

Northwest TURFGRASS TOPICS

VOL. 14, NO. 2

PUYALLUP, WASHINGTON

AUGUST, 1971

25th Annual Northwest Turfgrass Conference

SEPTEMBER 21, 22, 23, 24

CHINOOK MOTEL AND TOWER, YAKIMA

General Chairman - Roy L. Goss

Product and Display Chairman - Ron Proctor

TUESDAY - SEPTEMBER 21, 1971 AFTERNOON:

- 1:00 - Product and Equipment displays open for conference attendance.
- 1:00 - Golf Tournament - Suntides Golf Course - Tournament Chairman - Dick Schmidt.

WEDNESDAY - SEPTEMBER 22, 1971 MORNING:

- 9:00 - 1:00 Registration-Dick Haskell-Chairman
- 9:00 - 1:00 Product and Equipment display open.

AFTERNOON:

- 1:15 - 1:30 Welcome - Tom Keel, President, Northwest Turfgrass Association and a representative from the City of Yakima.
- 1:30 - 2:10 Environmental Quality Control - Let's do it right. Gordon L. Culp, Manager, Water & Waste Management, Water & Land Resources Department, Batelle, Richland, Washington.
- 2:10 - 3:00 Twenty-five years of Progress in Turfgrass Science. Charles G. Wilson, Milwaukee Sewerage Commission, Milwaukee, Wisconsin.
- 3:00 - 3:20 Break
- 3:20 - 4:00 Economizing in Park Operation and Maintenance. Charles R. Schrader, Assistant Superintendent of Parks, City of Seattle, Washington.
- 4:00 - 4:30 Seed Testing for Quality - Your protection. Robert Eschbach. Chief, Seed Branch, Washington State Department of Agriculture, Yakima, Washington.
- 4:30 - 6:00 Product and Equipment displays.
- 6:45 - 7:30 Social hour
- 7:45 - Evening events and "Luau"

THURSDAY - SEPTEMBER 23, 1971 MORNING:

- 8:30 - 9:10 Money, Machinery and Management. W. H. Bengueyfield, Western Director, U.S.G.A. Green Section, Garden Grove, California.

- 9:10 - 9:50 Aquatic Weed Control. Dr. R. D. Comes, Plant Physiologist, USDA, Agricultural Research Service, Irrigated Agriculture Research & Extension Center, Prosser, Washington.

9:50 - 10:10 Break

- 10:10 - 10:50 Turfgrass Varieties and Hybrids - The Old and The New for the Future. Dr. D. K. Taylor, Canada Department of Agriculture, Research Station, Agassiz, British Columbia.

- 10:50 - 11:30 Weed Control in New Turfgrass Plantings. R. M. Adamson, Canada Department of Agriculture, Research Station, Saanichton, British Columbia.

- 11:30 - 12:10 Northwest Turfgrass Association Membership meeting.

12:10 - 1:15 Lunch (no host)

AFTERNOON:

- 1:15 - 2:30 Keeping Turfgrasses Clean. A panel discussion - Charles G. Wilson, Milt Bauman, Bill Bengueyfield, Frank Zook, Charles J. Gould.
- 2:30 - Free time - Displays - Golf - Etc.

FRIDAY - SEPTEMBER 24, 1971 MORNING:

- 8:30 - 9:00 Biological and Mechanical Thatch Control. Dr. Roy L. Goss, WWREC, Puyallup, Washington.

- 9:00 - 10:00 Turfgrass Irrigation.
1. Irrigation Central Control, D. A. Hogan, D. A. Hogan & Assoc. Professional Engineers, 1703 Dexter Ave. N., Seattle, Wa.
 2. Where have we been in irrigation? Carl H. Kuhn, C. H. Kuhn & Assoc. Professional Engineers, Mercer Island, Washington.
 3. Application of Fertilizers through Irrigation Systems, John Pierce, Joe Berger Co., Seattle, Wa.

10:00 - 10:20 Break

10:20 - 12:00 Research Reports

12:00 noon Conference adjourned.

FROM THE PRESIDENT'S CORNER



TOM KEEL

The 25th annual Northwest Turfgrass Association Conference is scheduled for September 23, 24 and 25 at the Chinook Hotel in Yakima. An interesting program, suitable for the 25th anniversary, has been arranged by the Board of Directors and Conference Committee. A new feature this year will be an equipment display which should be interesting as we are always anxious to learn of new and better ways of maintaining turf areas.

