

Coastal Conversions

Part II

Lessons learned as seashore paspalum gains ground in a bermudagrass region. It's no longer a niche grass.

BY TODD LOWE



Seashore paspalum has shown to be much more tolerant of shade and low light conditions than bermudagrass. The healthy grass on the right is seashore paspalum on a shady practice tee, and the brown, thin grass on the left is bermudagrass.

Seashore paspalum (*Paspalum vaginatum*) is a grass that has been around on golf courses for many years. It excels in salt tolerance, but early varieties, like Adelaide, were coarse textured and produced mediocre playing conditions. This limited its use to golf courses that had salinity problems and labeled it a niche grass for areas with high salts.

Dramatic improvements in turf quality occurred with seashore paspalum over the past decade, due mostly to the collection and breeding efforts of the University of Georgia. In addition to improved salt tolerance, newer varieties produce aesthetic and playability characteristics that rival the dominant bermudagrasses, regardless of salinity issues. Several golf courses in the Florida Region soon recognized these improved characteristics and converted from bermudagrass to seashore paspalum.

The conversion to SeaIsle 1 and SeaIsle Supreme seashore paspalum that took place at The Sanctuary Golf Club in Sanibel, Florida, in 2005 was documented in the article "Converting Bermudagrass to Seashore Paspalum."⁵ Hammock Bay Golf & Country Club, located in Naples, Florida, regrassed to SeaDwarf in 2002, and The Wilderness Golf Club, also in Naples, Florida, regrassed to SeaIsle 1 in 2003. The Oaks Golf Club, in Sarasota, Florida, converted to SeaIsle Supreme in 2007.

Golf course superintendents from each club — Kyle Sweet (The Sanctuary), Rodney Whisman (Hammock Bay), Jim Torba (The Wilderness), and Earl McMinn (The Oaks) — were contacted to discuss the attributes and concerns of converting bermudagrass to seashore paspalum. Each course is unique in regard to expectations, budgets, and environmental concerns, and an



Seashore paspalum produces a tight lie, where the ball sits up high in the turfgrass canopy.

exhaustive review of each club's maintenance programs is beyond the scope of this article. Instead, this article offers insights into common differences in playability and management between bermudagrass and seashore paspalum and other important issues that golf courses should consider before converting.

PLAYABILITY AND AESTHETICS

A phrase that has become common with seashore paspalum is the "WOW factor." Seashore paspalum is a robust turfgrass that produces a tight canopy and prominent stripes following mowing. It also exhibits a more vibrant green color than bermudagrass, and even hardened skeptics note that it is a prettier grass. The WOW factor can be achieved on most turfgrasses by manipulating cultural practices like increased fertility and low mowing, but it is a quality that is easily achieved with seashore paspalum. Aside from improved salt tolerance, most clubs choose seashore paspalum due to its enhanced visual qualities compared to bermudagrass.

Putting green playability was initially thought to be a substantial concern with seashore paspalum as compared to bermudagrass. Although ultradwarf bermudagrass putting greens provide some of the finest putting surfaces in the Florida Region, each of the superintendents interviewed for this article remarked that seashore paspalum putting greens play very well and that they receive few complaints about greens. A small percentage of golfers occasionally remark about slow putting greens, but this also occurred with the previous bermudagrass greens at each course and will most likely occur at every golf course, regardless of turf type. Unlike bermudagrass, achieving championship conditions does not seem to place great stress on seashore paspalum, requiring merely an increase of double mowing, rolling, and plant growth regulator treatments.

Seashore paspalum has a waxy cuticle on the leaf surface, and this often causes chip shots to release less than on bermudagrass. Golfers generally do not complain about this, but it is important to make note of this difference and play chip shots more at the hole. In fact, The

Oaks Club in Sarasota, Florida, has hosted several clinics with golfers to address slight differences in playability.

Almost all commercial seashore paspalum varieties can be mowed at any height on golf courses. There is a limitation in penal roughs, as the turf becomes open or puffy at heights above 1.75 inches. However, most courses maintain bermudagrass at or below 1.5 inches, so this is generally not an issue. A remarkable attribute of seashore paspalum is that the same cultivar can be utilized on every playing surface, and this eliminates encroachment of different grasses onto putting greens, a significant issue on bermudagrass.

