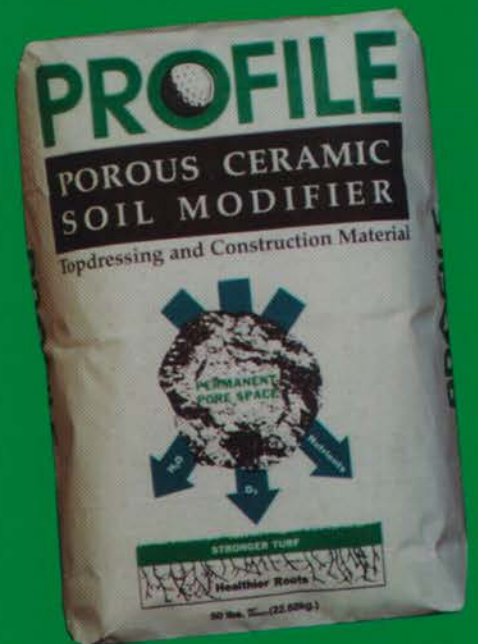


What Holds Water Like A Peat But Drains Like A Sand?

PROFILE Porous Ceramics is having a significant impact on the way golf courses are constructed and managed. For thirty years organics have been the only material available to improve the water and nutrient holding capacity of sand topdressing and construction mixes. However, organics accomplish this at the expense of internal drainage.

PROFILE is not an organic. It is stable porous ceramic aggregate the size of sand that contains thousands of internal and external pore spaces. These pore spaces hold water and oxygen in a 50/50 balance to help create ideal soil balances while maintaining high percolation rates. Golf Course Superintendents, research and field studies have consistently proven that **PROFILE** prevents and eliminates localized dry spot, **PROFILE** improves drainage and **PROFILE** improves nutrient holding capacity.

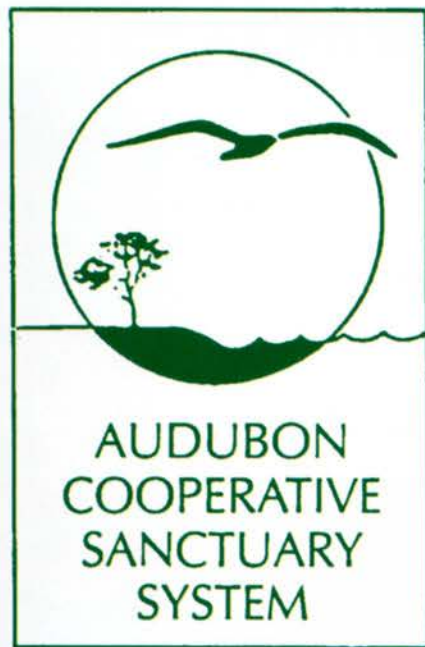
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Water Distribution

Irrigation water is distributed to the golf course by a Flowtronex PSI VFD pumping station. This pump station has a delivery capacity of approximately 1800 gpm through the use of three 75 HP Newman motors.

With the assistance of a full-time irrigation technician, we are ensured that the irrigation system is operating as efficiently as possible at all times. Individual sprinkler heads are frequently checked and monitored to ensure proper and even water distribution.

With the aid of the Maxi System, a failure in the irrigation schedule is easily detected and corrected immediately. As one can see, there are many checks and balances to ensure that the system is operating as efficiently as possible.

Mulches

Medalist Golf Club recognizes the importance of mulches and makes it a practice to use these materials whenever and wherever possible. Pine straw is used extensively on and around the golf course. The straw helps to stabilize the native areas surrounding the course by preventing weed seed from germinating, minimizing the blowing of native sand into the playing areas and providing an area surrounding each hole that a golf ball can come to rest in, be found, and be played.

Wood chips have been used at Medalist Golf Club to build maintenance paths in the native areas of the course. Selective under brushing of non-desired plant species, that is then chipped, generates some of the material that we use to build these paths.

