

Fungicides

How you apply it can be at least as important as which one you use, says famed researcher

BY KIT BRADSHAW

Do nozzle type, dilution rates, spray patterns, pH and pressure make a difference when applying fungicides?

"You bet'cha," says Dr. Houston Couch, professor of plant pathology at Virginia Polytechnic Institute and State University. Couch, well known for his book, *Diseases of Turfgrass*, was the speaker at the Fourth Annual South Florida Workshop and Exposition in Fort Lauderdale April 17.

For two hours, he discussed a checklist of items necessary for the correct application of fungicides. This checklist is important, he said, because golf course superintendents need to improve the effectiveness of the fungicides they are applying to the nation's golf courses.

"With the IQ of Zippo the chimp, a crescent wrench and a screwdriver, you can double the effectiveness of your fungicide application," Couch said.

Superintendents must optimize the applications of their fungicides because they are faced with increased expectations.

"The Stimpmeter is the worst thing that happened to golf," he said.

"They roll the golf ball and tell the guy on the spot what they want. To get the number right, the superintendent will roll the green to harden it up, back up on the watering and lower the cutting height. But biologically, under these conditions, the grass has a real problem. Along comes a fungus that really sort of likes this world, and all it's got to do is snarl and this grass dies."



Dr. Houston Couch, pathologist

The problem is even worse because of South Florida's climatic conditions, he added. "A lot of you are growing grass in a part of the world where the Lord did not mean for that grass to grow. You know that. This is where he created fungus to kill the grass."

In order to fight the fungus problems, Couch recommends several procedures.

GRANULAR FUNGICIDES

Although he spent a majority of his time discussing spray fungicides, he did delineate his findings on granular fungicides: mow and irrigate the day before application to have the longest possible interval between application and mowing or watering; and apply the fungicide in the morning while the grass is still wet.

'With the IQ of Zippo the chimp, a crescent wrench and a screwdriver, you can double the effectiveness of your fungicide application.'

HOUSTON COUCH

Pesticide research inadequately funded, says Couch

Dr. Houston Couch feels strongly that superintendents should be more visible in their responsible use of pesticides.

"Golf course superintendents should not just talk about what a golf course does for air quality and sound conditioning and all that stuff," he said. "Because after all is said and done, if three or four ducks die on your golf course, I don't care how much sound pollution and air pollution you are controlling, all the public knows is that are some dead ducks out there. And you are in trouble."

"Generally, superintendents come across as using pesticides properly because the law is making them do it. And that's not the case. Superintendents are responsible people. They are trying to do the job right, but the average citizen thinks they spray indiscriminately. It's not done that way."

To offset this public impression, Dr. Couch had some suggestions.

"Superintendents should be putting out materials that show them using pesticides

and fungicides in the right way, without actually saying it. They should show that they are using Spraycheck, for instance, because it allows them to use the materials more effectively.

"They should show how they use a preventive program to cut fungicide use in half.

"They should demonstrate that synergistic combinations can cut fungicide budgets in half and produce better control."

Couch's research has produced valuable information for superintendents 30 years. He is concerned, however, about pesticide research.

"The GCSAA will not provide and grant money to test pesticides. Should they? I think so. Shouldn't they put out grant money to test nozzle size, longevity of control and so on, so that people can use the materials more effectively?

"Everything we deal with has pesticides... even our clothing has it or clothes would

rot off. The question isn't whether we can live without them; it's whether we can live with them properly.

"But do you realize there isn't a place in this country, including my university or the University of Florida that provides any money for this type of work.

"But if golf courses didn't use pesticides, they wouldn't last a year. Then why shouldn't they be sponsoring research to use these things properly?"

Pat Jones of the GCSAA responds, "The GCSAA is not a test organization. We currently give our research support to the USGA/GCSAA turfgrass breeding program. That's our primary area of support. We also support the USGA research which accounts for pesticides after they are used on the ground."

The opinions expressed by Dr. Couch are entirely his own and do not necessarily reflect those of The Florida Green or the FGCSA. JJ



Pike Creek Turf Farms, Inc.

Route 2, Box 376-A • Adel, Georgia 31620
1-800-232-7453

Producers of Quality Sod and Sprigs
Row Planting

- Tifway - 419
- Meyer Zoysia
- Tifdwarf
- Tifway II
- Tifgreen - 328
- Centipede

"Granular formulations of non-systemic fungicides require two to three times the active ingredient level of spray formulations to produce the same degree of disease control."

The type of carrier makes a tremendous difference in effectiveness. Get test data on the carrier as well as the active ingredient.

Granular formulation should never be used on home lawns or park applications.

NOZZLE TYPES

Couch is emphatic about not using flood jet nozzles in fungicide applications.

