NORTHWEST TURFGRASS TOPICS

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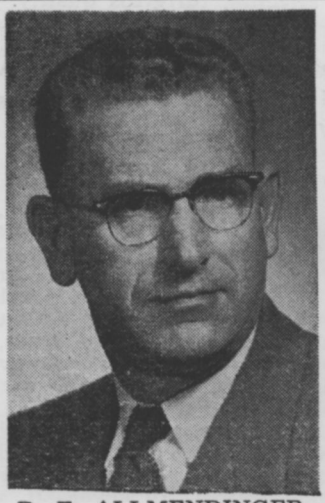

D. F. ALLMENDINGER

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C. J. GOULD

ROY GOSS

Northwest Turfgrass Topic To Be Published 3 Times Per Year

by Roy Goss

Various interested turfgrass organizations and individuals in the Pacific Northwest have expressed a desire to have a regular publication that would be devoted to their specific problems and interest, which is better turf. Research progress and findings in other areas cannot be accepted for par value here in the Pacific Northwest. Our climatic conditions do not permit the same management practices and, therefore, create a somewhat modified assortment of problems for the turf manager.

The ultimate goal of this paper is to bring to you the most up-to-date recommendations and research reports from this and other experiment stations which will benefit all turf workers in dealing with their problems. Since this paper will be coming out only 3 times each year, not all problems can be thoroughly discussed on a current basis, so a column entitled "Looking Ahead" will be employed to remind you of certain things for which to be "en garde".

A Calendar of Coming Events of interest to turf workers will be listed with each printing. This is an item which will be the responsibility of each one of you to bring to the editor's attention so that it is as complete as possible.

Appreciation for research grants and contributions from individuals, companies, and organizations shall be recognized in an appropriate section of this paper.

The editor wishes to encourage all turfgrass workers in the field to send in items which will be of interest to a number of people. These items should include events, new ideas, new machinery, new techniques, and successes.

This publication **NORTHWEST TURFGRASS TOPICS** is sponsored by the NORTHWEST TURF ASSOCIATION and is currently financed through funds obtained from membership dues in the turf association. Persons regularly receiving this paper will be members in good standing of Northwest Turf Association, institutions conducting turf research programs, and editors of the various turfgrass publications and journals. Persons interested in being placed on the mailing list, not included in the above categories, direct your communications to

Henry Land Sr.
Tacoma Country & Golf Club
Tacoma, Washington

Subsequent editions of this publication will be expanded and it is felt that some space could be made available for advertising of products or items by companies or individuals. The revenue from this advertising will be used to defray the costs of publishing. A tentative schedule of charges for advertising is suggested at $3 per inch of 2¾ inch column per edition, with a maximum allowable space of 6 column inches. If a 2-column width is desired, the length would be limited to 3 inches. The minimum space would be ½ inch long. **The editor will reserve the right to limit advertising due to space limitations and other considerations.**

Why Do We Need Turf Research?

by D. F. Allmendinger

Research is the magic work of today's progress. Our rapidly changing times are based on the findings of a great many scientists, in a great many research institutions developing new ideas, new processes and new tools. Our way of life has radically changed in the past few decades, and is now still rapidly changing as a result of all this new information.

During this change, we find that the solving of one problem leads to others and the demand for, and need for, additional research is increased. Perhaps one of the greatest changes has been that our increased productive capacity has left more time for leisure activities and avocations—golf, gardening, camping, and a multitude of other activities. A large number of new homes, as well as our older homes and grounds, are receiving more attention than ever before. We have a greater interest in our surroundings. Our lawns must be well kept, our golf courses have to be not only attractive but serviceable, and our parks and playgrounds and other public areas must be made as attractive as possible.

The establishment and maintenance of turf has now become "big business." It utilizes an ever increasing portion of our land and provides employment for industry through use of fertilizers, insecticides, fungicides, equipment, and a multitude of other related products and services.

Research, of course, has made many contributions to the establishment and maintenance of turf. But as with other areas of agriculture and industry, there have developed many new problems. We want to know how to do a better job. We want to know how to irrigate, how to control lawn pests, what grasses will do the best job, how to fertilize, and a host of other things.