All landscaped areas on the golf course and its related amenities, such as the Halfway House and the comfort stations, are mulched. Choice of products used range from pine straw and wood chips to cypress mulch. The clubhouse is currently under construction and the landscape plan indicates that all beds will be mulched.

Water Reduction

Medalist Golf Club realizes that the supply of water in the world is finite. Water is neither created nor destroyed. We recognize that water is a commodity and we attempt to conserve it in every way possible.

From our elaborate collection system for storm water and irrigation water to our use of effluent water as our primary irrigation source, we are demonstrating to others our commitment to environmental excellence. Judicious water use is something everyone should practice and at Medalist Golf Club, we have made it a habit to use water wisely.

Water Quality Management

Water Quality Management Practices have been in place at Medalist Golf Club since construction began on the golf course in 1994. The Club's

Master Plan was designed to effectively integrate the course in a manner which enhances play, but all the while protecting the value of the surrounding wetlands and upland preserve areas.

The Martin County Growth Management Department consulted with Medalist Golf Club during construction to ensure environmental impacts in relation to the golf course design were kept to a minimum.

The wetland and upland preserves were incorporated into the golf course design in such a natural manner that minimal needs now exist for trimming or removal of vegetation from these areas.

The under brushing that is done is monitored on a full time basis by a qualified environmental professional. Any exotic vegetation (e.g. Brazilian pepper, malaleuca) that is found on site must be removed. This must be accomplished without the use of heavy equipment and any areas left void of vegetation due to the removal of exotics must be revegetated with appropriate native vegetation.

To further protect the wetland features on the golf course, all golf cart crossings are elevated boardwalks. Field inspections during construction by Martin County staff ensured the crossings were located in the least damaging areas.

These elevated cart crossings allow for wildlife corridors within the wetlands to remain open. Protecting our wetland areas is important to Medalist Golf Club, for we understand the significant role these wetlands play in supporting the various wading birds, birds of prey and small mammals that are present here and normally associated with these types of areas.

In conjunction with the Club's Site Development Plan, it is our commitment to see that all wetland and preserve areas are maintained and improved upon to reach a high utilization level in these areas by various types of wildlife common to our area.

Other Water Quality Management Practices include:

Water Quality Monitoring and Baseline Data

A Water Quality Monitoring Program is conducted on a quarterly basis by McGinnes & Associates Consulting Laboratories, Inc., at six different locations throughout Medalist Golf Club property. These surface water samples are collected by the "bucket grab" method and then iced for delivery to the laboratory.

Analyses include pH, dissolved oxygen, alkalinity, total nitrogen, total phosphate, orthophosphate, and conductance. This program was initiated in June of 1995 and will continue for a minimum of three years. Additional sampling locations are available and will only be used in the event that unusual or unexpected

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Get the team that stands strong against summer stress complex—Terra® Aliette® T&O and Terra® Thalonil™. This partnership provides the one-two punch you need to protect turf inside and out. It starts with the systemic action of Aliette T&O. Since it's translocated throughout the plant, turf gets top to bottom protection against Pythium blight and root rot. On the outside, Thalonil sticks to the job of keeping turf safe from brown patch, dollar spot, leaf spot, snow mold, algae scum and many

other diseases. And, since there is multiple site activity, there is minimal risk of resistance. Together, Terra Aliette T&O and Terra Thalonil put control of summer stress complex in the bag. It's the pair that'll fit your turf disease program to a tee.



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results were to appear from the original six locations.

Four groundwater monitoring wells are also being sampled within the requirements of Medalist Golf Club DEP Land Application Permit. A few of the parameters that are being measured at these well sites include: nitrates, chlorides, pH, total phosphorous, total dissolved solids and total nitrogen.

In accordance with a mutual consent agreement between Medalist Golf Club and South Florida Water Management District, time zero and baseline monitoring reports are soon to be prepared. These reports will establish parameters that must be maintained within our Wetlands Mitigation Program. This reporting will continue on an annual basis for a period of five years. Tom Lucido and Associates, Inc. will be preparing these reports for Medalist Golf Club.

