JOBTALK

Turf disease diagnosis on the course

For fans of the old Bullwinkle cartoon shows, this is a familiar scenario:

Bullwinkle (in magician's outfit): "Hey Rocky, watch me pull a rabbit out of m'hat."

Rocky: "Again?"

Bullwinkle: "Nuthin' up my sleeve and...presto!"

And out of the hat comes an angry lion, tiger, rhinocerous, etc.

For a long time, turfgrass managers have used similar tactics trying to diagnose turf diseases, often with similar unpleasant results. And it took a lot longer. Fortunately, a solution could be at hand.

Agri-Diagnostics Associates of Cinnaminson, N.J. has introduced, via limited distribution, a disease detection kit that is both accurate and fast.

The kit, which involves a series of 12 steps (see diagram), is designed to detect turf diseases before visible symptoms appear. In doing so, it makes a preventive spraying program more effective. The kits identify pythium blight, brown patch and dollar spot.

How it works

The diagnosis process, which takes roughly 3½ hours, works by matching antibodies in an assay on the end of a dipstick with a specific plant pathogen. A positive reaction creates a deposit of insoluble colored product on the end of the dipstick.

By comparing the intensity of the color on the dipstick to known standards, a diagnosis of the extent of the disease can be made. The color's intensity is measured in a field-adaptable reflectometer, the disease detection meter included when kits are ordered. The higher the number displayed by the reflectometer, the more pathogen present.

Ohio State University turf pathologist Bill Shane has tested the pythium kit at four sites: three at the university's Scarlett and Gray golf courses; one at a test plot. "It seems to be accurate in that if a sample has pythium the kit will pick it up," Shane comments. "In no case did I feel pythium was in the sample at a significant level that the Agri-Diagnostics kit couldn't pick it up.

"It's good to use as an informative tool to verify what (the superintendent) believes is pythium," he says. "It does provide that extra bit of knowledge they need to feel good about their spray program."

University of Minnesota plant pathologist Philip Larsen has also been testing the pythium detection kit in his lab. He has found that perhaps the best time to use it is when the first visual symptoms of a fungus appear, before they are distinctive enough for a specific identification. "You can't tell the difference in the early stages, but the kit can," he notes. He adds that the kit is a good monitoring tool to see if and when further applications of fungicide should be made.

"A more subtle use would be to be able to detect the presence of fungus before visual symptoms appear," Larsen says.
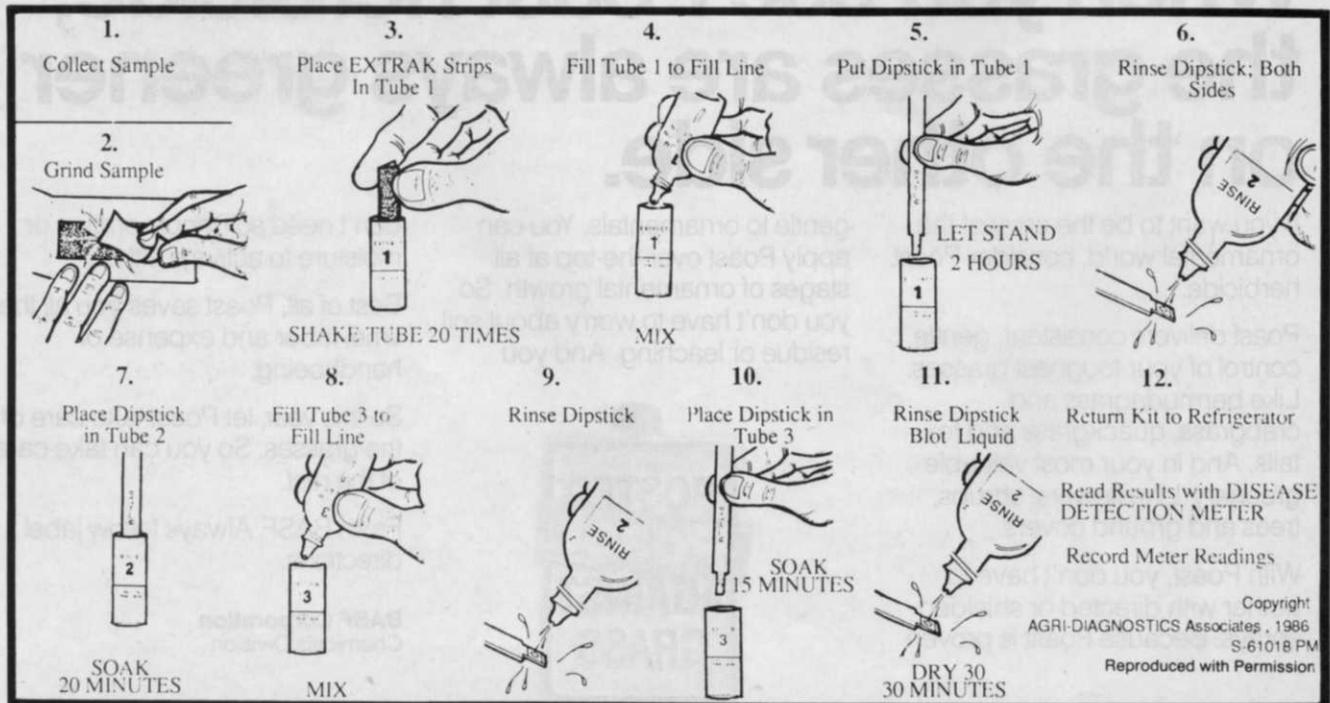
Shane concurs. "It will be curious to see if the kit can be used before the fungus reaches symptomatic levels."

Vonnie L. Estes, Agri-Diagnostics' product support specialist, says the kit can be used in such a capacity, adding that the company uses this ability as one of the kit's selling points.

While the kit has been marketed to golf course superintendents thus far, Estes says that kits for ornamentals and lawn care are forthcoming, probably in 1988.

Distribution of the kit has reached only Indiana, the Chicago area and northern New Jersey thus far, but distribution will be widened in 1988. **LM**

If you'd like more information on the disease detection kits, contact Agri-Diagnostics at (609) 829-0110 or write: 2611 Branch Pike, Cinnaminson, N.J. 08077.

1. Collect Sample
2. Grind Sample
   SHAKE TUBE 20 TIMES
3. Place EXTRAK Strips In Tube 1
   MIX
4. Fill Tube 1 to Fill Line
5. Put Dipstick in Tube 1
   LET STAND 2 HOURS
6. Rinse Dipstick; Both Sides
7. Place Dipstick in Tube 2
   SOAK 20 MINUTES
8. Fill Tube 3 to Fill Line
   MIX
9. Rinse Dipstick
10. Place Dipstick in Tube 3
    SOAK 15 MINUTES
11. Rinse Dipstick Blot Liquid
    DRY 30 MINUTES
12. Return Kit to Refrigerator
    Read Results with DISEASE DETECTION METER
    Record Meter Readings

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This illustration shows how to use the turf disease detection kits.