



Nematodes killing ryegrass overseeding and weakening the base bermudagrass.

the winter play season. The weather can make it difficult to stay on schedule with course maintenance programs, but if basic and necessary practices are deferred or cancelled, problems will be experienced later in providing the level of conditioning desired through the winter golf season.

Nematode News

Four hurricanes have struck Florida which have magnified John's comments about summer weather stress on turf. Meanwhile, nematodes are replacing molecrickets as the number one pest problem. In the last issue we reported on the work of Dr. Billy Crow as he examined some biological alternatives to Nematicur, which is being phased out.

By May 31, 2005 golf courses located on vulnerable soils will not be able to use the product any longer. And all uses of the product will end by May

2007. Nematodes are a leading cause of weakened turf. See the following excerpt from July's Regional Update by Florida's other USGA Green Section agronomist, Todd Lowe.)



Todd Lowe

“...Another common topic of concern on recent Turf Advisory Service visits includes nematodes. Nematodes are microscopic worms that begin feeding on turfgrass roots in the spring and continue to create problems throughout the summer and early fall months. Nematodes damage turfgrass roots, weakening the turf and making it prone to drought stress and poor nutrient uptake. At the recent University of Florida Gulf Coast Research Field Day, Dr. Billy Crow reported that nematodes are definitely a major pest on Florida golf courses as he sampled damaging infestation levels on 87 per-

cent of Florida golf courses.

“He also reported that after two years of product testing, the only nematicides that consistently suppress or reduce nematode damage in bermudagrass turf are Nematicur (fenamiphos), Curfew (1, 3-dichloropropene) and an experimental mustard-based product. Nematicur will soon be taken off the market, leaving Curfew as the only effective commercially available product...”

Is Seashore Paspalum the Next Great Golf Course Grass?

By Stacie Zinn

The words “seashore paspalum” have been on the lips of many Florida golf course superintendents recently. Those words are usually followed by comments something like this:

“I just put it on my golf course.”

“I heard so-and-so just put it on his

golf course.”

“How do you take care of it?”

“What is it?”

“Huh?”

If you’ve been hearing or talking about seashore paspalum, you’ve probably heard a combination of all of the above.

To answer your questions, let’s start with the basics. Seashore paspalum, (*Paspalum vaginatum*), is a salt-tolerant, warm-season turfgrass. It requires up to 50 percent less water for irrigation than bermudagrass, and up to 75 percent less nitrogen for fertilization.

Seashore paspalum is believed to have come to the United States from Africa as bedding in the bottom of slave ships, but some schools of thought actually attribute seashore paspalum as a native of Asia.

It was introduced to Australia from Africa in the 1930s for use in salt-affected areas as forage and for soil stabilization. By the 1950s and 60s, seashore paspalum had become popular in Australia as a lawn grass and for bowling greens.

In the book, *Seashore Paspalum: The Environmental Turfgrass*, authors R.R. Duncan and R.N. Carrow outline the introduction of the grass as a commercial product into the United States from Australia in the 1960s for use on golf courses and home lawns. According to Duncan and Carrow, those early varieties, mostly Futurf and Adalayd, met with limited success because end users did not know how to properly maintain the grass:

“No additional breeding work was conducted on Adalayd after its initial introduction into the United States. Additionally, no management packages were developed for this grass and it was essentially handled like hybrid bermudagrass. The use of too much fertilizer and untimely irrigation



WCI's new Hammock Bay Golf Course on Marco Island is grassed in SeaDwarf seashore paspalum from tee to green. Photo by Rich Redles.



Lou Conzelmann, regional agronomist for WCI said that Paspalum was chosen initially for its tolerance to poor water quality, but it looks so good they're using it on three more new courses. Photo courtesy of WCI Communities.

scheduling eventually led to disenchantment about its performance and its ultimate demise."

Though those early varieties were somewhat coarse in texture, the real downfall of Futurf and Adalayd was a failure on the part of those who introduced the grass to the United States to educate golf course superintendents and other end users how to properly care for it.

But that, as they say, is history.



