NORTHWEST TURFGRASS TOPICS

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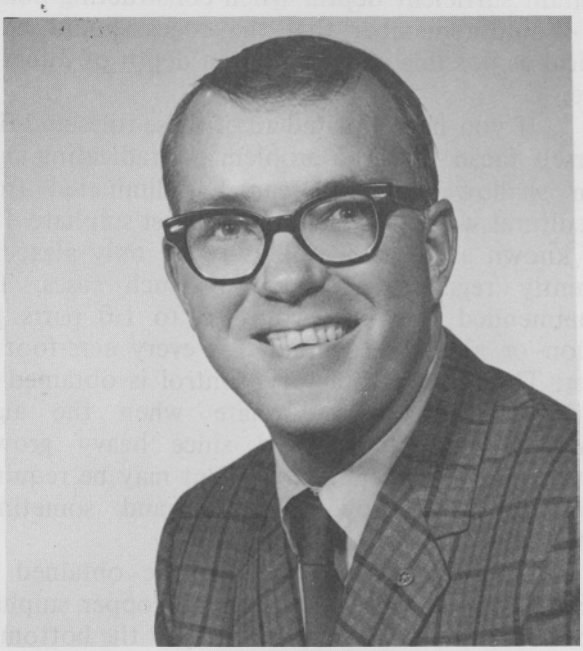
FROM THE PRESIDENT'S CORNER



By Tom Keel

The Board of Directors of the Northwest Turfgrass Association met in Puyallup, Washington on March 6. At this time topics and speakers for the forthcoming Conference at Salishan were discussed and plans formulated. (See Roy Goss's comments in this issue.)

I have contacted Clay Myers, Secretary of State for Oregon, and he has accepted our invitation to be the main speaker at the Conference banquet. I am sure his message will be of interest to all of us.

With the able assistance of the Association Secretary, Dr. Roy Goss, I will keep my promise and get Conference information to all members as soon as the program and schedule is finalized. I will be sending a news letter in May including the tentative program. You are encouraged to use this program to promote the Association to prospective members. Art Elliott, Membership Chairman, has packets consisting of a brochure describing the purpose of our Association, past Conference programs, and membership application forms. These packets are available to you for presentation to prospective members or send Art the names and he will mail the packet to them.

We have a dedicated Board of Directors who are working to develop and provide an organization that will benefit you professionally so let's all work to increase our membership.

If at any time you have questions concerning the Conference or Association contact me and I will try to be of assistance.

TURFGRASS FIELD DAY AT PUYALLUP

The annual turfgrass field day will be held at Puyallup at the Western Washington Research & Extension Center beginning at 10 A.M. We shall meet at the Research Center for assembling and some discussions and move from there to the main turfgrass research area at Farm 5, six miles east of the main station.

Participants in the field day will observe the various phases of research on turfgrasses that are being conducted at the location. Among the things that will be seen will be:

1. Golf course putting green studies that have been conducted for eleven years. Most of these studies deal with nutritional problems and vast differences are being observed from the various fertilizer treated plots.
2. Lawn turf nutritional experiments coupled with two mowing heights.
3. A lawn experiment where the mowing height has been reduced from 1½ inches down to ½ inch along with power raking and thatch removal. These plots have had the same nutritional treatments as the ones without thatching.
4. Varietal demonstrations of various turfgrasses.
5. POA aNNUA seedhead supression studies.
6. Growth regulator trials.
7. Bluegrass studies.
8. Disease studies in field plots.

Plan to be with us on that day and come prepared to ask any questions or bring problem specimens that may be troubling you. This is your opportunity to see what is being done in turfgrass research in this area. The anticipated time of completion will be approximately 3 P.M. Lunch will be on a no-host basis where everyone will disperse to the various restaurants locally.

