

Researcher: Hannah Mathers, PhD

Date: 8/11/2016

Project Title: Ornamental Grasses Herbicide Crop Safety

Protocol #: 15-010

PRnumbers: 31901, 31905, 31915

Narrative Summary (Results/Discussion)

Please keep text to one page if possible. Include summary of trial results and a brief discussion including how any changes from the protocol may have affected results. Results for multiple PRnumbers can be summarized together, but please list all PRNumbers in the header and in the summary data table.

The results presented are for three species (Table 3) that received applications of Pendulum 2G (Pendimethalin 2%) (BASF Corporation, Research Triangle Park, NC) as part of protocol 15-010. Rates are listed in pounds of active ingredient (ai)/acre with 1X being 3lb ai/ac (Table 3). One species was located at Klyn Nurseries, Inc., Perry, OH. Two species, *Ammophila* and *Nassella* were grown at Mathers Environmental Science Services, LLC, Gahanna, OH. The location of each species is listed in Table 3. Pendulum 2G caused no unacceptable commercial injury at any rate, even after two applications at 6 weeks apart for *Chasmanthium latifolium* (Northern Sea Oats) *Ammophila breviligulata* (Michigan Dune Grass) (Table 3). However, the *Nassella tenuissima* (Mexican feather grass) had phytotoxicity throughout the trial. *Nassella tenuissima* is a cool-season, Zone 6-10 plant and as such was not well suited for evaluation in Columbus, OH during the summer of 2015. Shortly after trial initiation, June 3, 2015 the temperatures reached into the 90's and continued above the 30 yr. average into mid-June. Again in mid-late July and additionally in early to mid-August the temperatures were above the 30 yr. average with many days in the high 80's into the 90's F. For a cool-season grass these temperatures were problematic. The controls showed heat stress with the center part of the plant burning out (Table 3). The treatments seemed to add to the plants' inability to handle the hot weather. In a cooler, central Ohio summer, phytotoxicity may have been reduced. In these 2015 evaluations, phytotoxicity with Pendulum 2G was above commercially acceptable ≥ 3 , at the 4X rate for all evaluation dates (Table 3). At the 2X rate phytotoxicity was above commercially acceptable from 4WAT until trial completion (Table 3). However, if you adjust for the phytotoxicity to the controls, the 2X rate is never above commercially acceptable and the 4X rate only at 2 and 4 WAT and 2, 4 and 6WA2T (Table 3).

Results Table

Please insert results table here. Include PRnumbers for each treatment if multiple PRnumbers are included in this summary. Please include product, active ingredient, and statistics.

Table 3. Phytotoxicity on selected ornamentals at two locations Mathers Environmental, Gahanna, OH and Klyn Nurseries, Perry, OH.

Ammophila breviligulata #3pot – **PR#31901** - Mathers Environmental Science Services, LLC

Treatment	Rate(ai) ^v	1 WAT ²	2 WAT	4 WAT	6WAT	1 WA2T	2 WA2T	4 WA2T	6 WA2T
Pendulum 2G	3.0 lb/ac	0.0 ^{yx}	0.0	0.0	0.0✓	0.0	0.0	0.0	0.0
Pendulum 2G	6.0 lb/ac	0.0 ^{yx}	0.0	0.0	0.0✓	0.0	0.0	0.0	3.0
Pendulum 2G	12.0 lb/ac	0.0 ^{yx}	0.0	0.0	0.0✓	0.0	0.0	0.0	5.0
Untreated	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Chasmanthium latifolium #3pot – **PR#31905** - Klyn Nurseries

Treatment	Rate(ai) ^v	1 WAT	2 WAT	4 WAT	6 WAT	1 WA2T	2 WA2T	4 WA2T	6 WA2T
Pendulum 2G	3.0 lb/ac	0.0	0.0	2.0	0.0✓	1.8	1.8	0.0	0.0
Pendulum 2G	6.0 lb/ac	1.0	0.0	2.1	0.3✓	1.0	1.0	0.0	0.0

