NOER CENTER NEWS

O.J. NOER CENTER for TURFGRASS RESEARCH Honor Roll

NOER Benefactors
Wisconsin Turfgrass Association
Wisconsin State Golf Association
Wisconsin Golf Course Superintendents Association
Wisconsin Golf Course Association
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Ransomes, Inc.
Kohler Company

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Wisconsin Sod Producers Association
Westmoor Country Club
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Tuckaway Country Club
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Twin River Turf
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James and Lois Latham (in memory of J. Cannestra)
Rodney Johnson
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Fermenta Plant Protection Company
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Drugan's Castle Mound Golf Course
Dole Fresh Fruit Company
Ed Devinger
Devil's Head Lodge
Brynwood Country Club
Margaret L. Bell
Mr. & Mrs. Robert Belfield (in memory of J. Cannestra)
Bay Ridge Golf Course

Tuckaway, Johnson Are Newest WGCSA Donors

Tuckaway Country Club, perennial host of the Greater Milwaukee Open, is the latest golf club to join the NOER CENTER honor roll. The club gave at the "Eagles" level.

WGCSA president Rodney Johnson joins many other WGCSA members and his own club (Pine Hills) as an honor roll member. He is listed under "Friends".

Dean's Club Luncheon to Feature NOER CENTER Project!

Each year the University of Wisconsin Foundation and the College of Agricultural and Life Sciences host a Dean's Club Luncheon. The Dean's Club recognizes individuals, corporations and organizations who provide exceptional annual support to the College.

This year's luncheon features the turfgrass industry and the ambitious O.J. NOER CENTER for TURFGRASS RESEARCH. The luncheon will be held on May 3, 1990 at Blackhawk Country Club in Madison. The reception is at 11:30 a.m. Lunch is at 12:15 p.m. and will be followed by a program at 1:00 p.m.

Among those on the program will be Dr. Gayle Worf and Dr. Leo Walsh.

If you are a NOER CENTER donor and haven't yet received your invitation to this event, please contact Marcy L. Schultz at the UW Foundation: 608-263-4545.

Individual Sod Producers Add to NOER Coffers

Two Wisconsin sod producers — Jasperson Sod Farm and Lurvey Farms — have added their financial support to the O.J. NOER CENTER for TURFGRASS RESEARCH. Two of their colleagues — Jim Huggett and Dave Payne — have been especially generous with their support of the NOER project. These Wisconsin producers are "Birdie" level donors.

THE TEN CARDINAL SINS OF GREENS CONSTRUCTION

By David W. Gourlay

Editor's Note: This article first appeared in the July/August issue of THE GREENMASTER, official publication of the Canadian Golf Superintendents Association. It is reprinted here with permission from Ms. Denise Cochrane of the CGSA headquarters office. Denise spoke with Mr. Gourlay prior to authorizing our use. Thanks to both of them.

It would appear obvious that we should rename this feature FROM ACROSS NORTH AMERICA!

There is a Wisconsin connection here. Mr. Gourlay's father, David S. Gourlay Sr., received the GCSAA Distinguished Service Award in Phoenix at the same time our own Dr. James R. Love did. It is a small world.

1. Using a rootzone medium with poor physical properties. It is highly unrealistic to expect the turfgrass to perform to its potential if one or more of the physical properties is limited. Laboratories test the infiltration rate, moisture retention rate, pore space distribution and bulk density value to insure they meet your specific requirements. Turfgrass grown under ideal physical conditions will recover from stress at a higher rate than turfgrass grown under less than ideal conditions.

2. Using a rootzone medium without correcting any chemical deficiencies. When looking at the chemical make-up of your rootzone medium, remember the word balance. In other words, avoid planting the turfgrass without correcting any chemical imbalances. It is always harder to correct any deficiencies after the turf is established. Avoid using calcareous sands if possible. These sands are usually extremely high in calcium which raises the pH of the rootzone to an unacceptable level. Also, in areas of acid rainfall, the calcerous sands will break down, and a deterioration of the physical properties will occur.

3. Using sphagnum peat moss. Sphagnum peat moss is hydrophobic, relatively undecomposed, and has only a very limited amount of microbial activity in it. Being hydrophobic, it is extremely difficult to blend into the medium. Once blended, it has been shown to plug up the non capillary pore spaces (air space) due to its fibery nature.

4. Not including the apron in the green's construction. Always include the apron in the construction of the green. A 90 degree edge should be included to insure adequate moisture retention in the apron, as a wicking action from the heavier soil around the perimeter will dry out the apron. This will help to avoid hand watering in the hot summer months.

5. Using improper drainage stone. Use only 3/8" - 1/4" of clean, clear pea stone in the drainage system. The purpose of the pea stone is to insure water drainage away from the rootzone medium, and to create a perched water table. Without the pea stone, the dry subsoil will draw water out of the rootzone medium which will lower the water retention of the mix.

6. Using a roto-tiller. Never use a roto-tiller to on-site mix your amendments for rootzone medium. A uniform medium can never be produced by this method. This procedure also produces a double-perched water table in your green's profile. The top roto-tilled medium has to become saturated before any water enters below into the untreated medium. This creates a more complex management program.

