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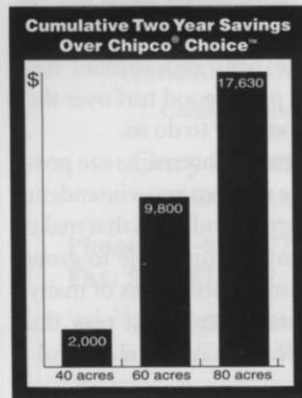
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Soil Amendments: High Tech Dirt!

With the advent of computerized irrigation systems and spray rigs, GPS mapping, infrared photography, electric mowers and new ultra grasses it shouldn't come as a surprise that scientists and innovators have found ways to improve the soil we use to grow turf!

There are a number of products out in the marketplace that have been designed and/or are claimed to create better porosity, percolation, higher CEC rates, and nutrient retention. We won't be able to discuss all of them but I will attempt to list as many as I can. Apologies to anyone I leave off the list. Alphabetically they are: Axis, Ecolite, Greenschoice, Isolite, Profile and PSA.

These and other products have undergone varying degrees of independent university testing. They also differ in their composition and the ways they are manufactured and produced. Because of this variability, you the consumer must use due diligence in researching these products before trying them.

It is pretty easy for a superintendent to evaluate the performance of hands-on equipment. You can see the computer printout, the mow or spray pattern, the clippings cleanup, irrigation run times and all sorts of results visible to the naked eye. When it comes to things that are happening under ground we get as skeptical as the man from Missouri — show me!

Organics, biologicals, microbes, adjuvants, and now soil amendments. Keep in mind there are no silver bullets anywhere in the turf-growing world. Technology keeps pushing the envelope and giving us more options. Some would argue that in the total scheme of things, basic agronomy without a lot of bells and whistles has produced some pretty good turf over the years and will continue to do so.

I think all these advancements can provide ways for the modern superintendent to correct or amend conditions that make it difficult or almost impossible to grow turf to the exacting expectations of many of today's golfers. If you must play the hand you are dealt, maybe soil amend-

ments can be a wild card you can use to stay in the game!

PSA and Push-Up Greens

The greens at Mountain Lake are 80-year-old push-up greens that have been resurfaced several times, but have never had work done to the subsurface profile. Some are in full sun and some are in shade. Some drain very well and some don't.

I decided to give PSA a try to see if I could achieve some consistency.

I have been using PSA for three years. I use it once a year in conjunction with my deep tine aerification. The first year I used it, we aerified the greens and removed the cores. Then we spread the PSA with rotary spreaders and then topdressed on top of the PSA. Then we used a drag brush to work the PSA and topdressing into the aerification holes.

Using rotary spreaders didn't work very well. The material is very fine and dusty. The technicians had to wear spray suits and dust masks to keep from getting it all over them and breathing it in. The second year we used a Terra-Topper topdresser to spread the PSA. This worked better than the rotary spreaders, but it was still difficult to work with.

Finally, last year I had the PSA premixed into the topdressing sand prior to delivery, and that worked very well. The PSA was mixed at a rate of one ton of PSA with 22 tons of sand. This is roughly equal to an 80/20 mix. It spread real easy and the dust

was at an acceptable level.

This year I added a new wrinkle to the process. Instead of dragging with a brush, I tried the air brush from Precision Air Tech. This machine blows 99 percent of the sand off the surface and into the aerification holes. It is a little slow, but it works great. It is not as abrasive to the surface as the drag brush method.

Over the past three years I have observed fewer hot spots each year and better drainage on the wet greens. I also seem to encounter less algae on the shaded greens. I'm sure there are other factors contributing to the improved conditions, but PSA has definitely been and continues to be a useful tool.

STEVE CIARDULLO

Mountain Lake Country Club

Test It Before You Use It!

Two years ago, while at The Forest Golf Club I tried using PSA to solve some localized dry spot problems on our greens. My plan was incorporate the PSA into our aerification program when we topdressed. We aerified, applied the material and brushed it in.

