TURF HACKER

Ideas about growing grass

TUESDAY, 18 OCTOBER 2016

Disease Update, You win some you lose some (mostly winning)

On the West Coast of Canada we are now well into the time of year where fusarium is the dominant disease on turf. Reflecting on the summer of 2016 I can't help but feel somewhat defeated by turf disease. I required a traditional fungicide for dollar spot for the first time in 4 years on my greens. While this has left me feeling down about my disease management plan this year a closer reflection shows that while I lost the battle to dollar spot, I won the battle with every other turf disease on my course this summer. Looking back at the data, the battles I have had in previous years, what other courses in my

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area were dealing with I can feel really good about my disease management this past year.

To recap the requirement of traditional fungicide on my course this year so far is rather easy. The last fungicide application of the winter was on Feb 22. From that time I was able to keep disease levels at acceptable levels until Sept 4 when I needed to take action against dollar spot. That is 192 days between fungicide applications. That is the longest interval I have ever had between traditional pesticide applications on my course so that is something for me to be proud of. Looking back at what happened I learned a lot of things that I think I can use to extend that interval further in the future.

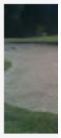
During that long stretch I used products containing phosphite, silica, spot applications of traditional fungicide (about 10m2 worth) and selective fertilizer applications and cultural practices to successfully manage disease.

Dollar spot

As mentioned earlier I have successfully managed this disease without the need for traditional fungicides in the past few years. This year I was completely surprised to see it show up on my greens. I talked a lot about why I thought I had it this year in my previous disease update post but would like to add some further thoughts to why I think I got destroyed this year.

yikes!

This year I went through March-June without a traditional fungicide application for fusarium for the first time in my career. In previous years the need for fungicides during this time could have possibly knocked down the dollar spot inoculum to a point where it was easier to control with cultural practices later on in the summer.



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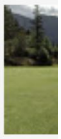

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sprayed on the left, not sprayed on right (obviously)

I first noticed the dollar spot in early June of this year but was able to manage it until early September. This is still pretty good in my opinion so I shouldn't get too beat up about it.

I came across this interesting tweet this summer.

Paul Koch
@uwpaul

Plot on left receives 0.6 lbs biweekly N, plot on right receives 0.4...no fungicide on either. Pretty sharp cutoff!

94 8:38 AM - Sep 15, 2016

42 people are talking about this

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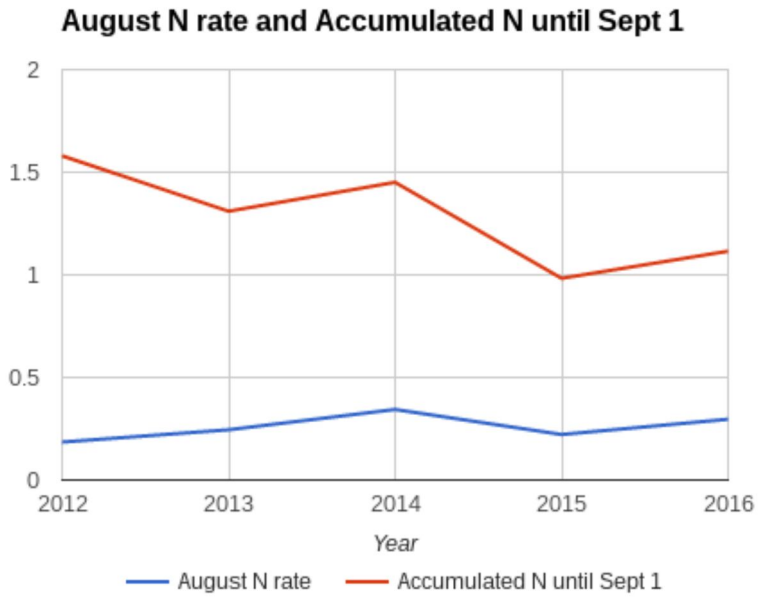
It got me thinking about my nitrogen reductions over the past 2 years. Was I too low this summer? I talked about how I have been able to reduce my N rates without any detrimental impacts in this post but I wonder now if I am too low or my timing was off? One of the biggest impacts that using growth potential to schedule nitrogen rates has been disease management as described in this post. As can be seen in the above tweet, it appears that there is a sharp cutoff for nitrogen rates and their impacts on dollar spot in the summer.

the worst of dollar spot on putting greens

I decided to look at my N rates closer to see if they were the driving reason. As you can see below the amount of N I have applied (kg/100m2) in the month of August (blue line) has slightly risen over the years while my overall N applied until the end of August (red line) each year has gone down. So I am applying more N than ever during the time when dollar spot is active but less overall during the season.



