NORTHERN MICHIGAN TURF MANAGERS ASSOCIATION

MONDAY, MAY 20th, 1985
BIRCHWOOD FARMS
Just west of Harbor Springs

Our next meeting of this Association will be held at the above indicated place. We will be the guests of three gentlemen, nemely Tom Brogger, Superintendent, Steve Duemig, Golf Professional and Jim LeDuc, General Manager. We would like to thank these gentlemen in advance for their gratefullness and hospitality for having this meeting at their beautiful location.

For those of you that do not know how to get there, keep Petoskey in mind, If you are coming from the south, go through Petoskey on U.S.31 past Bay View, turn left on M-119 and go thru Harbor Springs about two miles where you will see the entrance to Birchwood Farms on your right. Coming from the north, on U.S. 31 at Conway, take a right turn toward Boyne Highland, Wequetonsing, Harbor Springs and you will run into M-119, then continue on it through Harbor Springs.

Birchwood Farms is a beautiful residential development having one of the finest golf courses in Northern Michigan and a real challenge for everyone. Might add that is is very demanding at times due to the wooded fairways and the length of some holes. We are very grateful that we are permitted to play.

Starting time are not necessary because of being early in the season however you should schedule your being there somewhere between 11:30 A. M. and not later than 2 P.M. As with other meetings, you will pick up your ticket for a cart, dinner and $2.00 entrance in the golf game at the Pro Shop or a total of $21.00 per person. To make the golf tournament more interesting, Mr. Jim LeDuc will give a prize of a $25.00 gift certificate in the Pro Shop on the front nine for closest to the hole and the Club will give a $25.00 gift certificate for closest to the pin on the back nine. Should you wish to contact the Pro Shop for any reason, the phone number is 616/526-6245. Lunch is available at the club for those wishing to take advantage.

Like most of our meetings, it is a dinner meeting and dinner will be served at 6:15 P.M. Prime Ribs and they have an excellent reputation for food. We mention this time for those of you that may not play golf but wish to enjoy the dinner and the business meeting afterward. For those of you wanting to play golf, please arrange your time schedule so that you may relax a few moments before you set down to dinner.

Our speaker for the evening will be one of our new members, Mr. Bill Bengeyfield, National Director of the U.S.G.A. Green Section and owner of the Frankfort Golf Club. Bill in addition to being National Director is also Chairman of the U.S.G.A. Research Committee. The purpose of this research committee is to develop and guide the USGA's multi-dollar turfgrass research efforts over the next ten years or more. The goal is to develop minimal maintenance turfgrasses for golf. On this committee are Dr. Paul E. Rieke, James G. Prusa, George M. Bard, Alexander M. Radko, James B. Moncrief, Dr. James R. Watson, Charles W. Smith and of course "Bill". Dr. Marvin H. Ferguson was a member until his untimely death recently. So we are fortunate in having as our speaker, one of the guiding lights of the green industry today and whose guidance will control much of the future. We are fortunate to get such an outstanding individual as a speaker so this meeting will be more than worth while.

We must know the number of people that will be there and as always before, enclosed is our usual postcard. We want you to tell us if you will be there and if you will bring along another prospective member. This year we are not giving a prize for sending in your postcard regardless if you are present or not. We are doing something much better, we are giving away at every meeting a "GREEN JACKET" (Value $120.00) to some lucky person. You must be present to win. This green jacket is like those of many of our members who wear these at our meetings. In addition, you will also receive a $25.00 insignia to put in the pocket with our N.M.T.M.A. trademark.

The Contribution of Research to Quality Playing Conditions

by
Dr. James B. Beard
Texas A&M University

It is a privilege to represent the turfgrass research of North America in addressing the role of research in quality playing conditions. It is a difficult challenge to summarize the contributions of research in such a short paper. As a result, the discussion will be primarily an overview of the highlights.