Algae Control in Ponds

Throughout the years many suggested controls have been discussed for algae. However, many of these methods have gone by the wayside due to certain reasons which include dangerous chemicals to fish or wild life or various other reasons. Algae develops in ponds due to many reasons. First of all, there must be a suitable source of food for the algae. For the most part this is related to a balance of minerals since algae are green single-celled plants and through photosynthsesis can manufacture their own food supply provided there are no restrictions to

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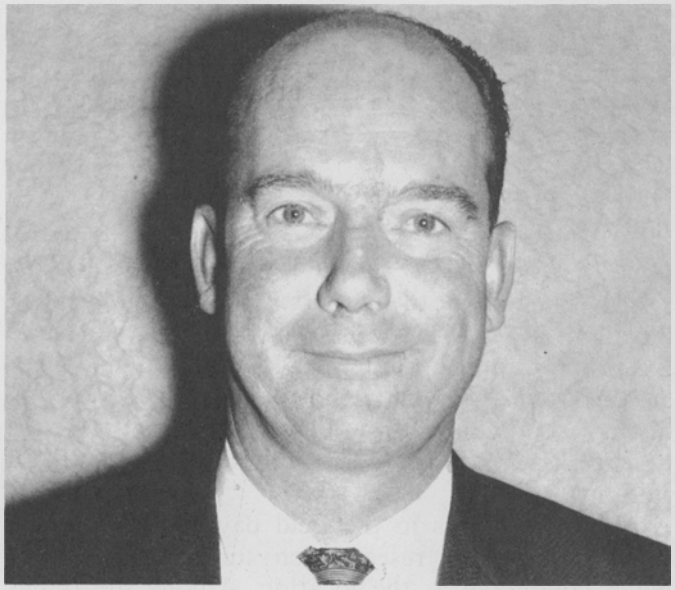

FROM THE OREGON COMPOST HEAP

By Byron Reed

For those who haven't considered getting a reservation to Salishan for the forthcoming Northwest Turfgrass Conference, October 6, 1970, may I suggest that you do so if you wish to enjoy the fine resort. The last report indicated that Salishan was filling fast.

Several job changes have occurred since the last column. Mr. Dick Lovell has taken the Superintendent's job at the Bend Golf Club at Bend, Oregon. Mr. Don Potter has taken over the Golf Superintendent's job at Michelbook Country Club at McMinnville, Oregon, and Mr. John Slaughter is the Superintendent at King City Golf Club near Tigard, Oregon.

For those readers who desire to join us at our annual outing at Agate Beach Golf Club, Newport, Oregon, you are cordially invited to do so. Mr. and Mrs. William Martin are great hosts. The date for this meeting is May 3 and 4. Mr. Bill Bengeyfield will be our featured speaker on May 4th.

(Algae Control – Cont'd from Page 1, Col. 2)

light. Algae develops principally in shallow waters where it can obtain sufficient light, temperature, and oxygen. It follows then, that one of the best means of control for algae as well as certain aquatic plants is to maintain sufficient depth. When constructing ponds, one should remember that the edges should be as vertical as possible and maintain a depth of 3 feet or more.

If you have violated all of these rules and find yourself faced with the problem of eradicating algae from shallow ponds, it can be eliminated from agricultural waters by the use of copper sulphate. It is also known as bluestone. This is the only algaecide currently registered for use in such cases. The recommended rates are from 0.5 to 1.0 parts per million or about 2.7 pounds for every acre-foot of water. The most satisfactory control is obtained by treating with copper suphate when the algae formation is first observed since heavy growth requires more copper. Retreatment may be required throughout the growing season and sometimes continuous treatment is necessary.

Long-term treatment may be obtained by suspending a burlap bag containing copper sulphate over the surface of a reservoir with just the bottom of the bag on the surface and near moving water so that turbulence will help distribute the material.

It should be remembered that dissolved copper will corrode aluminum and iron pipe and will create a problem where aluminum irrigation pipes may be used.

Normally, copper toxicity will not be apparent on turfgrasses until the level has reached more than 3 parts per million. Therefore, the recommendation of 0.5 to 1.0 parts per million should keep your turf in a very safe range.

CONFERENCE PROGRAM SET BY NTA BOARD OF DIRECTORS

The board of directors of the Northwest Turfgrass Association met at the Western Washington Research and Extension Center at Puyallup on Friday, March 6. Among the items of their agenda was the program for the forthcoming Turfgrass Conference. Approximately 22 subjects had been submitted by various directors and others interested in the Association, and from this a program slate with about 12 subject-matter areas were selected by the directors.

