

Disease control research finds more is...less

A seven-day disease control spray program reduces product use and keeps pathogens from getting a hold of golf course turf.

New research by Dr. Joe Vargas at Michigan State University shows that spraying greens, fairways and tees with a fungicide—in this case, Daconil Ultrex—as often as every seven days promotes healthier turf and saves money on product.

Tests at MSU show that a seven-day program can help solve thinning out problems on golf course turf.

Dr. Vargas, a turfgrass pathologist with the Department of Botany and Plant Pathology at the University's East Lansing campus, says his studies have indicated that turf disease control is excellent at low

rates, however, the spray program has to be carried out every seven days rather than on the usual 14-21 day schedule.

"What we found," reports Vargas, "was that using Daconil Ultrex with Super Weather Stik at a rate as low as .88 oz. per 1000 square feet on greens and .44 oz. on fairway-length



Vargas: golf course superintendents will welcome the low-rate, seven-day cycle as a means of promoting good plant health, once they try it.



Dense green turf on a research plot (left) at Michigan State University shows the beneficial effects of Dr. Joe Vargas' low-rate fungicide program. The control plot at right was not treated, and shows substantial thinning due to summer heat stress.

turf, applied at seven day intervals, gave us every bit as good disease control as applying 3.8 oz. of Daconil per 1000 square feet on a spraying cycle that has 14-day intervals between sprays."

It's all about simple math, says Vargas.

"Using less of a substance over a measured time period will cost less. The great thing about the low rate/higher frequency spray cycle is that it's not only more economical, but you also get the same disease control that you would at higher application rates that are separated by 14 days or more. In fact, the disease control achieved with a low-rate cycle may even be superior."

Keep the pathogens at bay

Vargas says the seven-day system may be superior to longer sprays because it just doesn't give the disease pathogens a foothold.

"Soil and thatch are just beneath the

turf canopy and contain many pathogenic fungi," says the well-known pathologist.

"If the temperature is ideal for their development, they attack the turf, and cause diseases such as leaf spot, dollar spot, brown patch and Pythium blight.

"And when the temperature is not ideal, minor infections are constantly taking place in the turf canopy, which can lead to an undesirable thinning of the turf throughout the season."

Vargas says the low-rate, seven-day program is particularly useful in treating bentgrass turf so it remains dense enough to fight off *Poa annua* invasions.

New growth picks up on disease

A key to understanding why the seven-day cycle works lies in the act of mowing grass.

Vargas observes that when greens and fairways are mowed, leaves that carry resid-

ual amounts of fungicide are replaced by new growth leaves which are not protected by the fungicide. This cuts the effectiveness of the treatment right along with the turf.

"So if you make frequent applications, you can put the e fungicide on the newer grass that is coming up as the older blades are mowed off."

Spray equipment might bring added stress to the turf, adds Vargas. "But with today's lightweight mowing equipment, the turf's stress should be minimal; and, you're assuring yourself of more seamless protection against the diseases that can badly thin and damage turf. That's what really counts."

Dr. Vargas warns that the program is most effective as part of a solid cultural and spray program, starting in spring.

"I think some superintendents think that when they spray on a seven-day schedule, they're over-spraying, and perhaps damaging the environment.

"In fact, when you examine most curative programs, you will find that by the time disease has become apparent, you're going to have to apply just as much fungicide, or even more than you would have used if you had been on a low-rate, seven-day program.

"I think this is just as environmentally sound as waiting to see the disease develop and then dumping a whole lot of product on the turf all at once."

"When the temperature is not ideal, minor infections are constantly taking place in the turf canopy, which can lead to an undesirable thinning of the turf throughout the season."

It's part of good health

Vargas counters those who say fungicides do not promote good plant health.

"The implication that fungicides do not promote plant health is just dead wrong. The key to the sound health of any organ-

DOLLAR SPOT/LOW RATE FUNGICIDE COMPARISON, GREEN-HEIGHT TURF

Treatment	Rate/1000 sq. ft.	Interval	% area infected	*Tukeys
Daconil Weather Stik	4.00 fl. oz.	14 days	0.00	a
Daconil Ultrex	1.76 oz.	7 days	0.13	a
Daconil Ultrex	3.80 oz.	14 days	1.00	a
Daconil Ultrex	.88 oz.	7 days	1.10	a
Daconil Weather Stik	2.20 fl. oz	14 days	8.30	b
Daconil Ultrex	.44 oz.	7 days	15.30	c
Untreated control	—	—	36.30	d

* Treatments followed by the same letter not significantly different from each other.

DOLLAR SPOT: LOW-RATE FUNGICIDE COMPARISON, FAIRWAY-HEIGHT TURF

Treatment	Rate/1000 sq.ft.	Interval	% area infected	*Tukeys
Daconil Ultrex	3.80 oz.	14 days	0.00	a
Daconil Ultrex	.44 oz.	7 days	2.50	a
Untreated control	—	—31.30	b	

* Treatments followed by the same letter not significantly different from each other.

ism is to prevent it from being attacked by disease, and that is what fungicides do for plants in much the same way that preventive medicines play an important role in maintaining human health.

"I think fungicides are critically important in the highly artificial conditions under

which plants exist on a golf course, especially for the turf on golf greens," says Vargas.

"Frequent mowing [at such low heights] is extremely stressful for plants, so they need all the help they can get to stay healthy and resist disease. Plant health

depends on a variety of good horticultural practices that include frequent spraying to avoid fungal attack, aeration, sand top-dressing and proper vertical mowing."

Lower exposure for golfers

Vargas notes a further advantage to the

program: low rate spraying means golfers are exposed to proportionately less fungicide.

"When you use lower rates," says Vargas, "even if the fungicide is applied on a more frequent basis, there is less exposure for golfers than when you use high rates, and they go out on the course right after application."

But Vargas cautions superintendents to start the cycle early.

"When superintendents call me in July and August in a panic because the turf on their courses is thinning, it's too late to go out and start applying fungicides. A sound preventive program has to start in the spring and continue throughout the season. You cannot wait until you see the disease developing. That's why the prevention of minor infections that you get from the low-rate, higher-frequency application cycle is so beneficial; but only if you start soon enough." □