(Continued from page 49)
the committee; however shallow indentations made by greenkeeping equipment is not ground under repair. A ball in a shallow indentation would have to be played as it lies.

Is there relief from a tree stump under the rules? Decision 25/8 says that unless the stump is marked as ground under repair, or is in the process of being removed, there is no relief. A tree stump is nothing more than a short tree, according to the USGA.

Decision 25/11 explains the many ramifications of grass clippings. Grass clippings are only ground under repair if they have been piles for removal. A player is entitled to relief if clippings piles for removal interfere with his stance or swing. Grass clippings are, by definition, loose impediments, whether or not they are piles for removal, and may be removed by the player. But again, don't move the ball when removing loose grass clippings, or you will pick up a penalty stroke under Rule 18-2c.

Have your members ever had to invoke the "leaf rule" in the fall? Actually, there is no such thing. However, the Decisions Book does allow the committee to adopt a local rule to deal with the seasonal problem of leaves. Decision 33-8/31 suggest adoption of a local rule declaring accumulations of leaves through the green to be Ground Under Repair, allowing Rule 25/1 (Abnormal Ground Conditions) to apply.

And finally, what is the ruling if a member of your staff rakes a bunker when the player's ball lies in it, and the raking improves the lie of the ball or the line of play? Decision 13-2/4 states that if the staff member raked the bunker on the instructions, or with the sanction of the player, the player would incur a two stroke or loss of hole penalty. Otherwise, there would be no penalty. If, however, in raking the bunker your staff member accidentally rakes over the ball, partially burying it, Rule 20-3b applies, the original lie of the ball shall be recreated as nearly as possible, and the ball shall be placed in that lie.

The rules of golf and their application to our side of the business can be involved, even a bit complicated, but always interesting. If a question ever arises at your club regarding your operation and the rules of the game, the best and closest source of information on the rules is your local golf association. In our area of the country, both the West Virginia Golf Association and the Western Pennsylvania Golf Association have knowledgeable, competent rules people on the staff. You can also refer your rules questions directly to the USGA, but keep in mind that the USGA will render a decision only to clubs that conduct their competitions in accordance with the Rules of Golf.

SENECTOPATHOLOGICALLY SPEAKING

By Steve Millett
Department of Plant Pathology
University of Wisconsin-Madison

July and August will probably bring us hot temperatures, high relative humidities and an opportunity for fungal diseases to do some damage to amenity turfgrasses. Hopefully, it will not bring us a repeat of last year's record heat and turf loss.

The months of July and August 1995 were the busiest months for the TDDL. That is when we received approximately 50% of our samples, and many of those were high temperature related damage. In fact, high temperatures were blamed for about 15% to 20% of the total cases that came into the TDDL.

Several high temperature related problems diagnosed last year include the controversial *Poa annua* anthracnose problem. Anthracnose has been studied for a long time, yet there are many unknowns that need to be revealed before we can successfully manage it. The fungus *Colletotrichum graminicola* is the causal agent of anthracnose, but there are conflicting theories as to how and to what extent it causes damage to turfgrasses.

There are two currently accepted theories that seem to divide turf pathologists. Just to be a gadfly, I have developed a third for your scrutiny. The three theories are as follows:

1. Anthracnose is a disease and fungicides can prevent damage.
2. Anthracnose is a senectopathic disorder and fungicides won't prevent damage.
3. Both theories are correct.

The first theory comes from the outstanding research of Dr. Joe Vargas at Michigan State University. He has conducted research on *Poa annua* long before it was accepted as a non-weed turfgrass. Dr. Vargas has demonstrated that annual bluegrass doe not die from high temperatures in cool season grass growing areas, but from anthracnose (or another disease, summer patch) In his book *Management of Turfgrass Diseases* (second edition), Dr. Vargas writes, "Before 1975, the dying of *Poa annua* in summer was attributed to direct high temperature kill or the natural dying of a winter annual." He goes on to cite studies that have demonstrated fungicide preventative efficacy against anthracnose of *P. annua.* In his book, his research and his scientific presentations, Vargas has made a good case for his theory. Anthracnose can be a disease and fungicides can prevent damage.

The second theory comes from the pioneer turfgrass pathologist Dr. Houston B. Couch of Virginia Polytechnic Institute and State University. Dr. Couch considers anthracnose to be a senectopathic disorder. In the "Turfological Bible" *(Diseases of Turfgrass,* third edition), Couch devotes chapter seven to senectopathic disorders.