It is only natural that we look to research for answers to these problems. Our experiment stations with a long record of productive agricultural research are best equipped to do the job and it is to these institutions that requests for work come. Some of these problems can be handled by scientists already on the staff. Some of the information may be already available and needs only to be applied to turf problems. When the problems become too numerous or too complicated to handle in this manner, it then becomes necessary to increase the research effort.

The State College of Washington, recognizing the need for and importance of turf research this past year, agreed to establish a half time position in turf research. Mr. Roy Goss, well qualified to do this research, is now developing a research program at the Western Washington Experiment Station. His work will be augmented by work of other scientists at Puyallup and at Pullman already working on turf problems. It is hoped that a one-half time extension specialist will also be appointed to help disseminate the information as it is developed.

This program has been developed through the cooperation and encour-

agement of many people interested in the turf program. The financial assistance from several organizations including the Northwest Turf Association, Northwest Association of Golf Course Superintendents, and U.S. Golf Association has helped materially in the turf program and has been an important factor in the recognition of the need for this work.

While we know that the results of research sometimes come slowly, we also know that the research program already under way will provide many answers which will help all of us do a better job in providing more attractive and serviceable grounds and increasing our employment of their use.

Turfgrass Researchers At Western Washington Experiment Station

In the first edition of this paper, it was felt that an introduction on the turf research scientists at the Western Washington Experiment Station would be in order. An introduction of research scientists at Pullman will be made in a forthcoming issue. Even though most of us are acquainted through conferences and other meetings, there are a number of people growing turf who have not met their research staff.

Dr. Charles J. Gould:

Dr. Gould was born and reared in the eastern states and attended Marshall College where he earned his A.B. degree in botany in 1934. He then attended Iowa State College and received his M.S. degree in forest pathology in 1937. He was an instructor in botany at Iowa State College from 1937-1941. He joined the Western Experiment Station staff as an Assistant Plant Pathologist in 1941 and completed his Ph. D. degree in ornamental diseases in 1942. He was appointed Research Plant Pathologist in 1943, Associate Plant Pathologist in 1946, and was promoted to Plant Pathologist in 1952. He was a Fulbright Scholar in Holland for 6 months in 1951.

Dr. Gould has made many outstanding scientific contributions in the field of ornamental diseases, especially narcissus, tulips, iris, gladiolus, and lilies. He is now devoting about 40% of his time to turfgrass diseases, where he has also made outstanding contributions, 40% to diseases of the bulb crops, and the remainder to other ornamentals such as rhododendrons. Much of his work has been in cooperation with V. L. Miller, chemist, in addition to others listed herein.

Dr. Herman M. Austenson:

Dr. Austenson was reared at Viscount, Saskatchewan, Canada, and attended the University of Saskatchewan where he received his B.S.A. in 1946. He was a Saskatchewan Agricultural Research Foundation Scholar from 1948-1950, at the University of Saskatchewan, where he was granted his M. S. degree in agronomy. He was awarded assistanceship at Washington State College and continued on for his Ph. D. degree which was completed in 1951. Dr. Austenson served for 2 years at the Northwestern Washington Experiment Station at Mount Vernon as an assistant research agronomist. He then worked as an extension agronomist at Cornell University, Ithaca, New York, for 1 year and then joined the staff at the Western Washington Experiment Station in 1954.

Austenson has been in charge of hay, pasture and grain crops research programs in western Washington where the results of his work have been of great importance to farmers and ranchers in western Washington. He carried out for 4 years various tests with turfgrasses here at the Station and several cooperative programs with Dr. Gould. He will continue to work with the turfgrasses, in cooperation with Roy Goss, especially in selection, and seed production. His assistance and advice are to be greatly appreciated.