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Pendulum 2G	12.0 lb/ac	2.0 *	0.0	1.6	0.0✓	0.0	0.0	2.0 *	2.0 *
Untreated	--	0.0	0.0	2.7	1.0	1.3	1.0	0.0	0.0
<i>Nassella tenuissima</i> #1 pot – PR#31915 - Mathers Environmental Science Services, LLC									
Treatment	Rate(ai) ^v	1 WAT	2 WAT	4 WAT	6 WAT	1 WA2T	2 WA2T	4 WA2T	6 WA2T
Pendulum 2G	3.0 lb/ac	1.3	1.3	5.3 *	2.0✓	2.0	2.5	2.5	1.5
Pendulum 2G	6.0 lb/ac	0.9	1.3	4.8 *	3.0✓	3.0	3.3 *	3.3 *	3.3 *
Pendulum 2G	12.0 lb/ac	3.1 *	4.0 *	6.3 *	4.0✓ *	4.0 *	4.3 *	4.3 *	5.2 **
Untreated	--	0.3	0.3	3.0	2.0	2.0	1.6	1.6	0.4

z = weeks after treatment

y = Phytotoxicity Ratings based on a 0-10 scale with 0 being no phytotoxicity and 10 death with ≤3 commercially acceptable.

x = Phytotoxicity ratings followed by *, ** are significantly different from control based on Dunnett's t-test ($\alpha = 0.10, 0.05$, respectively).

^v = All rates for Pendulum 2G (Pendimethalin) are listed as active ingredient (ai) per ac.

✓ indicates reapplication at this date

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Materials & Methods/Recordkeeping

Please fill out the information below or attach a separate document with comparable information.

Protocol 15-010 was followed with no changes including four replications, with three plants per replication and four treatments 0, 1, 2, 4 X rates of Pendulum 2G, were grown in the pot sizes listed in the Table 3, for 48 plants per protocol (31901, 31905, 31915). Rates are listed in pounds of active ingredient (ai)/acre with 1X being 3 lb ai/ac (Table 3). Evaluations were conducted at 1, 2, 4, and 6 weeks after treatment (WAT). A reapplication was conducted at 6WAT and evaluations occurred 1, 2, 4 and 6 weeks after second treatment (WA2T). One species was located at Klyn Nurseries, Inc., Perry, OH. Two species *Ammophila breviligulata* and *Nassella tenuissima* were grown at Mathers Environmental Science Services, LLC, Gahanna, OH. The location of each species is listed in Table 3. All plants were grown in standard container media (85% pine bark and 15% Comtil) (Krutz Bros. Central Ohio, LLC, Groveport, OH) and fertilized with The Anderson's 18-6-12 + minors, slow-release 8-9 month formulation and over-head irrigation. Applications were conducted soon after covers are removed from polyhouses, May 13, 2015 at Klyn's and June 3, 2015 at Mathers'. On May 13 the weather in Perry, OH was cloudy and cool, the wind was NE at 5 mph and it was 47°F. On June 3 in Gahanna, OH at the time of application it was clear, sunny and 63°F wind was 2 mph. All plants were freshly upshifted two weeks or less before the applications at Klyn and Mathers' and all were watered within 2 hours following applications.

Name(s) of Personnel Conducting Research: Dr. Hannah Mathers

Location of Trial (city/state): Klyn Nurseries, Inc., Perry, OH & Mathers Enviro. Sci. Serv., LLC, Gahanna, OH