Tim Daniel, golf course superintendent at the Crown Colony G. & C.C. likes the fact that he doesn't have to deal with overseeding and transition issues and he's using less water and fertilizer. Photo courtesy of Crown Colony G&CC.

New Cultivars, Renewed Interest

Recently, new cultivars and customer demand for turfgrasses characterized as environmentally-friendly have propelled seashore paspalum back onto the mainstream golf market. Among the newer cultivars that are fine-bladed and bred for golf course use are:


• **SeaDwarf:** SeaDwarf is the only dwarf cultivar of seashore paspalum. It has a fine



Tim Daniel, superintendent at the Crown Colony G&CC in Fort Myers holds a plug of SeaDwarf from one of his greens, showing the deep root structure. Photo courtesy of Crown Colony G&CC.

texture and tolerates a wide variety of mowing heights, (1/8-inch to about 4-inches), which makes it ideal for tee-to-green and rough applications on golf courses. On a golf green, it demonstrates no grain and has documented green speeds at 10.5 on the stimp meter and faster. It is often compared to bentgrass in look and texture.

• **Aloha:** Aloha is a hearty variety of seashore paspalum with a rich, luxurious color. It



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was developed here in the Sunshine State at the University of Florida. Aloha has a slightly wider leaf blade than SeaDwarf. It can be mowed from 1/8-inch to about 6 inches and can be used tee-to-green and in the rough on golf courses where overly fast green speed is not a requirement.

• **SeaGreen:** SeaGreen is a fine-textured, warm-season, halophytic cultivar of seashore paspalum for use on golf tees and fairways. It has a fine texture and is adapted to a wide salinity range.

• **SeaIsle1:** Sea Isle1 was introduced in Argentina. SeaIsle1's texture is comparable to Tifway 419 hybrid bermudagrass, and also boasts a high resistance to saline. SeaIsle1 is suitable for use on fairways, tees and roughs.

• **SeaIsle-2000:** SeaIsle-2000 was developed by plant geneticist Dr. R.R. Duncan at the University of Georgia's Griffin Experiment Station from a sample collected at Alden Pines Country Club in Bokeelia. Alden Pines is owned and operated by Stewart T. Bennett. SeaIsle2000 can be used on golf greens and tees, especially in salt-challenged environments.

• **Salam:** Salam seashore paspalum is a succulent, low-growing, warm-season turfgrass. Salam's leaf texture is similar to Tifway 419 hybrid bermudagrass, and under optimum management practices, the leaf texture becomes fine enough to be used as putting green turf.

Attributes Of Seashore Paspalum

Attributes and tolerances of Seashore Paspalum vary by cultivar, but in general it is:

- Highly salt tolerant
- Can be irrigated with low-quality, recycled, reclaimed or brackish water
- Takes up to 50 percent less water to irrigate than bermudagrass
- Requires up to 75 percent less nitrogen than bermudagrass
- Requires up to 50 percent less fertilizer than bermudagrass
- Drought tolerant
- Fairly shade tolerant
- Resists wear and heals quickly
- No need to overseed

A report by Todd Lowe, agronomist for the USGA Green Section's Florida Region, indicates that seashore paspalum can tolerate a salt/salinity level of 34,500 ppm, which is well above the salt levels of most effluent water supplies.

The University of Florida's Laurie E. Trenholm, Ph.D., also reports that seashore paspalum has "excellent salt tolerance."

In their book, Duncan and Carrow reaffirm seashore paspalum's salt tolerance: "It is the

most salt-tolerant, warm-season turfgrass that is known with a salt tolerance of ocean-water levels."

Stewart T. Bennett, CGCS, is credited with discovering SeaDwarf Seashore Paspalum, the only dwarf seashore paspalum. Bennett cultivated SeaDwarf for use on golf courses, sports fields and residential lawns. SeaDwarf Seashore Paspalum is marketed by Environmental Turf.

Bennett said he has successfully irrigated SeaDwarf with water salinities up to 20,000 ppm in good quality soil, and on a regular basis irrigates the SeaDwarf on his course with water up to 13,000 ppm of salt without having to flush the soil for salt.