I hope that all of you will be able to attend the Conference to renew acquaintances and exchange ideas. See you at Yakima.

SPECIAL CONFERENCE NOTICE

Be sure to bring your wife to the Turf Conference at Yakima this year. Besides having a women's program, which will include some interesting tours and plenty of activity, there will be a Luau in the place of a banquet. The Chinook Motel and Towers has a specialist who has had extensive training in Hawaii in putting on Luau's and this promises to be a special occasion. The men should bring along Aloha shirts or just anything comfortable and the women can wear Mumu's or comfortable, loose fitting dresses. The weather should cooperate and the Luau will be under the stars.

IN THE GOOD OLD SUMMERTIME

By Roy L. Goss

Sunbathers and sun worshipers on the beaches look upon hot weather as the good old summertime. Hot weather is necessary for the growth of many agricultural crops provided water is not limited. To the turf manager, however, hot weather is not particularly good news. This has been particularly true for turf managers in the Pacific Northwest this year.

The types of turf problems which have occurred during this summer are not new to us but we tend to forget from year to year, what to expect and how to stay one jump ahead of them.

ANALYZING OUR SITUATION

The spring and early summer of 1971 were extremely wet and cold. Frosts occurred in certain areas of the Inland Empire as late as July. Eastern Washington, Oregon and Idaho experienced heavier than usual rainfall until the middle of July. Western Washington, Oregon and British Columbia were hit, likewise. Many felt that there would be no more summer this year. This suddenly changed; and, this sudden change is the principle factor that brought on our present problems. Although it was wet and cold during June and part of July, we did not have excessive rainfall over and above evapotranspiration most of the time. This left some of our turfgrass areas with moisture less than field capacity. When the hot days hit, it was a matter of only one day to one week (depending upon soil type and depth) that turf started browning. Careful inspection with a soil tube or other device would have revealed what was going on beneath the turf. Runoff on high spots created conditions for browning a little earlier than adjacent areas. If you wish to keep all areas green then you must treat the high spots earlier in the season with thorough aeration, slicing, or wetting agents, or all three. If you don't mind a few brown spots, then simply treat the high spots the same as the rest of the area. But, under no circumstances should you try to maintain green turf on all high spots at the expense of the low-lying areas without the special methods indicated above.

Fertilizing during hot weather resulted in damage throughout our area. Fertilizers of all types except the pure organic ones, produced some injury. The real thinking turf manager kept the rates down lower during the hot period. The cautious type never applied anything except organic sources or slow release urea formaldehyde material. Turf rarely shows extreme nutrient deficiencies for a period of 30-45 days if it were in a high state of nutrition prior to fertilizer cut off. Some nitrogen from slow release sources may be applied even during hot weather to maintain some color, but more important than fertilizer during this time, is water and aeration.

(Continued on Page 7)

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Disease Resistance Work Initiated

During the summer of 1971, 32 seeded and 18 stolonized turfgrass varieties have been established at the Western Washington Research and Extension Center at Puyallup for the purpose of studying disease resistance. It is hoped that some of these varieties may possibly show high resistance to Fusarium patch disease. There is evidence from previous observation that there is a difference in disease susceptibility from various bentgrass varieties.

These plots will be managed much the same as golf course putting greens in an effort to duplicate currently accepted management practices.

The selections being tested are collections from all over the world, many of which are being introduced on the market today.

These plots will be observed for all diseases common to the Pacific Northwest while at the same time data will be taken in regard to texture, color and other qualities for putting green turf. The plots, according to Dr. Gould, may be observed at any time that you may be visiting the experiment station.



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Nutritional and Fungicidal Tests for Ophiobolus Control



By Dr. Roy M. Davidson, Jr.

MATERIALS AND METHODS

In October 1970, a test to control *Ophiobolus* Patch disease already established in bentgrass putting turf was initiated at WSU's Farm 5 near Sumner. The disease was active in all plots when the test was begun.

TREATMENTS WERE:

1. Benlate (Benomyl), 2 oz./1,000 sq. ft./application
2. Fore, 8 oz./1000 sq. ft./application.
3. Ammonium sulfate, 1 lb. N/1000 sq. ft./ application.
4. Chlordane, 3 lbs. active/acre/application
5. Ammonium sulfate plus chlordane, at above rates.
6. Lime, 1 ton per acre initially.
7. Phosphorus, H PO at 2 lbs. P/1000 sq. ft./year.
8. Sulfur, 2 lbs./1000 sq. ft./yr.
9. Phosphorus plus sulfur, at above rates.