The next day I thought my greens were dead. In looking back, I feel the material was so sharp that it scoured and cut the grass plants in the dragging process. It took several weeks for all of the greens to recover and didn't solve my LDS problem.

If anyone is considering using one of these soil amendment products, I strongly suggest that they test them on a nursery green or practice green first to assess their performance. Since that experience I have learned that there are other products out there with different characteristics. I understand some even have nutrients embedded in them and have done well in grow-in situations.

RICK TATUM

Shadow Wood Country Club

Good Advice

"When I was a young assistant superintendent coming up through the ranks, an old superintendent once told me, 'You just need two things to grow good turf. Common sense and drainage. If you don't have common sense, double up on the drainage.'"

Sam Strimmel

National Sales Manager
Profile Products LLC

New Technology Gets Back To Basics

There are several soil amendment products on the market today that strive to achieve a stable, well drained, moisture- and nutrient-retaining, high-CEC grow-

ing medium for golf greens. These products fall into five basic groups: 1) Kiln-fired porous ceramics, 2) Zeolites, 3) Kiln-fired diatomaceous earth, 4) Non-fired diatomaceous earth, and 5) Kiln-fired shales and granites.

These products are used in constructing the greens mix profile of new greens and can also be used as over-the-top or drill-and-fill applications during routine aerification. Thorough soil testing for stability, particle size, percolation, capillary and non-capillary pore space, and CEC rates are critical to assure desired performance. These products differ in the way they are manufactured and should be compared and contrasted for those characteristics along with cost considerations before purchase.

By using these amendments, superintendents can overcome some drainage and root zone oxygen problems resulting from old greens with a build-up of organic material or greens with non-spec (push-up) soils in the greens mix. These amendments can also be used to treat localized dry spots, help retain moisture and nutrients in the root zone and increase cation exchange capacity (CEC) for efficient nutrient uptake.

In new construction, a porosity of 50 percent is ideal. Most natural sands average 38 percent. By adding a porous ceramic product, a soil's capillary and non-capillary pore space can be increased. The capillary pores hold moisture and the non-capillary pores allow downward water movement and air/gas exchange for root growth.

The traditional method of amending sands with Canadian peat has been used for the past 30-35 years. The primary benefit is moisture and some nutrient retention at a sacrifice of some percolation ability. The peat will degrade over time and it takes up pore space. All greens' percolation rates will slow down over time as organic matter builds up naturally. Advocates of porous ceramics and similar products feel they can achieve the same moisture retention with higher percolation rates which will remain more efficient over time without the particle breakdown.

In correcting a drainage or percola-

tion problem on existing greens, the sub-surface drain system must be functioning. No over-the-top application will correct a crushed or non-functioning sub drain. However, if the soil and thatch layer have tightened up and are causing slow downward water movement, an application of these amendments can improve the surface drainage. An ideal program for a severe problem could combine a deep tine or drill-and-fill application and a traditional shallow core aerification set at a close interval pattern with these porous materials incorporated at 30-50 percent by volume of the mix.

In routine and light topdressing programs on greens without drainage problems, a top dressing mix containing 15 percent by volume can aid in algae control and provide good oxygen sources for the crown area of the turfgrass. This mix equates to about 60 bags of material to a typical truckload of topdressing sand. Most vendors can custom mix these amendments. If you wish to mix them yourself, they do come in 50-pound bags and half- and one- ton mini-bulk bags.

In an age where we are looking toward ultradwarf grasses, some of these amendments work into the turf more easily during frequent topdressing programs because of the size and stability controls used during the manufacturing process.

In recent years it has become very interesting to note that almost two-thirds of the exhibit space at the national trade show is dedicated to products designed for management of three or four acres of putting surface on a golf course. These new soil amendments are an attempt to get back to basics. They offer a golf course a way to improve their most important growing medium, the greens profile.

