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# TURF HACKER

Ideas about growing grass

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MONDAY, 25 JUNE 2018

## Using indicator species to fine tune fertilizer applications

I get it. I talk a lot about turf disease and fertilizer but it is only because I think that the two things are closely related. More specifically, I think the amount and types of diseases on our grass are closely related to how fast the grass is growing.



Not too shabby

From what I have seen over the past few years of intense growth rate monitoring and reduction in fungicide use is that **if we can grow that grass at the right rate, we can reduce the amount of disease**

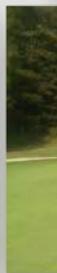
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significantly.

The trouble is that it isn't that easy to figure out what is the right speed. Further complicating matters is that if you add too much fertilizer, you cannot take it back and are stuck with grass that is either growing too fast which can lead to all sorts of issues at certain times of the year.

I have used the Growth Potential mathematical model to predict nitrogen needs, clipping volume and many other things to try and help me get it right and each year that I further refine my fertilizer timing and rates, the less disease issues I have.

**One of the first strategies that I used** when starting to really try and reduce my reliance on fungicides was to simply not apply preventative fungicides and use my observations to try and figure out why my grass was diseased. I could never understand why some areas were covered in disease and others were untouched. It started with obvious things like sunlight, drainage and disease spread but then focused on how fast my grass was growing. Grow it too fast and it gets disease, grow it too slow and it gets disease. Grow it just right and there is little or no disease. It sounds too good to be true and it might just be. We have to maintain playing surfaces after all and we can't just grow our grass at speeds to reduce disease. We need to grow it at speeds to manage wear and tear etc.

On a deeper level I think this all ties together with the soil microbiome and that **thing called balance** we all seek to achieve.

Growing the grass at the right speed isn't that easy because the right speed changes every day! How can we consistently hit this moving target? The mathematical formulas can help but they aren't perfect.

What if I go back to my first disease management strategy and let the disease tell me how much I should fertilize my grass and when and combine these observations with the data collection and growth potential model?

I think it might just work and if you have read some of my recent posts you will know where I'm going with this.

Here are a few of the common turf diseases I deal with and how they can help you refine your fertilizer (and cultural) program and hit that sweet spot with more consistency.

You can further refine things if you fertilize greens individually based on their growth rates and disease levels like I have done for the past year. It's not that hard to do either. Fill up your tank with water with enough to spray all greens. Add the stuff you need to apply to all greens like wetting agents etc. Go spray the greens that don't need any fertilizer. Add some fertilizer. Go spray the greens that need some fertilizer. Add more fertilizer. Go spray the greens that need even more fertilizer.

## Fusarium

This disease is mostly a problem in the winter months but I have seen it every month of the year! To me it indicates that the grass is growing too quickly and no additional fertilizer is needed (unless damage is widespread and you need to fill in the dead spots with the aid of a fungicide).

I have noticed that the Smith-Kerns dollar spot model does work for fusarium at some times of the year but I eagerly await the upcoming release of a fusarium specific prediction model to make managing this disease and my plant growth rates that much easier.

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Fusarium in June! With elevated growth rates and a brief cool and wet week the disease popped up. Luckily it dried up and warmed up and it went away.

### Dollar Spot

This disease is only an issue here in the summer and only on the slowly growing greens. To me dollar spot indicates that the grass is growing too slowly for the conditions and more nitrogen is needed.

The Smith-Kerns dollar spot model is awesome and when I see disease pressure spike I check my clipping volume data to ensure my grass is growing fast enough.

