

UKentucky researchers offer help for 'grass AIDS' after '95 woes

By A.J. POWELL,
DAVID WILLIAMS
and PAUL VINCELLI

The loss of fairway grasses last July and August even surpassed that lost in 1991. All courses lost most fairway *Poa annua* and almost all lost their perennial ryegrass fairways and/or greens collars.

Creeping bentgrass fairways and greens fared much better, but even with creeping bentgrass, we experienced much loss due to wet wilt, localized dry spots, traffic damage, irrigation shortages, *pythium*, brown patch, etc.

No one knows for sure why so much ryegrass was lost, but it is certainly related to the fact that it was too hot for too long. The weather was typical for Atlanta, and perennial ryegrass fairways would not survive in Atlanta. Our August maximum temperature for both day and night, was about 5 degrees higher than the 30-year average.

With mowing heights as low as 1/2 inch, heavy play, frequent irrigation, and spring and summer nitrogen to force it to grow, ryegrass lives on the edge every summer. We have many new, more heat-tolerant varieties, but even those did not survive last summer.

Several diseases have been diagnosed in perennial ryegrass samples brought to the University of Kentucky plant diagnostic labs, and they appear to be part of the syndrome experienced last summer. *Rhizoctonia* leaf and crown infections were common in dying and dead grass.

In many samples, we found a great deal of foliar blighting caused by the fungus *Pyricularia grisea*, which causes "gray leaf spot" or "blast" in grasses. *P. grisea* was sometimes found in combination with *Rhizoctonia* sp. In other cases, it was the predominant pathogen present in affected ryegrass.

In a few samples, we found a great deal of foliar blighting caused by weak pathogens, particularly *Leptosphaerulina trifolii*.

Pythium species were surprisingly uncommon in fairway samples, but aggressive, active root infections by mycelia of *Pythium* species were observed in one case where damage was confined to discrete patches in the fairway.

"Grass AIDS" might be the best description for the situation. The extended heat period greatly stressed the grass, and the grass had little to no reserve

energy and reduced resistance to diseases.

Last July, we had an epidemic of brown patch, and other diseases were active by late July. Soon after disease thinned out the grass, extreme heat finished it off.

Any disease, traffic stress, scalping, etc. will open up the canopy, reduce transpirational cooling and allow for more extreme crown temperatures.

Furthermore, blighting of leaves by diseases takes away

ryegrass's ability to maintain metabolic respiration during the hot weather, when respirational energy demands are very high. The only courses we are familiar with, on which ryegrass mostly survived, were those on a preventive fungicide program during early- and mid-summer. For \$40,000 to \$60,000 per year, you could have possibly reduced the loss of ryegrass (but not *Poa annua*).

In midsummer, we did not foresee the kind of damage

that perennial rye would suffer in mid-August. We hope superintendents do not conclude that routine, preventive fungicide programs are required every summer to maintain high-quality ryegrass fairways in Kentucky. Our research and general experience indicate this is not true. We need to be able to predict those times when fungicide applications may be beneficial. Clearly, sustained periods of very hot weather raises a flag.

EXTRA AGGRAVATION

With no competition, crabgrass, goosegrass, dallisgrass, nimblewill, clover, and yellow nutsedge exploded in fairways in late summer. Pre-emergence herbicides are formulated to be applied in the spring and then dissipate by late summer. Otherwise, you could not reseed during the fall period.

With so much crabgrass appearing, it did not appear there was enough herbicide residue

Continued on next page



This bulletin, written by University of Kentucky Professors Powell, Williams and Vincelli, was circulated last August to Kentucky turfgrass managers who suffered through last summer's heat. It could prove useful to superintendents in the transition zone as they prepare for the upcoming warm weather.

Q&A: Dr. Powell

Continued from page 15

ing the establishment year (first winter).

Quickstand and Midiron are slightly finer in texture than Vamont. Quickstand establishes faster than Midiron or Vamont, and Quickstand appears to have excellent resistance to spring dead spot. All of these varieties are coarser and lighter green than Tifway.

GCN: How do the zoysiagrass varieties fit in? Can you briefly describe those that show promise?