In Paul's tweet above he showed that rates of 0.27kg N/100m2 every two weeks had a significant impact on dollar spot. In August I applied 0.3 Kg N/100m2 or about half of what he showed to have a meaningful impact on dollar spot. Why then did I have success in the past?

Maybe I was right about the impacts of manganese on soil microbes as I mentioned in my previous

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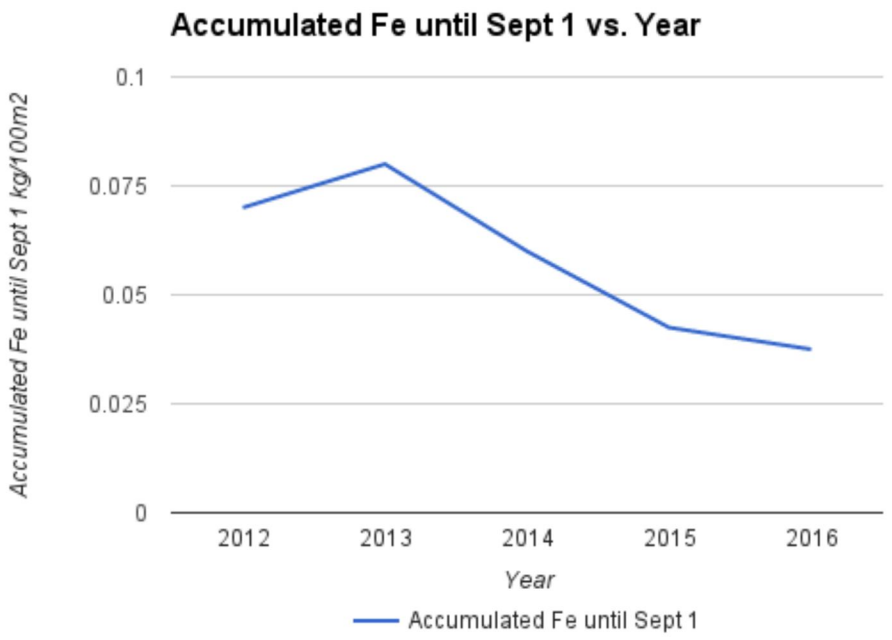
disease update post? I also didn't apply any iron this summer which has been shown in some studies (another one here) to reduce the impacts of dollar spot. As can be seen in the following chart I have applied less and less iron to my greens over the years. hmmmm



I had stopped applying so much iron because of fear of iron cemented layers and the fact that it had a high EIQ which is a flawed method to determine the impacts of products used for pest control and something I no longer use. I have since brought iron back into my program and will keep a close eye on things to see if it is a viable option going forward. I started using iron on my hard hit tees and approaches this September and so far it looks to have slowed the disease progression.

Culturally speaking we rolled more this year than ever before but still not as much as I would like. We lost most of our staff in mid August so had to make big reductions in maintenance and this could have been a contributing factor why the disease finally got unmanageable.

Looking back on my year with dollar spot management I cant' help but feel defeated but I learned a lot and careful analysis of what I did will have me more prepared than ever next year. It was easy to get complacent over the past 4 years with my dollar spot management success and this year I learned more than ever when it comes to managing this disease without traditional pesticides.

Fusarium

This year was a beast for fusarium, or so I'm told. While I have never had so much success managing this disease, others near me had an epic battle on their hands with active disease almost constant this year with little to no reprieve in disease pressure.

I won't share the pictures that were shared with me here but trust me, it was not an easy year and this is why I am very happy with how little fusarium I had on my course this year. I came out of the easiest winter ever for managing fusarium and continued that success right up until Sept.

A quick recap of what I am doing where more can be found in previous posts linked in the post and elsewhere.