An early benchmark was the invention of the first mechanical lawn mower by Mr. Edwin Budding in 1830. In 1980 we celebrated the historic 150th anniversary of this major event in the evolution of turf culture. This first mower was a reel design and included a catcher. The first prototype was constructed in a shed and tested on a nearby grassy area at night in order to maintain secrecy before patenting. This early pioneering research resulted in 1,000 units of this mower being marketed over the next 20 years by Ransomes Manufacturing Company. The next benchmark was 50 years later in 1880 when the first powered mower was developed. It cut a very narrow swath and was steam driven, but unfortunately weighed 1½ tons. Then in 1900 the internal combustion engine was introduced in a powered mower. Subsequently, the electric mower was developed in 1925.

During this period of evolution in mowing equipment, the allied turfgrass cultural techniques evolved through trial-and-error methods by the practicing turf manager. The greens and fairway surfaces were relatively rough by today's standards and research had not developed the cultural techniques, chemicals, and equipment needed for quality turf culture as we know it today. This art of golf course turf culture remains as a significant dimension in golf course maintenance. However, it is becoming less and less significant as the basic pool of knowledge concerning the science of growing turfgrasses enlarges and as this information is conveyed to the practicing professional turf manager. Research has played, and continues to play, an important role in generating the information needed to support these advances in turfgrass science. This transition from sole reliance on the art of turf culture was necessary because such an approach failed to provide the fundamental answers as to "why" so that the turf manager could interpret the specific cause of a particular problem and then make adjustments in the cultural program to best avoid that problem in the future.

Early 1900's

By the early 1900's the intensity of play on golf courses was increasing. Further, golf courses were being constructed on more adverse soil and climatic conditions across North America. When these two major factors were combined with increased costs of labor, it necessitated the initiation of a significant research effort to answer some of the questions and problems facing golf course turf managers. In other words, the problems of maintaining turfs on golf courses were becoming increasingly complex and the art of turf culture was just not providing the answers.

At this point in time, the USGA Green Section was formed with one of their primary objectives being to initiate turf research concerning the problems of maintaining intensively managed turfs. A significant research effort was initiated not only at the research facility in Arlington, Virginia in joint co-operation with the USGA, but also at a number of key universities. Significant landmarks during this period included the development of a number of improved creeping bentgrass cultivars, identification of improved fertilization programs for golf course turfs, improved techniques for turfgrass establishment, and initial identification and control of certain major turfgrass diseases such as dollar spot and brown patch.

After this initial thrust of pioneering research, the intervening depressional period in the 1930's, followed by World War II, unfortunately resulted in a change of national priorities which severely limited turfgrass research.

Modern Turfgrass Science

The year 1950 marked the start of our greatest advances in turfgrass culture. Both universities and private industry developed research efforts solve the problems of turfgrass culture and developing a set of scientifically based principles. As a result, the 1960's and 1970's have been a Golden Era in the use of quality golf course playing surfaces, in the development of professional turf managers, and in the generation of research information concerning the fundamental science of turfgrass culture. The golf turf industry can be proud of these accomplishments which are too numerous to discuss in detail in this article. Thus, some of the key phrases in this research and development effort will be highlighted.

Turf Equipment Advances

Some of the early research breakthroughs of the 1950's and early 1960's were achieved by private companies involved in the development of innovative turfgrass maintenance equipment. The primary motivation for these developments was a need to reduce labor requirements which would translate to increased efficiency and a lower maintenance cost. For the first time, specific equipment meeting the needs of turfgrass culture was developed, including (a) various methods of soil coring, slicing, and spiking, (b) mechanical topdressers, (c) more rapid fertilizer application by means of centrifugal spreaders, (d) increased flexibility and maneuverability in mowing equipment, especially as a result of the application of hydraulic principles to mowers, and (e) hydro-planting equipment. Because of these advances, the 1950's marked a transition from a labor intensive golf course operation to one based on more skilled employees capable of operating and maintaining more

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sophisticated turfgrass maintenance equipment. The late 1950's and 1960's also marked major advances in irrigation components, which brought on the increased feasibility of automatic irrigation systems. Again, most of these major advances occurred primarily through the research efforts of private industry. The end result was not only reduced costs for labor, but also a significant improvement in the quality of playing surfaces.

