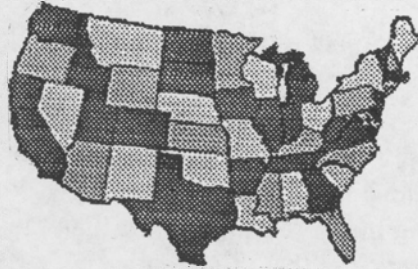


TurfComms

V. 13, I.6



Sept. 30, 2001

PURPOSE: To pass on what we learn willingly and happily to others in the profession so as to improve turf conditions around the country.

INTERNATIONAL TURFGRASS RESEARCH CONF. (continued): My wife noted when reading over the last issue I had failed to mention where this conference was held, and when. It was held in mid-July in Toronto, Canada. We'll now continue with day three.

The last stop of the day was Woodbine **racetrack**. They had a grass track for **horse racing**. So now I'm an expert on grass race tracks. The track was quite cuppy, or at least that was Dr. Jim Watson's aside to me. The grass was mowed at 4 and ½ inches and did indeed have small cereal/soup bowl depressions through out the surface. I would have been tempted to aerify the turf with 3/8 inch or larger hollow tines on two inch centers on a monthly schedule. All the little holes and turds (aerifier cores) would have been an improvement over the present surface, especially for running valuable horses on.

Mail: As I was on the road for two months this summer I was having a neighbor forward important mail. I suggest you don't have mail sent to you when you're at a Westin Hotel. It cost me \$6.42 to get that piece of mail. I was charged that by Westin's Innovative Business Centers. Innovative they sure are when they charge you six times more to deliver the mail to you in the hotel than the U.S. postal service charged to deliver it to the Toronto hotel from Plano, TX. As if the \$100 + you were paying/day for your room wasn't enough to cover mail deliver or a call from the front desk to tell you that you had mail.

TURFCOMMS is published at unpredictable intervals by the editor and publisher:

Douglas T. Hawes, Ph.D.
Certified Professional Agronomist
Specializing in Golf Course
Maintenance Consulting

3517 Deep Valley Trail
Plano, Texas 75023
(972) 867-0176

web site <<http://www.geocities.com/turfcomms/index.html>>
e-mail: dhawes@dallas.net

Subscription cost is \$15. Send checks to Doug Hawes at the above address.

Thursday morning started off with a discussion of earthworm casting control by cultural means. Clipping removal and acidifying the surface soil did not work. But, sand topdressing at the rate of $\frac{3}{4}$ inch/year and 1.5 inches/year were clearly beneficial, with the latter an improvement over the former.

Aeration with needle tines was the subject of the next talk. Needle tines are described as 2 and 3 tenths inch diameter solid tines on a VertiDrain type machine where you can adjust degrees of kick to 5 and 10%. The Australian researchers looked at turf grown on a modified sand vs. a clay loam. Surface hardness was reduced by both needle sizes in both soils for a month or more. The important difference between tines was that the 3 tenths tine in the clay loam resulted in poorer quality turf than the 2 tenths tine. It was the opposite in the sand. It was proposed that the 3 tenth tine in the clay soil was destroying too many fine roots. I would therefore conclude that aerification with needle tines in cool season grasses in the summer time should be done carefully with the smaller tines.

A report was given on annual seeding of bermudagrass into low maintenance athletic fields (or driving range tees) north of the transition zone or on its northern edge, in Nebraska, Iowa, and Kansas. They used the herbicide Drive just before seeding to eliminate crabgrass in perennial ryegrass fields. They found annual seeding with bermudagrass was beneficial in that it gave them more vegetation on the field in the Fall to take the abuse of football play than other approaches. It wasn't pretty turf but, for the money they had to spend, it gave good results. No, the bermudagrass was not expected to live through the winter.

