

Member Driven Research Update

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Currently, it's raining very hard. In fact about an additional two inches today on the St. Paul campus. Although I love watching water move, I do not like being delayed by weather. However, a day like today does allow us to take some time to update the Member Driven Research. The initiative started last year by looking at a growing degree day (GDD) model for trinexapac-ethyl (Primo Maxx) on creeping bentgrass greens, a GDD model with paclobutrazol (Trimmit 2SC) on Kentucky bluegrass fairways, a wetting agent study looking at surface firmness and winter turfgrass health and also a fun one to watch: melting ice on putting greens study. This year will focus on many of the same topics, but with some changes as well.

2014 projects:

Trinexapac-ethyl Growing Degree Day Model for Creeping Bentgrass Putting Greens: Data collected in 2014 will validate the work that was done in 2013. This study will offer a better recommendation of when to apply trinexapac-ethyl based on its metabolism in the plant and not based the calendar. This will help prevent the rebound effect and maintain a more consistent playing surface. We know that as the temperatures

rise, the growth regulation provided by trinexapac-ethyl reduces and thus reapplication is needed sooner than the calendar will allow us. As you may recall, trinexapac-ethyl was applied at or below label rates monthly and every 200 GDD (Table 1). Initial GDD studies conducted at the University of Wisconsin-Madison with trinexapac-ethyl indicated little difference observed with rates even twice as high as label recommendations. By choosing lower rates for the MGCSA study, we were able to observe the rate effect on growth suppression. We are finding that as trinexapac-ethyl rate decreases, so does the level of growth suppression, but duration of suppression stays the same. Although one year of data is not enough to provide solid recommendations, data suggests that 200 GDD with trinexapac-ethyl may be conservative. 2014 will provide additional data to back up the quality data from 2013.

Table 1. Trinexapac-ethyl treatments and rates.

Treatment	Rate
Monthly	0.125 fl oz/M
Monthly	0.094 fl oz/M
Monthly	0.063 fl oz/M
Monthly	0.031 fl oz/M
Every 200 GDD	0.125 fl oz/M

Wetting Agents and Their Effect on Surface Firmness and Winter Health of Bentgrass Putting Greens: This is the second year of the wetting agent trial (addition of new products for 2014). This study is focusing on wetting agent's influence on surface firmness and winter health of putting greens. Table 2 shows the products that are being used this year and also the category of each product. There is much discussion about the surface firmness and winter health benefits that wetting agents may provide, but to date nothing has been published on the topic. With this member driven project, we hope to answer these questions. With that said, 2013 data showed very little difference in surface firmness between the products and absolutely no benefit or negative effects on winter health; we observed complete health following winter at the study location. With the increase in products during 2014, we hope to see some differences and we will also be putting these products to the test during the summer by reducing the irrigation to look at performance.



Table 2: Wetting agent rates, type and manufacturer used in surface firmness & winter injury of bentgrass putting greens.

Treatment	Rate (oz/M)	Type	Manufacturer
AquiFlo	4	Infiltration	WinField
AquiCare	3	Retention	WinField
Cascade Plus	4	Infiltration & Retention	Precision Laboratories
Duplex	1	Infiltration	Precision Laboratories
Cascade Plus/Duplex	4/1	Infiltration & Retention	Precision Laboratories
Fleet	8	Infiltration	Harrell's
Revolution	6	Retention	Aquatrols
Tournament Ready	4	Infiltration	Kalo, Inc.
Dispatch Sprayable	4	Infiltration	Aquatrols
Primer Select	4	Retention	Aquatrols
Sixteen 90/Dispatch Sprayable	4/1	Retention & Infiltration	Aquatrols
Sixteen 90	4	Retention	Aquatrols
TriCure AD	2	Retention	Mitchell Products

Flurprimidol & Paclobutrazol Growing Degree Day Model for Creeping Bentgrass Fairways: This trial is being taken to a new level. During 2013, we looked at finding a paclobutrazol growing degree day model for Kentucky bluegrass fairways. The data suggested that at an 8 or 16 fl oz/A rate, a good model is 400 growing degree days (remember that we use a base temperature of 0C, so we just add up degrees Celsius). At 16 to 24 fl oz/A rate, a good model is 800 growing degree days. Keep in mind that more than 100% growth reduction was achieved with the higher rates. We are in the process of analyzing data from Tartan Park and the University of Wisconsin-Madison from 2013 and expect a detailed up-

date soon. For 2014, we have added flurprimidol (Cutless 50w) and we have moved the study to a creeping bentgrass fairway at Medina Golf and Country Club. We are also doing this in collaboration with the University of Illinois providing additional data. The study is designed to find the most accurate model by incorporating multiple growing degree days on both the low and high side (Table 3).

Table 3: Flurprimidol & Paclobutrazol Growing Degree Day Model Study on Creeping Bentgrass Fairways.

Treatment	Rate (oz/A)	Application Interval (GDD in Celsius)
Cutless 50 W	10	200
Cutless 50 W	20	200
Trimmit 2 SC	10	200
Trimmit 2 SC	20	200
Cutless 50 W	10	350
Cutless 50 W	20	350
Trimmit 2 SC	10	350
Trimmit 2 SC	20	350
Cutless 50 W	10	500
Cutless 50 W	20	500
Trimmit 2 SC	10	500
Trimmit 2 SC	20	500





Growth regulator plot at Medina G&CC

Melting Ice on Putting Greens: This study was conducted here at the University of Minnesota and at Michigan State University. There was a very nice article in the January/February addition of Hole Notes discussing the study. A quick highlight, as you can imagine the solar absorption products increased surface temperatures the most, and the most visible ice melt was from some of the fertilizer applications and also black sand. The standard salts and safer ice melt treatments produced very little visible ice melt.

Currently, the wetting agent and the flurprimidol & paclobutrazol GDD study have been initiated. The trinexapac-ethyl GDD study will be initiated the first week of June. The projects put forth by the Member Driven Research are looking to answer some very common questions we have in our industry. We are excited for the support the MGCSA has given to the University of Minnesota. Please contact us with any questions, comments or suggestion on future projects. We look forward to showing you all the progress at the Minnesota Turf and Grounds Foundation Field Day on August 7th.