Use Site (greenhouse/shadehouse/field container/etc.): Field container

Crop History

Crop Cultivar/Variety:	<i>Ammophila breviligulata</i> 'Van Pines'
Purchased from:	Vans Pines Nursery, West Olive, MI as large rooted divisions
Date of Transplanting:	May 19, 2015
Potting Mix:	See above
Pot size & spacing:	3 gallon pots on 1 foot centers
Crop Cultivar/Variety:	<i>Chasmanthium latifolium</i>
Purchased from:	Grown at Klyn Nurseries, Inc., Perry, OH
Date of Transplanting:	May 8, 2015
Potting Mix:	See above
Pot size & spacing:	2 gallon pots on 1 foot centers
Crop Cultivar/Variety:	<i>Nassella tenuissima</i>
Purchased from:	Hoffman Nursery, Inc., Rougemont, NC as full 4" pots
Date of Transplanting:	May 19, 2015
Potting Mix:	See above
Pot size & spacing:	1 gallon pots on 1 foot centers

Product(s) applied prior to start of experiment:

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Product	Rate	Application Type	Date of Application	Crop Growth Stage	Application Volume
Pendulum 2G (Pendimethalin) 2 at MESS, LLC.: <i>Ammophila breviligulata</i> and <i>Nassella tenuissima</i>	0	Granular: pre-weighed according to pot dia. and rate		Shoot expansion	
	150 lb/ac (3 lb a.i./ac)	Granular: pre-weighed according to pot dia. and rate	06/03/2015	Shoot expansion	
	300 lb/ac (6.0 lb a.i./ac)	Granular: pre-weighed according to pot dia. and rate	06/03/2015	Shoot expansion	
	600 lb/ac (12.0 lb a.i./ac)	Granular: pre-weighed according to pot dia. and rate	06/03/2015	Shoot expansion	
Pendulum 2G (Pendimethalin) 1 at Klyn Nurseries, Inc.: <i>Chasmanthium latifolium</i>	0	Granular: pre-weighed according to pot dia. and rate		Shoot expansion	
	150 lb/ac (3 lb a.i./ac)	Granular: pre-weighed according to pot dia. and rate	05/13/2015	Shoot expansion	
	300 lb/ac (6.0 lb a.i./ac)	Granular: pre-weighed according to pot dia. and rate	05/13/2015	Shoot expansion	
	600 lb/ac (12.0 lb a.i./ac)	Granular: pre-weighed according to pot dia. and rate	05/13/2015	Shoot expansion	

Add more rows as needed.

Experiment Information

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Experimental Design:

Completely randomized design with species

Number of Reps:

Four replicates with three plants per replicate or 12 plants/tmt/rate/species

Photos

Please embed photos here or send jpg, tiff, or bmp.



Fig. 3.1. (Left) *Ammophila breviligulata* 'Vans Pines' at Mathers Environmental Science Services, Gahanna, OH, taken 1WA2T with Pendulum 2G from left to right – control, 1X, 2X and 4X. There is stunting versus the control with 1X, 2X and 4X.



Fig. 3.2. (Left) *Nassella tenuissima* at Mathers Environmental, Gahanna, OH, taken 6WAT with Pendulum 2G from left to right control, 1X, 2X and 4X. Note all plants are suffering from heat stress including control.

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Fig. 3.3. A
(Left) and **B.**
(below left)
Ammophila
breviligulata
'Vans Pines' at
Mathers
Environmental,



Gahanna, OH, taken
2WA2T with Pendulum 2G
left to right control, 1X, 2X
and 4X. **A.** Note there a
small amount of stunting
which is greatest with the 4X
rate. **B.** Is a closer view of
the 4X rate showing less
stems and more yellowing
vs control although at
2WA2T this was not
commercially unacceptable.

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Fig. 3.4. (Above) *Chasmanthium latifolium* at Klyn Nurseries, Perry, OH taken 6WA2T with Pendulum 2G from left to right – control, 1X, 2X and 4X. There is slight stunting with the 4X rate; however, there was no unacceptable commercially injury throughout the trial. Even at the 4X rate at the trial conclusion the injury was consider 2.0 or acceptable.

Data Collected

Please describe data collected and scoring system. Also include the dates data were collected.

