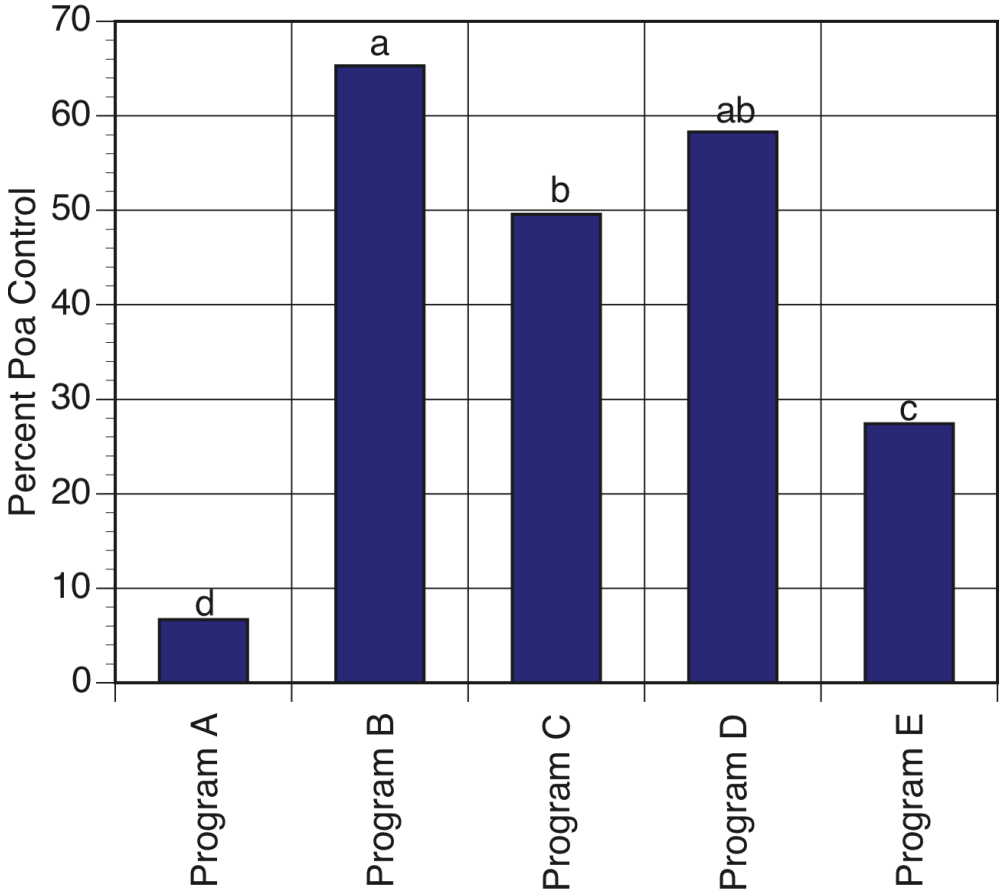
Figure 1: Velocity Field Time-lapse – Poa Control - 2008



Program A: 6 @ 10g 7-d int.

Program B: 8 @ 10g 7-d int.

Program C: 3 @ 30g 14-d int.

Program D: 4 @ 30g 14-d int.

Program E: 4 @ 10g
(6/15, 6/28, 9/14, 9/28)

All programs started 6/15/07.

Table 6: Evaluation of Cutless, Trimmit, and SP5075 (Legacy) for Poa Control Trial – 2007

Treatment	Rate	Bentgrass Injury – 2007*		
		June 27 7 DAT-A	July 30 40 DAT-A	August 13 54 DAT-A
		injury (1-9)		
Cutless	8 oz/A	1.3 cd	1.0 d	1.0 c
Cutless	16 oz/A	2.3 ab	2.3 b	1.7 bc
Cutless	24 oz/A	3.0 a	4.0 a	3.0 a
SP5075	7.35 fl oz/A	2.3 ab	1.0 d	1.0 c
SP5075	14.7 fl oz/A	2.7 ab	1.3 cd	1.0 c
SP5075	22 fl oz/A	2.7 ab	2.0 bc	1.7 bc
Trimmit	8 fl oz/A	2.0 bc	1.0 d	1.3 bc
Trimmit	16 fl oz/A	2.0 bc	2.3 b	1.7 bc
Trimmit	24 fl oz/A	2.7 ab	3.3 a	2.3 ab
Untreated		1.0 d	1.0 d	1.0 c
LSD (p=0.05)		0.92	0.75	1.06

† Means followed by same letter do not significantly differ (P=0.05, LSD).
* injury recorded from July 5, July 11, July 20, August 30, Sept. 14, and Oct. 5, 2007 did not differ between treated and untreated plots

Table 7: Evaluation of Cutless, Trimmit, and SP5075 (Legacy) for Poa Control Trial – 2007

Treatment	Rate	Quality - 2007			
		July 30 40 DAT-A	August 13 54 DAT-A	August 30 71 DAT-A	September 14 86 DAT-A
		quality (9-1)			
Cutless	8 oz/A	6.0 abc	7.0 ab	7.3 a	6.7 ab
Cutless	16 oz/A	4.7 cd	5.3 cd	7.0 a	6.0 b
Cutless	24 oz/A	3.7 d	3.7 e	6.3 a	6.0 b
SP5075	7.35 fl oz/A	6.7 a	7.0 ab	7.7 a	7.3 a
SP5075	14.7 fl oz/A	6.3 ab	6.3 bc	7.7 a	7.3 a
SP5075	22 fl oz/A	5.7 abc	5.3 cd	8.0 a	7.7 a
Trimmit	8 fl oz/A	5.7 abc	7.0 ab	8.0 a	7.3 a
Trimmit	16 fl oz/A	5.0 bcd	5.0 cde	7.3 a	7.3 a
Trimmit	24 fl oz/A	4.0 d	4.3 de	7.3 a	6.7 ab
Untreated		6.7 a	8.0 a	6.7 a	6.7 ab
LSD (p=0.05)		1.63	1.51	1.41	1.11

† Means followed by same letter do not significantly differ (P=0.05, LSD).