Dr. Beard's Italian research group gave a paper on the competitive ability of 13 creeping bentgrass cultivars. In their research plots G2, G6, A1 and Seaside II were very competitive with *Poa annua*. G2 crowded out Poa in 14 months. But, even Penncross reduced it by 40%. Between the four best and last-Penncross, were cultivars G1, Southshore, SR 1020, Putter, Cobra, Penneagle, Providence, and Pennlinks in roughly decreasing competitive ability under their conditions. Mowing height was $\frac{1}{8}$ of an inch.

Dr. Landry from Georgia also reported on **creeping bentgrass cultivar** performance. His best were A1, Crenshaw, G2, and G6. He noted that Crenshaw ran Penncross out of a blend in five years. During Atlanta heat stress A1 and Crenshaw were his 2 best cultivars. These two and G2 were the three with the highest organic matter accumulation. This study started in 1993 and the last data reported was for 1999. 28 cultivars and 5 blends went into the study.

I will now report on two Thursday afternoon sessions I went to; the first was sponsored by Aquatrols and thus may be biased in their favor. The first paper was given by Stefan Doerr although he was not listed as an author. It was an interesting but essentially a review paper that noted **hydrophobic soils** occurred most often on sand, occasionally after fires, and mostly where grass vegetation was present. He noted that year after year in soils where this condition existed certain areas would wet up while others remained bone dry.

A very technical paper on the subject of **hydrophobic soils** was presented by a researcher for Imperial Oil Limited, a Calgary, Canada company. He had gained knowledge on the subject while studying old petroleum contamination sites. One of the postulates of this paper was that, "Compounds causing soil water repellency on golf greens, at petroleum-contaminated sites, and other soils differ in parent origin, but not in chemical structure." Those interested in the technical aspects of this problem will want to read this paper on page 428 of volume one of the Proceedings.

B. Leinauer, from New Mexico, discussed a paper not in the proceedings; his work had found **Primer** to be very effective at increasing water retention in soils far below the surface. He also mentioned a new material (Midorich) not currently available that did a good job in the upper 2 inches.

I then moved over to the other section and heard Dr. Dernoeden from Maryland give a talk on **reducing herbicide rates** the second and third year in **smooth crabgrass** control studies. The first year of the study he applied full recommended rate of common pre-emerges. He reduced the rate by one third the second year and another 1/3 of that the third year of the study. Same herbicide applied to the same plots each year. This is not new research it has been done by others on the older preemerges and in general many of the good ones work fine the second year at reduced rates even some at 1/2 rate.

Results: Benefin + trifluralin (**Team**) worked excellently all three years with only 3% crab the third year at 1/2 recommended rate. **Pendimethalin** worked excellently the second year at 1/3 recommended rate but only fair the third year when used at 1/2 rate, (14 and 25% crab). Prodiamine (**Barricade**) worked well all three years with only 2 & 3% crab the third year at about 60% of recommended rate. Dithiopyr (**Dimension**) worked excellently the second year at 3/4 recommended rate. But only fair the third year when used at 1/2 rate (19 & 22% crab) DCPA (**Dacthal**) was better the second year at 1/3 reduced rate (4% crab vs. 6% the first year) but that same rate the third year was a failure (34 and 48% crab).

Corn gluten meal was much better the first and second year when applied in split applications (13 and 12% crab.) than full rate in one application (42 and 41% crab.). The third year the split application was statistically similar to the full rate at once, neither good (32 & 40% crab). This may be due to timing or a difference in the split. The third year rather than go 1/2 each split; they applied 2/3 full rate on the first application and 1/3 on the second. (Ed. Or in other words corn gluten meal doesn't work overly well and full rate following full rate 2 or 3 years in a row doesn't make it work any better. Split applications may help but not always.)

Dr. Boyd, U. of Ark., discussed research on applying the preemerge herbicides in common bermudagrass for crabgrass in the Fall. The only herbicide that gave good (better than 90%) crabgrass control applied in mid-Oct. was Prodiamine (barricade).

The next paper looked at **resistance in *Poa annua* to the dinitroaniline group of preemerges** (Treflan/Team, Surflan, Pendimethalin, Barricade, Balan). In North Carolina they have found *Poa annua* that showed no reduction in germination to normal

rates of this group of herbicides. On a positive note the resistant plants weren't as vigorous as the susceptible plants under normal growing conditions.