Wetlands

All wetlands within the property of Medalist Golf Club are protected and appear to be in a very viable and productive state. The Time Zero and Baseline Monitoring Reports being prepared by Lucido and Associates, Inc. will provide the club with valuable information that can be used to ensure these wetland areas remain pristine and productive.

Under the guidance of David Coogan,

the Club's environmental technician, and with the assistance of Environmental Waterways, our lake management consultant, the wetland areas are frequently monitored to ensure that exotic vegetation is removed upon its discovery. Also, other nuisance species such as torpedo grass, spike rush and duck weed are kept to a minimum, either by manual removal or spot chemical treatment.

Buffers and "No Spray" Zones

Medalist Golf Club has implemented a program, with the assistance and guidance of David Coogan, to plant vegetative buffers within the man-made water features on the golf course. These plants as they mature will filter excessive nutrients from our water bodies.

The surface water sampling program will assist us in monitoring nutrient levels, and hopefully these aquatic plants will help to ensure these levels are kept in check. It should be noted once again, that no runoff from the golf course is allowed to enter our water bodies.

All runoff from storm water and irrigation water is captured on the course and transferred back to the irrigation lake. This elaborate drainage system will aid in keeping our water bodies in a healthy state.

Our IPM (Integrated Pest Management) technician has been instructed not to spray directly into or near the water bodies on the golf course when applying turf products. This procedure will minimize potential contamination of our water features.

Also, our lake management applicator is instructed to check in with the Golf Maintenance Department prior to applying any products. This open communication line is important, as this procedure ensures us that only areas within our water bodies that need to be treated are being treated.

Drainage

As previously mentioned, all storm water and irrigation water that is received on the golf course is captured and then returned to our irrigation lake. This lake is lined with a 40 mil polyplastic

liner. Effluent water is also received and stored in this holding area. The resulting mix of water becomes what we use to irrigate the golf course.

No filtering mechanisms are currently being used within our irrigation lake. However, opportunities to improve the quality of the irrigation water are being explored. Random sampling of the water is done to ensure nothing harmful is being applied to the golf course.

Such tests include pH, total dissolved solids, chlorine levels and dissolved oxygen. Should any of these levels become a concern, corrective measures will be taken.

Chemical Additives

Other than occasional spot treatments for unwanted vegetation within our water bodies, no chemical additives are currently being used at Medalist Golf Club. These spot treatments are kept to a minimum and used only if manual removal is not economical or is not feasible.

Other Water Quality Management Strategies

Medalist Golf Club has installed an equipment wash down system which is very efficient at removing particulate matter from the water that is used to wash down the maintenance equipment. This system was installed by Chemical Containers, Inc.

All runoff from storm water and irrigation water is captured on the course and transferred back to the irrigation lake. This elaborate drainage system will aid in keeping our water bodies in a healthy state.

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Management Programs at an Audubon Signature course

BY ADAM FELTMAN, AGCS

On December 12, 1994, The Champions Club at Summerfield, located in Stuart, became the first public golf course to be certified as an Audubon Signature Cooperative Sanctuary. The Tom Fazio-designed course is 6800 yards long and a definite challenge from the back tees.

Yet, from the middle and forward tees, it is a fair test for the average golfer. The golf course is routed through 300 acres of "point of no return" marshlands. With over 100 acres of maintained turf, including four acres of greens and 40 acres of fairways, the course has generous layout areas with strategically placed multi-tiered greens. Most of the holes are bordered by wetlands and are maintained so as not to disturb the sensitive wildlife habitat.

Being a public golf facility as well as an Audubon Signature member creates a challenge. Participation in the Signature Program does not end with Signature designation. There is an ongoing effort to upgrade the golf course and to implement new projects and technologies.

Enhancement of Wildlife Habitat

No mechanical devices of any type are used in the wetlands. We hand pull all unwanted plants such as dog fennel, primrose, Brazilian pepper, and melaleuca. They are replaced with natural and native vegetation such as cord grass and flame grass. This not only cleans up the wetlands, but aids in making homes for some of our host animals. This work also adds definition to all holes, and the golfers enjoy seeing just how true and peaceful a wetland can be.

