

ESTABLISHMENT AND PRODUCTIVITY OF FORAGE LEGUMES FOLLOWING FALL HERBICIDE APPLICATIONS. Mark J. Renz and John W. Albright, Professor and Research Program Manager, University of Wisconsin, Madison, WI 53706.

Previous research in Wisconsin has shown that herbicide applications with aminopyralid at 0.087 to 0.122 kg ae ha⁻¹, metsulfuron at 0.042 kg ha⁻¹, and imazapic at 0.21 kg ha⁻¹ during the fall reduced establishment of forage legumes the following spring 7 months after treatment (MAT). Experiments were continued at two locations in Arlington and Lancaster Wisconsin to evaluate establishment of a range of legume forages established in the fall, 11 MAT, and the resulting yield of forage legumes planted at both timings 20 and 22 MAT. Treatments in this experiment included aminopyralid (0.054, 0.087 and 0.122 kg ae ha⁻¹), clopyralid (0.420 kg ae ha⁻¹), metsulfuron (0.042 kg ha⁻¹), imazapic (0.210 kg ha⁻¹), 2,4-D + dicamba (0.560 + 1.57 kg ae ha⁻¹) and an untreated control. Plots were treated on October 25th and 20th 2006 and then forage species planted 7 MAT on May 16th and 18th and 11 MAT on September 9th and 12th at Arlington and Lancaster respectively. Legume species planted included alfalfa, red clover, and white clover. Frequency of species planted in the fall was counted in 12 locations within each plot on October 31st at Arlington and November 7th at Lancaster. Resulting biomass for each species was harvested 20 MAT for the spring planted legumes and 22 MAT for the late summer planted legumes. Frequency and biomass was divided by untreated controls and data were analyzed by ANOVA for each species separately.

Significant differences ($p < 0.05$) between establishment of alfalfa 11 MAT was only observed for clopyralid treatments at the Arlington site. All other treatments resulted in no reduction in establishment of any legume at both sites. Aboveground biomass of legumes, however only differed in spring plantings that were treated with metsulfuron at 0.042 kg ha⁻¹. This treatment resulted in 93-100% reductions in alfalfa, red and white clover biomass compared to untreated plots 20 MAT. In contrast, no reductions in biomass harvested 22 MAT were detected in summer plantings 11 MAT with any treatment across both sites.

This research demonstrates that while legumes can be established 7 MAT in Wisconsin, treatments of aminopyralid, metsulfuron, clopyralid, and imazapic have the potential to reduce establishment of legumes. Although our research only found reductions in biomass from treatments containing metsulfuron, the potential exists to reduce biomass if establishment is reduced enough. Unless this risk is acceptable, we recommend waiting a minimum of 11 MAT after using aminopyralid, metsulfuron, clopyralid, and imazapic before planting legumes as this will minimize the risk of yield loss from these herbicides.