Table 8: Evaluation of Cutless, Trimmit, and SP5075 (Legacy) for Poa Control Trial – 2007

Treatment	Rate	Annual Bluegrass Population - 2008			
		May 2 317 DAT-A	May 8 323 DAT-A	May 2 317 DAT-A	May 8 323 DAT-A
		percent		percent control (HT)*	
Cutless	8 oz/A	3.7 bcd	3.7 cd	28.9 cde	56.9 bcd
Cutless	16 oz/A	2.7 cd	2.0 d	56.3 abc	76.4 ab
Cutless	24 oz/A	1.0 d	0.7 d	84.7 a	94.4 a
SP5075	7.35 fl oz/A	6.7 ab	9.3 ab	22.2 de	33.3 de
SP5075	14.7 fl oz/A	2.7 cd	5.0 bcd	56.2 abc	50.0 cde
SP5075	22 fl oz/A	3.3 cd	4.3 bcd	46.3 bcd	59.7 bc
Trimmit	8 fl oz/A	4.3 bc	8.7 abc	37.8 bcd	28.3 e
Trimmit	16 fl oz/A	2.3 cd	3.7 cd	68.1 ab	78.3 ab
Trimmit	24 fl oz/A	2.7 cd	4.0 bcd	69.2 ab	80.0 ab
Untreated		8.7 a	12.7 a	0.0 e	0.0 f
LSD (p=0.05)		3.10	2.71	32.30	25.24

† Means followed by same letter do not significantly differ (P=0.05, LSD).
* Henderson-Tilton pre-count/post-count method used.

Table 9: 2007/2008 Prograss Formulations and Generic Comparisons Trial – *Poa annua* Control
HTRC, East Lansing, MI, Michigan State University

Treatment	Rate		App. Code	May 16 227 DA-A		July 10 282 DA-A
				percent control		
Prograss	1.5	oz/M	AB	54.4	b†	33.3
Prograss	3	oz/M	AB	100	a	66.7
Prograss SC	0.563	oz/M	AB	85.2	ab	66.7
Prograss SC	1.13	oz/M	AB	100	a	47.2
Prograss SC MSO	0.563 1	oz/M qt/A	AB	88	ab	33.3
Prograss SC MSO	1.13 1	oz/M qt/A	AB	100	a	46.7
Poaconstrictor	0.563	oz/M	AB	80.8	ab	66.7
Poaconstrictor	1.13	oz/M	AB	95.8	a	55.6
HM9930	6	oz/M	A	79.8	ab	66.7
Untreated				0	c	0
LSD (P=0.05)				35.43		NS

† Means in a column followed by the same letter do not significantly differ (P=0.05, LSD).
NS indicates not significant.

Table 10: 2007/2008 *Poa annua* Control with Bayer Test Compound Trial – *Poa annua* Control HTRC, East Lansing, MI, Michigan State University

Treatment	Rate		App. Code	May 16 227 DA-A		July 10 282 DA-A
				percent control		
TC*	12.14	g/A	A	0	c†	6.7
TC	24.28	g/A	A	19.4	bc	33.3
TC	12.14	g/A	A	50	abc	0
TC	24.28	g/A	A	35.8	bc	66.7
TC	12.14	g/A	AC	62.2	ab	33.3
TC	12.14	g/A	C	11.1	bc	66.7
TC	24.28	g/A	C	48.1	abc	66.7
Barricade	0.74	oz/M	A	22.2	bc	66.7
Prograss EC	1.5	oz/M	AB	26.7	bc	53.3
Prograss EC	3	oz/M	AB	100	a	6.7
HM9930	6	oz/M	A	64.4	ab	33.3
Untreated				0	c	0
LSD (P=0.05)				56.1		NS

* Test Compound

† Means in a column followed by the same letter do not significantly differ (P=0.05, LSD). NS indicates not significant.

Table 11: Preemergence Annual Bluegrass Control with Tenacity During Renovation – 2008

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	App Code
1	TOUCHDOWN PRO	3	SL	3	QT/A	21DBP*	A
2	TOUCHDOWN PRO	3	SL	3	QT/A	21DBP	A
	TENACITY (A12738)	4	SC	0.156	LB A/A	AP**	B
3	TOUCHDOWN PRO	3	SL	3	QT/A	21DBP	A
	TENACITY (A12738)	4	SC	0.187	LB A/A	21DBP	A
	ACTIVATOR 90		L	0.25	% V/V	21DBP	A
4	TOUCHDOWN PRO	3	SL	3	QT/A	21DBP	A
	TENACITY (A12738)	4	SC	0.25	LB A/A	21DBP	A
	TENACITY (A12738)	4	SC	0.25	LB A/A	28DAP***	C
	ACTIVATOR 90		L	0.25	% V/V	28DAP	C
5	TOUCHDOWN PRO	3	SL	3	QT/A	21DBP	A
	TENACITY (A12738)	4	SC	0.187	LB A/A	21DBP	A
	ACTIVATOR 90		L	0.25	% V/V	21DBP	A
	TENACITY (A12738)	4	SC	0.156	LB A/A	AP	B
	TENACITY (A12738)	4	SC	0.156	LB A/A	21DBP	C
	ACTIVATOR 90		L	0.25	% V/V	21DBP	C
6	TOUCHDOWN PRO	3	SL	3	QT/A	21DBP	A
	UNTREATED						
	NO SEEDING						

* Days before planting.
** At Planting.
*** Days after planting.

