Dithiopyr Safety and *Poa annua* Control During Creeping Bentgrass Establishment

Kimberly Ralston-Hooper and Zac Reicher

Objective

To determine optimum Dimension 1EC application timing that prevents *Poa annua* germination without inflicting injury on creeping bentgrass during establishment.

Rationale

Poa annua is the most problematic weed golf course superintendents encounter because of its difficulty to control once it invades a turf area. Renovation is often used to minimize *Poa annua* infestations in fairways, but its persistence in the soil limits many control options during renovation.. Soil fumigants are successful in eradicating *Poa annua* in the soil, but they are not practical on large areas such as fairways. A greenhouse trial performed in January of 2000 demonstrated Dimension 1EC successfully controls *Poa annua* germination. Also, prior research conducted at Purdue suggests that Dimension 1EC could be applied 10 days after emergence (DAE) with no injury to creeping bentgrass seedlings. Dimension 1EC can be used during the establishment of creeping bentgrass seedlings while minimizing *Poa annua* during renovation.

How it was done

Field work began in August 2000 at the Daniel Center and #16 fairway on the Ackerman Hills Golf Course. The experiment consists of three studies. One study is the safety of Dimension 1EC on creeping bentgrass. The second study is determining the effect of Dimension 1EC on *Poa annua* emergence. The third study a combination of the first two, and examining the interaction between *Poa annua* control and creeping bentgrass establishment. Creeping bentgrass was seeded either in August or September at 1 lb/1000ft^2. Dimension 1EC at 0.25 lbs ai/A was initially applied 0, 7, 14, and 21 days after emergence (DAE) of creeping bentgrass. Sequential applications were applied four weeks following the initial in order to determine the safety and residual control of *Poa annua*.

Results after one year

- August seeding allows a greater margin of safety for Dimension 1EC on creeping bentgrass when compared to September seeding (14 DAE verses >21 DAE).
- Sequential applications did not inflict greater injury to creeping bentgrass than initial applications for both August and September seeding.
- The 0 DAE treatment was the only treatment that significantly reduced *Poa annua* emergence.
- Sequential applications did not improve *Poa annua* control. However, this treatment also severely reduced creeping bentgrass establishment, but results are preliminary.

Table 1. Percent cover of applications of Dimension to Mid-August 2000 creeping bentgrass.

	7 DAE		14 DAE		21 DAE		35 DAE		42 DAE		49 DAE	
	Application		Application		Application		Application		Application		Application	
Trt (DAE)	single	seq	single	seq	single	seq	single	seq	single	seq	single	seq
0	12	5	3	4	2	2	12	15	13	15	22	17
7			32	27	22	23	52	47	63	52	77	72
14					42	45	65	68	75	72	85	78
21							88	83	85	85	87	85
Check	30		57		53		88		92		93	

Table 2. Percent cover of applications of Dimension to Mid-Sept 2000 creeping bentgrass.

	7 DAE		14 DAE		21 DAE		35 DAE		42 DAE		49 DAE	
	Application		Application		Application		Application		Application		Application	
Trt (DAE)	single	seq	single	seq	single	seq	single	seq	single	seq	single	seq
0	4	3	3	4	5	5	4	4	10	12	13	8
7			13	15	22	23	38	28	38	42	38	38
14					30	42	40	47	43	50	40	45
21							60	70	63	68	52	53
Check	15		27		63		78		80		76	

Table 3. Percent cover of applications of Dimension to Mid-August 2000 *Poa annua.*

	7 DAE		14 DAE		21 DAE		35 DAE		42 DAE		49 DAE	
	Application		Application		Application		Application		Application		Application	
	single	seq	single	seq	single	seq	single	seq	single	seq	single	seq
Trt (DAE)												
0	4	7	3	4	4	5	12	27	30	33	48	40
7			4	10	4	9	14	40	33	47	60	62
14					7	15	35	47	40	47	63	83
21							33	42	40	48	80	90
Check	9		6		15		32		33		57	

Table 4. Percent cover of applications of Dimension to Mid-Sept 2000 *Poa annua.*

	7 DAE		14 DAE		21 DAE		35 DAE		42 DAE		49 DAE	
	Application		Application		Application		Application		Application		Application	
	single	seq	single	seq	single	seq	single	seq	single	seq	single	seq
Trt (DAE)												
0	35	22	38	23	65	52	87	73	90	87	96	86
7			52	40	80	63	92	80	95	93	96	89
14					66	77	87	93	95	97	94	96
21							98	97	99	98	99	97
Check	47		55		90		97		99		99	