Chemically I spot sprayed to limit disease spread by mowers, and used regular phosphite and silica

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applications through the summer. I only mention silica because it could have impacts on fusarium but the scientific evidence at this time isn't that strong so use at your own risk eh.

Culturally I mowed as little as possible which entailed applying low amounts of N when fusarium was active, regular PGR (primo maxx) applications and rolled as much as possible to keep conditions good for putting. We did not verticut or groom at all and used solid front rollers on the greens mowers.

I kept N rates low and only applied Ca and K in July and August to limit the impacts that these nutrients can have on fusarium.

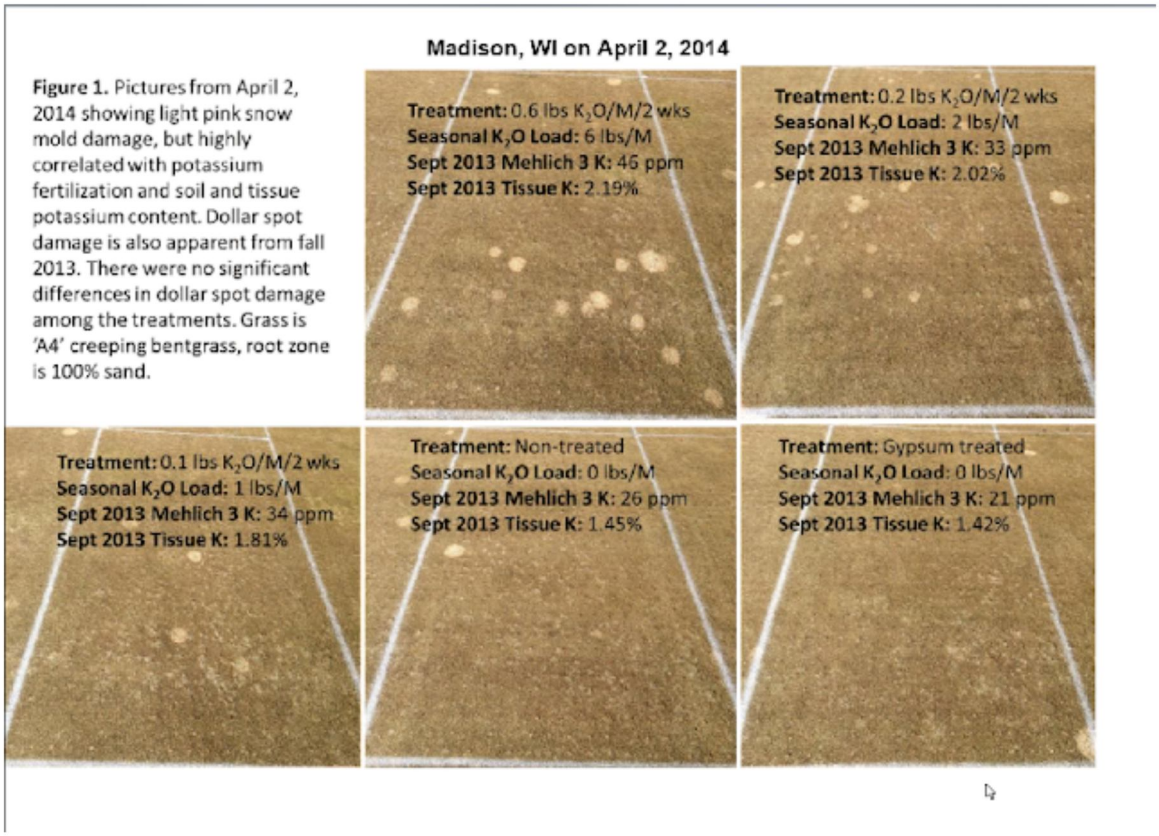


Image Credit: Doug Soldat, Turfgrass soil, nutrition and water specialist at the University of Wisconsin-Madison turf.wisc.edu Twitter: @djsoldat

Going forward this winter I will take a similar approach to managing fusarium but I will also be bringing iron back into my management strategy on approaches and tees as discussed in this post.

The grass is already growing very slowly and I have resumed regular spot spraying to prevent disease spread on the limited days that we do mow.