Table 12: Postemergence Annual Bluegrass Control with Amicarbazone – 2008

Treatment	Rate		Jun/19/08 14 DA-A	Jun/26/08 21 DA-A	Jul/2/08 27 DA-A	Jul/10/08 35 DA-A	Jul/25/08 50 DA-A	Aug/15/08 71 DA-A
			percent annual bluegrass					
AMICARBAZONE*	2.5 OZ/A	A	85.7 ab	95.7 ab	98.7 a	96.3 a	100.0 a	100.0 a
AMICARBAZONE AMICARBAZONE (3 WAT)	2.5 OZ/A	A B	66.7 bc	83.3 ab	23.3 c	15.0 e	55.0 c	100.0 a
AMICARBAZONE AMICARBAZONE (5 WAT)	2.5 OZ/A	A C	71.7 b	81.7 b	89.3 a	89.3 ab	75.0 b	99.3 a
AMICARBAZONE	4 OZ/A	A	40.0 de	51.7 cd	58.3 b	77.7 bc	99.3 a	100.0 a
AMICARBAZONE AMICARBAZONE (3 WAT)	4 OZ/A	A B	48.3 cd	53.3 c	3.3 de	1.0 f	5.3 e	90.0 ab
AMICARBAZONE AMICARBAZONE (5 WAT)	4 OZ/A	A C	37.7 de	36.0 de	65.0 b	73.3 c	21.7 d	83.7 b
AMICARBAZONE	5 OZ/A	A	23.7 e	19.3 ef	18.3 cd	40.0 d	82.0 b	100.0 a
AMICARBAZONE AMICARBAZONE (3 WAT)	5 OZ/A	A B	21.7 e	10.7 f	1.0 e	0.0 f	4.7 e	81.7 b
AMICARBAZONE AMICARBAZONE (5 WAT)	5 OZ/A	A C	22.3 e	17.7 f	30.0 c	45.0 d	3.7 e	38.3 c
VELOCITY (3 WAT) VELOCITY (3 WAT)	30 G A/A	B C	96.7 a	99.3 a	99.3 a	92.7 a	32.7 d	92.3 ab
UNTREATED			99.3 a	100.0 a	100.0 a	99.3 a	100.0 a	100.0 a
LSD (P=.05)			20.21	16.98	17.19	13.78	14.56	14.83

† Means in a column followed by the same letter do not significantly differ (P=0.05, LSD).

* Every application of amicarbazone was tank-mixed with a non-ionic surfactant (Kinetic) at 0.25% v/v.

Table 13: Amicarbazone Tolerance on Creeping Bentgrass – 2008

Treatment	Rate	App. Timing	Aug/5/08 8 DA-A	Aug/12/08 15 DA-A	Aug/15/08 18 DA-A	Aug/25/08 28 DA-A	Sep/9/08 43 DA-A
			injury (1-9)**				
AMICARBAZONE*	2.5 OZ/A	A	4.0 bcd	4.7 bc	4.3 bc	4.7 bc	4.3 cd
AMICARBAZONE (3 WAT)	2.5 OZ/A	B					
AMICARBAZONE	2.5 OZ/A	A	5.0 ab	5.0 bc	4.7 bc	3.3 cd	4.3 cd
AMICARBAZONE (5 WAT)	2.5 OZ/A	C					
AMICARBAZONE	4 OZ/A	A	4.3 bc	4.7 bc	4.3 bc	5.3 b	4.7 c
AMICARBAZONE (3 WAT)	4 OZ/A	B					
AMICARBAZONE	4 OZ/A	A	5.0 ab	6.0 ab	5.7 ab	4.0 bcd	5.0 bc
AMICARBAZONE (5 WAT)	4 OZ/A	C					
AMICARBAZONE	5 OZ/A	A	6.7 a	7.7 a	7.7 a	7.7 a	8.0 a
AMICARBAZONE (3 WAT)	5 OZ/A	B					
AMICARBAZONE	5 OZ/A	A	6.3 a	7.3 a	7.3 a	5.7 b	7.3 ab
AMICARBAZONE (5 WAT)	5 OZ/A	C					
VELOCITY	30 G A/A	A	3.0 cd	3.0 cd	2.7 cd	3.3 cd	2.0 de
VELOCITY (3 WAT)	30 G A/A	B					
UNTREATED			2.3 d	2.3 d	1.7 d	2.3 d	1.7 e
LSD (P=.05)			1.99	2.33	2.13	1.91	2.55

† Means in a column followed by the same letter do not significantly differ (P=0.05, LSD).
* Every application of amicarbazone was tank-mixed with a non-ionic surfactant (Kinetic) at 0.25% v/v.
** Injury scale of 1 to 9, where 1 represents no injury and 9 represents dead turf.