Selective Weed Control

The common use of herbicides specifically adapted for the selective removal of objectionable weeds from desirable turfgrass species was almost non-existent before 1950. As a result of cooperative research between the chemical companies and the state agricultural experiment stations at a number of universities, there were developed 2,4-D and allied phenoxy herbicides which for the first time offered a reliable, safe method for the selective removal of broadleaf weeds from turfs. Subsequently, in the 1960's, there was a second major breakthrough in selective weed control with the development of the organic arsenicals, which offered a reliable, effective method of post-emergence control of many annual grassy weed problems, especially crabgrass. This was followed in the 1960's by the development of a number of organic herbicides offering effective pre-emergence control of many annual grasses in perennial turfgrass species. As a result of these research efforts, we have essentially eliminated most of the major broadleaf and annual grassy weed problems in golf course turfs, which were such a bane to quality playing conditions. It should be pointed out that this advancement has occurred only in the last 30 years. Although the evolution of the art and science of turfgrass culture has had an identified history of 150 years, the selective chemical removal of weeds from desirable turfs is a relatively recent phenomenon which has occurred as a result of turfgrass research.

Fungicides and Insecticide Development

Research conducted in the 1920's and early 30's not only identified several major turfgrass diseases on golf courses for the first time, but also developed inorganic fungicides, such as the mercury and cadmium materials, which proved effective in control of certain disease problems. However, it was not until the 1950's and 60's that effective organic fungicides for the control of specific disease problems were developed. Most of these fungicides were of the contact type, with the systemic fungicides being developed during the 1970's. Here again cooperative research between the chemical industry and the agricultural experiment stations had resulted in great strides in achieving control of most of our major turfgrass diseases. A similar situation has evolved in terms of insect control through organic insecticides. More recently the experiment stations have pioneered the integrated pest-management concepts.

Fertilizers

Significant advances in fertilizers for turfgrasses occurred during the 1950's. This research involved primarily the natural organic and ureaformaldehyde types of slow release materials. Considerable research was also conducted concerning the proper timing and rate of application of various fertilizers on golf turf areas. However, it wasn't until the 1960's that significant strides were made in the development and marketing of specialty fertilizers designed to meet the needs of golf turf maintenance. These new turf fertilizers were characterized by drastic changes in the relative ratios of N,P, and K in comparison to those typically used in agricultural fertilizers, as well as the addition of an increment of slow release nitrogen to the fertilizer. After an initial thrust of attention solely on nitrogen, research began to emphasize the importance of proper balance between nitrogen and other nutrients such as potassium and phosphorous. This more sophisticated research involved detailed assessments of wear tolerance as affected by potassium levels. This research supported by the USGA Green Section at both Michigan State University and Texas A&M University demonstrated the important contribution of potassium to enhanced wear, drought, and cold tolerance, even though there is no direct effect in terms of color, density, or shoot growth rate. Research during the 1970's has resulted in the less intense use of nitrogen and increased use of potassium and iron, especially as they relate to maintaining quality putting green surfaces. Allied with this has been a continued emphasis on the development of improved slow-release carriers. Examples of advances achieved by cooperative research of private industry and the agricultural experiment stations include the work with IBDU and the sulfur coated nitrogen carriers. Continued emphasis on the development of improved slow release nitrogen carriers for maximum efficiency of nutrient utilization by turfgrasses will be required.

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The Golf Course Superintendent

By Betty Beckwith

You begin this work when you are young
It's out of bed early to meet the sun.
At first you're given the menial chores
And soon you learn the whys and wherefores!
As years go on, the pressures grow;
You apply the things you've come to know.
You read and learn through trial and test
And pray the Lord will do his best
To make your goals work, as you trust
Results, a golf course, trim and lush!

The years go by, the work goes on,
You love the job and success is won
But success is never a thing that's sure—
The elements and unknown often appear.
You exchange ideas in search of a clue;
What's right in some cases is not always true.
Age and experience do help a lot
But often its basics that "hit the spot".
You delight in success of the men you've taught,
An addition to pride that you've always sought.

Age 65 has gone and retirement is here,
A change so great from many a year.
The day still starts before the sun,
A yard to mow and golf is fun!
But Superintendents will always be
Unhappy unless there is turf to see.
They need the problems, miss the pride,
Yearn to see sprinklers go side to side.
The calls from friends who need advice
Make an ultimate end, almost nice.

Dedicated to my husband
John Beckwith, Class AA Ret.