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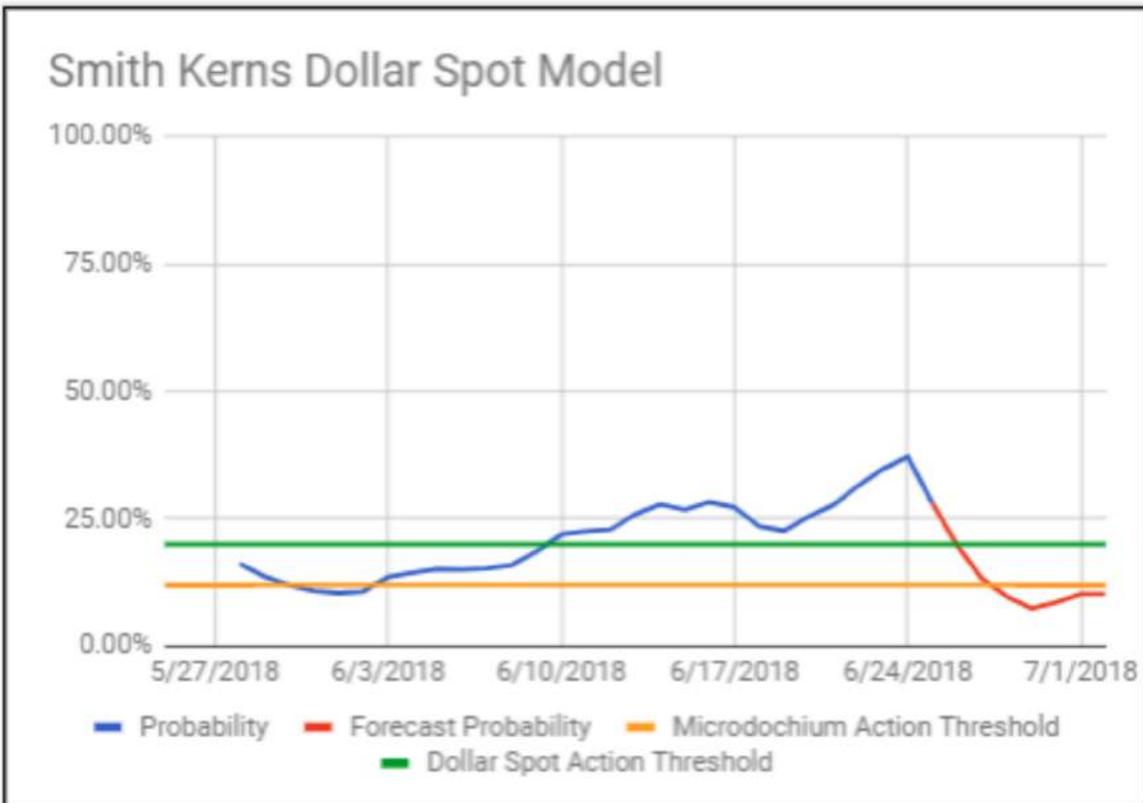
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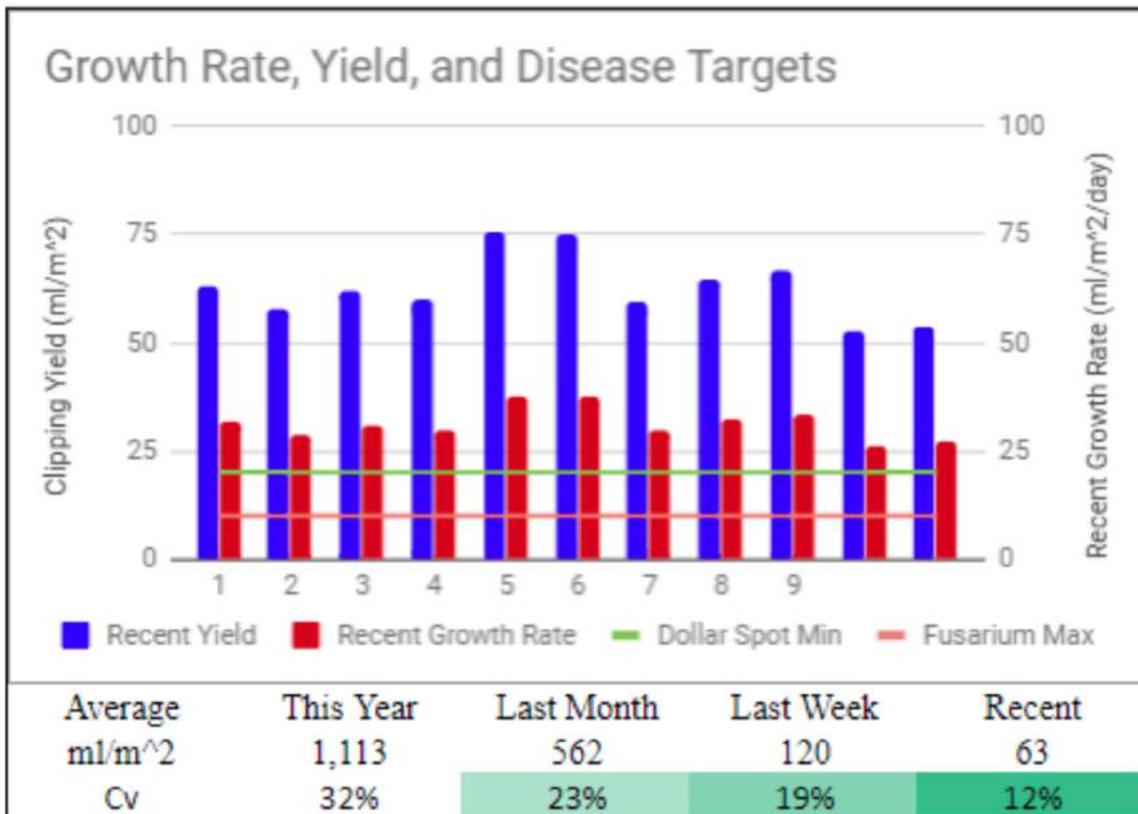
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A light spike in disease pressure saw some disease on our greens.



I find that a growth rate of 20ml/m<sup>2</sup> per day is sufficient to manage dollar spot in most cases.