All rated score evaluations of phytotoxicity (defined in report) were measured on a 0 to 10 scale, where 0 represented no phytotoxicity, ≥ 3 represents commercially unacceptable injury and 10 represented plant death (Barolli et al., 2005; Collins et al. 1999; Duray and Davies, 1989; Mathers and Case, 2010; Samtami et al., 2007). This rated score is a standard measure accepted in all major weed and horticultural science journals with each interval representing a 10% increase in injury over the whole plant ex. 3 would be 30% injury and 5 would be 50%, etc. Symptoms were also noted if significant and photos were conducted *in situ*.

Raw Data

Insert raw data below or send separate file containing raw data.

See attached excel files

Environmental conditions during the experiment:

Insert temperature, precipitation and/or irrigation, and relative humidity with a minimum of high, low and average daily temperatures. Or send separate file with this information.

Include a statement about any significant weather or environmental events during the course of the experiment.

Environmental Conditions in Gahanna, OH. Source: <http://www.accuweather.com> for plants at MESS

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Events in June 2015	Date (yr. 2015)	Hi/Low	Precipitation/ Irrigation	Average Hi/Low
Trial initiation	Wed 6/3	73°/59°	0 in/ 0.5in	78°/58°
	Thu 6/4	81°/60°	0 in/ 0.5in	78°/58°
	Fri 6/5	86°/62°	0.25 in/ 0.25in	79°/59°
	Sat 6/6	79°/61°	0 in/ 0.5in	79°/59°
	Sun 6/7	85°/56°	0 in/ 0.5in	79°/59°
	Mon 6/8	79°/61°	0.09 in/ 0.5in	80°/60°
	Tue 6/9	76°/57°	0.03 in/ 0.5in	80°/60°
1WA1T	Wed 6/10	91°/58°	0 in/ 0.5in	80°/60°
	Thu 6/11	92°/67°	0 in/ 0.5in	81°/60°
	Fri 6/12	93°/70°	0.04 in/ 0.5in	81°/61°
	Sat 6/13	90°/69°	0.17 in/ 0.4in	81°/61°
	Sun 6/14	91°/69°	0.10 in/ 0.4in	82°/61°
	Mon 6/15	87°/71°	0.44 in	82°/62°
	Tue 6/16	83°/71°	0.87 in	82°/62°
2WA1T	Wed 6/17	72°/61°	0.44 in	82°/62°
	Thu 6/18	87°/69°	0 in/ 0.5in	82°/62°
	Fri 6/19	76°/67°	0.01 in	83°/63°
	Sat 6/20	73°/67°	2.00 in	83°/63°
	Sun 6/21	86°/68°	0 in	83°/63°
	Mon 6/22	86°/64°	0 in/ 0.5in	83°/63°
	Tue 6/23	85°/67°	0 in/ 0.5in	84°/64°
	Wed 6/24	83°/61°	0 in/ 0.5in	84°/64°
	Thu 6/25	77°/66°	0.27 in	84°/64°
	Fri 6/26	78°/67°	0.65 in	84°/64°
	Sat 6/27	71°/58°	0.55 in	84°/64°
	Sun 6/28	75°/58°	0.03 in/ 0.5in	84°/64°
	Mon 6/29	66°/60°	0.40 in	84°/65°
	Tue 6/30	77°/60°	0.35 in	85°/65°
Events in July 2015	Date (yr. 2015)	Hi/Low	Precipitation/ Irrigation	Average Hi/Low
4WA1T	Wed 7/1	78°/59°	0 in/ 0.5in	85°/65°
	Thu 7/2	74°/62°	0 in/ 0.5in	85°/65°
	Fri 7/3	76°/61°	0 in/ 0.5in	85°/65°
	Sat 7/4	79°/59°	0 in/ 0.5in	85°/65°
	Sun 7/5	79°/61°	0 in/ 0.5in	85°/65°
	Mon 7/6	84°/64°	0 in/ 0.5in	85°/65°
	Tue 7/7	84°/69°	0.55 in	85°/65°
	Wed 7/8	70°/62°	0.17 in	85°/66°
	Thu 7/9	78°/67°	0.02 in/ 0.5in	85°/66°
	Fri 7/10	74°/66°	0.05 in	85°/66°
	Sat 7/11	82°/60°	0 in/ 0.5in	85°/66°
	Sun 7/12	80°/65°	2.25 in	85°/66°
	Mon 7/13	74°/66°	0.18 in	85°/66°
	Tue 7/14	83°/66°	0.72 in	85°/66°
6WA1T	Wed 7/15	73°/59°	0 in/ 0.5in	85°/66°