Credit: Miami Valley

Turfgrass Cultivar Development

The mid-1960's marked a significant expansion in the turfgrass research effort. At this point several full-time turfgrass breeders were employed by the agricultural experiment stations. Plant collections were made throughout North America with thousands and thousands of individual clones being grown, evaluated, and screened for desirable characteristics. Based on this assessment, additional thousands of crosses were made, the seed collected, and then grown out for further assessment in clonal nurseries. Subsequently, seeds from the more promising clones were increased and planted in small micro-turf plots to assess adaptability to close mowing such as occurs on golf course turfs. From this extensive program were spawned a number of improved turfgrass cultivars for greens, tees, and fairways. We have seen major advances in the development of a wide range of leaf spot resistant, improved Kentucky bluegrass cultivars as well as a major breakthrough in turf-type perennial ryegrasses. We can anticipate even more advances in the future due to the number of concerted programs devoted to turfgrass cultivar improvement now under way at more than a half dozen agricultural experiments stations. Never in the history of turfgrass culture has there been such a concerted effort in cultivar improvement.

Soil Modification

The intensity of traffic placed on the relatively small area of a putting green under both wet and dry conditions is a very adverse situation to maintain a quality putting green surface. The 1960's marked a major advance in the development of specified methods for modifying root zones to avoid soil compaction and its associated problems. Much of this initial research was started in the 1950's, but did not come to fruition until the mid-1960's. The construction of a proper soil root zone for intensively trafficked putting greens and tees is a problem that is very unique to turfgrass culture. Thus, it required a concerted research effort to address this problem. The USGA Green Section led the way in supporting research at Texas A&M University to develop the concept which has come to be known as the USGA Green Section Method of putting green construction. It is the main method of putting green construction being practiced on golf courses today and has been a major advance in the science of turfgrass culture.

Growth Investigations

Through the 1950's much of the research effort was devoted to improvements in equipment, pesticides, fertilizers, and related cultural practices as they affect turf quality. By the mid-1960's more research was being placed on the growth and development responses of the grass plant itself. The effects of cultural and environmental factors on root growth responses were of special concern. In the past, root responses tended to be overlooked since the emphasis was on improving the quality of the above ground playing surface. However, the trend to less availability of water and nutrients necessitated the development of cultural techniques and modification of the environment to enhance rooting in order to achieve maximum efficiency of water and nutrient absorption. The first turfgrass rhizotron was constructed at Texas A&M University in 1976 to investigate the growth and development of root systems in a continuous, undisturbed state. Above ground shoot growth responses have not been ignored during this period in turfgrass research. Continuing investigations have involved various approaches for using plant growth hormones and regulators to manipulate both the rate of shoot growth and the growth habit of the grass plant. There is much progress yet to be made in this phase of turfgrass research which can contribute significantly to reduced turfgrass maintenance costs.

Turfgrass Stress Physiology Research

The 1970's marked the emergence of a major research effort in turfgrass stress physiology. Turfgrass culture involves the manipulation of the atmospheric and soil environment to ensure the most favorable conditions under which to produce quality playing conditions. For the first time we have developed sufficient funding and qualified turfgrass researchers capable of using the more sophisticated research techniques to characterize the turfgrass environment and the allied responses of turfgrass to environmental stress. This includes both the effects and mechanisms of stress injury as well as the cultural practices and plant mechanisms that produce maximum plant hardiness to survive specific environmental stresses. These stresses include heat, cold, drought, shade, wear, and atmospheric pollution aspects. During this period we have started to look inside the plant to see how it responds to stress environments. This involves the use of sophisticated laboratory instrumentation. It ranges from monitoring of CO_2 and oxygen levels as related to respiration and photosynthesis of grasses to detailed biochemical assessments of various plant components such as carbohydrates, proteins, amino acids, and enzymes as they are affected by various environmental stresses. An objective of this research is the identification of physiological and biochemical markers that can be used in a breeding program to greatly speed the screening process to identify selections that possess superior stress hardiness. Also utilized are costly, sophisticated environmental stress simulation chambers where most of the factors are held constant and one dimension of the environment is varied to assess how that specific environmental perimeter affects grass growth.

