Creating a fungicide program for the coming season
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No matter the segment of the turf industry you represent, fungicides will likely be part of your management program this year. I taught a seminar about fungicide selection and scheduling at the Nebraska Turf Conference two weeks ago, where I presented a simple, five-step method for deciding when to make fungicide applications. The seminar was apparently well-received, so I decided to briefly summarize for those that weren't able to attend, and especially for those who perhaps don't have experience creating a fungicide program. While this is a very brief summary of my seminar, I feel that it will be useful for the less experienced. If you're a skilled fungicide planner, proceed with patience.

1. The first step is to gain familiarity with the diseases that affect the turf you manage – know when they occur, what cultural management strategies alleviate their severity, and which fungicides are effective. An easy way to do this is to make two tables – the first showing x's when diseases are likely to occur. An example for a Kentucky bluegrass lawn is below (summer patch is unique because root infection occurs in spring, but symptoms aren't visible until summer).

	April	May	June	July	Aug.	Sept.
Pink snow mold	X	X				
Dollar spot	X	X	X	X	X	X
Summer patch	*--Infection--*		*----------Symptoms----------*			
Rust	X	X			X	X

Next, fill your second table with fungicides or (fungicide classes), and place x's in the row of diseases for which they are effective (only a partial list of fungicides is represented). See the table* on the third page for more fungicide information.

	DMI	QoI	Boscalid	Iprodione	Thiophanate-methyl
Pink snow mold	X	X		X	X
Dollar spot	X		X	X	X
Summer patch	X	X			
Rust	X	X			X

2. The next step is to decide what your application trigger will be. Will you apply when you first notice symptoms, when environmental conditions are favorable for disease development, or a combination of the two? Depending on the disease, I'd recommend using some type of low threshold to begin applications. This works best for diseases that are largely cosmetic, with readily visible signs of disease infection (e.g. dollar spot in a Kentucky bluegrass lawn). For diseases that are more damaging, or that are more difficult to see signs of infection (e.g. root infection of Kentucky bluegrass by the summer patch pathogen), the only option is to apply fungicides when environmental conditions are favorable for disease development. For summer patch, applications are made in spring when soil temperatures reach 65˚F (similar to how we schedule preemergence herbicide applications for crabgrass control).

3. Next, we need to efficiently choose a fungicide (or fungicides) to control the active diseases in a given month. For example, all diseases in my first table can be controlled with DMI fungicides (e.g. propiconazole, triadimefon, etc.). So, I could make one application of propiconazole at the beginning of April and assume that my turf would be protected for a period of time, but for how long? This varies by fungicide – some last 14-21 days under low to moderate disease pressure, but only 7-14 days under high disease pressure, and others only last 7 days, regardless of disease pressure. This information can be found on product labels. Alternatively, you could wait for your damage threshold to again be reached before making another application, or until environmental conditions are again suitable for disease development. The other caveat, is that any application for summer patch will need to be watered in to protect roots, which wouldn't be necessary for the foliar diseases in my table.

4. Once a reapplication interval has been determined, it's time to again select a fungicide (or fungicides) to apply. As part of protecting the useful life of the fungicides we use, it's best not to use the same fungicide repeatedly. Instead, we should rotate chemical classes with new applications, or tank-mix different chemical classes and apply both simultaneously.

5. Be proactive, and utilize this or a similar method to make a plan. Make season-long tables for when you expect diseases to occur, and when you plan to make fungicide applications to protect your turf. By anticipating disease development, you're less likely to get caught by an outbreak. You'll be scouting for damage when you expect it, and you'll already know what to apply rather than reacting to damage, and spending half a day deciding how to proceed. Be sure to incorporate fungicide rotation and tank-mixing in your plan, and remember that you don't have to make an application just because you planned to. If the time comes and environmental conditions aren't right for disease development, you can withhold the application until needed.

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***More information about fungicide classes, active ingredients (common names), and example trade names:**

Fungicide class	Ex. common name	Ex. trade name
Nitriles	Chlorothalonil	Daconil Chlorothalonil 82.5 DF
Dicarboximides	Iprodione	Chipco 26GT
Benzimidazoles	Thiophanate-methyl	Cleary 3336
DMIs	Propiconazole	Banner Maxx II Propiconazole 3.6 EC
	Triadimefon	Bayleton
	Triticonazole	Trinity
QoIs	Azoxystrobin	Heritage TL
	Fluoxastrobin	Disarm
	Pyraclostrobin	Insignia
Carboxamides	Boscalid	Emerald
	Flutolanil	Prostar
Phenylamides	Mefenoxam	Subdue Maxx
Carbamates	Propamocarb	Banol
Aromatic hydrocarbons	Chlorneb	Teremec SP
	PCNB (quintozene)	Turfcide