Roy Goss:

He attended East Central College in Oklahoma in 1946 and transferred to Eastern Washington College of Education in 1947 and on to Washington State College in 1948. He earned his B.S. degree in agriculture in 1950 and Bachelor of Education degree in 1951. After teaching high school vocational agriculture for 2 years at Tenino, Washington, he worked with soil, irrigation and orchard cover crop problems with the Soil Conservation Service at Wenatchee until 1955. He returned to W.S.C. to work toward his Ph. D. degree in agronomy (crops management) in September 1955, and plans to complete his degree by September of this year.

Mr. Goss was appointed to the position of Acting Jr. Agronomist at Western Washington Experiment Station in July of 1958. He is currently working as a fulltime researcher on turfgrass problems and is setting up a turfgrass research center and research program. His thesis problem since 1955 has been concerned with factors affecting turfgrass quality.

Gifts And Grants From January 1, 1958

Disease Research

Northwest Turf Association	$ 500.00
Oregon Turf Managers Association (via N.W. Turf Assn.)	250.00
Northwest Golf Course Superintendents Assn.	718.00
U.S. Golf Association—Greens Section	1,000.00
California Spray-Chemical Corp.	500.00
W. A. Cleary Corp	500.00
American Sisalkraft Corp. (Plastic - value of)	295.00
National Blower & Sheet Metal (Tape - value of)	15.00
E. I. du Pont de Nemours & Co. (Inc.)	Fertilizers
O. M. Scott and Sons Co.	Fertilizer spreader

Agronomic

Northwest Turf Association (Puyallup and Pullman)	$500.00
Northwest Turf Association (greens mower, Pullman)	180.83
American Cyanamid Co.	400 lbs. cyanamid
E. I. du Pont de Nemours & Co. (Inc.)	10 lbs Neburon
E. I. du Pont de Nemours & Co. (Inc.)	4 bags Uramite
Johnny Harrison (Hayden Lake Golf & Country Club)	Hand greens mower
O. M. Scott & Sons Co.	Herbicides, fungicides, and spreader

Samples of materials not mentioned above which have been contributed to research are hereby gratefully acknowledged.

A New Plastic Greenhouse Aids Turf Disease Research At The Western Washington Experiment Station

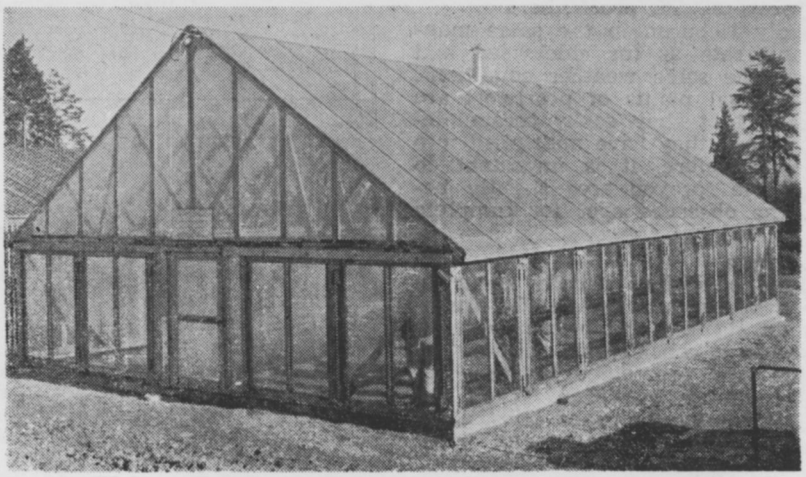
Charles J. Gould

Research on turf diseases is usually 'stymied' during the winter months in western Washington because grass growth is slow and disease development is retarded. In order to study diseases on a year-around basis, a greenhouse was needed, but none were available, nor did it seem likely that one could be built with state funds for several years. It appeared for a while that we might be able to build a plastic greenhouse with a grant from an outside source. However, it was found that this grant, for technical reasons, could not be used for building purposes. Fortunately, at that time two Northwest Turf Associations decided to underwrite the project.