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Reapply				
	Thu 7/16	81°/53°	0 in/ 0.5in	85°/66°
	Fri 7/17	86°/66°	0.64 in	85°/66°
	Sat 7/18	91°/70°	0 in/ 0.5in	85°/66°
	Sun 7/19	87°/70°	0.67 in	85°/66°
	Mon 7/20	86°/68°	0 in/ 0.5in	85°/66°
	Tue 7/21	85°/65°	0 in/ 0.5in	85°/66°
1WA2T	Wed 7/22	80°/60°	0 in/ 0.5in	85°/66°
	Thu 7/23	83°/61°	0 in/ 0.5in	85°/66°
	Fri 7/24	86°/59°	0 in/ 0.5in	85°/66°
	Sat 7/25	86°/64°	0 in/ 0.5in	85°/66°
	Sun 7/26	84°/69°	0.08 in/ 0.5in	85°/66°
	Mon 7/27	87°/70°	0 in/ 0.5in	85°/66°
	Tue 7/28	91°/70°	0 in/ 0.5in	85°/65°
2WA2T	Wed 7/29	91°/70°	0.05 in/ 0.5in	84°/65°
	Thu 7/30	85°/69°	0 in/ 0.5in	84°/65°
	Fri 7/31	87°/62°	0.03 in/ 0.5in	84°/65°
Events in August 2015	Date (yr. 2015)	Hi/Low	Precipitation/ Irrigation	Average Hi/Low
	Sat 8/1	84°/61°	0 in/ 0.5in	84°/65°
	Sun 8/2	88°/63°	0 in/ 0.5in	84°/65°
	Mon 8/3	85°/63°	0.29 in	84°/65°
	Tue 8/4	85°/61°	0 in/ 0.5in	84°/65°
	Wed 8/5	84°/60°	0 in/ 0.5in	84°/65°
	Thu 8/6	70°/60°	0.06 in/ 0.5in	84°/65°
	Fri 8/7	84°/59°	0 in/ 0.5in	84°/65°
	Sat 8/8	87°/61°	0 in/ 0.5in	84°/65°
	Sun 8/9	84°/66°	0.02 in/ 0.5in	84°/65°
	Mon 8/10	85°/69°	0.75 in	84°/65°
	Tue 8/11	82°/65°	0 in/ 0.5in	84°/65°
4WA2T	Wed 8/12	79°/61°	0 in/ 0.5in	84°/65°
	Thu 8/13	80°/56°	0 in/ 0.5in	84°/65°
	Fri 8/14	85°/60°	0 in/ 0.5in	84°/64°
	Sat 8/15	86°/65°	0 in/ 0.5in	84°/64°
	Sun 8/16	88°/66°	0 in/ 0.5in	84°/64°
	Mon 8/17	88°/66°	0.50 in	84°/64°
	Tue 8/18	82°/69°	0 in/ 0.5in	84°/64°
	Wed 8/19	86°/70°	1.18 in	84°/64°
	Thu 8/20	77°/60°	0.04 in	84°/64°
	Fri 8/21	80°/56°	0 in/ 0.5in	84°/64°
	Sat 8/22	81°/59°	0 in/ 0.5in	84°/64°
	Sun 8/23	84°/59°	0.23 in	83°/64°
	Mon 8/24	76°/59°	0 in/ 0.5in	83°/63°
	Tue 8/25	68°/56°	0 in/ 0.5in	83°/63°
6WA2T	Wed 8/26	68°/57°	0 in/ 0.5in	83°/63°

