Growth suppression of rough turf at Rosemount, MN - 1997. Becker, Roger L. The objective of this study was to determine the suitability of imazameth, mefluidide, and EH-1135(imazapyr, imazethapyr, and mefluidide) as growth regulators at various rates. The site was an established smooth bromegrass / Kentucky bluegrass pasture located at the Agronomy Farm in Rosemount. The area was burned prior to spring regrowth. The experimental design was a randomized complete block with three replications. Plot size was 10 ft x 25 ft. Herbicide treatments were applied to the center 6 ft of each plot with a backpack type sprayer delivering 20 gpa at 35 psi with 11002 nozzles. Some of the chemicals were not available by the first application and were applied at the later June date. Prior to the later application date, grass seed heads had emerged and were chopped with a flail type mower. Application data are listed below. Injury symptoms and growth reduction of smooth bromegrass are presented.

Date Treated	5-24-97	6-9-97
Time	1:45-2:15 pm	12:00-12:15 pm
Smooth Bromegrass		
Height	6-11"	--
Stage	veg.	--
Kentucky Bluegrass		
Height	5-8"	--
Stage	veg.	--
Wind (mph)	0-5 E	3-5 SE
Temperature (°F)		
Air	62	68
Soil	52	59
Soil Moisture	dry	moist
Relative Humidity (%)	34	59
Cloud Cover (%)	clear	40
Rainfall before Application		
Week 1 (inch)	1.01	0.59
Rainfall after Application		
Week 1 (inch)	0.18	0.38
Week 2 (inch)	0.57	0.30

Imazameth provided acceptable growth suppression of smooth bromegrass at 0.094 lb ai/A with minimal necrosis by the September rating. Seedhead suppression was complete with 0.094 lb imazameth or higher rates. The least visible bromegrass leaf necrosis occurred at the lowest rate used, 0.063 lb ai/A at the July rating. The use of 2,4-D with imazameth at 0.063 and 0.094 lb ai/A did not altar growth reduction or seedhead suppression. There were no consistent differences in necrosis of smooth bromegrass due to the addition of 2,4-D to imazameth, although there was less

injury at the July rating with the 0.094 lb rate when 2,4-D was added.

Mefluidide provided reasonable and extremely uniform growth reduction of smooth bromegrass. There were no additional benefits to using the higher 0.5 lb rate of mefluidide compared with the 0.25 lb rate for grass growth reduction, seedhead suppression, or to minimizing necrosis. Growth reduction of smooth bromegrass provided by EH-1135 did not improve by increasing rates over the lowest rate tested, 0.075 lb ai/A. The most seedhead development occurred with EH-1135 of any of the compounds tested. The highest rate, 0.125 lb ai/A was required to prevent virtually all seedheads from emerging, though still not complete. EH-1135 resulted in the least amount of leaf necrosis to smooth bromegrass of any of the compounds tested.

Imazameth appeared to reduce the stand of smooth bromegrass and caused severe leaf necrosis when viewed at the July ratings which may not meet aesthetic criteria for some users. The severe necrosis was not as evident by the September rating, but the turf still appeared much more uneven and ragged when compared with those areas treated with mefluidide or EH-1135. By the September ratings, all plots treated with any of the three growth regulators was more aesthetically pleasing than untreated control areas. Untreated controls had considerable leaf necrosis and senescence with mature seedheads detracting from the visual appearance of non-treated areas.

The Stronghold and Stronghold plus arsenal treatments did not arrive in time for application prior to seedhead emergence of smooth bromegrass. Therefore, areas to be treated were clipped to reduce seedhead emergence and vegetative growth, and then treated two weeks later. No visible growth reduction could be rated in the Stronghold treatments following clipping. Necrosis was evident in these areas at the September rating yet there was less expression of leaf senescence and necrosis when compared with the untreated checks. Again, the untreated checks appeared to be the least aesthetically desirable of any plot areas based on the excessive leaf necrosis and senescence and the presence of mature seedheads.

Table. Growth suppression of rough turf at Rosemount, MN - 1997 (Becker and Miller).

Treatment	Rate	Grass Suppression 7/30	Grass Suppression 9/3	Seedhead Suppression 7/30	Seedhead Suppression 9/3	Leaf Necrosis 7/30	Leaf Necrosis 9/3
	(lb/A)	(%)					
Postemergence (May 24)							
Imazameth + Sun-It II CO[1]	0.063 + 1.0%	54	27	98	93	12	4
Imazameth + Sun-It II CO	0.094 + 1.0%	67	36	100	100	40	4
Imazameth + Sun-It II CO	0.125 + 1.0%	73	45	100	100	44	13
Imazameth + Sun-It II CO + 2,4-D butoxyethyl ester	0.063 + 1.0% + 1.0	53	28	100	100	20	7
Imazameth + Sun-It II CO + 2,4-D butoxyethyl ester	0.094 + 1.0% + 1.0	62	39	100	100	26	13
2,4-D butoxyethyl ester	1.0	0	0	0	0	0	35
Mefluidide + Sun-It II CO	0.25 + 1.0%	62	43	100	100	28	8
Mefluidide + Sun-It II CO	0.5 + 1.0%	65	42	100	100	24	7
Mefluidide & imazethapyr & imazapyr[2] + Sun-It II CO	0.075 + 1.0%	45	28	87	88	5	15
Mefluidide & imazethapyr & imazapyr[2] + Sun-It II CO	0.094 + 1.0%	45	25	90	90	3	13
Mefluidide & imazethapyr & imazapyr[2] + Sun-It II CO	0.125 + 1.0%	52	30	95	98	5	9
Check		0	0	0	0	0	34
Postemergence (June 9)							
Mefluidide & imazethapyr & imazapyr[3]	12	--	--	--	--	--	22
Mefluidide & imazethapyr & imazapyr[3]	16	--	--	--	--	--	23
Mefluidide & imazethapyr & imazapyr[3] + imazapyr	+ 1.5	--	--	--	--	--	25
Mefluidide & imazethapyr & imazapyr[3] + imazapyr	+ 1.0	--	--	--	--	--	22
LSD (0.05)		14	12	6	8	13	11

[1] Sun-It II CO = Sun-It II methylated sunflower oil.
[2] Premix = EH-1135 1.83 L formulation.
[3] Premix = ?????? Stronghold ??????L, commercial formulation.