The Northwest Turf Association (under the leadership of Don Hogan and Research Committee Chairman Henry Land) voted to advance $500 from their research fund so that construction could get underway. Subsequently, they contributed an additional $250. which had been donated for the plastic house by the Oregon Turf Managers Association. The Northwest Golf Course Superintendents Assn. (under the leadership of Ken Putnam, President) ran a Research Golf Tournament directed by Dick Haskell and in cooperation with the Rainier Golf and Country Club. This raised $368. Superintendent D. F. Allmendinger of the Western Washington Experiment Station also gave us $132 from his 'reserve fund' to complete certain construction. The American Sisalkraft Company donated $295 worth of Eskaylite plastic for covering. The total cost of this 25' x 40' plastic greenhouse with installed equipment will be about $2000, exclusive of the plastic. The total price is higher than estimated, but we have a good, solid structure that should last for many years.

This plastic greenhouse is equipped with automatic controls which enable us to have different day and night temperatures, ventilation whenever the temperature rises to high, and mist-watering at any time needed for good disease development. These controls are much better than anything we have in our regular green houses. However, we have had our growing-pains. Because of reduced light intensity, the grass does not grow quite as well as it does outdoors. Consequently, we now plan to raise the grass outdoors (with Roy Goss' help) and transplant it into the house as needed for each experiment. This procedure will also enable us to run more experiments.

The experiments will be of two types: at first, applied and later on, basic. In other words, first we plan to test new fungicides, new ways of using old ones, and the effect of var-



iou types of nutrition on control of the Fusarium Patch. Later we intend to investigate basic factors, such as the effect of temperature, relative humidity, soil moisture, and soil texture on infection and disease development under controlled conditions.

Two experiments have been run already. One experiment, with V. L. Miller, included new fungicides as well as various mixtures of PMA (phenyl mercuric acetate) plus different nitrogen fertilizers. These fertilizers were added in order to test their relative ability for decreasing the injury that sometimes occurs with PMA. We had discovered in a previous experiment at Broadmoor that one type of nitrogen was very effective for this purpose. Therefore, we were quite surprised to find in this plastic house test that some other types of nitrogen increased the injury instead of decreasing it. This type of study, as well as one on new fungicides, will be expanded in another experiment starting on February 19.

The other completed experiment was a cooperative one with Roy Goss and involved the effect of various organic and inorganic fertilizers on infection by the Fusarium Patch fungus. The fertilizers were applied in two rates at bi-weekly intervals. Unfortunately, grass growth was weak because of deficient light and excessive trampling during installation of equipment. Only meager results were obtained. It appears that for such experiments, which must last for several months, we will have to either add lights or start the turf outdoors.

We expected that it would take some time to learn how to use this plastic house most effectively. Our expectations have been fulfilled. However, we have found that it can be used very productively in preliminary testing work. It should at least double our output so that we can develop better disease control measures much more rapidly than heretofore—not only for golf greens, but for high-cut (lawn-type) turf as well.

In addition to the men and organizations listed at the beginning of the article, we wish to thank the Greens Section of the United States Golf Association for a grant of $1,000 which has enabled us to run the experiments this winter.

Looking Ahead

It is not possible to treat a great many subjects in detail with each printing of this paper, hence the idea for this column presented some favorable aspects. The intent of this column is not to bring to you a host of specific facts and recommendations but to more or less informally mention to you a few problems areas in the turfgrass field for which to be particularly aware within the next few months. — Ed.

WATCH FOR INSECTS THIS SPRING

by A. J. Howitt, Entomology

The Alfalfa Looper

The caterpillars are a dark olive green with a light colored head. There are dark lines down the middle of the back and along each side. They move in a looping fashion. The alfalfa looper is a very general feeder and can cause serious damage to golf greens. The winter is passed in a pupae and adult stages. There are two generation a year. The first generation appears early in the spring, while the second appears sometime in July.

The Variegated Cutworm

These caterpillars are general and destructive feeders and can cause serious damage to turf. The caterpillers seen maturing are usually gray or brown mottled above with gray or darkish lines. They often have oblique gray areas on the sides. This cutworm is the most widely known and important cutworm in Washington. The eggs are laid in rows in large irregular masses on the stems of plants. Like the alfalfa looper, mild winters favor outbreak of the pest.