Table 14: 2008 Primo, Proxy, & Stressgard SH Suppression & Turf Health Trial Treatment List
HTRC, East Lansing, MI, Michigan State University

	Treatment	Rate	Rate Unit	Application Code
1	Proxy x2 Primo x2 Stressgard x2	5 0.125 0.18	oz/1000 ft^2	AB AB AB
2	Proxy x2 Primo x2 Stressgard x2	5 0.125 0.18	oz/1000 ft^2	AB AB AB
3	Proxy x2 Primo x2	5 0.125	oz/1000 ft^2	AB AB
4	Proxy x2 Primo x2	5 0.250	oz/1000 ft^2	AB AB
5	Untreated			

Table 15: 2008 Primo, Proxy, & Stressgard Trial – Seedhead Suppression
HTRC, East Lansing, MI, Michigan State University

	Treatment	App. Code	May 8 20 DA-A	May 16 28 DA-A	May 27 39 DA-A 7 DA-B	June 4 47 DA-A 15 DA-B
			——————————Percent Seedheads——————————			
1	Proxy x2 Primo x2 Stressgard x2	AB AB AB	17	21.7	22	8
2	Proxy x2 Primo x2 Stressgard x2	AB AB AB	17	23.7	24	8
3	Proxy x2 Primo x2	AB AB	15.7	22.7	24	6
4	Proxy x2 Primo x2	AB AB	15	22	24	8.3
5	Untreated		19.3	27.7	32.7	9.3
	LSD (P=0.05)		NS	NS	NS	NS

NS indicates no significance.

Table 16: 2008 Primo, Proxy, & Stressgard Trial – Quality
HTRC, East Lansing, MI, Michigan State University

	Treatment	App. Code	May 2 14 DA-A	May 8 20 DA-A	May 16 28 DA-A	May 27 39 DA-A 7 DA-B	June 4 47 DA-A 15 DA-B	June 12 55 DA-A 23 DA-B	June 19 62 DA-A 30 DA-B	June 26 69 DA-A 37 DA-B	July 2 75 DA-A 43 DA-B	July 10 83 DA-A 51 DA-B
			Quality‡									
1	Proxy x2 Primo x2 Stressgard x2	AB AB AB	5.0 a†	5.7	4.7	6.0 b	5.3	5.0	5.0	6.3	5.7	5.7
2	Proxy x2 Primo x2 Stressgard x2	AB AB AB	4.7 a	6.3	5.0	6.7 a	6.3	5.0	6.0	5.7	5.7	5.3
3	Proxy x2 Primo x2	AB AB	3.3 b	5.3	4.7	5.0 c	4.7	4.3	4.7	6.0	5.3	5.3
4	Proxy x2 Primo x2	AB AB	3.0 b	5.7	4.7	5.0 c	5.0	4.3	5.3	6.0	5.7	5.7
5	Untreated		3.7 b	5.3	4.7	4.3 d	4.7	5.3	5.3	6.3	5.3	5.3
	LSD (P=0.05)		0.73	NS	NS	0.64	NS	NS	NS	NS	NS	NS

† Means in a column followed by the same letter do not significantly differ (P=0.05, LSD).
‡ Quality was evaluated where 1=relatively worst and 9=relatively best; 5 and above is acceptable.
NS indicates not significant.

Annual Bluegrass Management

Eight new studies for evaluation of annual bluegrass control or seedhead control were initiated in 2008. Five studies that were initiated in 2007 will be reviewed herein as well. Each of the following trials were conducted at the Hancock Turfgrass Research Center (HTRC).

Annual Bluegrass Control

Creeping bentgrass and annual bluegrass are difficult to distinguish especially when the turf stand is continuously fertilized and irrigated, which is typical of fairways and putting greens. Although an attempt to quantify the 2 species is visually made throughout each trial period, more energy is spent in the early spring to quantify each species because it is a time when the colors of the 2 species are most distinguishable. Starting in the spring of 2008, each trial dealing with annual bluegrass control will receive further species population evaluation by visual means.

The Programs Approach for Annual Bluegrass Control Trial was conducted on a fairway seeded to 'Penncross' creeping bentgrass on September 26, 2006. The idea of this trial is to evaluate the effectiveness of many different and mixed techniques for annual bluegrass control: postemergence (Velocity), preemergence (Dimension, HM9930), and plant growth regulation (Cutless, Trimmit). The fairway was seeded in an area previously maintained as an annual bluegrass fairway, so we are assured of extreme annual bluegrass pressure. Treatments began in the spring of 2007, so the premise of the trial is the prevention of annual bluegrass before it becomes a prominent constituent in the turf stand. The annual bluegrass population will be evaluated in the spring of 2008. This trial is continuing and has been replicated at another site, a fairway at College Fields Golf Course in East Lansing. A complete treatment list and application timing table are provided in Tables 1 and 2, respectively.

The 2007 HM9930 Preemergence Annual Bluegrass Control on a Fairway Trial was treated on March 26 and September 13, 2007. This trial was conducted on a creeping bentgrass fairway, which is infested with roughly 20% annual bluegrass.