Typical of this type of research is the wear tolerance investigations at Michigan State University and Texas A&M University. Both field and laboratory dimensions are involved. First, a wear stress simulator was developed and tested which can simulate both foot and vehicular traffic. Then the commonly used turfgrass species were characterized in terms of relative wear tolerance, followed by the assessment of various cultural practices such as cutting height, nitrogen/potassium fertility, and root zone mixes as they affect wear tolerance. Paralleling this has been a laboratory dimension in which detailed biochemical analyses and histological studies have identified lignin and the scarified tissue component of stems as being the major factors contributing to enhanced wear tolerance. This information is being used to characterize a range of turfgrass cultivars within a species for comparative wear tolerance. Hopefully this will lead to a major plant marker that can be used in breeding programs to select for wear tolerant cultivars.

Future Research

What can we anticipate from research in the 1980's and '90's? Projecting into the future is a risky occupation. However, researchers must be thinking ahead 10 and 20 years in terms of selecting problems which will be most critical. Among the future challenges to turfgrass research, I rank water, both availability and quality, as the major problem facing the turfgrass industry in the upcoming decades. It is a much more significant factor than energy. I have confidence that our energy researchers will develop a combination of alternate energy sources. However, adequate water supplies may not be available for turfgrass use. Only 1% of the total world water supply is available to man. By the year 2000, in just two decades, the demand for water will increase by 34%. It is probable that this increased demand will necessitate the establishment of priorities in water allocation for various uses. The amount of water available for turf use on golf courses will be of very low priority. This allocation of water resources could even apply to golf courses possessing wells within their own property. Thus, it is imperative that

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research develop turfgrass cultivars and cultural practices with a drastically reduced water requirement. It is also important to develop grasses that have the ability to grow under higher saline conditions, since the use of effluent water containing a higher salt content will be increasing in the upcoming decade. Another area of research emphasis will be the development of minimal maintenance turfgrasses and cultural systems which will have a lower requirement for our energy and nutrient resources. This dictates a relatively slow shoot growth rate and increased efficiency of fertilizer use. A third area of emphasis will be the development and application of an integrated pest management concept. This is a very complex, but important area.

In summary, researchers have a great responsibility to develop new cultivars and cultural practices that will possess a slow vertical shoot growth rate, low water use rate, minimum nutrient requirement, drought hardiness, wear tolerance, disease and insect resistance, and green color retention at low fertility levels. The results of this research will be critically needed by the turfgrass industry during the 1990's and beyond. Most of the easy turfgrass research has been accomplished. The problems facing researchers require more sophisticated and costly facilities and research personnel. Thus, each and every professional turf manager should do his or her part to both articulate and work for the support of the turfgrass research programs around the country. The turfgrass researchers have a major challenge facing them. Be assured that we will be doing our best to maximize the research effort to provide answers to these problems. We appreciate the efforts you have made in helping achieve the research accomplishments of the past and look forward to joining with you in a continued and increasing effort to provide the research funds needed to solve the problems facing the industry in the decades ahead.

Credit: Greenmaster

Meet Our New 1985 GCSAA Board

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WHY DO SUPERINTENDENTS BELONG TO GCSAA?

They are proud of their profession and want to improve it.

They recognize that a strong organization can better represent the combined interests of the profession through its unified voice.

They are convinced that professional growth can best be achieved through the union of similarly minded colleagues.

They realize that their active participation in the Association can shape the future of their profession.

They have discovered that the Association's activities, programs and publications can keep them abreast of the latest technological information.

They believe that a strong Association can strengthen their regional and local turf organizations and programs.

They understand that their personal participation can assist other superintendents and the turfgrass industry.

They know that the resources of a vast organization can only act to increase their professional stature, knowledge and abilities.

They appreciate the opportunities they will have to attend national and regional educational assemblies, developed to meet their specific needs.

Overseeding Bentgrass Greens, Is It Worth It?

by Brian M. Silva
Cornish & Silva, Inc.
Golf Course Architects

"I tried that a couple of years ago and didn't see any results".

All too often, that's the response to the suggestion for annual overseeding of putting greens. However, a closer look at the potential for improvement inherent in this practice as a regular component of ones' maintenance program could beg a different response to this suggestion.