In a world headed for Integrated Plant/Pest Management, these amendments can help provide a balanced soil environment with good physical properties which can enhance the necessary chemical reactions and biological processes for a good healthy turf.

PAUL SALMON, REGIONAL MANAGER,
SAM STRIMMEL, NATIONAL SALES MANAGER
Profile Products LLC

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Drop Spreader Marking System at Kensington Golf and Country Club, Naples

Scott Whorrall, golf course superintendent for over three years at the Kensington Golf and Country Club in Naples has used good old common sense and ingenuity to solve a common overseeding problem: determining the exact edge where the drop spreader disperses the desired cool-season grass onto the bermudagrass greens.

The Solution — bolt two “flour sifters,” one per side, onto a standard drop spreader in order to mark with flour the location where the fine bentgrass/*Poa trivialis* seed has been placed. At the base of the “flour sifters” is a funnel that was cut and attached to decrease the size of the opening of the sifter. Attached to the handles of the flour sifters, a strong but pliable piece of electrical wire was affixed and then stretched to the handle of the drop spreader. This enables the operator to pull on the wire, opening the bottom of the flour sifter and dispense a small spot of flour as the drop spreader is pushed across the green.

Whorrall said, “With the expectations of golfers continuing to escalate, precise overseed stands on greens is obviously crucial to providing superior putting surfaces during the busy South Florida winter golf season. To be precise, exacting specifications and overseed quantities must be used.” The “flour sifter” technique enables the staff at Kensington to apply evenly the exact quantity of seed that is desired.

Whorrall’s program for overseeding greens is similar to others but the Kensington staff is very meticulous. Prior to the scheduled overseeding date, nitrogen applications are decreased, the cut is lowered and then one week prior to overseeding, an application of Primo at 2 oz./1000 sq. ft. is applied to the putting surfaces. On the morning of overseeding, the greens are cut, vertically mowed with a triplex unit in four directions, then blown clean.

Whorrall is certainly particular in the actual overseeding technique. The utility vehicle carrying the seed is lined with plastic prior to loading seed bags in the bed of the vehicle to avoid any accidental dropping of seed in any location other than on the putting surface. The spreader, equipped with the attached “flour sifters,” is then placed on the green to be seeded, also on top of a sheet of plastic. The trained crew member then backs the cart right up to the putting surface and carefully fills the drop spreader with the bent/*Poa trivialis* mixture of seed chosen by Whorrall.

The operator, now ready to dispense the seed on the green, fills the sifters with regular flour. As each pass is made across the green, the operator pulls on the cord attached to the handle of the sifter dispensing a small pile of flour on the ground at the exact edge of where the seed is placed. The sifters work independently so the right and left sides are pulled separately about every three steps. By alternating the sides, the trail of flour that is placed on the green will consequently show the spreader’s path. To further increase the evenness of the overseeding, the seed is sown in two directions.

After the seed is placed, the green is topdressed, amendments added and irrigation applied. Equal care is taken with these processes to prevent the unsightly “volunteer” grass clumps from forming.

Whorrall has used the “flour sifter” technique for three years and says he is “pleased with the results.” He added, “The only negative is it (the sifters) is a little ‘rigged’ and it would be nice if it were a commercially available item.”

Darren J. Davis

Golf Course Superintendent
Olde Florida Golf Club



Side view of spreader shows the control cord connection to the dispenser’s triggers. Photo by Darren Davis.



Rear view of the spreader shows positioning of the flour dispensers at the edge of the seed drop line. Photo by Darren Davis.



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Meet the Man With the Plan

After 25 Years of Service to Turf Industry, Benham 'Retires' to FTGA

BY JOEL JACKSON, CGCS

Who is Don Benham and what is he doing here? Maybe you haven't met him yet, but you must have seen his name in the *Florida Turf Digest* as the new director of public

relations hired last year to help the FTGA strengthen ties with IFAS and to raise funds for turf research. But why Don Benham?

