Increase the precision of PGR applications to greens: A GDD Approach
May 8, 2015

Plant growth regulators (PGRs) are frequently applied to golf putting greens. They suppress clipping yield, increase stress tolerance, reduce fertility requirement, and increase turfgrass visual quality. It's important to sustain season-long clipping suppression to maximize the benefit of PGRs. Breakdown (metabolism) of PGRs is dependent on temperature. Increased air temperature accelerates metabolism and reduces the duration of growth suppression. That means calendar-based re-application intervals are inefficient because air temperature changes from day-to-day and season-to-season.

An easy schedule PGR application on greens is to use growing degree day (GDD) models to estimate PGR degradation with respect to air temperature. I've written more about PGR-GDD scheduling in the April edition of the USGA Green Section Record located here. We also have more information on our website http://turf.unl.edu under the research section. Please contact me with any questions you may have.

We have developed a Microsoft Excel Program that tracks GDD accumulation. It is pretty simple. You define the PGR product, application rate, the day applied and the weather data. The program will track GDD accumulation, provide approximately levels of growth suppression and signal when PGRs need to be re-applied. The program can be found on our website or directly here: http://goo.gl/zORgm3. The newest version (2.0) has already been downloaded 175+ times in less than two days.

I posted a tutorial vide on YouTube to learn how to use the GDD Tracker Program. It can be found here: https://t.co/XiayeoPI4Z.

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Temperature Unit										
Select PGR							Fahrenheit			
Enter Rate (oz/acre)							Primo Maxx			
Default GDD Interval							5.5			
Use the Default GDD Interval?							200			
							Yes			
------------ If 'No', then define GDD re-application interval below ------------										
User Defined GDD Interval (0 to 800 GDD):							150			

Date	Observed High Temperature	Observed Low Temperature	PGR Applied	Daily GDD	Cumulative GDD	Approximate Relative Yield	Required Action	Forecasted Temp High	Low
4/15/2015	75.0	40.0	No PGR Applied	14.2	14.2	94%	None	60	40
4/16/2015	60.0	45.0	No PGR Applied	11.4	25.6	91%	None	65	35
4/17/2015	70.0	40.0	PGR Applied Today	12.8	12.8	95%	None	50	35
4/18/2015	75.0	45.0	No PGR Applied	15.6	28.3	91%	None	70	40
4/19/2015	80.0	45.0	No PGR Applied	16.9	45.3	87%	None	75	30
4/20/2015	70.0	50.0	No PGR Applied	15.6	60.8	85%	None	75	40
4/21/2015	75.0	55.0	No PGR Applied	18.3	79.2	83%	None	68	50
4/22/2015	85.0	55.0	No PGR Applied	21.1	100.3	82%	None	85	45
4/23/2015	80.0	60.0	No PGR Applied	21.1	121.4	82%	None	70	45
4/24/2015	70.0	65.0	No PGR Applied	19.7	141.1	82%	None	75	40
4/25/2015	75.0	50.0	No PGR Applied	16.9	158.1	83%	None	60	55
4/26/2015	85.0	55.0	No PGR Applied	21.1	179.2	84%	None	50	40
4/27/2015	85.0	45.0	No PGR Applied	18.3	197.5	86%	None	75.0	40.0
4/28/2015	80.0	50.0	No PGR Applied	18.3	215.8	87%	Re-apply PGR	60.0	45.0
4/29/2015	70.0	55.0	PGR Applied Today	16.9	16.9	93%	None	70.0	40.0
4/30/2015	75.0	55.0	No PGR Applied	18.3	35.3	89%	None	75.0	45.0
5/1/2015	85.0	60.0	No PGR Applied	22.5	57.8	86%	None	80.0	45.0
5/2/2015	70.0	55.0	No PGR Applied	16.9	74.7	84%	None	70.0	50.0
5/3/2015	75.0	55.0	No PGR Applied	18.3	93.1	82%	None	75.0	55.0
5/4/2015	85.0	60.0	No PGR Applied	22.5	115.6	82%	None	85.0	55.0
5/5/2015			No PGR Applied	21.1	136.7	82%	None	80.0	60.0
5/6/2015			No PGR Applied	19.7	156.4	83%	None	70.0	65.0
5/7/2015			No PGR Applied	16.9	173.3	84%	None	75.0	50.0
5/8/2015			No PGR Applied	21.1	194.4	85%	None	85.0	55.0
5/9/2015			No PGR Applied	16.9	211.4	87%	Re-apply PGR	80.0	45.0
5/10/2015			No PGR Applied	15.6	226.9	89%	Re-apply PGR	70.0	50.0
5/11/2015			No PGR Applied			100%			
5/12/2015			No PGR Applied			100%			
5/13/2015			No PGR Applied			100%			

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Figure 1. Download a copy of the newest version of the PGR GDD Tracker Program for Microsoft Excel. The new version has increased functionality over the first version. Give it a try this season. Download it here:
http://goo.gl/zORgm3