist -  
Crop Soil & Environmental  
Science

Metsulfuron is used for post-emergence control of broadleaf weeds in turfgrass. Brand names include AmTide MSM, Manor, Blade, MSM Turf Herbicide, Rometsol, Mansion and others. Metsulfuron is mobile in the soil and may be absorbed by leaves or roots. Metsulfuron is a systemic herbicide and as such will move within plants and accumulate in newly formed meristematic tissue. The systemic nature of this herbicide makes it an effective option for weed management, but it may also result in injury or damage to desirable landscape species if applied improperly.

Metsulfuron will control susceptible broadleaf weeds at rates from 0.25 to 0.5 ounces per acre of the 60% WDG (water dispersible granule) formulation. These are product rates, not active ingredient rates. When applied at excessive rates, metsulfuron will almost certainly cause damage to oaks (*Quercus*) and crapemyrtle (*Lagerstroemia*) through root uptake. Excessive rates are defined as (1) multiple applications of 1.0 ounce or more per acre during a single year

or (2) a single application in the 4.0 to 5.0 ounces per acre range. To avoid damage to woody ornamentals, do not apply more than 0.25 to 0.5 ounces per acre per treatment and do not make more than two applications per year.

## Symptoms

The most obvious symptom of metsulfuron damage is a significant delay in leaf emergence (Fig. 1).



**Figure 2. Typical symptom. Bunchy leaf growth (willow oak).**



**Figure 1. Delayed leaf emergence (willow oak).**



**Figure 3. Close up of bunchy leaf growth on oak.**

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Leaf out on large shade trees may be reduced to scattered bunches of leaves which from a distance resemble mistletoe (Fig. 2, 3). When they do emerge, leaves are often misshapen and distorted (Fig. 4). Other symptoms include shoot tip dieback, and reddish leaves (Fig. 5).

Appearance of leaves on parts of the plant where they are not normally found (Fig.6) is another common symptom of metsulfuron exposure. These symptoms are not unique to metsulfuron and have been associated with other turfgrass herbicides with a similar mode of action. So far in Arkansas, symptoms have been observed on oaks (willow, post, red, white, shingle), dogwood (*Cornus florida*), heavenly bamboo (*Nandina*), hickory (*Carya*), oakleaf hydrangea (*Hydrangea quercifolia*), English ivy (*Hedera helix*), crapemyrtle, and Carolina yellow jasmine (*Gelsemium sempervirens*). The University of Florida reports damage on several species of palms, privet (*Ligustrum*), and additional species of oaks (live oak, nuttall, and shumard).

In 2016, researchers at Auburn University found that 5.0 ounces per acre of metsulfuron applied to the soil under live oaks and white oaks caused adventitious leaf formation and stem dieback. In this study, oak saplings were planted in January 2014 and the metsulfuron was applied in March 2016. Injury ratings were done in late July and early August 2016. All species of oaks seem to be sensitive to high rates of metsulfuron.

There is a wide variation in the sensitivity of woody plants to metsulfuron. Until further research has been conducted, it would be wise to use caution when applying metsulfuron over the roots of desirable woody ornamentals. To date we have not seen an instance in which metsulfuron used as a turf herbicide killed a woody plant. We have observed delayed leaf emergence in the current year whether the herbicide was applied in the fall of the previous year or spring of the current year. Most affected plants will reach full leaf out by early August except for the branch tips, and symptoms have never been seen to carry over into a second year. We are not aware of any remedy/treatment once a plant has been exposed to metsulfuron.

For additional information for sprayer calibration and application precautions, please refer to *MP44 Recommended Chemicals for Weed and Brush Control*.



Figure 4. Misshapen leaves (willow oak).



Figure 5. Tip dieback and reddish leaves (red oak).



Figure 6. Adventitious leaves (crapemyrtle).

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**JOHN BOYD** is a visiting professor with the Department of Crop, Soil and Environmental Sciences of the University of Arkansas Division of Agriculture and is located in Little Rock. **JAMES ROBBINS** is an Extension Horticulture Specialist - ornamentals with the Department of Animal Science of the University of Arkansas Division of Agriculture and is located in Little Rock. **MATT BERTUCCI** is a research scientist with the Department of Crop, Soil and Environmental Sciences of the University of Arkansas Division of Agriculture and is located in Fayetteville.

FSA2183-PD-11-2018N

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