Standard-2 Protocol Efficacy of Canadian Bioherbicide against Dandelions and other Broadleaf Weeds

Matt Klingenberg and Nick Christians

Introduction:

The objective of this experiment is to determine the effect of dose and number of applications of the Canadian Bioherbicide for maximum control of broadleaf weeds in established South Dakota Common Kentucky bluegrass turf. This trial was located at the Iowa State University research station near Gilbert, Iowa.

Materials and Methods:

This trial was designed as a randomized complete block design. This study had 14 different treatments including a control (Table 1). There were four different rates for this treatment 8 g/m^2 32 g/m^2 64 g/m^2 and 128 g/m^2. Each of these different rates had three different numbers of applications including a Jun/Jul applications, Jun/Jul/Aug application, and a Jun/Jul/Aug/Sept applications. The dates of application were June 1, July 1, August 3, and September 4. The method of application was a shaker box. The plots were set up to be 3 x 3 square foot plots.

Pre-counts of weeds were made before the first application (Table 2 and 3). Count of dandelion and clover percentage was taken on biweekly intervals throughout the season. Injury ratings were taken 2 week intervals after the first treatment. Weed damage was based on a scale of 5 to 0 with 0 being no injury to weeds and 5 being all weeds dead.

Results:

The Weed-B-Gon provided the best weed control throughout the 18 weeks of the study.
The control of dandelion generally increased with an increased number of hplc counts from 1600 to 25,600 $hplc/m^2$, and with an increased number of applications per season. The 25,600 count material, applied in June, July, August and September provided the best control among the biohercide treatments.

Clover percentage cover was greatly reduced in all plots following the 8th WAT due to environmental stress on the clover, even though the area was irrigated. Early in the season, before the clover was affected by environmental stress, the 25,600 count bioherbicide was having the greatest effect on the clover.

Weed injury increased with the hplc count of the material and with number of applications as would be expected.

Trt No	Formulation	Frequency	Con. Hplc/ 100 mg	Rate hplc/m^2	Product Rate G product/m^2	Product Rate g product/9ft^2

Table 1 Treatment, formulation, frequency, and rates of product

Trt No	Formulation	Frequency	Con. Hplc/ 100 mg	Rate hplc/m^2	Product Rate G product/m^2	Product Rate g product/9ft^2
1	S12640	Jun/Jul	20	1600	8	6.7
2	S12640	Jun/Jul/Aug	20	1600	8	6.7
3	S12640	Jun/Jul/Aug/Sept	20	1600	8	6.7
4	S12640	Jun/Jul	20	6400	32	26.8
5	S12640	Jun/Jul/Aug	20	6400	32	26.8
6	S12640	Jun/Jul/Aug/Sept	20	6400	32	26.8
7	S12640	Jun/Jul	20	12800	64	55.5
8	S12640	Jun/Jul/Aug	20	12800	64	55.5
9	S12640	Jun/Jul/Aug/Sept	20	12800	64	55.5
10	S12640	Jun/Jul	20	25600	128	107.7
11	S12640	Jun/Jul/Aug	20	25600	128	107.7
12	S12640	Jun/Jul/Aug/Sept	20	25600	128	107.7
13	Weed-B-Gon	Jun				
14	Untreated					

Table 2. Count of Dandelion over the 20 weeks that data were taken

	Pre-Count	2 WAT	4 WAT	6 WAT	8 WAT	10 WAT	12 WAT	14 WAT	16 WAT	18 WAT
1	30	31	32	29	33	34	35	35	41	50
2	25	26	20	19	16	15	33	20	25	32
3	32	34	26	27	32	26	36	29	32	42
4	38	37	28	22	33	40	37	31	33	50
5	34	36	29	24	23	24	18	26	28	36
6	31	28	26	23	24	14	14	18	22	26
7	40	39	23	26	21	29	24	30	30	36
8	33	35	21	18	17	17	14	14	21	27
9	45	35	27	28	21	22	20	24	28	31
10	40	36	26	22	18	19	26	33	29	45
11	36	40	21	23	19	14	17	21	15	21
12	30	26	14	10	4	6	4	9	8	4
13	38	0	0	0	0	0	3	1	1	3
14	37	41	30	31	35	35	31	42	42	52
LSD	NS	16	13	13	18	14	17	14	16	19

Table 3. Percent Clover over the 20 weeks that data were taken

	Pre-Count	2 WAT	4 WAT	6 WAT	8 WAT	10 WAT	12 WAT	14 WAT	16 WAT	18 WAT
1	46	33	20	30	10	6	7	2	1	5
2	24	23	14	26	11	5	11	2	2	5
3	13	24	8	11	4	4	5	2	3	3
4	30	31	21	35	6	3	4	3	3	5
5	14	16	10	21	3	1	1	1	0	0
6	20	30	16	23	0	1	1	2	2	0
7	44	40	24	44	4	1	3	2	1	1
8	25	31	16	30	1	1	2	1	1	1
9	29	40	25	45	3	2	2	3	2	0
10	43	26	11	20	1	1	2	2	1	1
11	58	30	19	24	3	0	1	2	1	0
12	25	17	10	19	0	1	2	2	2	0
13	36	0	0	0	0	0	0	1	0	0
14	48	35	23	30	16	9	6	2	1	7
LSD	NS	21	NS	NS	9	4	5	NS	NS	4

Table 4. Weed Injury over the 18 weeks that data were taken

	2 WAT	4 WAT	6 WAT	8 WAT	10 WAT	12 WAT	14 WAT	16 WAT	18 WAT
1	1	1	1	2	1	2	2	0	0
2	1	1	1	1	2	2	2	0	0
3	1	2	2	3	3	3	2	3	2
4	2	2	2	3	1	2	2	0	0
5	2	1	3	2	4	2	2	1	0
6	2	2	3	3	3	2	2	4	3
7	3	3	3	2	1	2	2	0	1
8	3	2	3	3	4	3	2	2	2
9	3	3	4	2	4	3	2	4	4
10	3	2	3	2	1	2	2	1	0
11	3	3	4	2	4	3	2	2	2
12	3	3	3	2	4	4	3	5	5
13	5	5	5	0	1	0	0	0	0
14	1	0	0	1	2	2	2	1	1
LSD	1	1	1	1	1	1	1	1	1