Frit Flies

Frit flies or grass stem maggots, mine down the stem of grasses killing the central shoot of young plants and stunting older plants. The larvae spend the winter in the growing stems. Pupation occurs early in the spring with the adults emerging in May or June. The adult is a small yellowish-green fly that has three stripes on its back. The eggs are glistening white and are laid in the fall on the stems above or beneath the sheaths of the leaves. The maggot is especially serious to lawn and golf course grasses and greens. Damage often shows in the form of small irregular brownish patches.

Web Worms

Sod web worms of the genus, **Crambus,** are one of the most serious pests of golf course greens and turf. The lawn moths prefer bent and young bluegrass lawns. However, they may infest all varieties of grasses. The most reliable test for sod web worms is to apply a pyrethrum-containing solution to various parts of a lawn in order to bring the larvae wiggling to the surface. Other criteria of infestation that can be used are irregular brownish patches near which the grass is thin and uneven. An abundance of parasites and predators hovering about the turf may also indicate the presence of lawn moths. The sod web worm breeds continuously throughout the late spring, summer, and early fall.

Disease Control Recommendations—

by C. J. Gould, Plant Pathology

Fusarium Patch (Pink Snow Mold)

Apply phenyl mercury acetate (10%) at ¾ ounce in 10 gallons water per 1,000 feet every 2 weeks during "Fusarium" weather. PMAS is the type that we have generally used in our tests. As stated elsewhere, certain types of nitrogen fertilizers will reduce the injury that sometimes occurs from this fungicide. Definite recommendations will be given in the next TURFGRASS TOPICS.

Red Thread

Use nitrogen-type fertilizers. This disease is responsible for the widespread "scorch-like" appearance of lawn-type grasses in western Washington.

Mangement Precautions for Spring and Early Summer Consideration—

by Roy Goss, Agronomy

Irrigation

It is a fact that soil pore space filled with water has no air. Plants need oxygen the same as we do, hence too frequent and too heavy irrigations will cause this waterlogged effect. In the absence of oxygen, roots will die within a short period of time (a few days). There is good reason to suspect that starting irrigation too early and applying water too frequently has resulted in loss of roots in all turfs in the past, especially in the summer of 1958. It is strongly recommended that a critical examination of the turf soil be made (by soil sampler or knife plugs) before irrigating. Over irrigation will also result in leaching of nutrients, especially nitrates, and purging the soil with cold water, which will interfere with various metabolic activities.

Avoid Overfertilization

Some of our turfs have made a "poverty adjustment" while some are in the range of "super luxury consumption." It is known that excessive nitrogen will cause a decrease in root production which becomes apparent during the first hot spell. A balance of nutrients is the goal for which we strive, which doesn't imply that a complete analysis fertilizer must be applied each time. Soil tests and actual turf response jointly considered should be the best guide. Putting green turfs are often the overfed or "out of balance" turfs, whole home lawns and other high-cut turf are usually the underfed.

Topdressing

Topdressing mixtures high in sand (75% or more) should be ready soon for applying. Avoid the use of material that is too coarse or too fine. Unless putting greens are extremely heavy or light, the topdressing material should be as similar in composition as possible as the putting green soil in order to avoid the formation of layers. If the topdressing material to be used is sterilized (with cyanamid or methyl bromide types of sterilants), be sure to wait until the action is completed before spreading or a burn may result.

Verticutting

Remember what happened last year? Get the verticutting done early in the growing season and avoid verticutting in the hot part of the summer. "Puffy" spots appeared in many greens in May and June of last year and verticutting scalped the spots badly. Several (3 or 4) light verticuttings are always better than 1 or 2 severe treatments.

Summary Of Uses Of Neburon (Kloben), 50% Formulation, For Turf Purposes In The Northwest

by Roy Goss

The chemical Neburon, now being marketed under the name Kloben, is manufactured by the du Pont Co. Chemically, it is 3-(3, 4-dichlorophenyl) 1-methyl-1-n-butyl urea and belongs to a group of the substituted urea herbicides.