"The flood jet has the worst of all possible worlds," he said, "with big droplet size and lots of aerosol. The material comes through the nozzle, hits the baffle and goes splat. That's equivalent to putting your thumb over a hose. The only good thing you can do with a flood jet nozzle is to take it to a kiln, have it melted down and make it into a doorstep for your office."

He recommends either the flat fan 8002 or the raindrop type nozzles, RA 10 to RA

15 for fungicide applications. He also says fungicides should be applied with 100 percent overlap and the angle of the nozzle on the floating boom should be set at 45 degrees.

"The Chempro floating boom is the hottest thing you'll ever see. It has two manifolds for putting out the same pressure at each nozzle and will give you uniform application. The boom is in a class by itself."

NOZZLE PRESSURE

In Couch's research, nozzle pressure made a significant difference in the effectiveness of the fungicides.

"We used the 8002 nozzles with the right dilution rate of Chipco 26019 to control dollar spot," Couch said. "When we used 10 pounds per square inch, we got 55 percent control. But when we switched to 30-60 pounds, with the same amount of material in the same amount of water, we just about doubled the effectiveness of the fungicide. With Dyrene, the same thing occurred. There was 45 percent control at 10

pounds and nearly 100 percent control at 30 - 60 pounds."

In order to calibrate the correct pressure, Couch recommends gauges on both the tank and the nozzle ends. "You should be using the Spraycheck method to check your pressure when you apply fungicides. This may not seem important unless it's your prize putting green, it's five days before the big tournament, the nights are in the 90s and the humidity is 150 percent, and one part of the boom is killing all the fungus and the other part is killing just some of the fungus. That's when you think about moving up North."

Couch recommends 40-pound pressure for both the flat fan nozzles and the raindrop nozzles.

DILUTION RATES

Forget the old rule, primarily based on the use of mercury fungicides, of 5-10 gallons per 1,000 square feet.

Couch recommends Daconil 2787 at one gallon per 1,000 square feet; Dyrene at 1-2

CUSTOM CONCRETE BORDERS

Border Cart Paths... Putting Greens... Flower Beds!



**COLORS
&
CUSTOMS**

Call for prices
and
specifications



**Consulting
services for
paving and
drainage
problems!**

**Contact
Dell
Haverland**

Haverland Blackrock Corp.
Boynton Beach, Fla.

Office: 407/369-7994

Fax: 407/369-0535

Excavating • Cart Paths • Drainage

GOLF COURSE RENOVATION

gallons; Bayleton at 2 gallons; Chipco 26019 at 0.5 to 4 gallons; Banner at 2 gallons; and Vorlan at 1-2 gallons.

"Chipco is hard to mess up," he says. "It's not dilution dependent, so if you went from a half gallon to four gallons per 1,000 square feet, you got some control."

"Dyrene, however, can't be used at four gallons because it's been diluted out of existence and with Daconil, it's dilution dependent, so if you drop down or go up to two gallons, there is a drop in effectiveness."

"Bayleton shouldn't be put in at one or three gallons, but at its optimum rate of two gallons. If you change from the optimum dilution rate with Bayleton, you get less control over the fungus and it doesn't last as long."

IRRIGATION AND RAINFALL

Irrigation or rainfall shortly after application will affect the fungicide, and usually not for the better.

In his research, Couch used Dyrene,

Rubigan, Bayleton, and Daconil. He applied the materials to the leaves while they were wet, allowed the leaves to dry, then irrigated. After three days, he irrigated again.

As a result, Couch said, "with dollar spot control, rainfall before the spray dries, significantly reduces the effectiveness of the contact type fungicides. With Rubigan, if the leaves are washed before the spray dries, it's goodbye Rubigan. With Bayleton, leaf washing before the spray dries does not significantly reduce the effectiveness."

He also concluded that the basic effectiveness of turfgrass fungicide is established by the initial amount of the water used in its spray application.

If the treated area gets more water before the spray dries on the leaf, the effectiveness of non-systemic fungicides will drop significantly.

If the fungicide formulation contains a sticking agent, rainfall or irrigation immediately after the spray dries on the leaves

will not appreciably reduce its effectiveness.

pH AND IN-TANK STABILITY

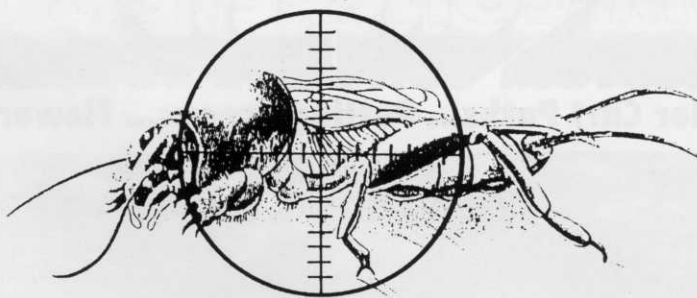
Superintendents need to know the stability of the active ingredient of the fungicide (which usually is supplied by the manufacturer); they need to test for the pH stability of the formulations; and they need to know the pH of the water in the area.