The general theme of the Conference will be "Turfgrasses and our Environment" which is very timely due to the amount of attention being focuses on our environment and our very futures. Among the items to be featured on the program are:

1. Pollution in our environment. This subject effects all of us and we are searching for a top speaker for this area.
2. Turfgrasses and management practices for Parks and Recreation areas. This will be handled by Jack Sim and Roy Goss.
3. How are we managing our Parks today – A survey, by Wilbur Bluhm and Willard Lighty.
4. New ideas in equipment for turfgrass maintenance. Representatives from Toro, Jacobsen, and Ryan equipment companies will handle this area as a panel.
5. Irrigation specifications, the most neglected factor. This subject will be ably discussed by Roger Gordon.
6. Recent advances in POA aNNUA control. Roy Goss will summarize research being conducted at Puyallup as well as other parts of the United States.
7. Your public relations will be discussed by Bill Bengeyfield.
8. In-service training and Employee relations will be handled as a panel of representatives working in the turfgrass industry.
9. Soil mixtures – the importance of particle size distribution. This is a most important area today for people building Golf putting greens and athletic fields and will be ably discussed by Mr. Bill Davis, University of California.
10. Correcting irrigation problems and draining problem greens by Bill Davis, University of California.
11. A summary of disease research in the Pacific Northwest, by Dr. C. J. Gould.
12. Research reports – all Pacific Northwest Turfgrass Researchers.

The board felt that this would make an excellent conference and cover the problems that we all face today. Do your part by planning to come now and participate actively.

TURFGRASS VARIETIES AND IRRIGATION PRACTICES

V. B. Youngner
University of California, Riverside

The objective of turf cultural practices with specific reference to water is to grow good quality turf with as efficient water utilization as possible. Unfortunately, water is often treated by turf managers as inexhaustible in supply and as a readily available panacea. Both are far from the truth as the need for water conservation is great and irrigation mismanagement leads to more turf ills than any other factor.

Modern turf culture, particularly in the Southwest, demands a thorough knowledge of characteristics and adaptations of turfgrass species as well as plant-soil-water relationships. Only by selecting the best adapted variety or species for a specific use and environment is maximum efficiency in water use with high turf quality possible.

Our interest, then, is in the turfgrass plant's ability to produce sufficient growth for the quality of turf desired with a minimum amount of water, a plant characteristic somewhat akin to drought resistance. Drought resistance may be considered to consist of two components, drought avoidance and drought tolerance (Levitt, 1964). In drought avoidance we have features of the plant which permits it to obtain water needed for growth and for replacement of that lost by transpiration even when soil water levels are low. Drought tolerance is the result of physiological and anatomical characteristics of the plant which permit it to survive but not necessarily grow during periods of low soil moisture.

Our interest in turf management, therefore, is primarily in the characteristics which permit the grass plant to avoid drought as these also lead to efficient water utilization. They may be found as features of both the leaves and roots of grasses.

Most plants have a protective coating of cutin or waxes on the leaf surfaces which provide a degree of protection from water loss through the epidermis. The heavier and more intact this wax layer or cuticle the better the prevention of water loss. The responsiveness of stomata in closing as water stress develops is a major determining factor of the amount of water transpired during periods of high temperature, low humidity or wind. Leaf blades of many grasses roll as the plant is subjected to water stress, thus enclosing the upper surface. Since numerous stomata are located on the upper leaf surface, such rolling further aids in reducing water loss.

The fine, highly branched, and extensive root system of most grasses permit them to extract the available water in the top one to four feet of soil with great efficiency. The maximum depth to which water may be removed varies greatly with the species.

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(Turfgrass Irrigation – Cont'd from Page 3, Col. 2)

Many fine roots of some species have been found at depths of six feet or more.

Turf cultural practices and soil conditions determine the extent to which a grass variety's rooting potential may be realized. Mowing, inadequate fertilization, poor watering practices, traffic, compacted soil, layered soil and shade, all restrict development of the grass root system. These factors may also reduce top growth but the effect on the root system is greater, producing a lower root: shoot ratio, a relationship of particular significance to efficient water utilization.

Crider (1955) showed that as clipping intensity (the portion of top growth removed at a single clipping) increased the larger were the number of roots which stopped growth and the longer the period of root growth-stoppage. If 40% or less of the top growth were removed at one time, root growth continued. However, as the amount removed approached 70-80%, all roots ceased growth and few, if any roots, resumed growth at any time. At such intense defoliations new roots which may develop appear from the plant crown or as branches from old roots just below the crown. Severe defoliation will also cause a degeneration of many old roots as well. Thus, the effect of close mowing is to produce a shallow root system and a poor root:shoot ratio.