Seashore paspalum not only thrives under poor water quality conditions, but because of its excellent drought tolerance, seashore paspalum takes less water to irrigate than some other popular turfgrasses.

The USGA's Lowe reports that seashore paspalum requires 50 percent of the water needed to irrigate hybrid bermudagrass. Seashore paspalum, Lowe said, creates a deep root system that holds in moisture.

A 2004 study conducted on deficit irrigation at University of Florida by Joon H. Lee, Dr. Laurie Trenholm and Dr. J. B. Unruh, showed that, by its very nature, seashore paspalum will develop an extraordinarily strong and "deep root system" to seek out water at lower soil depths when overhead irrigation is decreased.

In general, seashore paspalum is more shade tolerant than bermudagrass.

"It's cultivar dependent. It's not for a shady course, necessarily, but if you have a few palm trees, it's not a big deal," Bennett said. "Paspalum has a good tolerance to low-level light intensities. If it gets four hours of really bright sun or 10 hours of cloudy weather, it's the same thing to paspalum."

Ed Miller, superintendent at Quail Ridge Country Club in Boynton Beach, said he's seen first-hand the shade tolerance of seashore paspalum since he renovated 18 of his 36 holes last year. His previous bermudagrass golf course with TifDwarf greens now has SeaDwarf greens, SeaIsle1 fairways and tees. He retained the 419 bermudagrass in his roughs.

"I have some greens out here that do not get full sunlight 'til 9, 10 o'clock in the morning and they've been doing well. I haven't seen any issues," Miller said. "The bermuda would just never last. It was horrible. Those areas died out, very thin."

Seashore paspalum also resists wear and heals quickly from divot damage.

Superintendent Tom Trammell of Hawks Nest Golf Club in Vero Beach recently conducted a

divot-repair test at his golf course. Trammell tested the amount of time it takes to repair similarly sized divots in SeaDwarf seashore paspalum and bermudagrass.

Trammell's results demonstrated that for a divot of the same size, diameter and depth, it took the bermudagrass 10 days to heal. It only took the SeaDwarf seashore paspalum five days to heal. Trammell surmised that the SeaDwarf's dual root system, utilizing both rhizomes and stolons, helped the SeaDwarf to heal twice as fast as the bermudagrass.

Research conducted by Dr. Trenholm, when she was a graduate student at the University of Georgia, yielded similar results.

"We found that for the paspalum on average, the wear tolerance across the species varied considerably depending on the texture of the grass. Across the board, you would get large differences. The coarse-leaf-blade types, the ones that might be more utilitarian types like Adalayd, had very poor wear tolerance," Dr. Trenholm said. "We find the finer the texture, the better the wear tolerance. So, your commercially available cultivars that I worked with, like SeaIsle1 and SeaIsle-2000 — and potentially SeaDwarf, though I didn't test it specifically — those had very good wear tolerance. We found that when we looked at those fine-leaf-bladed types, that their wear tolerance was as good as or better than TifWay bermudagrass."

Tim Daniel, golf course superintendent at Crown Colony Golf & Country Club in Fort Myers is now into his third year with SeaDwarf greens and SeaIsle1 fairways. Daniel said his grass stays green all winter and he does not overseed his golf course.

"It shines from the fall, winter and spring, which is our snowbird season. You don't have to overseed it," Daniel said, adding that this fact alone saves him time and money. "Because of the need not to have to overseed, there is a reduced cost."

He said he also doesn't have to worry about bothersome overseed transitioning.

"The reduced time involved in overseeding, the reduced playability of the course during the overseeding, you get no gaps there," Daniel said. "Most of our northern guests are used to playing on bentgrass and cool-season grasses and this turfgrass, paspalum, looks very similar and feels very similar to the northern grasses that they're used to playing."

Big Developer Taps Seashore Paspalum

Perhaps what really brought Seashore Paspalum to the forefront of Florida golf industry "buzz" was when Florida-based mega-developer

WCI signed on to put SeaDwarf on four of its new golf courses. All of a sudden, the grass wasn't an oddity. It was a commodity with a big player in the golf development world ready to bet on it.

