FALL-APPLIED HERBICIDES DIFFER IN SPRING DANDELION CONTROL AND SURVIVORSHIP. Timothy L. Trower*, Chris M. Boerboom, and Mark J. Renz, Senior Outreach Specialist, Professor, and Assistant Professor, Department of Agronomy, University of Wisconsin, Madison, WI 53706.

Dandelion is the most common overwintering weed of no-till fields in Wisconsin and it is difficult to obtain highly effective and consistent control with spring burndown herbicide treatments. Therefore, we wanted to determine the efficacy of fall-applied herbicide treatments for dandelion control. Experiments were initiated in the fall of 2006 and 2007 at the Arlington Agricultural Research Station in corn fields where the stalks were chopped and removed in 2006 and remained after combining in 2007. The 19 herbicide treatments consisted of five ALS-inhibiting herbicides or their premixtures, flumioxazin, glyphosate, 2,4-D, and their combinations. Treatments were applied on November 14, 2006 and October 3, 2007 with air temperatures of 5 and 7 C, respectively. Fifteen dandelion plants were marked in four selected treatments to determine survivorship the following spring. In the subsequent May, dandelion control was visually rated compared to a nontreated control. Winter survivorship was determined by counting marked plants with visible green growth and 15 cm of the roots were extracted from the soil, divided into 1 cm sections, and treated with tetrazolium chloride. Respiring roots stained red and we inferred that these roots were alive and could contribute to regrowth.

None of the eight individual herbicide or premixed herbicides controlled greater than 90% of the dandelions in both years. Chlorimuron at 18 g ai/ha controlled 93% of the dandelion on May 18, 2007 and glyphosate at 0.84 kg ae/ha controlled 96% of the dandelion on May 30, 2007. Iodosulfuron at 2 g ai/ha controlled over 80% of the dandelion in both years. Rimsulfuron plus thifensulfuron, tribenuron, chorimuron plus thifensulfuron, flumioxazin, or 2,4-D did not exceed 80% control in one or both years. Four tank mixtures that controlled dandelion at 95% or greater in both years were 1) rimsulfuron plus thifensulfuron plus tribenuron plus 2,4-D (12 g ai/ha plus 6 g ai/ha plus 7 g ai/ha plus 0.5 kg ae/ha) , 2) chlorimuron plus thifensulfuron plus tribenuron plus 2,4-D (6 g/ha plus 2 g/ha plus 7 g/ha plus 0.5 kg/ha), 3) chlorimuron plus tribenuron plus 2,4-D (17 g/ha plus 5 g/ha plus 0.5 kg/ha), and 4) chlorimuron plus flumioxazin plus tribenuron plus 2,4-D (22 g/ha plus 63 g ai /ha plus 4 g/ha plus 0.5 kg/ha). Measurement of plant survivorship and tissue viability with tetrazolium was not entirely consistent with the visual ratings. Dandelions survived glyphosate at 47 and 8% and 27 and 7% of roots were viable in 2007 and 2008, respectively, which were consistent with visual control ratings of 59 and 96%. Survival and root viability with the rimsulfuron plus thifensulfuron plus tribenuron plus 2,4-D treatment was 5% or less, which also corresponded to observed control of 96 to 97%. However, survival and root viability after 1 kg/ha of 2,4-D was less than 4% in both years, which indicated greater response than the 67 to 74% control observed. Overall, these results suggest that herbicide mixtures can be applied in late fall to obtain adequate or excellent dandelion control the following spring. Mixtures of ALS-inhibiting herbicides with 2,4-D or glyphosate increased control as compared to individual herbicides in several cases and the most effective and consistent treatments were always tank mixtures. Three of the most effective herbicide treatments are labeled for rotation to soybean in the spring and one highly effective treatment would allow rotation to corn. Wisconsin no-till growers should consider fall herbicide applications for effective dandelion control.

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