There are a number of characteristics considered important on putting greens. Color, putting speed, resiliency, recuperative potential, smoothness and the like are among these. A good case, though, could be made for saying that these characteristics pale in comparison to uniformity and consistency.

Whether greens are fast or slow, it's important to achieve and maintain uniformity and consistency from green to green throughout a course. While some might argue that the golfer should be able to determine the speed of each and every green for himself and that making surface texture and speed of greens consistent and uniform diminishes the challenge confronting the golfer, even the most skilled of eyes find it difficult to determine differences from green to green merely through visual inspection. And as we all observe, the Rules of Golf, killjoys that they are, prevent the player from testing the speed of each and every green.

Once the golfer determines green speed and adjusts his stroke accordingly, he should be able to expect uniform and consistent conditions, relatively speaking, from green to green. Even with such uniformity and consistency, the golf architect, in developing surface contour variety from green to green, will help keep the game sufficiently challenging on the putting surfaces.

That it is difficult to gain this desired degree of uniformity and consistency on greens that are a patchwork quilt of different bentgrasses and annual bluegrass is obvious. This lack of uniformity poses problems for the superintendent as well as the golfer. The various species and varieties can respond quite differently to basic maintenance practices including fertilization, topdressing, vertical mowing, and pesticide applications. Variable responses to environmental conditions, most notably temperature extremes, are also obvious. The annual overseeding program would encourage the development of a greater uniformity of species and variety predominating the putting surfaces and permit the golfer and superintendent to better predict the results of their respective efforts.

Additionally, we often ask the impossible of greens originally planted to bentgrass. In many instances these greens receive no additional desirable seed following initial establishment. This is so in spite of the fact that Annual bluegrass is consistently producing vast quantities of new seed on a yearly basis. Need we be reminded just how much seed? Research has shown that a single Annual bluegrass plant can produce over 400 seeds during the flush of inflorescence in the late spring and early summer.

Expecting the desirable bentgrasses to compete with Annual bluegrass solely on a vegetative basis is clearly a case of expecting far too much. A vigorous bentgrass overseeding program would play an integral role in a maintenance scheme designed to favor the growth and development of creeping bentgrass at the expense of Annual bluegrass encroachment.

Many appreciate these points and the advantages associated with regular overseeding. However, they are nonetheless hesitant to introduce another variety of grass into their putting greens. This is especially true on greens originally planted to velvet bentgrass. A close examination of such greens find they often contain as much creeping bentgrass and Annual bluegrass as they do velvet bent. The situation is similar on greens propogated to South German bent or a combination of vegetative bents such as Arlington and Cohansey. Many of these greens suffer a painful degree of separation and take on the patchwork quilt appearance mentioned earlier.

An overseeding program would develop a greater degree of uniformity and this improved uniformity would flatter the efforts of both the golfer and the superintendent. More consistent and predictable results could be gained by both.

By now, you're doubtlessly ready to cast aside this issue of *The Collaborator*, call to order your seed and jump on the bandwagon proudly waving your banner for annual overseeding. Right? Well, even if this supposition is not entirely correct, let's look into the practice of overseeding a bit further.

One of the keys to the success of any overseeding operation is good seed-to-soil contact. The development of proper seed-to-soil contact on a new golf course or a project entailing complete renovation is relatively easy. However, when overseeding is carried out on an area of actively growing turf, proper soil-to-seed contact is more difficult to attain.

There are a number of methods by which an appropriate degree of seed-to-soil contact can be achieved on actively growing turf. Remember, the less the surface is disturbed, the less the chance for success of your overseeding due to poor soil-to-seed contact. Any combination of the following would serve to maximize the essential seed-to-soil contact.

One technique involves the use of small, power-driven slicer seeder that places the seed just below the surface of the green. Special thin coulters are available that barely disturb the putting surface. With any of the overseeding techniques, minimal thatch levels that permit the seed to germinate in the soil rather than in the thatch will greatly favor seedling survival.

Soil cultivation in the form of aerification is another frequently used practice to gain soil-to-seed contact. Soil cores should be removed prior to seeding and a topdressing follows the application of seed. The topdressing should then be slowly dragged or matted into the open aerification holes.