The 2007 HM9930 Preemergence Annual Bluegrass Control on a Putting Green Trial was treated on April 24 and September 13, 2007. This trial was also conducted on a creeping bentgrass stand and untreated areas are infested with roughly 25% annual bluegrass. Both trials not only investigate the differences in application rates of HM9930, but also the addition of irrigation following the treatments. It is believed that the activity is increased when it is watered in directly after treatment. No creeping bentgrass or annual bluegrass injury has been noticed on either study, which is typical of all of our HM9930 research conducted at the HTRC. These trials were evaluated in the spring of 2008 when the differences between creeping bentgrass and annual bluegrass were more easily delineated. Complete treatment lists and results for the fairway and putting green trials are presented in Tables 3 and 4, respectively. The first column of data for each of these trials represents the evaluation of mean poa populations expressed as a percentage of the plots, while the second column of data for both tables represents mean poa populations expressed as percent control determined using the Henderson-Tilton pre-count/post-count method.

There did not seem to be any benefit or deficit caused by the addition of irrigation or adjuvant to HM9930. While there are exceptions, it seems that as the rate of HM9930 increased, poa control increased for the trial conducted on the putting green especially.

In 2008, four more trials were conducted to evaluate HM9930. Two trials were initiated, one in the fairway and one in the green, to further investigate how the addition of irrigation immediately after application will affect efficacy. Two other trials were initiated, one in the fairway and one in the green, to evaluate HM0814, a modified formulation of HM9930. Because HM9930 is so thick, efforts have been made to make a formulation that is more viscous and,

therefore, flow better during application. These two trials compare HM9930 and HM0814 at different rates. These trials were treated in the spring and fall of 2008 and will be evaluated in the spring of 2009.

The Velocity Field Time-lapse Trial is being conducted on the creeping bentgrass fairway. This fairway was infested by roughly 20% annual bluegrass. This trial was conducted to evaluate Velocity annual bluegrass control efficacy and to visually document this and creeping bentgrass injury by taking photos at nearly bi-weekly intervals for treatment comparison. This is a difficult task because lighting is constantly changing outside and because the color difference between creeping bentgrass and annual bluegrass is, many times, indistinguishable due to plant height in the fairway and color masking by nitrogen fertilization. This trial will be ongoing with the same treatments being applied for consecutive years. Poa populations will be evaluated in the spring of every year. A complete treatment list is presented in Table 5 and results from spring of 2008 are presented in Figure 1.

In general, we have found that Velocity provides more annual bluegrass control when it is applied during the warmer months and when more applications are applied at a lesser rate and shorter interval to stay within the guidelines of the label. Program B (Figure 1) provided the best control of annual bluegrass after one year, while Program A provided poor control of annual bluegrass even though the two programs were only separated by two applications.

The Evaluation of Cutless, Trimmit, and SP5075 (Legacy) for Poa Control Trial was first treated on June 20 and every 21 days thereafter until September 13, 2007. Treatments were made on June 20 (A), July 12, August 1, August 24, and September 13, 2007. The trial was conducted on a creeping bentgrass (*Agrostis palustris*) 'Penncross' fairway mowed at 1/2 of and inch, which was infested with roughly 15% annual bluegrass.

As a general rule, more creeping bentgrass and annual bluegrass injury was noticed as the rate of each product increased on each injury evaluation date. Of the 9 injury evaluations,

treated plots only differed from the untreated plot on three dates, June 27 (7 days after treatement A [DAT-A]), July 30 (40 DAT), and August 13 (54 DAT), 2007. The two low rates of Cutless and SP5075 on these dates, though, caused minimal to no injury. Table 6 presents the injury evaluations for the bentgrass on a scale of 1 to 9, where 1 represents no injury and 9 represents dead turf. Quality (1=worst relative quality and 9=best relative quality) evaluations were also made and presented in Table 7.

Annual bluegrass populations were evaluated at the beginning of the trial, July 11, 2007 (21 DAT-A), and in the spring of 2008 when the annual bluegrass was easiest to differentiate from the creeping bentgrass, May 2 (317 DAT-A) and May 8 (323 DAT-A). Populations were measured as percent of plots. Percent control was determined using the Henderson-Tilton pre-count/post-count method using the July 11, 2007 evaluation as the pre-count. However, when you compare the percent control to the percent of plot data, it is important to note that there was little annual bluegrass in all the treated plots. Table 8 presents the annual population data expressed as treatment means (percent of plot) and as percent of control (Henderson-Tilton).

Cutless provided the best control of annual bluegrass in the trial with the highest rate providing 94% control by May 8, 2008 (323 DAT-A). Trimmit provided very good control of annual bluegrass with the two highest rates providing very similar control, about 80%. The two highest rates of SP5075 provided moderate control of annual bluegrass. The low rates of Trimmit and SP5075 did not differ from the untreated for the annual bluegrass percent of plots evaluation on May 8, 2008. Overall, Cutless provided the best control of annual bluegrass and also caused the most injury, although tolerable. SP5075 caused the least bentgrass injury, showcased the best quality throughout the trial, and was very comparable to the Trimmit treatments, providing good annual bluegrass control at the two higher rates.

The 2007 and 2008 Prograss Formulations and Generic Comparisons Trial was also conducted at the HTRC on a mixed turf stand (20 % 'Viva' KBG, 20% 'Blue Chip' KBG, 20% 'Baron' KBG, 20% 'K-2' chewings fescue, and 20% 'Stellar' perennial ryegrass) maintained at a

three inch height of cut. Treatments A and B were applied on October 2 and 25, 2007, respectively. *Poa annua* populations were evaluated in each plot as percentages of the plots. Populations were evaluated initially on October 11, 2007 and again on May 16 and July 10, 2008. The two subsequent *Poa annua* evaluations were compared to the initial evaluation using the Henderson-Tilton pre-count, post-count method and are presented in Table 9.