## Anthracnose

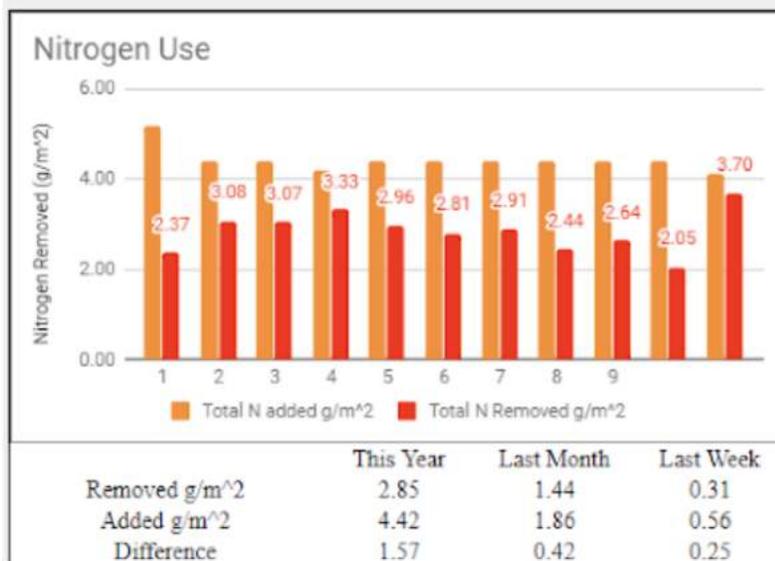
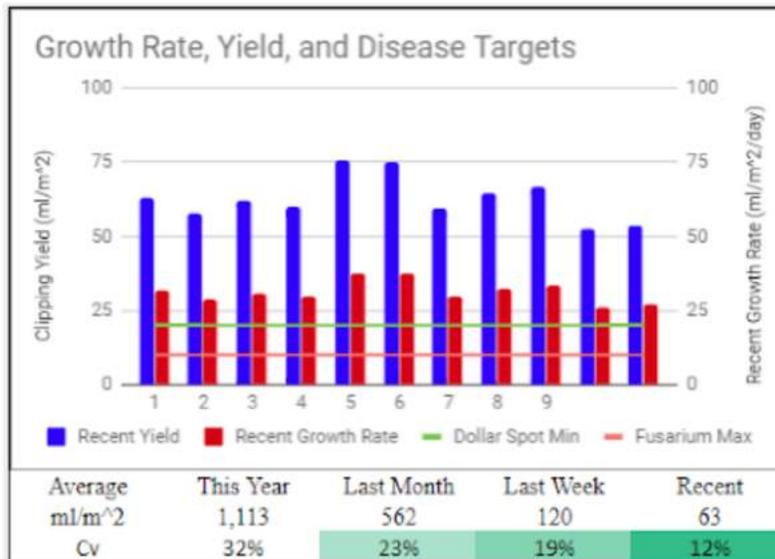
This disease has only become a problem on my greens in recent years I have consistently reduced my annual nitrogen rates each and every year since 2012. This disease indicates that the grass is growing too slowly and more nitrogen is needed unless you are a sick bastard like me who likes to see the poa die. On our predominantly bentgrass greens I don't adjust the growth rate and just let the poa die.



anthracnose on my first green

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As can be seen on the lower chart, my first green has been growing slower than most while receiving the most nitrogen fertilizer to help manage anthracnose on that green.



While still obviously infected (great time to drop some seed), the green is still alive with the additional nitrogen treatments.

### **Cyanobacteria**

This disease is only an issue in wet summers or if I get lazy and overwater the greens. Dry them out and incorporate some 21-0-0 into your nitrogen fertilizer treatments and it should go away. Needless to say, I haven't seen this disease in years since I stopped being so lazy and started using more 21-0-0.

### **Brown Patch**

This disease used to be a big problem on our greens but we haven't seen it since we stopped watering in the afternoons. Let your grass be dry for as long as possible to keep the humidity down during the heat of the day.

### **Weeds**

Not a disease but a great indicator species as well. In 2012 our fairways were thatching, soft and didn't drain very well. I decided to try and use less nitrogen to see if we could do something about the thatch. Each and every year I applied less and less fertilizer and the fairways improved more and more until this year when the weeds took over.

What I think happened is that we finally burned up the excess organic matter and now the grass isn't getting enough nitrogen to compete with the weeds. This is a great indication (along with the fantastic drainage and firm conditions) that I need to fertilize my fairways slightly more if I want to keep weeds to a minimum without the need for a herbicide. Even then, the fairways will always be the weakest part of the course until we can renovate them to smooth out the settling that has occurred over the past 30 years.

So while we have a lot of high tech tools available to help us make decisions I think that we can also use turf diseases to do similar things. The diseases are reality and the models are just theory. Ideally we want to prevent the disease in the first place so I still think the high tech tools are essential for keeping things balanced and understanding why the disease is an issue and how you can take action to correct it before it becomes a costly issue. We can use the growth potential model and clipping volume data to get into the ballpark then if we pay close attention to these diseases (assuming you don't apply preventative fungicides) we should be able to adjust our maintenance practices to hit the sweet spot. And about that playability thing....for me at least, they two things are also closely related. Healthy grass = good surfaces for golf!



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Posted by [Jason Haines](#)



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