Powell: For the upper South, zoysia is in a class by itself for fairway quality. The problem with zoysia is cost and/or establishment. Row-planted zoysia takes several years to completely cover.

Strip-sodding is somewhat faster, but it is much more labor intensive and expensive, and the light-colored zoysia strips can be annoying to the golfer. Sodding is the way to go but obviously very expensive for an entire course.

Although several experimental and new zoysia varieties look promising, Meyer is still

the variety of choice.

GCN: How close in quality does the best seeded variety come to the vegetative varieties of Bermudagrass?

Powell: So far, the most winter hardy seeded varieties of bermuda, like Mirage and Sundevil, are as coarse or coarser in texture than common Bermuda. They frequently green-up a couple of weeks behind the vegetative varieties.

But the main difference is winter hardiness. The previously named vegetative varieties are much more hardy than common Bermuda.

Although the texture is very coarse for these new varieties, they can be of high quality if mowed frequently and mowed short.

GCN: Gray leaf spot is a particularly severe problem with the perennial ryegrasses found in your area. What perennial ryegrass varieties best withstand gray leaf spot?

Powell: We did have a serious problem with gray leaf spot last summer and it may have been the big culprit causing perennial ryegrass loss in 1991 and 1993. We have not been able to get uniform infection in our peren-

nial ryegrass plots and cannot suggest possible resistant varieties.

GCN: Dr. Paul Vincelli, a fellow University of Kentucky researcher, is exploring a possible connection between the early-season appearance of gray leaf spot on forage grasses and its subsequent appearance on turfgrasses. What are the potential benefits of this research?

Powell: We made an interesting observation last summer, that is, that moderate to severe damage from *Pyricularia grisea* [gray leaf spot] was occurring in fields of German foxtail millet in Kentucky up to a month before we saw severe damage in perennial ryegrass fairways.

In the future, we hope to put this observation to the test. Can we protect ryegrass fairways with one or two protective sprays that are made after we see gray leaf spot developing on German foxtail millet, or other warm-season forage grasses? And if so, which fungicides should we use?

These questions will be the subject of future field research, but must wait for the kind of summer we experienced last year.

UKentucky profs share solutions

Continued from previous page

to cause a seed germination problem for fall reseeding.

Clover can easily be killed with most 2,4-D, MCP, and dicamba combinations. After application, two to four weeks are required before reseeding. The reduced germination caused by these products is minimal with perennial ryegrass seedings.

What can you do about yellow nutsedge? Not much. Most nutsedge herbicides have a two-week or more waiting period required before seeding. Round-Up will burn nutsedge seriously, but it offers poor control. Even with products such as Bassagran, Trimec Plus and Manage, several applications are required over a two- or three-year period, in order to obtain adequate control.

SEEDING

Prior to seeding, a hollow-tine aerification (with cores destroyed) will help relieve compaction and increase soil-seed contact. Slit-seed the perennial ryegrass in two or three directions, with the seeder calibrated to apply between 30-40 pounds per acre for each pass. In order to increase the rapidity of cover and reduce the seeded row-effect, precede the slit-seeding by broadcasting another 40-80 pounds/acre.

After the ryegrass has germinated, apply nitrogen every four to six weeks until the end of the year. Then next year, if at all possible, do not apply additional nitrogen until fall.

PENDULUM[®] MEANS BUSINESS

When it comes to season-long control of crabgrass, goosegrass, oxalis, spurge and many other troublesome weeds, PENDULUM[®] herbicide gets down to business. No other preemergent turf herbicide can match its spectrum of weeds controlled and cost-effectiveness. • PENDULUM brand Pendimethalin also offers greater flexibility than ever before, including sprayable formulations and combination fertilizer products.

• When you consider cash rebates available through July 31, 1996, it's easy to see that PENDULUM really does mean business. Smart Business. • To learn more about the cash rebate offer or for the name of the PENDULUM distributor nearest you, call

1-800-545-9525.



Agricultural Products Division
Specialty Products Department
One Cyanamid Plaza, Wayne, NJ 07470



PENDULUM[®] herbicide is a registered trademark of American Cyanamid Company. ©1996

CIRCLE #111