The first evaluation in May showed significant differences between treatment while the second evaluation later, in July, showed no significant differences, perhaps because the heat favored the Kentucky bluegrass over the *Poa annua* as there was little to be seen in the entire trial area. On May 16th, though, all treated plots had less Poa annua than the untreated plots. The higher rates of Prograss, regardless of formulation, performed better than the lower rates. Poaconstrictor performed slightly better, albeit not significantly better, than its corresponding lower rate treatment. HM9930 (cumyluron) was thrown in as a comparison and provided adequate control of *Poa annua* as well.

The 2007 and 2008 *Poa annua* Control with Bayer Test Compound Trial was conducted at the HTRC on a mixed turf stand (same as aforementioned) maintained at a three inch height of cut. Treatments A, B, and C were applied on October 2, October 25, and November 9, 2007, respectively. *Poa annua* populations were evaluated in each plot as percentages of the plots. Populations were evaluated initially on October 11, 2007 and again on May 16 and July 10, 2008. The two subsequent *Poa annua* evaluations were compared to the initial evaluation using the Henderson-Tilton pre-count, post-count method and are presented in Table 10. Treatment 1 and 2 are repeated in treatments 3 and 4 because of a mistake, but the data is still presented for those repeat treatments.

Again in this trial, much like the last, differences in *Poa annua* populations were only seen in the early evaluation. The high rate of the Prograss EC performed exceptionally relative to the other treatments and did not significantly differ from the single treatment of HM9930.

The Test Compound only significantly differed from the untreated when applied on October 2 (A) and November 9 (C); all other treatments including Test Compound did not.

The 2008 Poa Control with Tenacity During Renovation Trial was treated with Touchdown Pro (glyphosate) with and without combinations of Tenacity (mesotrione) of different formulations on July 28 (A), then treated again or for the first time with different formulations of Tenacity on August 18 and September 19, 2008. These treatments were applied to an annual bluegrass putting green that has a large annual bluegrass seed-bank. Mesotrione has some preemergence activity on annual bluegrass and this trial was set up to explore the activity during renovation. Kentucky bluegrass was over-seeded into the dead annual bluegrass stand on August 18, which had been treated with glyphosate 21 days earlier. This trial will be evaluated in the spring of 2009. The treatment list is presented in Table 11.

The 2008 Postemergence Annual Bluegrass Control with Amicarbazone Trial was treated on June 5 (A), June 26 (B), and July 11 (C), 2008. The trial was conducted on a 100% stand of annual bluegrass fairway. Annual bluegrass populations were evaluated as percent of whole plots – the complete treatment list and results are presented in Table 12.

The higher rates of amiarcazone, 4 and 5 oz/A, applied 21 days apart provided the best control of annual bluegrass. The low rate, 2.5 oz/A, was not enough to provide good control of annual bluegrass and 5 weeks between applications was too long as populations began to recover before the second applications were made. Single treatments of amicarbazone, regardless of rate, did not provide adequate control of annual bluegrass.

The 2008 Bentgrass Tolerance to Amicarbazone Trial was treated on July 28, August 18, and August 29, 2008 on a creeping bentgrass fairway. Table 13 presents the injury evaluations for the bentgrass on a scale of 1 to 9, where 1 represents no injury and 9 represents dead turf.

All rates of amicarbazone injured the bentgrass at every rate. Mean injury was never lower than 4.0 for any of the treatments, accept for Velocity – this us usually more injury than turf managers are willing to accept.

Annual Bluegrass Seedhead Suppression

The 2008 Primo, Proxy, & Stressgard SH Suppression & Turf Health Trial was conducted at the Hancock Turfgrass Research Center (HTRC) in East Lansing, Michigan. The trial was conducted on an approximately 99% annual bluegrass fairway. The treatment list is presented in Table 14. Treatments A and B were applied on April 18 and May 20, 2008, respectively. All treatments were applied to 4 by 6 foot plots with a CO_2 backpack sprayer with an output of 61.9 gallons per acre. At the HTRC in 2008, seedheads first emerged on the fairway around May 6 and peaked around May 25.

Treated plots never significantly differed from the untreated plot for suppression of seedheads (Table 15). Although there appeared to be a trend of less seedheads on treated plots, this trend did not differ enough from the untreated in order to be statistically significant. Treated plots displayed significantly higher quality (Table 16) on two of ten evaluation dates.

Table 1: The Programs Approach for Annual Bluegrass Control Trial – 2008
Treatment List