7. Sodding a new green. Never sod a new green unless the sod is grown on **exactly the same rootzone medium** as the green. Sodding using a different growing medium will also produce a double perched water table.

Seeded greens can be put into a higher level of playability faster than sodded greens, at a considerably lower cost. Believe it or not!

8. Using uncertified, or inappropriate seed. Always use the highest quality seed available. Also use the variety of seed that best performs in your particular region. The reasons are all too clear.

9. Poorly designed greens. Two main problems in the design of greens are: making them too small to withstand the expected traffic, and secondly, putting too much slope on the green.

The most popular size of green is between 5,000 square feet and 7,500 square feet. Seldom are smaller greens able to achieve the same degree of success in turf quality as larger ones.

The slope on the pin positions should not exceed two percent. With the high standards in green speed, a slope of more than two percent will not stop a rolling ball.

10. Treating a new green like an old green. New greens generally require more fertilizer than older established greens. Be aware that the added fertilizer and water can lead to added disease. Caution must be used to maintain a proper balance in turf management. As the turfgrass becomes established and a healthy micro-organism population is achieved, the turf management on these greens becomes easier.

Why Build A USGA Specification Putting Green?

By Mike Handrich
Racine Country Club

Editor's Note: Confronted with the prospect (and challenge) of building a new green, Racine Country Club's golf course superintendent Mike Handrich knew USGA putting green construction specifications needed to be used. His task was to explain that conviction to club officials.

This well-written piece presented to them by Mike permitted wise decision-making by the club. It's worth sharing.

As in anything, there are many different methods of constructing putting greens. Of these, the USGA method is accepted as the most successful. It has been refined and tested for a number of years and, if all the proper steps are followed in sequence, the result will be a correctly built green that should last for many years.

Every year, golf courses all over the world spend millions of dollars on putting green construction and/or reconstruction. Alarmingly, many of these new greens fail within the first few years of existence for a variety of reasons.

Due to limited budgets, knowledge, and equipment, early golf greens were a far cry from the finely manicured putting surfaces we expect today. Almost all putting greens built before 1960 used native soils found within a few yards of the construction site. Many times, these soils were poor structurally or texturally. Subsoils were frequently used for the root zone mix, and surface drainage systems were rare.

The most frequent end result was a green where optimum turfgrass growth was unobtainable even under ideal conditions. When subjected to water and heat stress the greens would become weak and extremely susceptible to disease. Add compaction and large numbers of golfers and frequently these native soil greens turned into quagmires or hardpans.

In 1960, after much research and testing, the USGA published an article titled "Specifications for a Method of Putting Green Construction." These specifications were radical changes from the accepted norms for root zone mix which at the time called for equal parts of sand, soil, and organic materials. The theoretical basis for the USGA green construction method is to provide a compaction resistant growth medium that could drain down quickly to an optimum soil moisture level. The most basic principal learned in soil science is that sands compact less than soils and that coarse sand holds less water against gravity than do fine sands.

The USGA specifications call for individual layers composed of sand, soil, and organic matter. They are mixed in scientifically determined ratios to insure desirable physical soil characteristics. They also are based on scientific data relating to water movement in soils, the physical properties of soils, and causes of compaction and poor internal drainage. The key to this type of green is a "perched water table" caused by the installation of texturally different layers.

In order for you to understand how and why the USGA putting green works you must first understand the principle of a perched water table. Soil physics tells us that water will not move from a small hole or pore into a large pore unless there is enough free water to break the force of capillarity. Capillarity is defined as the attraction or repulsion between surfaces of a liquid. The best example I can think of to explain this phenomenon is with a household sponge. A sponge can absorb free water until it becomes saturated. Then for each additional drop of water added to the top of the sponge, a free drop of water will run out the bottom.

If you look at the edge of a thick sponge you will see more water in the lower portion than in the top due to gravity. This is known as the "perched water table effect" saturated conditions at the bottom of the soil profile and near optimum growing conditions at the top.

The top layer of a USGA green is like a 12-inch thick sponge. When the green is saturated by rain, the water is allowed to drain down from the putting surface to an acceptable soil moisture level. Immediately below the top layer in the USGA green is a two- to four-inch layer of sand coarser in texture. This is like another thinner sponge but with bigger holes. Under that, you place a four-inch layer of gravel, and essentially what you would have is a USGA green.

If you saturated this system and allowed it to drain down, you would find that the surface of the top layer is at an optimum soil moisture level to grow turf. Water is being conserved and available to the plant from the perched water table with the layers of fine pores overlying the large pores.

A USGA green must be precisely engineered and allows for little or no construction error. It requires additional construction steps and more hand labor than other less sophisticated methods. The sand, soil, and organic matter composition of the individual layers must be laboratory checked and rechecked to insure accuracy. Corners cannot be cut.

Generally, in the Midwest, the cost of a contractor installed USGA construction method green is $4 per square foot. This is about 20 percent higher than for less sophisticated methods. With proper planning, excessive construction costs are completely unnecessary. A properly built green is always the least expensive in the long run. Only greens that are poorly built are expensive.

I believe that the golfing green is the most delicate playing surface in all of sports today. To compromise on the construction of any green at your club would not be in the best interests of your membership. Rather build a USGA specification green that you and your members and guests alike will enjoy for years to come.