As the root:shoot ratio becomes smaller the grass plant's ability to absorb water needed to meet the demands of transpiration is lessened. Nitrogen fertilization stimulates growth of both shoot and root, but the increase in growth rate with increased nitrogen levels is greater for the shoot than for the root. Thus, as nitrogen fertility is increased the root:shoot ratio becomes smaller. As clipping is intensified because of the increased top growth, the root system is further restricted (Troughton, 1957).

Similar responses and interactions with clipping have been shown for decreasing light intensity (shading of turf) and for decreasing water tension (Brouwer, 1936).

Bermudagrasses are the best adapted and most drought tolerant of the turfgrasses for Southern California. Roots of the improved turf varieties have been traced to depths of over six feet even when mowed regularly and closely. The reason for this exceptional root system lies in part at least in their prostrate growth habit which permits much leaf surface to remain intact even when the turf is mowed at one-half inch. Quality turf, however, can be produced only if adequate moisture is maintained throughout the root zone.

Zoysiagrass also has a deep root system but, in general, it is shorter than that of bermuda. Zoysia will survive fairly long periods of drought but suffer severely from poor drainage and saturated soil. Water stress of Zoysia may be first detected in a rolling of the leaf blades.

Tall fescue is the best adapted cool-season grass for Southern California. The vigorous root system will penetrate tight compacted soil improving structure and water penetration. Tall fescue turf may survive a month or more without water and show no thinning or other permanent injury when watering is resumed.

Red fescues are moderately drought tolerant but do not have as deep a root system as the preceding species. The leaves are normally somewhat rolled and needle-like with the stomata set deeply between the ridges over the veins. This structure may contribute to a lower transpiration rate.

Kentucky bluegrasses must be mowed high, a minimum of 1½ inches and preferably two inches or more, if an adequate root system is to be maintained.

Bentgrasses and annual bluegrasses have shallow root system and respond readily to high soil moisture. Annual bluegrass will grow on poor compacted soil if surface moisture is available.

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THATCH CONTOL AND RENOVATION PROBLEMS

By Roy L. Goss

For a number of years the question has been argued about what causes thatch. Many of the causes, have been written in the literature. On a number of occasions grass clippings have been indicated as a cause of thatch along with other vegetative parts of the plant.

Observations on bentgrass–fescue plantings at the Western Washington Research and Extension Center over the past eleven years have not led us to believe that the grass blades or the clippings contributed materially to thatch formation. To the contrary, we have found that stems and roots contribute much more to thatch than any other part of the plant. Stems and roots are more highly lignified and resist decay to a greater extent than grass leaves. Although leaves contain verying quantities of lignin or substances that decay slowly, they contain much less than other parts of the plant.

Roots and stems that build up into thick mats or thatched layers will not decompose too readily because the conditions are not suitable for decay. Good moisture conditions, ample oxygen for microorganisms and a suitable quantity of nitrogen as well as temperature are some of the fundamentals required for organic decay. Some of our surface thatch layers are alternately wet and dry and these conditions are not conducive to good decay. Hence, thatch layers continue to grow. High mowing practices coupled with heavy fertilization and over-watering stimulate many more stems and growth. Over-watering and high fertilization promotes surface rooting which materially increases the thatch build-up.

GRASS LEAVES ERRONEOUSLY BLAMED

It is comforting to note that a recent publication bears out the statements we have made for some time concerning thatch build-up. The importance of this issue really deals with the fact whether you should remove the clippings or leave them on. Everyone knows that grass clippings do contain ample quantities of nitrogen, phosphorus, potassium and minor elements. Well-nourished turfgrasses produce clippings with fairly high nutritional levels. They actually make good fertilizer, however,clippings do produce certain problems. My recommendation is that clippings should be removed for aesthetic reasons and their removal also helps somewhat in reducing turfgrass diseases. For the individual who doesn't want to take the time to remove the clippings it is suggested that the turf be mowed more frequently so the clippings are shorter and do not appear unsightly.