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code
1	NO PRE						AB
	NO PGR						C
	NO POST						D
2	NO PRE						AB
	NO PGR						C
	VELOCITY	17.6	WG	10	g ai/a		D
3	NO PRE						AB
	CUTLESS (FL)	50	WP	0.375	lb ai/a		C
	NO POST						D
4	NO PRE						AB
	CUTLESS (FL)	50	WP	0.375	lb ai/a		C
	VELOCITY	17.6	WG	10	g ai/a		D
5	NO PRE						AB
	TRIMMIT (PB)	2	SC	0.375	lb ai/a		C
	NO POST						D
6	NO PRE						AB
	TRIMMIT (PB)	2	SC	0.375	lb ai/a		C
	VELOCITY	17.6	WG	10	g ai/a		D
7	DIMENSION	2	EW	0.375	lb ai/a		AB
	NO PGR						C
	NO POST						D
8	DIMENSION	2	EW	0.375	lb ai/a		AB
	NO PGR						C
	VELOCITY	17.6	WG	10	g ai/a		D
9	DIMENSION	2	EW	0.375	lb ai/a		AB
	CUTLESS (FL)	50	WP	0.375	lb ai/a		C
	NO POST						D
10	DIMENSION	2	EW	0.375	lb ai/a		AB
	CUTLESS (FL)	50	WP	0.375	lb ai/a		C
	VELOCITY	17.6	WG	10	g ai/a		D
11	DIMENSION	2	EW	0.375	lb ai/a		AB
	TRIMMIT (PB)	2	SC	0.375	lb ai/a		C
	NO POST						D
12	DIMENSION	2	EW	0.375	lb ai/a		AB
	TRIMMIT (PB)	2	SC	0.375	lb ai/a		C
	VELOCITY	17.6	WG	10	g ai/a		D
13	HM9930 (CUMYLURON)		FL	4.5	fl oz/1000 ft2		AB
	NO PGR						C
	NO POST						D
14	HM9930 (CUMYLURON)		FL	4.5	fl oz/1000 ft2		AB
	NO PGR						C
	VELOCITY	17.6	WG	10	g ai/a		D
15	HM9930 (CUMYLURON)		FL	4.5	fl oz/1000 ft2		AB
	CUTLESS (FL)	50	WP	0.375	lb ai/a		C
	NO POST						D
16	HM9930 (CUMYLURON)		FL	4.5	fl oz/1000 ft2		AB
	CUTLESS (FL)	50	WP	0.375	lb ai/a		C
	VELOCITY	17.6	WG	10	g ai/a		D
17	HM9930 (CUMYLURON)		FL	4.5	fl oz/1000 ft2		AB
	TRIMMIT (PB)	2	SC	0.375	lb ai/a		C
	NO POST						D
18	HM9930 (CUMYLURON)		FL	4.5	fl oz/1000 ft2		AB
	TRIMMIT (PB)	2	SC	0.375	lb ai/a		C
	VELOCITY	17.6	WG	10	g ai/a		D

Table 2: The Programs Approach for Annual Bluegrass Control Trial – 2008
Application Timing

Treatment #	Factors A & B Preemergence	Factor C PGR	Factor D Postemergence	Notes
1	- -	- -	- -	Untreated
2	- -	- -	Velocity[1]	6 apps @ 10g 3.5-d interval
3	- -	Cutless[2]	- -	24 oz/A 21-d interval
4	- -	Cutless	Velocity	
5	- -	Trimmit	- -	24 fl oz/A 21-d interval
6	- -	Trimmit	Velocity	
7	Dimension[3]	- -	- -	0.375 lb ai/A
8	Dimension	- -	Velocity	
9	Dimension	Cutless	- -	
10	Dimension	Cutless	Velocity	
11	Dimension	Trimmit	- -	
12	Dimension	Trimmit	Velocity	
13	HM9930	- -	- -	
14	HM9930	- -	Velocity	
15	HM9930	Cutless	- -	
16	HM9930	Cutless	Velocity	
17	HM9930	Trimmit	- -	
18	HM9930	Trimmit	Velocity	

[1]Velocity treatment series will be applied between August 15 and August 30.
[2] Summer PGR program will begin on May 15 and conclude September 15.
[3] Spring/Fall preemergence applications to be made when soil temperatures are between 60-70° F at 1-2 inch depth. Spring timing will be made on or around April 20 (soil temp ~55°F). Fall timing will be made on or around August 20 (soil temp ~72° F).

Table 3: The HM9930 Preemergence Annual Bluegrass Control on a Fairway Trial - 2008

Weed Code Crop Code Rating Data Type Rating Unit Rating Date					POA BENT COUNT PERCENT May/2/08	POA BENT CONTRO %UNCK May/2/08
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	3	5
1	HM9930	3	FL OZ/1000 FT2	A	16.7 ab	23.8 bc
	HM9930	3	FL OZ/1000 FT2	B		
2	HM9930	3	FL OZ/1000 FT2	A	6.0 bcd	64.0 ab
	HM0716 ADJ	0.25	% V/V	A		
	HM9930	3	FL OZ/1000 FT2	B		
	HM0716 ADJ	0.25	% V/V	B		
3	HM9930	3	FL OZ/1000 FT2	A	3.7 cd	74.6 a
	IRRIGATION			A		
	HM9930	3	FL OZ/1000 FT2	B		
	IRRIGATION			B		
4	HM9930	4.5	FL OZ/1000 FT2	A	2.3 d	74.4 a
	HM9930	4.5	FL OZ/1000 FT2	B		
5	HM9930	4.5	FL OZ/1000 FT2	A	5.0 cd	60.8 ab
	HM0716 ADJ	0.25	% V/V	A		
	HM9930	4.5	FL OZ/1000 FT2	B		
	HM0716 ADJ	0.25	% V/V	B		
6	HM9930	4.5	FL OZ/1000 FT2	A	2.0 d	80.3 a
	IRRIGATION			A		
	HM9930	4.5	FL OZ/1000 FT2	B		
	IRRIGATION			B		
7	HM9930	6	FL OZ/1000 FT2	A	4.0 cd	79.7 a
	HM9930	6	FL OZ/1000 FT2	B		
8	HM9930	6	FL OZ/1000 FT2	A	8.3 bcd	62.0 ab
	HM0716 ADJ	0.25	% V/V	A		
	HM9930	6	FL OZ/1000 FT2	B		
	HM0716 ADJ	0.25	% V/V	B		
9	HM9930	6	FL OZ/1000 FT2	A	14.3 abc	26.4 bc
	IRRIGATION			A		
	HM9930	6	FL OZ/1000 FT2	B		
	IRRIGATION			B		
10	UNTREATED				19.7 a	0.0 c
LSD (P=.05)					11.11	40.17
Means followed by same letter do not significantly differ (P=.05, LSD)						
Column 2: THT[4,3] = Henderson-Tilton([4],[3])						