A combination of soil cultivation practices can truly maximize the chances of germination and survival. A moderately deep vertical mowing carried out immediately after the removal of aerification cores will greatly increase the amount of soil open for contact with seed. The vertical mowing should be carried out to a depth sufficient to bring a small amount of previously applied topdressing or soil to the surface of the green. After removal of the thatch debris brought to the surface, seeding takes place on a green where aerification holes and vertical mowing grooves offer an infinite number of sites for seed-to-soil contact.

Spiking or slicing greens with mechanical disk spikes can also be used during seedbed preparation prior to overseeding, three of four passes over the putting green — more if possible — will be required prior to seeding taking place.

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(Overseeding cont'd.)

Many are the tons of seed that have never been given a fighting chance during overseeding due to improper seedbed preparation. Actively growing turf certainly permits less than optimum conditions for the germination and growth and development of seedlings. Merely going through the motions of seedbed preparation with the thought of minimizing golfer disturbance will serve no purpose. An intensive soil cultivation program, combining aerification, vertical mowing and spiking will result in more open soil and reduce the level of competition imposed by existing turf. The topdressing that follows seeding will permit you to develop acceptable putting conditions. Once seeding has taken place, irrigation schedules have to be adjusted in order to keep the seed consistently moist but not overwet. For two to three weeks following overseeding, repeated light syringing throughout the day will stimulate germination and assure seedling survival.

As to the seed itself, one of the improved creeping bentgrass varieties such as Penncross or Penneagle represents a good choice. These grasses exhibit an aggressive growth rate that permits them to germinate and develop under the less than ideal seedbed conditions associated with overseeding. Once established, this aggressive nature further allows these grasses an increased ability to compete against the ever-present Annual bluegrass.

In the past, much has been made of the tendency for such aggressively growing grasses to thatch and become puffy under putting green conditions. However, experience has shown this to be more an indictment related to improper cultural practices rather than an inherent problem of the respective grasses. Contemporary cultural practices on greens, including light and frequent topdressing, light vertical mowing and judicious use of nitrogen will keep thatch levels in check while maintaining the aggressive growth habit so desirable for recuperative potential and competitive ability against annual weed encroachment.

Under such conditions, it is obvious that seedling mortality will be high. While the chances of overseeding success increase with the intensity of the seedbed preparation, relatively high seeding rates should be used. Minimum seeding rates of two pounds per 1000 sq. ft. are suggested and this can be divided into two applications per season. On a golf course with average size greens, this seeding rate requires an expenditure for seed in excess of $1000. Just for a minute, though, consider the expense involved in maintaining greens comprised mainly of Annual bluegrass through summer stress periods. Certainly the additional syringing and fungicide treatment costs add up quickly. Better yet, imagine the cost in dollars and golfer inconvenience associated with a set of greens that come through a winter in poor shape after Annual bluegrass has exhibited its all too infamous susceptability to a variety of winter injuries.

The timing of overseeding is critically important. While spring and fall are the times often considered the best for seeding, they are definitely not the best times for overseeding existing turf. Cool soil temperatures in the spring and fall, coupled with extreme competition on the part of existing grasses, render these periods wholly inappropriate for overseeding. Carried out in the summertime, however, prior to the prime germination period of Annual bluegrass, overseeding will give the bentgrass seedlings an increased level of competitive ability. Soil temperatures at this time will permit excellent germination, while proper irrigation and fungicide treatments will improve seedling survival.

It is somewhat difficult to argue convincingly against a well founded overseeding program. Conditions of surface uniformity and consistency on greens can be improved. Greater competition on the part of desirable grasses can be gained against the encroachment of Annual bluegrass. Obviously, such results will not be realized by a one-shot effort, or by half-hearted annual efforts.

To be effective, a sound overseeding program must be carried out on a continuing and annual basis. The frequently asked question is, "For how many years should I continue the overseeding program?" I would suggest an overseeding program be initiated and continued for as long as the Annual bluegrass component of your putting greens continues to seed profusely each and every season. In other words, the time limit on overseeding should be open ended. Expecting the bentgrasses to compete merely on a vegetative basis against a plant that is such an accomplished seed producer is expecting far too much.