Date	Liters /200m2	Cutting Frequency (days)	Growth rate iters/day/100m2	Growth Rate mL/m2/day
9/1/2016	10	1	5.00	50.00
9/3/2016	14	2	3.50	35.00
9/4/2016	4	1	2.00	20.00
9/6/2016	6	2	1.50	15.00
9/8/2016	5	2	1.25	12.50
9/9/2016	2	1	1.00	10.00
9/11/2016	4	2	1.00	10.00
9/13/2016	2	2	0.50	5.00
9/15/2016	2	2	0.50	5.00
9/18/2016	6	3	1.00	10.00
9/21/2016	2	3	0.33	3.33
9/24/2016	3	3	0.50	5.00
9/27/2016	8	3	1.33	13.33
9/29/2016	3	2	0.75	7.50
9/30/2016	1	1	1.00	10.00
10/10/2016	2	10	0.20	2.00

Growth rates are slowing down big time with only 2 required mowings in Oct.

I put out a traditional fungicide spray in late September as I had an important tournament and was pushing the greens more than I normally would. Since that time I have aerated the greens and have only required 1 spot spray to get the 100 or so spots on my 0.4ha of greens. September continues to be the most challenging month for fusarium as it is when I transition from high summer nitrogen to low winter nitrogen. This transition is when I ALWAYS see disease pressure act up. Maybe some timely iron applications in the future will help be get over this hump?

So far everything looks to be going as planned and I hope to repeat last winter's success to prove to myself that maybe this approach is worth looking into further.