"The lesson here is that if the active ingredient of the product is unstable in alkaline ranges, it will be formulated with a buffer that will skew it toward the acid range," Couch said. "So what you want to find out is if the water you are using will offset what was going on in the first place."

"Dyrene is alkaline sensitive. It loses disease control effectiveness rapidly at 9.5 in the alkaline range. However, if it is used immediately in the acid range it doesn't lose effectiveness."

He recommends using a simple pen-type

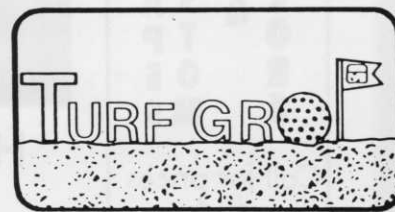
An Un-Welcome Sight!



Take Aim With Sunniland Molecricket Bait



Sunniland Regional Managers



Dennis Varady (407) 332-9078
Steve Goedereis (407) 964-9478

Wayne Carmichael (904) 272-4891
Joe Kempeneer (813) 743-2643

Post Office Box 1697, Sanford, Florida 32772-1697 Telephone (407) 322-2421 • 1-800-432-1130

pH meter to avoid mistakes. The ideal pH for a fungicide formulation is 6.5.

But pH is not the only significant factor. The length of time a fungicide mixture is stored can affect it, even to the point of rendering it useless.

During Couch's tests, the fungicide formulations were adjusted and tested immediately. Then they were stored for 24 hours at 71 degrees, and tested again.

"If Dyrene is allowed to stand for 24 hours, regardless of pH, there is a significant drop in the effectiveness of the fungicide. The same holds true of Daconil 2787. Although it's stable initially from 3.5 to 9.5, if it is allowed to stand for 24 hours, there is a clumping together of the particles and a loss of effectiveness."

Rubigan is stable from 3.5 to 9.5 initially and remains stable from 6.5 to 9.6 after 24 hours. "But," he said, "at 3.5, the material breaks down significantly. It's acid unstable."

SYNERGISM

A lot of research still must be done on synergism, a positive reaction that occurs when fungicides are combined to improve their baselines. But some products have already proven to exhibit that characteristic.

For instance, Fore and Subdue or Fore and Banol can be used at half their dilution rates and improve their effectiveness through synergistic action.

For dollar spot control, Couch recommends Banner and Dyrene, Banner and Chipco 26019 or Banner and Bayleton at a quarter of the normal rate.

"Not everything (combination of fungicides) works, but when they do, it can increase the effectiveness of the products," Couch said.

"Good golf course superintendents need more training in pesticides and agricultural chemicals because we are more dependent on chemicals than ever before," said Couch in an interview after his lecture.

"In order to stay alive in their profession, superintendents need to attend the local, state, and national education sessions. The information they receive in these sessions is current. By the time it hits the magazines, it's months old and by the time the material is in a book it is about two years old."

Couch feels superintendents also need education in personal relations.

"One of the reasons they need this training is because of a trend I see as bad: the trend toward having golf course managers or having corporations involved with the golf course.

"This takes away the superintendent's ability to make spot decisions. In some cases, a superintendent may need a product to take care of a problem, but he can't get the money released, or can't get it released in time to apply the material. And as a result, there's a problem on the course.

"Who gets blamed?" Couch asked rhetorically. "The golf course superintendent, and yet it wasn't his fault."



We are dedicated to helping turf grass managers do their jobs more efficiently by striving to provide the best parts and service available

DISTRIBUTOR FOR

TORO CUSHMAN/RYAN OLATHE

TORO IRRIGATION
GREEN MACHINE
BILLY GOAT
POWER TRIM
FOLEY
MAIBO
OHIO
CROSLY TRAILERS

CUSHMAN INDUSTRIAL
TRENCHMASTER
OTTERBINE
NATIONAL MOWERS
BERNHARD EXPRESS DUAL
CHEM-PRO SPRAYERS
ALLEN HOVER MOWERS
HAMMER RECYCLED PLASTICS

STANDARD
PAR AIDE
BROYHILL
CYCLONE
GANDY
WINDMILL
VICON

SALES MANAGER, Don Delaney
(407) 333-3600

JACKSONVILLE

1741 Hamilton St. 32210
(904) 387-0516
TERRITORY MANAGERS
Carl Heise
John Higgins
Bob Ward

LAKE MARY

300 Technology Park 32746
(407) 333-3600
TERRITORY MANAGERS
Phil Bradburn
James Griffin

A Lake is a REFLECTION of its MANAGEMENT

The Lake Doctors 1-800-666-LAKE