Benham recently had sold his company, Benham Chemical Company in Michigan, and retired to Sarasota with his wife Ruth. His unique qualifications include 25 years of working with the Michigan Turfgrass Association and Michigan State University doing the very

same thing. It is a stroke of luck and perfect timing to be able to bring Benham on board to assist the FTGA grow stronger and more effective.

Everyone who serves as a volunteer board member of an association knows that it is often very difficult to devote quality time to pursuing the goals of a professional association when you have to take care of your primary business. Now the FTGA has someone who can

Don Benham

FTGA Director of Public Relations

Originally from: Born and raised in Detroit.

Family: Wife: Ruth Kurtz, since 1992; first wife: Norma died 1989; son: David works for Anderson Consulting, married to Paula Dietz. Paula was Michigan's first turf extension agent. Lives in Novi, Mich. Two children, Erica and Catherine; son: Keith, banker, two children, Christopher, and Kelly; daughter: Carol Albo, computer security specialist. Lives in Union Lake, Mich.

Education: two years Adrian College, two years Wayne State University majored in economics.

Military Service: Served in U.S. Army in Korea 1952-1954.

Business experience/Employment history: Sold hospitalization insurance for five years, chemicals for 12 years. In 1972 joined with Lawn Equipment Corp. and Gordon LaFontaine to form L&E Chemicals. 1979 Started Benham Chemical Corporation. Sold Benham Chemical Corporation March 1998.

Professional affiliations/Memberships: Belong to: GCSAA; Greater Detroit GCSA; Western Michigan and Mid Michigan GCSA; Metropolitan Detroit Landscape Association; Michigan Turfgrass Association; Ohio Turfgrass Association; O. J. Noer Association.

Turfgrass Industry Involvement: Greens chairman, Edgewood Country Club 14 years; greens chairman St. Ives Golf Club 3 years; board of directors Edgewood Country Club 5 years, served all chair positions including president; board of directors, Michigan Turfgrass Association - 3 years; Worked on committees with Turfgrass Association and University professors at Michigan State University for 25 years.

People in the turf business who have influenced/helped you succeed: I have been helped by Frank Forier, Gordon LaFontaine, Dr. Joe Vargas, Dr. Paul Rieke and many golf superintendents and other people from the industry and golf associations to numerous to try to



Don Benham, director of public relations for the Florida Turfgrass Association and his wife Ruth at the FGCSA Reception at the 1999 GCSAA Conference. Photo by Joel Jackson.

mention for fear of missing names. The business of golf has been full of people with helping hands.

Hobbies/interests: Golf and tennis are my main hobbies.

Goals for FTGA: My primary goal for the FTGA is to form a strong partnership with the University of Florida; making the FTGA the umbrella group for all of the allied associations in turf as well as the golf industry; supplying the university with the funds needed for a strong research program on an annual basis that they can count on for long range plans as well as short term cash.

spend that time building relationships and gaining trust of the entire network of the turf industry in Florida.

Benham's first order of business has been to get to know all the people involved in the FTGA from the board members, the office staff and the administrators and faculty of the University of Florida's IFAS operations. He has made it a point to learn the chain of command and the mission and goals of all parties concerned. And at the same time always looking for the common ground on which they all can stand and build a better working relationship.

Now Benham is moving into phase two: fund raising. After many years of successfully building up a multi-million dollar business, and helping the Michigan Turfgrass Association build up a self-sustaining research funding program, Benham is unveiling a modest, but pro-active campaign to get all stakeholders in the turf industry involved in a plan of regular funding, that is neither

Pioneering the Way Chemicals are Sold

Operating from an office consisting of a telephone, a card table and a lamp borrowed from his daughter's dresser, Benham set out to overcome the skepticism of major chemical manufacturers toward his unique proposition: namely, that Benham Chemical could do a better job for them if it had the option of placing their products where they could best be used in that ' marketplace—in other words, representing them and their competitors.

By 1984 he had succeeded, to the point where other chemical companies adopted his idea.