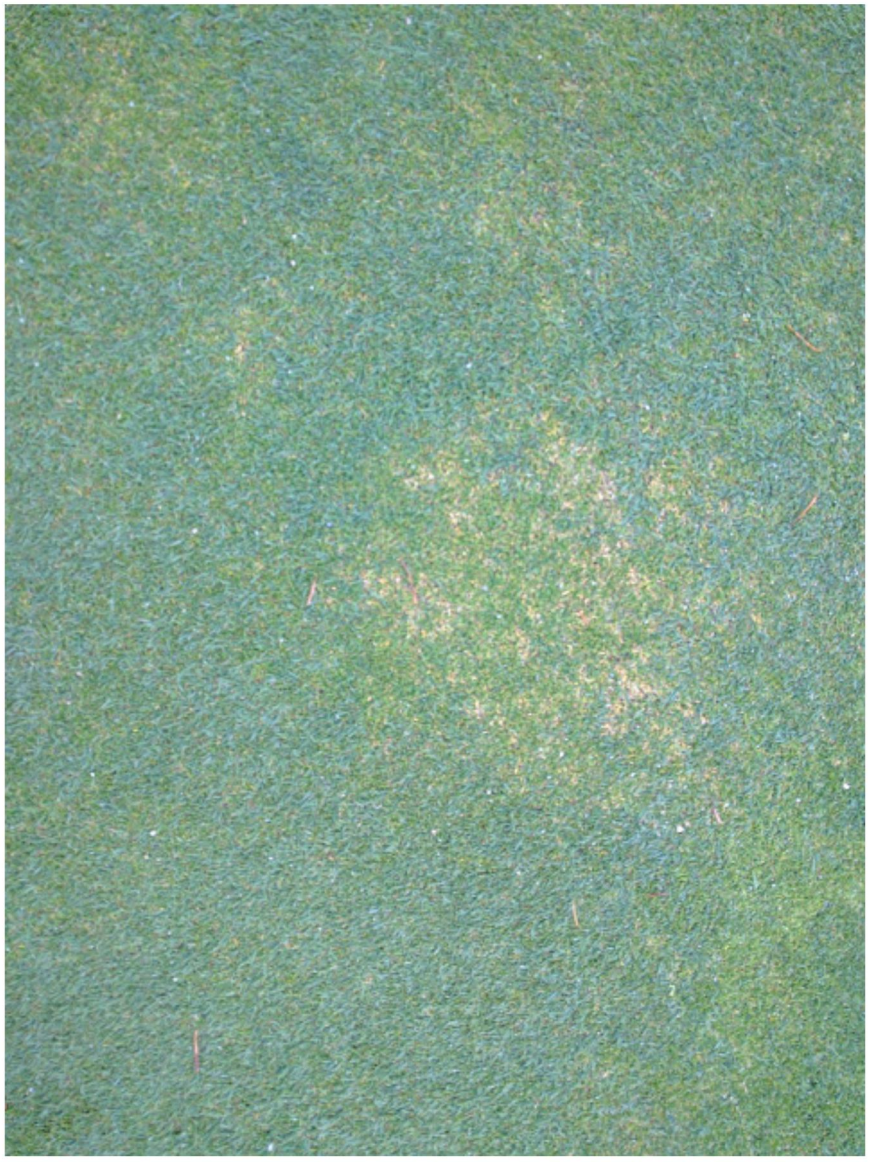
Anthracnose

For the most part I didn't see much anthracnose on my greens this year until mid September. I had learned in previous years with managing the disease that it would only kill the poa in my mixed-stand poa/bentgrass greens giving a huge advantage to the actively growing bentgrass in the summer months.

I also learned that low K could make anthracnose worse so I applied all my K during the summer months to lessen the impact of anthracnose and fusarium which isn't' typically active at the same time as anthracnose (this summer was the exception see above!)

anthracnose thinning out the poa while the bentgrass quickly fills in the voids, nature's poacure

This strategy worked great and I didn't see the disease show up until I started limiting K applications in preparation for the fusarium activity in September.



the worst patch of anthracnose this Fall. I sprinkled in some bentgrass seed :)

I bought a fungicide for anthracnose just in case but didn't need to use it as I was able to put off any corrective action long enough until the weather became too cold for this disease to cause any more damage.

The best thing about the anthracnose this year is that most of the damage was on my 2 greens with almost no bentgrass. This afforded me the opportunity to sow seed into the thinned poa stand and I hope to have a good mixed stand of poa/bent next summer and consequently no need for corrective fungicides for anthracnose on my course. You have got to love mixed stands for disease management and pesticide reduction efforts.

Cyanobacteria

Not an issue. Despite the wet weather this disease didn't show up as I kept ammonium sulfate as a regular part of my fertilizer program and this seems to have helped out big time.

Silvery Thread Moss and the Moss Disease

Unfortunately I did not have a successful year culturing the disease that kills the silvery thread moss on my putting greens and my cultural efforts were not enough on their own to keep the moss to acceptable levels. Despite this I have taken no action for moss this year and will give it another shot next year before taking action with a herbicide.

I guess that is the problem with using naturally occurring beneficial fungi to do the dirty work for you. Sometimes the environmental conditions just aren't favorable for that disease's development. I saw some minor outbreaks this year but nothing significant as in previous years.

This is a similar issue that scientists have had when trying to develop this beneficial fungi into a product that super's can use to control moss. Sometimes it works, others it doesn't and this inconsistency is one of the biggest problems with bio-pesticides.

Thatch Collapse

I had this disease show up on my greens this summer but as of yet it has not caused any damage. With regular topdressing I seem to be able to keep the greens smooth and it is just a visual problem at this point as in the turf is a bit greener on the spots where this disease is active.

Thatch collapse

Total pest management cost

In previous years I used costs and EIQ to set goals for pesticide use. As EIQ is flawed I no longer use it so at this time I just have cost to compare vs previous years.

Last year I made a 30% reduction in the cost required to manage disease on my course. This year I am on track for a repeat of last year or a total yearly cost of about $3000 for disease management products for 0.4 ha (1 acre) of greens. We still do not manage disease anywhere else on the course except with the addition this fall of tees and approaches with iron sulfate. I am within 1% of my year-to-date allotment for traditional fungicides and phosphite and silica. As I have mentioned in previous posts, phosphite has fit into my disease management program without costing any additional funds. It basically replaces dollar for dollar traditional fungicides.

In closing I hope to build on what I have learned in previous years and build on the success to push the boundaries with pesticide reduction. Here's to a disease free winter! (knock on wood)

Posted by Jason Haines

Labels: anthracnose, Cyanobacteria, Disease Spread, disease update, fertilizer, Fusarium Patch, growth rates, IPM, iron, Microdochium nivale, nitrogen, Pesticides, phosphite, silvery thread moss

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