In an effort to attract as many species of birds as possible, we have placed bird houses as far as 75 yards into the marsh. We estimate our present list of observed species at over 100. This includes bald eagle, king fisher, great blue heron, osprey, sandhill crane, quail, red-tailed hawk, great egret, and ibis.

In addition to birds, fox, deer, raccoons, hogs and even a horse or two may be seen on the course. All of the wildlife adds enjoyment and contentment to the golfing experience at Summerfield.

IPM Management

Golfers and wildlife can feel safe and secure knowing that an Integrated Pest Management program is practiced at Summerfield. Some weeds are allowed to grow in order to preserve natural features, especially near wetlands.

Rain days turn into hand-pulling weed days when the course is too wet to mow. This not only reduces the need for herbicides, but dwindles the weed population to eventually make a weed-free golf course.

Insect populations are monitored and scouted and only sprayed when damage is extensive. A short-lived, no-residual chemical such as Orthene is used to prevent leaching into ponds or wetlands.

Using a biological control for nematode hot spots has worked very well. A preemergent herbicide is applied once a year to help control most annual weeds.

Another practice used is the application of Primo growth retardant. Primo is



The golf is routed through 300 acres of "point of no return" wetlands. A wood stork (an endangered species) forages the wetlands.

used on tees, collars and fairways and helps reduce thatch and clippings. Buckets are not used when mowing tees, collars and fairways so that we have nothing to dispose of except clippings from greens. Using Primo allows us to skip mow on hot, wet summer days.

With a small crew of eight, this means a lot. Aeration, scalping of fairways and a good fertility program allow us to have tightly manicured fairways all year long.

Almost 75% to 80% of our fertilizer is slow-release. This is not only good for the environment, but helps us control growth without receiving too much growth at once. It also helps control leaching into wetlands and other areas.

Water Practices and Irrigation

The entire Summerfield development and The Champions Club are on a low energy- and water-usage program.

It's 7 a.m., March 25th at the Pineland Golf Club.

The first tee time is 8 o'clock.

Groundskeeper Sam Perkins is spraying for an infestation of mole crickets next to Lake Isabella, which borders holes 1, 2 and 3.



What do you do?

- a.** Tell Sam he can't spray near Lake Isabella.
- b.** Close holes 1, 2 and 3. Play only 15 holes today.
- c.** Use **DEVOUR**, a biological product containing beneficial nematodes that attack mole crickets and stop their feeding in 10 to 20 days.

The correct answer is "c". **DEVOUR** is the safe, sure way to control mole crickets on your course. A carefully-timed, spring application of **DEVOUR** puts billions of cricket-destroying nematodes to work in the soil. The nematodes seek out and hunt down overwintering adult crickets, killing them before they lay their eggs.

On-course tests against traditional chemicals have proven the effectiveness of **DEVOUR**. In 28 out of 32 trials **DEVOUR** achieved an average of 85% control, even 10 weeks after application.

But as tough as **DEVOUR** is on crickets, it's exempt from EPA and WPS regulations. And there's no offensive chemical odor to deal with. **DEVOUR** can be tank mixed with most fertilizers and pesticides, too. So call your UHS representative now, and ask for **DEVOUR**. It's your answer to effective mole cricket management this spring.

Devour[®]
DEVOUR is a registered trademark of **bioss**, Inc.
Always read and follow label directions.

"We estimate our present list of observed species at over 100. . ." A flock of white ibis at Summerfield is pictured above.



Monitoring of piezometers on our course and the entire project takes a great deal of time. Monitoring wetlands depth and pump management tables is required. Our wetlands have gone up by 3 feet and down to bone dry during the last year.

Our Rain-Bird Maxi 5 irrigation system is a great asset to our course. This system allows us to put out the exact amount of water needed with as little waste as possible.