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Trial completion				
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Environmental Conditions in Perry, OH. Source: <http://www.accuweather.com> for plants at Klyn's

Events in May 2015 Perry, OH	Date (yr. 2015)	Hi/Low	Precipitation/ Irrigation	Average Hi/Low
Trial initiation	Wed 5/13	50°/38°	0 in/ 0.5in	68°/47°
	Thu 5/14	59°/33°	0 in	68°/48°
	Fri 5/15	78°/47°	0.29 in/ 0.25in	69°/48°
	Sat 5/16	71°/61°	0 in/ 0.5in	69°/48°
	Sun 5/17	80°/60°	0.10 in/ 0.5in	69°/49°
	Mon 5/18	80°/68°	0.28 in/ 0.25in	70°/49°
	Tue 5/19	72°/51°	0 in/ 0.5in	70°/49°
1WA1T	Wed 5/20	53°/43°	0 in	70°/50°
	Thu 5/21	60°/46°	0 in	71°/50°
	Fri 5/22	63°/43°	0.01 in/ 0.5in	71°/50°
	Sat 5/23	N/A	N/A	71°/51°
	Sun 5/24	81°/53°	0 in/ 0.5in	72°/51°
	Mon 5/25	84°/66°	0 in/ 0.5in	72°/51°
	Tue 5/26	85°/69°	0.09 in/ 0.5in	72°/52°
2WA1T	Wed 5/27	82°/61°	0.49 in	73°/52°
	Thu 5/28	74°/55°	0 in/ 0.5in	73°/52°
	Fri 5/29	84°/56°	0.02 in/ 0.5in	73°/53°
	Sat 5/30	82°/55°	0.82 in	74°/53°
	Sun 5/31	58°/46°	1.00 in	74°/53°
Events in June 2015	Date (yr. 2015)	Hi/Low	Precipitation/ Irrigation	Average Hi/Low
	Mon 6/1	53°/46°	0.01 in	74°/54°
	Tue 6/2	64°/48°	0 in/ 0.5in	75°/54°
	Wed 6/3	73°/46°	0 in/ 0.5in	75°/54°
	Thu 6/4	79°/58°	0 in/ 0.5in	75°/54°
	Fri 6/5	76°/59°	0 in/ 0.5in	75°/55°
	Sat 6/6	66°/49°	0 in/ 0.5in	76°/55°
	Sun 6/7	82°/46°	0.01 in/ 0.5in	76°/55°
	Mon 6/8	78°/63°	0.29 in/ 0.25in	76°/56°
	Tue 6/9	71°/59°	0.12 in/ 0.5in	77°/56°
	Wed 6/10	87°/61°	0.38 in/ 0.5in	77°/56°
4WA1T	Thu 6/11	75°/61°	0.04 in/ 0.5in	77°/56°
	Fri 6/12	88°/60°	0.39 in/ 0.5in	77°/57°
	Sat 6/13	74°/58°	0.27 in/ 0.5in	78°/57°
	Sun 6/14	83°/64°	0.05 in/ 0.5in	78°/57°
	Mon 6/15	80°/69°	0.12 in/ 0.5in	78°/58°
	Tue 6/16	73°/59°	0.10 in/ 0.5in	78°/58°
	Wed 6/17	72°/54°	0 in/ 0.5in	78°/58°
	Thu 6/18	78°/66°	0.06 in/ 0.5in	79°/58°

