

The effects of mowing timing on broadleaf herbicide efficacy
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Who’s ready to kill a few weeds? Fall-applied herbicides are preferred for broadleaf weed control because 1) winter annual weeds are smaller and more easily controlled than when mature in spring, 2) perennial broadleaf weeds are translocating stored energy (and properly applied herbicide) to meristems, and 3) cooler temperatures reduce the likelihood of injuring turf or ornamental plants. For best control, herbicide should generally be applied in September or October, and current recommendations for systemic broadleaf herbicides are to withhold mowing at least 2 days before or after an application. However, professional applicators often have little control over mowing. To afford these applicators more confidence when mowing cannot be controlled, we initiated research last fall to determine how mowing around an application affects the efficacy of 2,4-D + MCPP + dicamba (i.e. *Trimec*, *Three-way*, *Threesome*, *Triplet*, etc.) on common dandelion.

Site conditions. Three-inch Kentucky bluegrass with a natural infestation of dandelion was treated with 4.0 pts/acre of *Trimec Classic* in Mead, NE and Manhattan, KS in October 2016. To test the effects of mowing timing on the herbicide application, turf at each location was mowed at 3 inches 4, 3, 2, or 1 days before treatment (DBT), 1 hour before treatment, 1 hour after treatment, or 1, 2, 3, or 4 days after treatment (DAT). Percent weed cover was visually estimated from 0 to 28 weeks after treatment (WAT).

Results. Herbicide efficacy was not affected by mowing timing at either location. By 28 WAT in Nebraska, plots that received herbicide had 0-5% dandelion cover, *statistically* less than untreated plots (27% dandelion cover), regardless of mowing timing. Similar results were observed in Kansas.

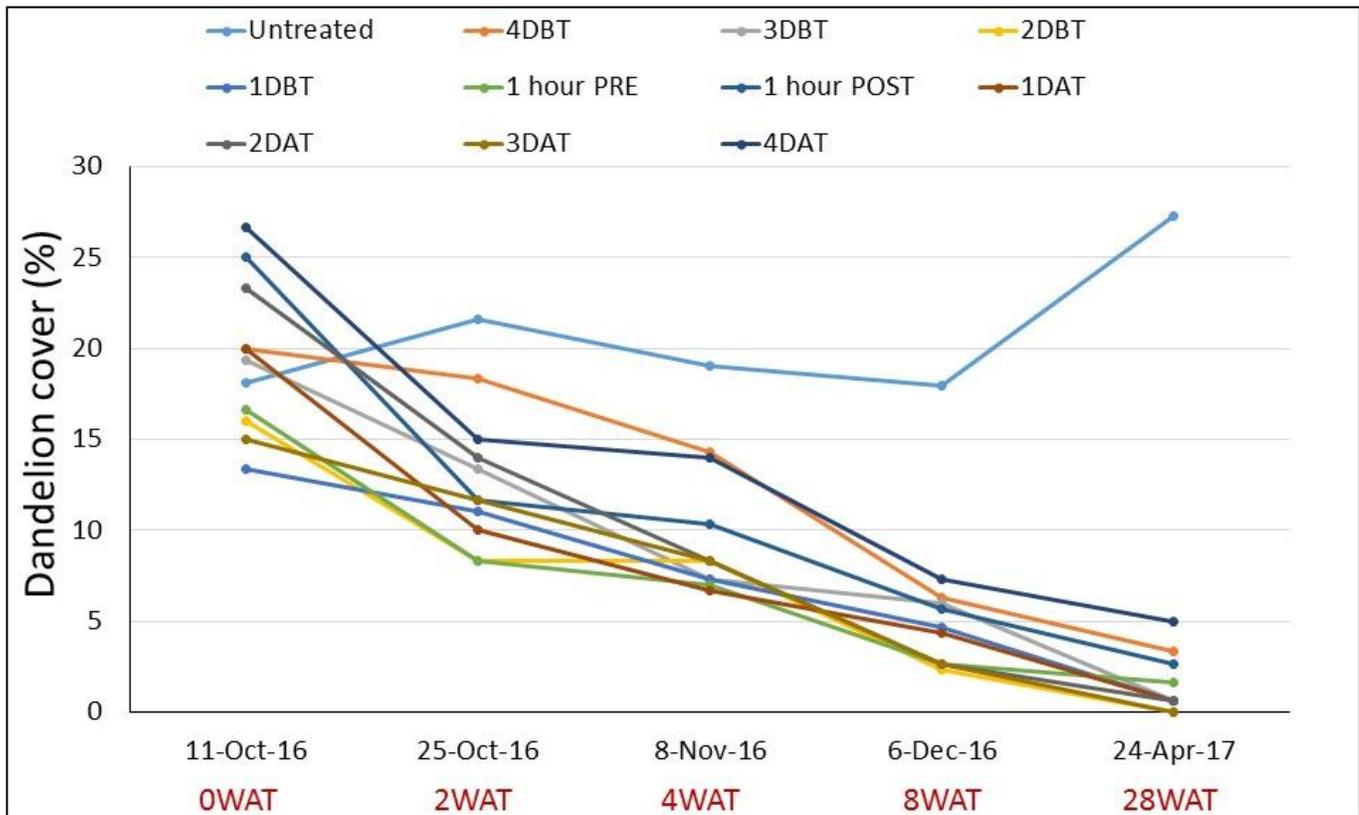


Figure 1. Effects of mowing treatments on the efficacy of a fall application of *Trimec Classic* in Mead, NE.



Figure 2. Effects mowing treatments on the efficacy of a fall application of *Trimec Classic* in Mead, NE. *Left:* not treated with herbicide; *right:* representative of mowing 4 days before to 4 days after treatment with herbicide. Pictures taken 24 April 2017 (28 weeks after treatment).

While this may be surprising, I suspect the lack of reduced control has more to do with the lack of leaf biomass removed from weeds during mowing than it does with the timing of mowing. Only small amounts of dandelion leaves were removed during mowing in this study, meaning the translocation of absorbed herbicide was unaffected. Our results may have been different if we completely defoliated our research plots following treatment. However, I don't think results would have been drastically different at a lower mowing height – as long as weeds aren't scalped, the treated leaf material often remains after mowing turf. Researchers at Purdue recently evaluated the effects of mowing timing on the efficacy of various herbicides on ground ivy, and came to similar conclusions (Beck et al., 2014).

Other broadleaf herbicide considerations. Most herbicides for broadleaf weeds should not be used until turf is “well-established.” In general, this is after new seedlings have been mowed 2-4 times, or 3-4 weeks after sodding. Recommendations vary, so be sure to read the label of your chosen herbicide before use. There are exceptions. *Tenacity* (mesotrione) may be applied at seeding, or after seedlings have been mowed twice (or 4 weeks after seedling emergence, whichever is longer). *Quicksilver* (carfentrazone-ethyl) may be applied as soon as 7 days after the emergence of seedlings of several species.

Granular herbicides typically need to adhere to leaves for maximum efficacy. Ensure a small amount of leaf wetness by lightly irrigating before using granular herbicides, or by applying early in the morning when dew is present. Granular products can be applied more uniformly by making applications in two directions at half the desired use rate. Since active ingredients are the same as for liquid herbicides, the same duration for safe application following establishment applies for granular herbicides.

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Reference

Beck, L. L., A. J. Patton, and D. V. Weisenberger. 2014. Mowing before or after an herbicide application does not influence ground ivy (*Glechoma hederacea*) control. *Applied Turfgrass Science*. DOI: 10.2134/ATS-2013-0017-RS.