Some of the favorable aspects of Neburon are:

1. Persisists for some time in the soil (somewhat less than a year).

2. Has a high affinity for organic matter; therefore, the higher the soil organic matter, the less the injury to the grass. (Putting green soils and old lawn soils are usually high in organic matter.)

3. Residual effect in soil is not permanent, since decomposition occurs.

Some unfavorable aspects:

1. It is nonselective if the rates used are high; therefore it must be used with care as is true of most herbicides.

2. It does not dissolve in water but forms a suspension which must be agitated constantly while being used.

Chickweed, both common **(Stellaria media)** and mouse-ear **(Cerastium vulgatum).**

Apply Neburon to the chickweed any time during the season of rapid growth (May-August) or warm (not hot), sunny days (temperature 85° F. or lower). Make the applications at the rate of 4 pounds of 50% active ingredient material per acre, or 1.4 ounces per 1,000 square feet in 5 gallons of water, or 4.1 grams per 100 square feet in 1 gallon of water. (See table of measures below.)

Since spot spraying is usually all that is needed, mix just enough material to wet the leaves of the chickweed. The kill should be complete within a week if weather conditions are good.

Pearlwort, Sagina procumbens

Apply Neburon in the same manner and rate as for chickweed and observe the same weather conditions.

Individual plants of pearlwort are so small that they easily escape detection until they have multiplied into many. Therefore, it is important to extend the sprayed area slightly beyond the observed spot for complete kill.

Black algae

Algae conditions usually occur in the coastal areas of the Pacific Northwest during the wet winter months and cause a considerable thinning of the turf and promote a scummy appearing surface condition. When the immediate ground surface dries, algae residues form a thin, tough crust which discourages re-establishment of grass in these places until this crust is broken.

A complete control of algae has been achieved on the Inglewood Golf & Country Club in Seattle (Jack Spalding, superintendent), by applying Neburon at the rate of 1 pound of 50% material per acre, or 10 grams per 1,000 square feet in 5 gallons of water. Treatments were made in November and control was complete in December. One application should do the job; however, if a second treatment is necessary, it should be apparent within 3 weeks. This rate of application is very low, hence the toxicity to grass is also very low.

Table of measures for Neburon (Kloben) (50%)

1 teaspoon (level) Neburon	1.2 grams
8 tablespoons (level) Neburon	1 ounce
28.3 grams	1 ounce
455 grams	1 pound
3 teaspoons	1 tablespoon

This material is not being recommended by the company for some of these uses, hence they are not liable. Therefore, do not go beyond the rates recommended here unless you are interested in some experimentation on your own.

I am told this material is available in the 50% formulation from Van Waters & Rogers in Seattle and Spokane, under the name "Kloben".

You will find that by spraying chickweed or pearlwort when the spots are very small some grass is still present and the spots will heal rapidly, but older, large spots have eliminated the grass. Small spots will not have to be plugged out when dead, since the grass will fill in. Kill the large spots with chemical, then plug them out if necessary. This way, you are sure of getting all the weed.

Since these uses have been found for Neburon on turf, it is desirable to make this information available to interested persons in order to lick the three weed problems listed and to insure some degree of safety and accuracy in the use of the material.

NORTHWEST TURFGRASS TOPICS is sponsored by the Northwest Turf Association and financed through funds of this organization. Any communications concerning distribution of this paper or association business should be directed to Henry Land Sr., Tacoma County & Golf Club, Gravelly Lake Drive Southwest, Tacoma, Washington, or Dr. J. K. Patterson, Agronomy Department, Washington State College, Pullman, Washington.

Communications concerning **content** of this paper should be directed to Roy Goss, Editor, Western Washington Experiment Station, Puyallup, Washington.

Calendar Of Coming Events

Northwest Golf Course Superintendents Association, April (Date not announced)
Annual meeting with presidents, pros, and greens chairmen

British Columbia Sports Turfgrass Conference, April 27-28
Univesrity of Brit. Col., Vancouver, B. C. Conference theme: Irrigation Methods and Practices

Oregon Turf Managers Assn., March 2, 1959. Corvellis Country Club — 10:30 a.m.