And the last one of the day was Dr. Schmidt of VPI with The Influence of Selected PGRs on Postemergence Herbicide Efficacy. PGRs are Plant Growth Regulators. Dr. Schmidt has quite a list of natural and synthetic compounds he includes in this group. His conclusions were, that lower rates of herbicides may be possible to control broadleaf weeds with Trimec and related compounds if you first apply a PGR a week or so ahead.

I thought Friday was going to be a boring day but several of the posters and papers gave some very interesting results. For those of you who are covering turf in the winter Dr. Minner has shown that the **color of the tarps is very important**. Ky. Bluegrass in Iowa was covered from Nov. to March, and from March to April. "The effect of tarp color on turf performance follow this general ranking from best to worst; red, yellow, orange>white, purple, light-blue> gray/white, light-green, dark-green, white/black, black/white." Winter cover produced less injury than Spring cover.

Another poster of some interest was by Dr. Havivandi, Calif. on **recycling mowers** vs. bagging mowers. He overseeded plots with crabgrass to see which management practice would best keep out crabgrass. The plots mowed with the recycling mower had less crabgrass. He assumed that recycling of clippings resulted in healthier turf because of more available nitrogen. On the negative side over the 2 years of the study thatch significantly increased where the recycling mower was used. Probably for the same reason that there was less crabgrass.

Dr. Engelke, et al had a poster on producing zoysia sod on 1 one centimeter layer of various growing media over plastic. They were able to **produce reasonably decent sod in 15 weeks**. The fastest and best sod was when using the cultivar Diamond on the most expensive of the media tested and at the higher fertility rate. A little different experiment with Crowne produced somewhat different results but I guess if the market is there and you have green house facilities you can produce the sod you need over the winter.

Brown Patch control using the bacterium *Stenotrophomonas maltophilia* strain C3 was the first title in this morning session of interest. And that only in that they found the bacteria itself was ineffective but if they sprayed on the culture fluid with the bacteria in it they got measurable control of **Brown Patch**. (Ed. But is that going to be practical. The cultural was the best on about the 6th day of growth and you needed high conc. of the culture to obtain 4 days of reasonable control. Therefore, six days before "you know" you are going to be hit with Brown Patch you start a culture of *S. maltophilia*. YAH!)

In a similar study with the Bioject System using fermentation and delivery of *Pseudomonas aureofaciens* Tx-1 to the turf the authors obtained little biological control of Dollar Spot or Brown Patch.

One of the most interesting papers was presented by Doug Karcher titled Cultivation Effects on Surface Qualities of an *Agrostis palustris* Putting Green. They first found that weekly aerification with the HydroJect vs. hollow tine aerification Spring and Fall, or S.,

F. and Summer aerification did not effect *Poa annua* populations of a bentgrass green. But, that weekly aerification with the HydroJect over three years dramatically reduced **earthworm** casts and earthworm biomass. While hollow tine aerification resulted in an increase in both over the control plot. (Ed. So I walked out of this Conf. with two effective cultural controls for earthworms although both are somewhat expensive but beneficial to the turf in other ways.)

As a consultant that has pushed **summer aerification of bentgrass greens** the paper Summer Cultivation Effects on a Sand Based Creeping Bentgrass Golf Green made me very happy. This research reported by Bunnell of Clemson found that soil oxygen levels were significantly raised by conventional hollow tine aerification. But the results were not all positive. The conclusions they drew were, "Overall, summer cultivation practices with most treatments improved soil gas levels, soil hardness, and water infiltration up to 30 days after treatment (DAT). Greatest impacts were evident with conventional hollow tine, deep (8 inch) hollow tine, needle tine, and star tines.