Irrigation heads are finely tuned to water only areas of turfgrass. Water is not spewed into wetlands or onto cart paths. Various nozzles are installed to lengthen or to shorten water sprays and insure turf quality without harming any natural vegetation.

Using wetting agents over the entire golf course helps conserve and limit the amount of water applied on our project. These wetting agents are applied through a liquid fertigation system so that mechanical spraying and golfer disruptions are not required.



This raccoon family adds enjoyment to the golfing experience at Summerfield.



From Bald Eagle to Quail (above), all wildlife benefits from Summerfield's Integrated Pest Management Program.

Public Awareness and Involvement

Understanding wildlife and how habitat enhancement helps populations increase will help the general public and our golfers to know why we do some of the things we do at Summerfield. We have adopted three local schools into our sanctuary program. Educating children as well as adults about wildlife through tours, educational workshops and enhancement projects can only benefit everyone.

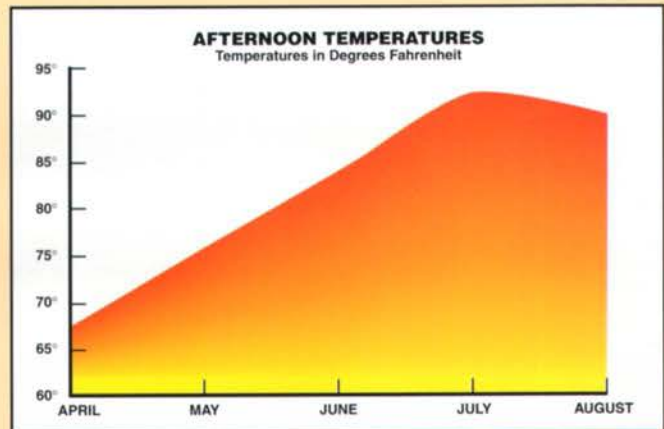
SURVIVING THE SUMMER OF 1995

Nutters Crossing, Salisbury, MD



FEBRUARY 22, 1995

Aerial infrared photography was used to determine the distribution and moisture content on the golf course. Fairways, tees, and surrounds display more uniformity and moisture content than greens.



FEBRUARY THROUGH AUGUST

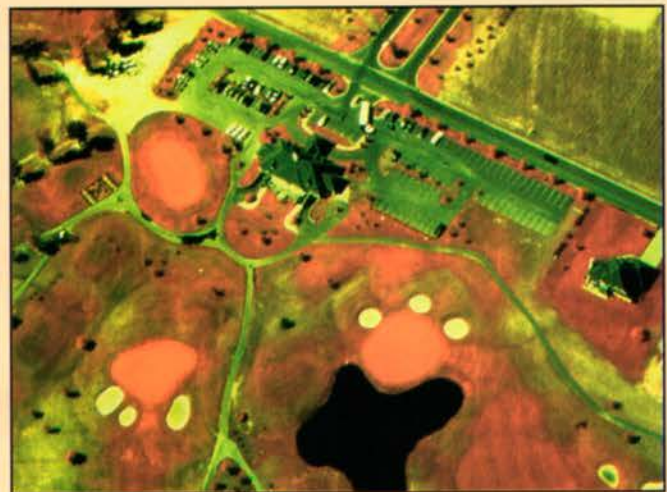
Environmental conditions worsened during the late spring through summer months. Temperatures became very hot and rainfall was more than 12 inches below average, resulting in extreme stress to turfgrass. In many areas of the golf course, turfgrass continued to weaken during this period.

Primer® 604 Performs...

"It wasn't as hard to manage the course this summer as it would've been without Primer. If my greens made it through the summer of '95 with Primer, they can make it through anything."

Chuck Poole

Chuck Poole, Golf Course Superintendent
Nutters Crossing, Salisbury, MD



AUGUST 22, 1995

Primer 604 was applied to greens on a monthly basis at labeled rates, February through August. Fairways, tees, rough, and surrounds show moderate to severe stress. Greens exhibit excellent uniformity and moisture content.