Table 4: The HM9930 Preemergence Annual Bluegrass Control on a Putting Green Trial – 2008

Weed Code Crop Code Rating Data Type Rating Unit Rating Date					POA BENT COUNT PERCENT May/2/08	POA BENT CONTRO %UNCK May/2/08
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	3	5
1	HM9930	1.5	FL OZ/1000 FT2	A	4.0 bcd	73.1 abc
	HM9930	1.5	FL OZ/1000 FT2	B		
2	HM9930	1.5	FL OZ/1000 FT2	A	5.3 bc	52.8 bc
	HM0716 ADJ	0.25	% V/V	A		
	HM9930	1.5	FL OZ/1000 FT2	B		
	HM0716 ADJ	0.25	% V/V	B		
3	HM9930	1.5	FL OZ/1000 FT2	A	8.7 ab	50.4 c
	IRRIGATION			A		
	HM9930	1.5	FL OZ/1000 FT2	B		
	IRRIGATION			B		
4	HM9930	3	FL OZ/1000 FT2	A	3.7 cd	76.9 abc
	HM9930	3	FL OZ/1000 FT2	B		
5	HM9930	3	FL OZ/1000 FT2	A	4.7 bcd	59.7 bc
	HM0716 ADJ	0.25	% V/V	A		
	HM9930	3	FL OZ/1000 FT2	B		
	HM0716 ADJ	0.25	% V/V	B		
6	HM9930	3	FL OZ/1000 FT2	A	2.3 cd	86.7 ab
	IRRIGATION			A		
	HM9930	3	FL OZ/1000 FT2	B		
	IRRIGATION			B		
7	HM9930	4.5	FL OZ/1000 FT2	A	0.3 d	98.1 a
	HM9930	4.5	FL OZ/1000 FT2	B		
8	HM9930	4.5	FL OZ/1000 FT2	A	1.0 cd	94.2 a
	HM0716 ADJ	0.25	% V/V	A		
	HM9930	4.5	FL OZ/1000 FT2	B		
	HM0716 ADJ	0.25	% V/V	B		
9	HM9930	4.5	FL OZ/1000 FT2	A	4.3 bcd	72.4 abc
	IRRIGATION			A		
	HM9930	4.5	FL OZ/1000 FT2	B		
	IRRIGATION			B		
10	UNTREATED				12.3 a	0.0 d
LSD (P=.05)					4.71	34.30
Means followed by same letter do not significantly differ (P=.05, LSD)						
Column 2: THT[4,3] = Henderson-Tilton([4],[3])						

Table 5: Velocity Field Time-Lapse Trial – 2008
Treatment List

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code	Program
1	VELOCITY (JUNE 15)	17.6	SG	10	g ai/a	A	A
	VELOCITY 7DAI	17.6	SG	10	g ai/a	B	
	VELOCITY 14 DAI	17.6	SG	10	g ai/a	C	
	VELOCITY 21 DAI	17.6	SG	10	g ai/a	D	
	VELOCITY 28 DAI	17.6	SG	10	g ai/a	E	
	VELOCITY 35 DAI	17.6	SG	10	g ai/a	F	
2	VELOCITY (JUNE 15)	17.6	SG	10	g ai/a	A	B
	VELOCITY 7 DAI	17.6	SG	10	g ai/a	B	
	VELOCITY 14 DAI	17.6	SG	10	g ai/a	B	
	VELOCITY 21 DAI	17.6	SG	10	g ai/a	D	
	VELOCITY 28 DAI	17.6	SG	10	g ai/a	E	
	VELOCITY 35 DAI	17.6	SG	10	g ai/a	F	
	VELOCITY 42 DAI	17.6	SG	10	g ai/a	G	
	VELOCITY 49 DAI	17.6	SG	10	g ai/a	H	
3	VELOCITY (JUNE15)	17.6	SG	30	g ai/a	A	C
	VELOCITY 14 DAI	17.6	SG	30	g ai/a	C	
	VELOCITY 28 DAI	17.6	SG	30	g ai/a	E	
4	VELOCITY (JUNE 15)	17.6	SG	30	g ai/a	A	D
	VELOCITY 14 DAI	17.6	SG	30	g ai/a	C	
	VELOCITY 28 DAI	17.6	SG	30	g ai/a	E	
	VELOCITY (SEPT 29)	17.6	SG	30	g ai/a	J	
5	VELOCITY (JUNE 15)	17.6	SG	10	g ai/a	A	E
	VELOCITY (JUNE 28)	17.6	SG	10	g ai/a	C	
	VELOCITY (SEPT 14)	17.6	SG	10	g ai/a	I	
	VELOCITY (SEPT 28)	17.6	SG	10	g ai/a	J	
6	UNTREATED						