He defines senectopathic disorders as "biotically incited diseases that can only develop after plant tissue is in advanced senescence." Furthermore, he states, "Pathogenicity test using isolates of *Collectotrichum graminicola* recovered from...(many states including isolates from Dr. Gayle Worf's collection) have shown that infection of annual bluegrass leaves will not occur unless the leaves have been predisposed by exposure to air temperatures in the 86 degree to 95 degree F. range."

In other words, you have to cook the *P. annua* plants before *C. graminicola* will infect. In Dr. Couch's opinion, heat stress is primarily responsible for the summer demise of *P. annua* and that there is "little or no benefit to be gained from the application of fungicides for the expressed purpose of controlling anthracnose."

That's me with the best that ever was, is and ever shall be—Dr. Houston Couch.

The King, Dr. Joe Vargas, Jr. — Viva Las Vargas!

The third theory considers both theories to be true. Anthracnose is a disease on **perennial** *P. annua* and a senectopathic disorder on **annual** *P. annua.* Furthermore, just as there are different levels of senecticity (pathogenicity) within *C. graminicola,* there are also different levels of senectibility (susceptibility) within the *P. annua* population.

There are many questions that remain about the relationship between the fungus and the host. However, I like this third theory best because it means both my turf pathology heroes are right and I don't have to choose one over the other! Mind you, this diplomatic proposal is just a theory and I have no research or data to support my hypothesis. Not only is this theory diplomatic but it also opens the door for creativity.

Just think of all the cool words that can be used:

SENECTERATURE - The temperature at which *P. annua* begins senescence.

SENECTIBILITY - The quality of being able to senesce.

SENECTICIAN - A person specializing in senescence.

SENECTICIDE - A fungicide used to prevent senescence in *P. annua* and infection and colonization of *C. graminicola.*

SENECTICITY - The relative ability of a fungus to infect senescent tissue.

SENECTIFRIED - The condition of a cooked *P. annua* plant.

SENECTIVAR - A genetically engineered *P. annua* cultivar that has been manufactured to withstand high temperature and avoid senescence.

SENECTOCLATURE - Terminology of senescence.

SENECTOPATHOLOGY - The study of the relationship between leaf senescence and plant pathology.

There probably is something that we all are missing in trying to understand the anthracnose problem. Whatever the truth may be, it probably centers around temperature. Temperature influences nearly every function of fungi that cause diseases of amenity turfgrasses. Every fungus has an optimum temperature at which it grows and also a temperature at which it does not grow. The ability to cause disease is dependent on temperature.

Likewise, the ability of turfgrasses to resist or avoid disease is also dependent on temperature. Temperature plays a vital role in all plant diseases and the anthracnose problem is no exception. Remember the disease triangle with its tripartite nature: the host/the pathogen/the environment. Until the truth about anthracnose is uncovered, there will be controversy over the two theories (plus one).

Only time will tell which is the best theory.

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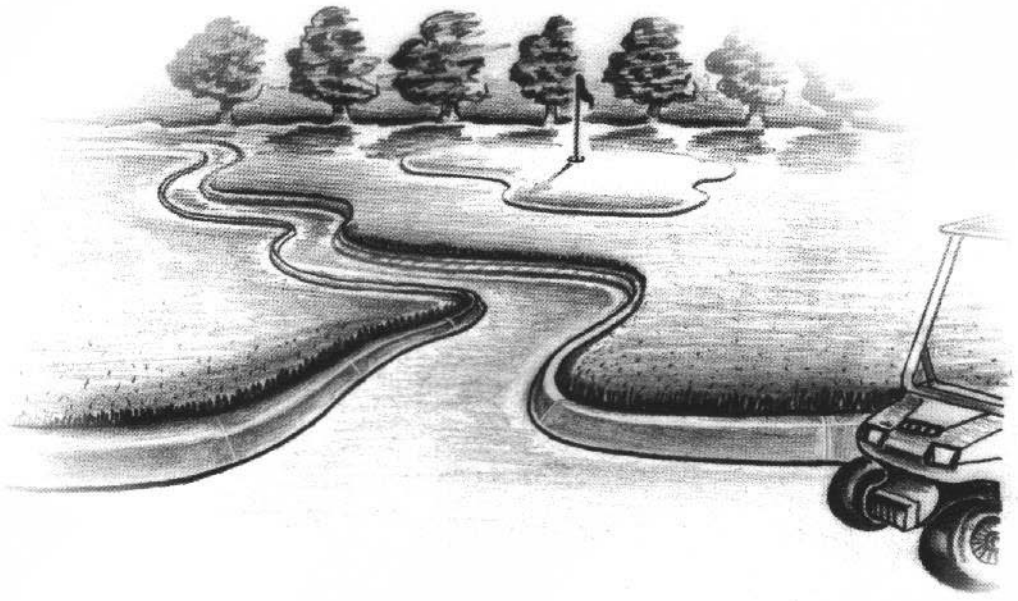