"The original plan when we started out, we were going to do one (golf course in SeaDwarf) at Hammock Bay because they have poor quality water there," said Lou Conzelmann, regional agronomist for WCI. "And then as we looked at it, we thought that it was a good grass. We decided to expand it and do it on some more courses."

Hammock Bay Golf & Country Club is an 18-hole course designed by PGA Tour Pro Peter Jacobsen and Jim Hardy near Marco Island. Rodney Whisman is the superintendent at Hammock Bay. The course is grassed tee-to-green and in the roughs with SeaDwarf.

All of the community's common areas and residential lawns are SeaDwarf, as well. Grassing began in January 2003 with just four holes and some residential areas. The back 14 holes were grassed in stages as construction of homes in the community progressed. Hammock Bay opened for play in March 2004.

As WCI's experience with SeaDwarf grew, Conzelmann said the company decided to use

it on at least three more golf courses. Parkland Golf & Country Club near Boca Raton, designed by Greg Norman and Harry Lincoln is superintendent, opened in June. Old Palm Golf Club in Palm Beach Gardens, designed by Raymond Floyd, Lee Bladen is superintendent, and Tuscany Reserve in Naples, designed by Greg Norman and Pete Dye and Kevin Shields is superintendent, are both nearing completion.

"Initially we used it because we had the poor quality water so being tolerant of salts is the first advantage," Conzelmann said. "Beyond that, I think esthetically it's a prettier grass than bermudagrass. It's more cold tolerant compared to bermudagrass. We use the same grass in all areas. We use the SeaDwarf for everything: greens, tees, fairways, roughs. That's an advantage. You don't have the grasses contaminating each other and mixing into each other. It's easier to maintain it that way."

Research Continues

Of course, no grass is perfect. Sod webworms are a factor in seashore paspalum just as they are in bermudagrass.

Not all herbicides are labeled yet for, or are safe for, seashore paspalum, which can make

buying products a bit tricky. (One tip is to look for products labeled for bahiagrass. As paspalum and bahia are the same genus but different species, *Paspalum vaginatum* and *Paspalum notatum*, products labeled for bahiagrass are generally safe for seashore paspalum.)

And the learning curve in changing from a bermuda-type regimen of high nitrogen and high irrigation to a seashore paspalum regimen of low nitrogen and less irrigation can prove a challenge for some superintendents.

To ease the transition from a bermudagrass mentality to a seashore paspalum program, the industry and the research community have stepped up their efforts.

University of Florida's Dr. J. Bryan Unruh is in the middle of a three-year study, funded by the USGA, on the management of seashore paspalum. In addition, many other researchers and companies are beginning to use seashore paspalum right along with varieties of bermudagrass in their research studies on everything from deficit irrigation to herbicide testing.

The industry has also increased efforts by funding research, developing materials and hosting educational events. For example, in October the



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FTGA, University of Florida and Environmental Turf, the company that licenses SeaDwarf and Aloha Seashore Paspalum to growers world-wide, hosted a field day at Emerald Island Turf sod farm in Avon Park. At the event, the university's Drs. Laurie Trenholm and J. Bryan Unruh presented the latest information on seashore paspalum as well as acted as guides on a tour of several seashore paspalum varieties at the sod farm.

Environmental Turf also presents CEU-approved seminars on seashore paspalum around the state at various FGCSA chapter meetings. (Call 772-460-5575 to schedule and event for your chapter.) Environmental Turf has also developed a book on the subject titled "Suggestions for the Care of Seashore Paspalum." The book includes research information as well as first-hand plans of action from superintendents who are growing the grass on a daily basis. The book is available for free to industry members. (You may call 772-460-5575 have a book mailed to you or it is available for free download as a PDF file at www.environmentalturf.com.)

"I think it's a revolutionary turfgrass," said Crown Colony's Tim Daniel. "We're using less water, we're using less fertilizer. There's less potential for nitrogen leaching. In this day and age with everyone's eye on the environment, it's prudent for golf managers to utilize every tool available."