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	Fri 6/19	70°/58°	0 in/ 0.5in	79°/59°
	Sat 6/20	79°/58°	0 in/ 0.5in	79°/59°
	Sun 6/21	77°/65°	0 in/ 0.5in	79°/59°
	Mon 6/22	85°/67°	0.26 in/ 0.5in	79°/59°
	Tue 6/23	79°/59°	0.87 in	80°/59°
6WA1T Reapply	Wed 6/24	73°/54°	0 in/ 0.5in	80°/60°
	Thu 6/25	72°/53°	0 in/ 0.5in	80°/60°
	Fri 6/26	72°/54°	0 in/ 0.5in	80°/60°
	Sat 6/27	71°/61°	1.78 in	80°/60°
	Sun 6/28	66°/54°	0.09 in	80°/60°
	Mon 6/29	74°/54°	0.02 in/ 0.5in	80°/60°
	Tue 6/30	71°/60°	0.06 in	81°/61°
Events in July 2015	Date (yr. 2015)	Hi/Low	Precipitation/ Irrigation	Average Hi/Low
	Wed 7/1	70°/62°	0.23 in/ 0.5in	81°/61°
1WA2T	Thu 7/2	72°/55°	0 in/ 0.5in	81°/61°
	Fri 7/3	73°/49°	0 in/ 0.5in	81°/61°
	Sat 7/4	72°/51°	0 in/ 0.5in	81°/61°
	Sun 7/5	76°/53°	0 in/ 0.5in	81°/61°
	Mon 7/6	78°/57°	0 in/ 0.5in	81°/61°
	Tue 7/7	85°/60°	0.07 in/ 0.5in	81°/62°
2WA2T	Wed 7/8	69°/60°	0 in/ 0.5in	81°/62°
	Thu 7/9	72°/62°	1.30 in	81°/62°
	Fri 7/10	71°/58°	0.17 in/ 0.5in	81°/62°
	Sat 7/11	76°/53°	0.06 in/ 0.5in	81°/62°
	Sun 7/12	78°/60°	0.03 in/ 0.5in	81°/62°
	Mon 7/13	82°/61°	0.04 in/ 0.5in	82°/62°
	Tue 7/14	80°/68°	0.02 in/ 0.5in	82°/62°
	Wed 7/15	69°/54°	0.01 in/ 0.5in	82°/62°
	Thu 7/16	74°/48°	0 in/ 0.5in	82°/62°
	Fri 7/17	84°/60°	0.01 in/ 0.5in	82°/62°
	Sat 7/18	85°/74°	0 in/ 0.5in	82°/62°
	Sun 7/19	88°/69°	0 in/ 0.5in	82°/62°
	Mon 7/20	78°/64°	0 in/ 0.5in	82°/62°
	Tue 7/21	75°/60°	0 in/ 0.5in	82°/62°
	Wed 7/22	73°/58°	0 in/ 0.5in	82°/62°
4WA2T	Thu 7/23	76°/56°	0 in/ 0.5in	82°/62°
	Fri 7/24	79°/60°	0 in/ 0.5in	82°/62°
	Sat 7/25	84°/64°	0 in/ 0.5in	81°/62°
	Sun 7/26	80°/64°	0 in/ 0.5in	81°/62°
	Mon 7/27	82°/58°	0 in/ 0.5in	81°/62°
	Tue 7/28	85°/60°	0 in/ 0.5in	81°/62°
	Wed 7/29	89°/63°	0.03 in/ 0.5in	81°/62°
	Thu 7/30	82°/72°	0 in/ 0.5in	81°/62°
	Fri 7/31	84°/67°	0 in/ 0.5in	81°/62°

Ornamental Horticulture Program Research Report Form

Researcher: Hannah Mathers, PhD **Date:** 8/11/2016
Project Title: Ornamental Grasses Herbicide Crop Safety
Protocol #: 15-010 **PRnumbers:** 31901, 31905, 31915

Events in August 2015	Date (yr. 2015)	Hi/Low	Precipitation/ Irrigation	Average Hi/Low
	Sat 8/1	79°/62°	0 in/ 0.5in	81°/62°
	Sun 8/2	89°/62°	0 in/ 0.5in	81°/62°
	Mon 8/3	77°/62°	0.38 in/ 0.5in	81°/62°
	Tue 8/4	80°/65°	0 in/ 0.5in	81°/62°
6WA2T Trial completion	Wed 8/5	75°/65°	0 in/ 0.5in	81°/62°