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Perfect Weather For Ducks and Turf Research Farms

By Tom Schwab, Superintendent
O.J. Noer Turfgrass Research and Education Facility

It would be pretty hard to find anyone happy with the record cold and wet spring we just experienced here in Wisconsin. I may be the only one. The reason is we just seeded six new acres at the Noer Facility on May 7th and had no reasonable ways to irrigate it. It was at the mercy of the weather. The cool weather was not too conducive to germination but the daily light rains had the seed imbibed and waiting for a few heat units to initiate emergence. We finally got a couple days of warm weather ten days after seeding and whalla—germination. Then the weather went back to cool and daily rains again which nursed the seedling along just right. Now at the end of May most of the seed is at the two leaf stage. It appears the whole six acres will make it because of the spring weather we had. Knock on wood.

The first use of the land will be for expansion of the summer field day. The area will be used for additional parking and for demonstration of turf equipment. We're hoping all of you will be able to attend the field day this year. Put the date on your calendar—Tuesday, August 20th.

There are two improvements that will be made this year. First, the new land will provide room for demonstration of all types of turf equipment. You can personally demonstrate any of the exhibitorís equipment for yourself. There will be all kinds of mowers, seeders, mulchers, aerators, brush cutters, sprinklers and so much more for you to look at.

Secondly, the educational benefits will increase. The professors and assistant researchers will be out on the plots to answer your questions during the morning. This is in addition to the formal research tour in the afternoon. Bring your specific questions and get them answered, one on one, by the researchers. So come and learn from the research, get information on the latest turf products and equipment, take home some prizes from the annual auction, and just have an enjoyable day with your peers.

In addition to the professional turfgrass field day the Noer turf group is going to hold the first ever homeowner turfgrass field day this year. We have this nice facility and itís starting to get well known among homeowners as seen by the increasing number of calls we receive daily. The new turf disease diagnostic lab has been very popular with homeowners this spring also. So we decided to show the public what the turf industry has built and hopefully give them the knowledge to maintain their turf areas better. If you know anyone who would like to attend, the date is Saturday, August 24. Call Audra at the Noer Facility for more information: 608-845-6536.

There will be tons of information at both field days from both old and new studies. Some of the new studies installed this year will investigate thatch reduction materials, demonstrate differences among turf varieties, research Kentucky bluegrass cultivars, compare crabgrass prevention materials and examine different techniques to renovate a deteriorated lawn. The "Performance-Driven Management Systems for Creeping Bentgrass Putting Greens" that the WGCSA is funding will have a full time graduate student working on it this summer also.

One other note I'd like to mention (as the unofficial self-appointed spokesperson for the Wisconsin Turfgrass Association) is the WTA's fall fundraising golf tournament. It has just been announced that the site will be the Stevens Point Country Club, hosted by the gracious Jeff Bottensek. Details will be forthcoming. This is a great way to show your support for the turf industry and have fun doing it. Ed Devinger of Reinders and myself are going to try to reestablish the "everyone wins" raffle that used to be a big part of the event. Monroe Miller used to organize and collect all kinds of prizes so that everyone took something home, but it became just too big of a job. If you could donate any kind of prize, be it a golf club, fishing pole, eighteen holes of golf, shirt or whatever, please find a way to get it to Ed or to the Noer Facility so that we can continue the tradition. Ask your golf pros if they can donate something.

It's been a very busy season here at the Noer Facility this spring. We're short staffed and looking forward to our school help starting. Everyone is chipping in on the workload and itís going to be our best year ever. We look forward to seeing you at field day and hope to show off the works of our labor. I wish this dang weather would warm up and stop raining, though.