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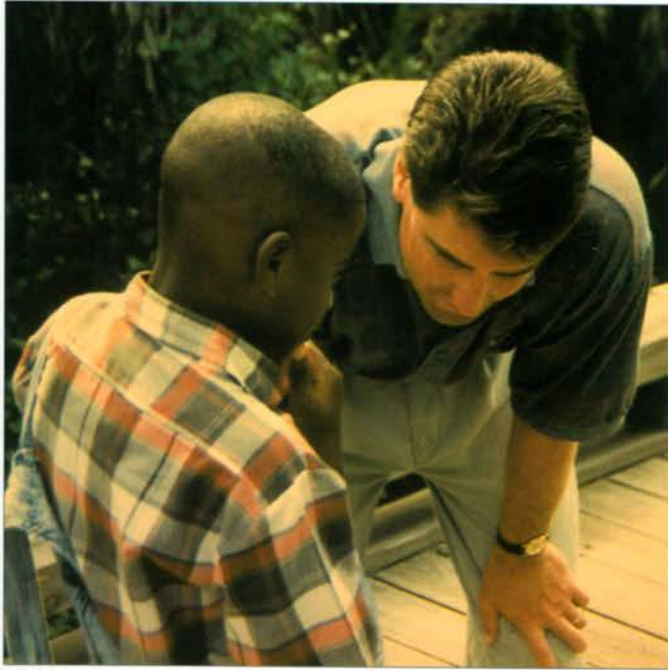
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The philosophy of the classroom in one generation will be the philosophy of the government in the next generation

-Abraham Lincoln

Educating the leaders of tomorrow



"Ask them questions and see what they know, and what they believe. Let them talk and participate." Darren Davis goes one-on-one with a visiting student.



Talk about turgrass and discuss the environmental and economic benefits.

BY DARREN DAVIS

Olde Florida Golf Club

If you think about it, this really holds true in today's world. In just 11 years, many of today's fifth graders will have graduated from college with four-year degrees and could have jobs dictating what we do. The kids we help educate today could be future EPA officials, legislators, or even members of your golf course.

So what role can golf course superintendents play in educating kids about the environment? The most important thing we can do is give them the correct information. So, how do we do this?

Go into the classroom.

Call and volunteer to be a speaker in your child's class or a school close to you. If you are uncomfortable with this, make it easier on yourself by showing slides or a video.

Either can act as your "crutch" or "prompt" to remind you of the things you want to talk about. If you have a camera, buy some slide film. It is very inexpensive to develop. If you already have great photos, they can be made into

slides for approximately \$1.

What slides do you show? Some examples would be:

- A slide depicting the "edge effect." Explain that the edge is abundant with wildlife and that smaller animals are hiding from larger ones and that they feed around the edges.
- Wildlife on the golf course. Tell them what species you have and the efforts you take to protect and enhance their habitat. Encourage them to keep a wildlife inventory at school and at home.
- Show a wetland and tell them about your efforts to enhance water quality.
- Slides of your crew working help tell about golf's effect on the economy. Example, "My club employs 30 people on a year round basis." Also let them know that golf courses in the U.S. contribute \$18 billion a year to the economy.

As for videos, the GCSAA (800-472-7878), the USGA (908-234-2300) and the ACSP (518-767-9051) all have videos on golf and the environment. Borrow

one, or better yet, purchase one and use it by showing it to golf course employees, and member/golfers.

Sign up a school

Sign up a school close to you in the ACSP for Schools. Volunteer to pay their registration fee and to help in any way you can.

Examples of things you can do would be to help them fill out their resource inventory or help with sanctuary projects such as installing nestboxes, nature trails, helping design wildlife gardens, or even providing resources they may need such as plant material or mulch.

Giving school tours

Bring the classroom to you by inviting a class out for a tour of your golf course.

Things to consider:

- What time is convenient for you? Is the golf course closed on a certain day? Is the winter or spring a busy time for you?
- How many kids do you want to invite? Consider their ages, attention span, etc.