Urea, 1 lb. N/1000 sq. ft./application, was applied to all plots except controls and those receiving ammonium sulfate. Ammonium sulfate and urea were applied once every three weeks except during January and February. Benlate and Fore were applied once every two weeks for 12 weeks. Chlordane was applied once every three months. Phosphorus was applied once every four months. Sulfur was applied in fall and spring. P and S applications were separated by at least 10 days. Lime was applied initially in August 1970. Ammonium sulfate, lime and urea were broadcast within the appropriate plots, and the remaining treatments were applied with a sprayer at the rate of 10 gallons of water per 1000 sq. ft. Each treatment plot was 50 sq. ft. and was replaced four times. There were eight control plots, none of which received any chemicals or fertilizers. Treatment plots and controls were randomized.

(Continued on Page 5)

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Tests for *Ophiobolus* Control

(Continued from Page 4)

RESULTS

In early November, *Ophiobolus* rings in plots treated with ammonium sulfate plus chlordane began to fill in with grass. Plots containing ammonium sulfate alone were almost as healthy as those in which chlordane plus ammonium sulfate had been used. Other treatments had no effect on control of the disease.

By early February, *Ophiobolus* rings had completely filled in the plots treated with ammonium sulfate plus Chlordane. Most of the rings had filled in, in the plots treated with ammonium sulfate alone.

In early March, plots treated with Fore had most of the rings filled in. In late March, *Ophiobolus* patches began filling in in plots treated with phosphorus plus sulphur.

By mid-April, rings had filled in in all plots treated with ammonium sulfate, and Fore, and in most plots treated with phosphorus plus sulfur, and sulfur alone (Table 1.)

In mid-May, the plots were rated for color and density (Table 2.)

Table 1. Disease rating of bentgrass putting turf infected by *Ophiobolus graminis* as influenced by various chemical treatments.

Treatment	Average Disease Rating ^{1/}		
	Oct. 1970	Dec. 1970	April 1971
Benlate	1	3	5
Fore	1	3	10
Ammonium sulfate	1	7	10
Chlordane	1	4	3
Ammonium sulfate plus Chlordane	1	8	10
Lime	1	1	3
Phosphorus	1	3	8
Sulfur	1	4	9
Phosphorus plus sulfur	1	3	9
Control	1	1	2

^{1/} 1 = Worst, no rings filled in; 10 = best, rings filled in; ave. of 4 reps.

Table 2. Color ad density rating of bentgrass putting turf infected by *Ophiobolus graminis* as influenced by various chemical treatments.

Treatment	Average Color/Density Rating ^{1/}
Benlate	8/8
Fore	9/9
Ammonium sulfate	10/10
Chlordane	7.5/7
Ammonium sulfate plus chlordane	10/10
Lime	6/6.5
Phosphorus	7/7
Sulfur	9/9
Phosphorus plus sulfur	9.5/10
Control	5/5

^{1/} 1 = worst; 10 = best; average 4 replications.

DISCUSSION

Compounds containing sulfur are most effective in control of *Ophiobolus* Patch of turf. Ammonium sulfate plus Chlordane was the best treatment, producing the quickest response. Ammonium sulfate by itself was almost as good. Applications of Fore did not begin to control the disease until several months following the last application. This may have been because the amount of sulfur needed to control the disease had accumulated only after six applications of the fungicide.

The exact mode of action of sulfur on *Ophiobolus* Patch disease is not known. It may act on the fungus directly, or it may act indirectly to enhance activity of soil organisms antagonistic to *Ophiobolus graminis* by changes in soil PH or in other ways. Lime was one of the least effective treatments, indicating that soil PH influences the development of the disease.

Since Chlordane was not effective by itself, its combination with ammonium sulfate may have had an influence on antagonistic soil microorganisms greater than the influence of ammonium sulfate (sulfur) alone.

Dr. Roy M. Davidson, Jr., earned the B. A. degree in botany from Oregon State University in 1961. He then served four years' active duty with the United States Navy, and was released at the rank of Lieutenant. Dr. Davidson then returned to O. S. U., where he received the M. S. degree in plant pathology in 1967. He received the PhD degree in plant pathology from Washington State University in 1971. Since July 1970, he has been employed at the Western Washington Research and Extension Center in Puyallup.

Editors note - Dr. Davidson has cooperated with Pathology, Agronomy, Horticulture, and Entomology this last year by handling a large volume of phone calls, office visits, specimen examinations and identification. He has been most valuable to the people of Western Washington in this capacity.