RENOVATION

When a severe thatch condition is developed, renovation is usually necessary. Power raking, verticle mowing, or even hand removal of deep thatch is usually recommended in the Northwest. If excessive amounts of thatch are removed it is possible that large areas can be left almost denuded. In this case, additional seed will be necessary to redevelop the turf. Proper mowing of the turfgrass area along with annual removal of accumulated thatch will help to keep the turf in excellent condition throughout the years. In the case of golf course putting greens, high nutritional levels practiced by most golf course superintendents in this area today along with the heavy traffic has practically eliminated thatch problems. Turfgrass areas that receive little traffic are the ones in the most danger of thatch formation.

BITS OF WISDOM

Do not condemn the judgment of another because it differs from your own. You may both be wrong.

Construction Problems

By Roy L. Goss

With the wealth of knowledge available to architects, contractors, or to any builder, for that matter, why are serious construction mistakes still being committed? Most of us can list a great number of failures that have resulted from simply neglecting to utilize this knowledge. At todays prices, a good golf course putting green can cost as much as $8,000 or so. A good football field can cost in excess of $40,000. Can anyone actually afford to neglect these facts and go ahead and make the same old mistakes that have been made for years. If they do, these mistakes can be extremely costly.

At the Oregon Turf and Ornamental short course, Mr. Bill Davis, from the University of California at Davis, gave a very informative and illustrated discussion about their work on particle size and distribution of particle sizes and their effect upon compaction, water movement, etc. Mr. Davis will cover this topic in detail at the Northwest Turfgrass Conference in October at Salishan. It should be pointed out here that one should take a close look at the particle sizes and how they are distributed in the total sample. Davis pointed out that the more uniform a soil was, with respect to particle size, the less problems one would experience with compaction and drainage. For example, it is impossible to compact marbles which are all the same size. By the same token, if sand particle sizes are all the same size, water movement will be enhanced and compaction will be almost non-existant. Although a soil may qualify for specific uses by a sieve or mechanical analysis, what is the percentage distribution of the particle sizes? A soil that has approximately equal percentages of particles in all ranges, from fine to coarse, may be one of the deadliest soils. The finer particles will fit snugly in between the coarse particles. If part of these fines are organic material or silt and clay, cementing action can occur. Not only does this interfere with water infiltration, but it also affects compaction and root penetration as well. The oxygen holding capacity of such a soil is also restricted, therefore, interfering with root growth.

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Perhaps the biggest problem area today is with the schools. Most educators are concerned with the business at hand. Namely, training minds. They cannot be expected to know all the intimate details concerning technical construction and management. The architect, on the other hand, concerned with school ground construction should be well advised and deal effectively with their clients, the schools. Frequently, the schools may be running short of funds by the time the construction project is nearing completion, therefore, the grounds are neglected. Sometimes this may be due to the fact that the architects do not know the difference between good soil and bad soil for construction purposes. I think, however, if the schools and their boards were well-enough advised of the problems that may develop with poor construction, they would find adequate means to do the job right the first time.

SPECIFICATIONS

Apparently the whole problem boils down to having a reasonable set of specifications from which to work. If the specifications are carefully enough developed, many of the mistakes will be avoided. Of importance, also, is the knowledge of the contractor and the person supervising the construction. If no one knows the difference, then good specifications are scarcely better than no specifications. In other words, trained people or consultants should be hired to approve or accept these expensively constructed areas.

Accurate sampling. Whether sampling is taken for chemical analysis or physical analysis, care should be exercised in taking a sample. Laboratory analyses are conducted on a mere fraction of the total material for construction. The same goes for the chemical soil analysis. Stockpiled materials should be extensively sampled to determine their uniformity. If it is absolutely determined that a soil is uniform, then only one sample is necessary,. If, on the other hand, differences are observed in stockpiled material, more extensive sampling should be made. Guessing soil textures is a dangerous practice. When soils are moist or wet, they appear to be a little coarser or better textured than when they have been dried and the particles separated. The very fine material tends to cling to the coarse particles under moist conditions. When the soils are dry the fine particles can be separated easily from the coarse and their true distribution becomes apparent. For persons doing considerable construction, a set of sieves costs very little compared to their importance. Mechanical analysis tests are available in most areas, to anyone who wants to obtain them.

Let's all get the word around that information is available about proper construction. Then, let us all stop making these simple mistakes.

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