Today Benham Chemical Corporation is generally credited with pioneering this change in the way chemicals are now sold to the Green Industry in Michigan. Offering customers the right product for their needs is the heart of Benham Chemical Corporation..."

*Credit: Katie Elsila
A Patch of Green, Sept/Oct 1993
Michigan and Border Cities GCSA*

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expensive nor burdensome. The key is that it involves individuals and makes them part of the solution.

I have taken excerpts from two articles written about Don and his business practices. They are revealing of the character, determination, and vision of this quiet but persistent gentleman who will not give in to negativity.

He merely keeps searching and offering alternatives until he finds a way to succeed. The publications have much to say about Benham's business savvy

I found many parallels in these articles to the way Don approaches his new position with the FTGA, and I have seen evi-

After many years of successfully building up a multi-million dollar business and helping the Michigan Turfgrass Association build up a self-sustaining research funding program, Benham is unveiling a modest but pro-active campaign to get all stakeholders in the turf industry involved in a plan of regular funding, that is neither expensive nor burdensome.

dence of some early successes in building relationships with people. I have had the privilege of sharing a few hours in discussion with Don since we have both taken on these supporting roles with the FTGA and the Florida GCSA. I have tried to give him a sense of the history of our associations. In return, Don has explained how so many of

speech, and his involvement and love for the turf business. His unique history in the business provides him with a perspective that embraces every allied association in the FTGA. We are very fortunate to have him working with all of us to become more effective. And that's what Don Benham is doing here!

the things we are dealing with are the very same issues that Michigan faced not long ago. The good thing is there is a light at the end of the tunnel for everybody if we work together. Stay positive. Start small and build slowly.

I have been impressed by Don's sincerity, honesty of thought and

Benham Founded Company With a Bold Plan

His idea was bold; to sell products from every major chemical manufacturer. What he had going for him was 18 years experience in the chemical business (he had headed L & E Chemicals of the Long Equipment Corp.) and faith he could build a business based on the idea of service.

But, he had to convince the large chemical manufacturers he could serve them too, even though he would also be handling products from their competitors. Benham, a large man with sharp blue eyes and streaks of silver in his hair, is a good businessman. He's also persuasive.

This August, Benham Chemical Co. celebrated its fifth year in business, its sales and office staff has grown from two to seven people, and the young company is anticipating a dollar sales volume of \$3 million during 1984. Benham and his close-knit staff have built the company to the point that it receives annual recognition.

Benham credits several factors for the success of his company, not the least of which was his initial decision to sell service as well as products.

"Everybody is out trying to sell chemicals cheaper," Benham said. "Of course we want to be competitive, but we want to sell the proper chemical for the proper job and for a proper profit. We are not always the cheapest place. We feel that service to the customer is more important than price and we feel most of our customers realize this. It takes time sometimes to convince people that they need service. Golf course superintendents recognize they need the service, but many lawn care customers take awhile to realize it. We

didn't build this business because we could sell it cheaper." Several major changes have occurred in the chemical business in the past five years and one of the most notable has been the rapid growth of the still relatively young lawn care industry.

"Our biggest increases in sales came from the lawn care market," Benham said. "I didn't expect it to be that strong." Initially 95 percent of Benham's business was generated from golf courses, and although that continues to be a big part of his business (about 50 percent), the lawn care industry has literally taken off. What is remarkable, he feels, is that it occurred during the worst economic period in the Detroit/Toledo area since the Depression.

"We grew during those periods when the industry went kaput, Benham said. The company met its first-year \$550,000 sales goal and has made "significant increases" each year since. "We passed my five-year projection in the second year," he added. In more recent years he's been more accurate in predicting sales.

But, he continues to seek controlled expansion within his business area. "We have a lot more expansion and a lot more things to do in our own area, but we're actually having to watch a little that we don't grow too much and grow out of our location."

"The manufacturers are getting smarter. They want to see the background of the people selling their products..."

*Credit: Ron Hall
Weeds, Trees & Turf, Sept 1984*