(Editor's Note: The FGCSA is not advocating or endorsing the use of paspalum grass varieties to replace bermudagrass across the board. There is no doubt paspalum has applications in coastal regions where brackish water is available and fresh water is scarce. As noted in the article, "no grass is perfect," but because of the escalating interest in this grass and some of its reduced inputs, the grass deserves consideration as a selection. I asked Stacie Zinn to compile and present this information so that superintendents can have access to as much information as possible. Zinn is also a freelance writer who contributes regularly to turf industry magazines.

Federal Agencies Adopt New Process For Pesticide Approval

GCSAA launched a grassroots campaign at the 76th International Golf Course Superintendents Conference and Show in San Diego in support of proposed federal regulations to establish an appropriate regulatory process for registering pesticide products while protecting endangered species. The regulations have now been adopted.

Our sincere thanks to all of you who

took the time to provide a positive comment to the Federal Register docket as well as to all GCSAA chapters who actively promoted the campaign through chapter Web site postings and broadcast e-mails.

The adopted regulations aim to put a stop to lawsuits brought against the EPA by anti-pesticide groups. In recent years, anti-pesticide groups have sought to obtain court-ordered injunctions severely restricting access and use of vital pest control measures. This spring, activists were successful in using the Endangered Species Act to restrict the use of many pesticides used on golf courses in northwestern states.

The ESA requires a federal agency (such as EPA) to consult with other federal wildlife agencies when it takes any action with the potential to harm endangered species. In the past, not having a formal consultation process in place made it difficult for these consultations to occur. The new regulations, which define this consultation process, were developed following a comprehensive scientific review of EPA's risk assessment methodology.

The improved procedures, developed in cooperation with EPA and federal fish agencies, will provide a framework to ensure necessary measures are taken to protect fish and wildlife. They also will ensure that golf course superintendents have the pest control products they need. As finalized, the regulations provide:

- By using the most sophisticated scientific methodologies available to protect wildlife from potential pesticide risks, EPA can determine that the use of a pest-control product is "not likely to adversely affect" a listed species or its critical habitat without either concurrence of the services or informal consultation. The wildlife agencies can perform periodic reviews of the methods that EPA employs to arrive at these determinations to ensure EPA is making determinations that are consistent with the requirements of the ESA.

- When formal consultation is required, EPA may utilize an optional procedure to develop a determination of the effects of the pest-control product on listed species for the services' review. The procedure also allows EPA to request direct involvement of representatives of the services in the effects analysis. As required by law, the services would make the final determination whether threatened or endangered species are likely to be jeopardized by a FIFRA action.

GCSAA Greens & Grassroots

Plants of the Year

Common name: Shishigashira Camellia

Botanical name: *Camellia sasanqua*
Shishigashira

Hardiness: Zones 7 – 9



Shishigashira Camellia

Mature height and spread: 10-15 ft. tall x 6-10 ft. wide

Classification: Evergreen flowering shrub

Landscape use: Shrub for

hedges or specimen/accent plant to tall ground-cover.

Characteristics: Compact long-blooming type with rose-red double to semi-double flowers in late fall and early winter. This evergreen shrub has multiple trunks, simple serrated leaves and a symmetrical crown.

Common name: Silverado Aglaonema

Botanical name: *Aglaonema Silverado ppaf*

Hardiness: Zones 10b & 11

Mature height and spread: 36 in. x 36 in.

Classification: Interior foliage plant/ornamental foliage plant

Landscape use: Interior/landscape (shade)/specimen

Characteristics: Aglaonema Silverado ppaf is a new hybrid Aglaonema in the Stars of India Collection. Interior plant enthusiasts, collectors, as well as professional interiorscapers will appreciate its full, regal appearance and beautiful



Silverado Aglaonema

tricolor leaves. This low-light performer is highly resistant to disease and is very cold tolerant into the mid 30s. Silverado

ppaf rarely flowers, a very unusual characteristic in aglaonemas which is appreciated by anyone who has spent time removing them.

Whether used as a stand-alone specimen or mass plantings, Silverado ppaf makes a bold statement.