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Fusarium Patch Test Scheduled For this Fall

Extensive tests will be conducted in the fall of 1971 for the control of *Fusarium* patch disease of turfgrasses. Dr. C. J. Gould in cooperation with Dr. Goss and V.L. Miller, will conduct tests at three different sites. Identical tests will be conducted at the Western Washington Research and Extension Center Form No. 5, Rainier Golf and Country Club, and Earlington Golf Course.

Emphasis will be placed on investigating the effect of non-mercurial fungicides. Since mercury fungicides cause a build up of mercury in soil, all efforts are being made to satisfactorily replace mercury with suitable materials. Previous trials have shown that Fore, Dithane M45, and Benlate are successful replacements for mercury. It is anticipated that testing at three locations will place more confidence in the results of these tests while enhancing the possibilities of greater disease infestation. More information will be released about this as results become available.

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(Continued from Page 2)

SUMMER IRRIGATION

Most of us are inclined to put too much water than not enough. A slight amount of over-watering is rarely detectable but a slight amount of under-watering can be seen by everyone. Over irrigation and compacted soils or heavy soils can result in poor oxygen relationships and increased carbon dioxide levels in the soil. This brings on poor vigor or shallow rooting. It is still recommended that the soil profile where roots exist, be wet upon each irrigation and re-wet only when most of this water, or at least 50% has been removed. Light frequent watering may not be a problem for some people, but how do you interpret light frequent watering? If we interpret this as replacing only what was used out yesterday, then the system could function very well. If we exceed yesterday's use, however, we can develop scummy, soft surfaces, that are worse than slightly dry ones. The best and quickest way to develop algae is to practice light, frequent overwatering.

AERIFICATION

We have recommended for a long time to aerify during the summer for the following purposes.

1. Chiefly to allow more and rapid oxygen diffusion into the root zone.
2. Allow faster and more effective water infiltration.
3. Soften putting green surfaces.

Heavy soils or compacted soils must be aerified early in the season while ample soil moisture exists. When the soils become dry, aerifier penetration is practically nil. In this case, vertical mulching or slicing is more effective and will aid in water penetration.

Many golf superintendents practice occasional summer aerification and topdressing. Little has been said about this in the past, but from observations of problems which occurred in 1971, summer top dressing would be strongly discouraged. Many putting greens sustained damage following top dressing. This did not occur on putting greens which were stolonized during this time. The chief difference is in the mowing height and vigor of the turf at the time topdressing was applied. Greens that were aerified without topdressing, are coming through in excellent condition and even those that were very lightly topdressed with aerifying, were not damaged.

Dr. Victor B. Younger, from UCLA at Riverside, has prepared an excellent article in the August 1971 issue of "The Golf Superintendent" discussing Aerification-Why? He discusses Aerify-When. He quotes as follows: "More recent experience has shown that,

if properly done, bentgrass greens can be aerified at any time. Bentgrass greens, in rapid summer decline have been saved by aerification, even though temperatures were well over 90°F. Prevention of drying around the holes is critical for a few days after summer aerification." He further states that aerification during the period of peak *Poa annua* seed germination should be avoided if at all possible as it provides a better seedbed and encourages germination. This is the reason why we in the Northwest have recommended pre-emergence herbicide application in early fall about the time of *Poa annua* germination. Dr. Younger proceeds to discuss many other important points related to coring, spiking, and slicing, and it would be advisable for all of you to read this excellent article.

In summary, I would advise the following procedures for any other year and possibly for the remainder of this year.

1. Avoid excessive applications of nitrogen and potassium. Light applications, 1/3 lb. of actual of either element per 1,000 sq. ft. in any application will produce no injury-if watered immediately.
2. Check soil moisture frequently to avoid both over and under watering.
3. Aerify whenever necessary even in hot summer weather with the smaller coring tines to maintain better oxygen relationships.
4. Avoid summer topdressing except for establishing stolons or lightly topdressing new sod.
5. Maintain vigilance for summer diseases and practice a maintenance fungicide program. Brown patch (*Rhizoctonia solani*) occurred extensively in the Northwest this summer due to high day time temperatures and many night time temperatures that never went below 65 degrees F. Fungicide programs normally practiced for the control of *Fusarium Patch* will easily control brown patch.

Once the heat spell has been broken you may resume normal maintenance and management practices. It appears that we have those conditions at this time, however, there will probably be a few days with high temperatures until the middle or latter part of September.

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