

## **Efficacy of Two Sugar Beet Juice Extract Products as a Herbicide for Broadleaf Weed Control in Turf 2005-2008**

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### **Objective**

To evaluate the efficacy of Juicy Lawn, Nature's Weed and Feed, Par III and a turf fertilizer (25-3-20) for control of broadleaf weeds in turf.

### **Experimental Design/Methods**

Plots were located in a turf research area at the Guelph Turfgrass Institute, Guelph, ON. The site is an area of established turf (predominantly turf-type perennial ryegrass infested with dandelions, clover and other lawn weeds). Turf is maintained as a low maintenance turf with weekly mowing at 6 cm and no supplemental irrigation.

The treatments were two different formulations of sugar beet extract products applied at one rate, a complete turf fertilizer applied at one rate, Par III (a commercially available three way broadleaf herbicide consisting of 2,4 D, mecoprop and dicamba) applied at one rate and an untreated control for a total of five treatments (see Table 1). Each treatment was replicated four times in 5 x 5 m plots in a randomized complete block design. Percent weed cover was measured in each plot three times per season and all measurements were analysed by the appropriate statistical analyses.

**Table 1. Treatments**

Treatment	Application Rate (mL 100 m <sup>-2</sup> )
1. Untreated control	
2. Par III (2,4 D, mecoprop and dicamba)	55 mL
3. Juicy lawn (15-2-3)	1100 mL
4. Fertilizer (25-3-20)	800 g
5. Nature's Weed and Feed (7-0-5)	2000 mL

### **Application of the Treatments:**

Juicy Lawn, Nature's Weed and Feed and Par III treatments were applied with a Chapman RB2000 4 L hand held pump garden sprayer. Nature's Weed and Feed was diluted 1:1 with water for a total volume of 4000 mL/100m<sup>2</sup>. Juicy Lawn was applied at a ratio of 1:3 Juicy Lawn to water for a total volume of 4400 mL/100m<sup>2</sup> and fertilizer was applied with a Scotts drop spreader set at #16 fertilizer setting. Par III was applied at label rate with 3000 mL/100m<sup>2</sup> of water. Juicy Lawn and Nature's Weed and Feed were applied 1-2 weeks apart during spring (May) and fall (mid-Aug. –mid -Sept.). During the 2008 season, we were unable to obtain Nature's Weed and Feed and Juicy Lawn was substituted for the Nature's Weed and Feed treatment. Juicy Lawn and Nature's Weed and Feed were applied on Aug. 15, 2005, Sept. 7, 2005, May 29, 2006, June 12, 2006, Aug. 8, 2006, Sept. 14, 2006, June 6, 2007, June 11, 2007, Oct. 11, 2007, Oct. 24, 2007, May 23, 2008, June 2, 2008, Sept. 8, 2008 and Sept. 17, 2008. Par III was applied on Aug. 15, 2005, June 7, 2006, Sept. 28, 2006, June 28, 2007, Oct. 12, 2007, July 8, 2008 and Sept. 18, 2008. Fertilizer was applied on Aug. 15, 2005, June 12, 2006, Sept. 14, 2006, June 10, 2007, Aug. 13, 2007, June 9, 2008 and Sept. 18, 2008.

### **Efficacy assessments**

Efficacy assessments were made once in 2005, because the project only began in the fall of that year and three times a year for 2006, 2007 and 2008. Four randomized point quadrats measuring 60 cm x 60 cm with 25 points in each quadrat (points 10 cm apart) for a total of 100 points in each plot were used to record estimated percent broadleaf weed cover per plot at each assessment date. Efficacy assessments were made prior to the start of the experiment on Aug. 5, 2005. Efficacy assessment dates were Sept. 9, 2005, Nov. 14, 2005, May 23, 2006, July 5, 2006, Oct. 18, 2006, June 1, 2007, July 5, 2007, Nov. 7, 2007. The only data presented below are the dates where there were significant differences among the two beet juice products and fertilizer treatment (Table 2.)

## Results

**Table 2. Percent broadleaf weed cover**

Treatment	Rating Dates					
	23-05-06	18-10-06	20-11-07	06-18-08	07-16-08	11-08-08
Weedy check	47.4a <sup>1</sup>	52.8.a	25.5ab	32.75 a	58 a	64.5 a
Fertilizer (25-3-20)	43.8ab	46.2b	28.5a	26.25 ab	49.7 ab	62.5 a
Juicy Lawn	41.8ab	48ab	19.5bc	22.25 b	40.25 b	52.75 b
Nature's Weed and Feed	37.4b	44.8b	13.25c			
Par III	2.4c	0.8c	.25d	.75 c	.5 c	2.25 c

<sup>1</sup>Mean percent broadleaf weed cover by point quadrat estimation. Means of 4 replicates; means within columns followed by the same letter are not significantly different (Fisher's protected LSD, p=.05).

### Conclusions

Par III was significantly different from all other treatments at all rating dates and gave superior post-emergence broad-leaf weed control. When comparing the two beet juice extract products, Nature's Weed and Feed performed significantly better than the fertilizer at one rating date (20-11-07) and Juicy Lawn performed significantly better than the nitrogen only plots on the final rating date (8-11-08). The post-emergence broadleaf weed suppression from the two beet juice extract products was not consistently better than fertilizer alone and was far inferior to Par III.

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