Turf quality was impacted by cultivation treatments. Unacceptable turf quality was found with deep (8 inch) hollow tine and conventional solid tine treatments in both experiments at 14 DAT. Newer techniques such as water injection, star tines, and needle tines did not reduce turf quality, with the water injection having limited impact on soil hardness, gases, and infiltration. Additionally, decreases in soil CO² and soil hardness occurred with treatments of star tines and needle tines, and the latter also increased infiltration." So you have a trade off. The greater damage to the turf surface by conventional aerification results in better gas exchange at the cost of reduced turf quality. (Ed. So if possible keep up the every other weekly water injection, feeling you are doing some good, little harm, and killing earthworms?)

Dr. Paul Rieke's group reported on, Turfgrass and Soil Responses to Lightweight Rolling on Putting green Root Zone Mixes. They found an 8 to 10% increase in Stimpmeter speed the day of rolling and a 3 to 8% increase the day after. They found no increase in the soil's bulk density. No surprise there BUT, there was **less Dollar Spot** on rolled plots and **more Pink Snow Mold**.

A study by Cattani which reported on **seeding L-93 into a healthy creeping bentgrass putting green** turf showed this practice of interseeding into bentgrass greens to be largely a waste of time, which certainly agrees with my observations.

For those Northerners, who have been looking with interest at *Poa supina* a Michigan study give interesting results. This study reported by Sorochan looked at seeding mixtures of *P. supina* and Kentucky with effects of varying fertility and traffic. The seeding mixtures were 0, 5, 10, 25, 50, and 100% *P. supina*. The fertility was 2 rates of nitrogen. Traffic was applied to strips using the Brinkman Traffic Simulator and this proved the competitiveness of *P. supina* under traffic. The three year study was long enough so that even the 5% seeding rate of *P. supina* resulted in over 95% *P. supina*. Although the authors did not mention the effect of height of cut, all plots were mowed at 1.2 inches. (Ed. A height that would encourage *P. supina* over *P. pratensis* in my opinion.)

Rodney St. John of Iowa reported that spraying calcium on Kentucky bluegrass or creeping bentgrass turf raised on a calcareous sand did not improve turf quality.

Researchers at Rutgers Univ. reported on **wear tolerance** using a newly created wear testing device. Of interest was a finding "that **Colonial bentgrass** had significantly greater wear tolerance than all but one of the creeping bentgrasses at the fairway cutting height." (Ed. A piece of research that would have made Al Radko happy.) The superior creeping bentgrass was **Penn State's G-2**.

Wipff talked about breeding **salt tolerance** into cool season turfgrasses. The one thing I got out of the talk was that Brightstar was a salt tolerant p. ryegrass. Checking the paper I find that North Star was the most salt tolerant Kentucky bluegrass in his tests. Also, Seabreeze slender creeping fescue was able to germinate at a very high salt level.

A poster by Dr. Christians's group showed that applying Primo 2 weeks prior to harvesting Kentucky bluegrass sod resulted in much improved rooting when checked 8 weeks after spraying.

The last session I went to was on diseases. If you feel that you have been having trouble **germinating *Poa trivialis*** it just might be due to a fungicide you have put down. A study on this by Clemson researchers reported that, "We concluded that fenarimol (Rubigan) and cyproconazole (Sentinel) should not be used when seeding rough bluegrass."

Another report on using *Stenotrophomonas maltophilia* C3 for biological control of disease was of some interest. Dr. Yuen reported on using it to control leaf spot on tall fescue. It did give some control. Control was based on coverage of the plant tissue with *S. maltophilea* but even dead cells could get some.

END of ITRC

TURFGRASS INFORMATION CENTER: Spent a week in July doing volunteer work for Pete Cookingham at the TIC, Main Library, Michigan State Univ. I've always felt at home in libraries, so this is probably not for everyone. Even thought that might be a profession I might look into but never did. But, if you are one of those that think the TIC could be even better than it is, spend a week with Pete and help him make it better. I enjoyed most of the work although it can get boring at times.

While there be sure to see the Beal Botanical Gardens. Bring your children or grandchildren to see it. The large signs at the plants with a small paragraph about each make it very interesting.