The results to be gained from overseeding will not be immediate. Three to four years may be required before you even see a hint of progress. The vigor with which you go after the program will greatly influence its success. Just think for a minute about how much Annual bluegrass seed is collected in the soil of a green 10, 20, 30, or more years old. Even at 8,000,000 seeds per pound, it will take a tremendous amount of creeping bentgrass seed merely to affect an equilibrium with the Annual bluegrass in the soil.

This shouldn't dissuade you. Without annual overseeding, your present putting surfaces will, at the very best, remain static. The desirable grasses will be competing merely on a vegetative basis and experience has generally shown this to be a losing proposition.

In many cases, the initiation of an annual overseeding program will seek to affect a distorted equilibrium that has developed over the years and favors annual bluegrass encroachment. It will take time to shift this equilibrium, but a shift will result from a dedicated and vigorous annual overseeding program.

Credit: Our Collaborator, N.Y.

Think

If you think you are beaten, you are,
If you think you dare not, you don't.
If you like to win — but you think you can't,
It's almost certain you won't.

If you think you'll lose, you've lost,
For out of this world we find
Success begins with a fellow's will,
It's all in the state of mind.

If you think you're out-classed, you are.
You've got to think high to rise.
You've gotta be sure of yourself,
Before you can win the prize.

Life's battles don't always go
To the stronger or fastest man,
But sooner or later the man who wins,
Is the man who thinks he can.

1985 membership booklets have been mailed under separate cover by "Special 4th Class Book Rate". If perchance you have not received your booklet before this meeting, please tell us as we will have extra books available. If you do not come to the meeting and would like a book, then please get in contact with Tom Reed.

We would be remiss if we did not remind all of you, that this booklet was made possivble only, by the people that have advertised in it. Withour their cooperation and support, there would be no membership booklet. We suggest therefore, that when you are contemplating your purchases during 1985, that you will keep the advertisers uppermost in your mind, in appreciation for their gracious cooperation

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In the April issue of G.M. magazine, Dr. Eldon R. Everhart, Horticulture Specialist from Iowa Lakes, makes the statement that "Topping Trees Shortens Tree Life". The closer a tree is to maturity, the less tolerant it is to severe pruning. This is a good thing to keep in mind when moving trees or replacing others.

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There are a few that have not paid their 1985 dues. If you are one of these, your fellow directors would appreciate your so doing because it places a burden on them or someone to remind you. If there is any question whether you have paid or not, the answer is that you should have in your possession a 1985 membership card so stating. There could be exceptions however at this writing everyone that has paid should also have received the new card. Please do not make us remind you, instead make out your check and either give or mail to our Treasurer Tom Reed.

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We would also like feedback on the new membership booklet publication and welcome any suggestions as to how we could improve it. If you would like to write an article to be included in our news letter, we would be most happy for the input. We are open to all suggestions and everyone will be given deep consideration. Remember this is your Association and we want to improve it, year after year.

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Certification Attestor Requirement

A new requirement for eligibility for Certification became effective after the Washington, D.C., Conference and Show. GCSAA Class A members who qualify for Certification must now have two attestors visit their golf courses *during the growing season* to complete a personal interview and tour of the golf course. At the completion of the tour and interview, the attestor completes an Attestor Visitation Report which is then returned to the GCSAA Education Department.

Each applicant must have two attestors visit his or her golf course, and both attestors must give their recommendations before the applicant may sit for the Certification examination. Each attestor must be a current CGCS, except under unusual circumstances. These exceptions must be approved by the Certification Committee Chairperson. New Certification applications available through the Education Department reflect this policy. This new policy's implementation was scheduled as part of the Certification Long Range Plan.

For more information, call Shari Nieder at 1-800-GSA-SUPT.

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MAIL THAT POSTCARD TODAY AND REMEMBER TO BRING ALONG A PROSPECTIVE MEMBER----------

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A necking party is an affair that invariably lasts until somebody gives in, gives up, or gives out.

The distance between some people's ears is one block.

First voter: "I don't know who to vote for. I don't know any of the candidates." Second voter: "I'm more puzzled. you. I know them all."