Outstanding teeing grounds and fairways can be achieved with seashore paspalum, and golfers provide rave reviews about these playing surfaces. The golf ball sits much higher on seashore paspalum turf than on bermudagrass, thereby offering better ball control for good golfers. Although average golfers prefer a more cushioned lie, improved aesthetics on tees and fairways outweigh negative comments that might occur over tighter lies.

BERMUDAGRASS CONTROL

Common bermudagrass is ranked as the world's worst weed in crops, and completely eradicating established bermudagrass is an impossible task. Bermudagrass re-emergence occurs to some extent on all renovations, no matter which turfgrass is grown, and it has been a major issue when converting to newer bermudagrass varieties as well. Controlling common bermudagrass or bermudagrass off-types within commercial hybrid bermudagrass turf is as difficult as controlling them within seashore paspalum turf, as there are no effective selective herbicides at this time.

Golf courses in the Florida Region have taken many precautions during renovations to reduce bermudagrass re-emergence,^{2,3} and these practices also are utilized when converting to seashore paspalum. They include:

- Multiple Roundup (glyphosate) and Fusilade (fluzifop) applications at long intervals. Bermudagrass is a perennial plant and requires at least three treatments and at least 21 days between treatments.
- Methyl bromide fumigation. It is rather costly and soon it will be unavailable, but fumigation is one of the best quality-control measures for

killing existing bermudagrass and enhancing genetic purity.

- Purchasing clean sprigs and sod. Turfgrass producers vary in maintaining genetic purity, and it is important to personally inspect the fields to review customer satisfaction. Do not just assume that all certified plant material is the same!

Each of the courses initiated an exhaustive chemical control program, including three or more applications of Roundup and Fusilade. Two courses even applied a fall herbicide treatment and then overseeded wall-to-wall with perennial ryegrass so that the base bermudagrass was weak going into spring herbicide treatments. Each course also fumigated all or most of the golf course with methyl bromide to kill the existing bermudagrass prior to sprigging.

Regardless of the precautions taken, it is important to plan for bermudagrass re-emergence following the renovation. If you take fewer precautions before renovation, you will probably have more bermudagrass issues following the renovation. The superintendents interviewed for this article remarked that some bermudagrass re-emergence has occurred, but most patches are inconspicuous and do not affect playability. In fact, most comments occur from curious golfers who play in the morning and notice dew on some areas and not others (seashore paspalum has a waxy cuticle that repels dew). Common bermudagrass and coarse-textured off-types, however, are noticeable and decrease seashore paspalum turf quality.

A common practice for removing bermudagrass in seashore paspalum turf is to spray Roundup and Fusilade once or twice (follow-up treatment at three weeks) and to physically replace the dead grass with seashore paspalum sod. Such practices are recommended during the summer months, when golf rounds decrease and optimum turf recovery occurs. Managing bermudagrass requires a prioritized approach of removing the most conspicuous patches first, often within or adjacent to primary playing areas, and then focusing on secondary areas like roughs in subsequent years.

CULTIVATION AND MANAGEMENT

Most courses implement seashore paspalum management programs that are very similar to those for bermudagrass. Timings and frequencies of vertical mowing, core aeration, sand top-

dressing, and other cultivation practices vary depending upon course expectations for turf quality, but programs are quite similar to those at bermudagrass golf courses throughout the region.

As with bermudagrass, thatch management is necessary to maintain healthy turf and good playing conditions. Regular core aeration, vertical mowing, and sand topdressing are important for maintaining proper thatch dilution. Areas like bunker faces can become thatchy if not maintained appropriately and can easily scalp and look ugly for several weeks. Scalped seashore paspalum turf heals more slowly than bermudagrass and can appear as though it is diseased.

Mowers should be kept sharp to provide good turf quality and to decrease scalping as well. Seashore paspalum has thicker leaves and stems than bermudagrass, and many superintendents comment that sharpening mowers is a continual practice.

Although there are many similarities in management programs between the two grasses, differences exist and each superintendent remarked that:

- Higher rates of plant growth regulators are utilized. Primo (trinexapac-ethyl) is used commonly on most golf courses in the Florida Region. Superintendents remarked that two to four times the average rate for bermudagrass golf courses is applied to seashore paspalum. Trimmer (paclobutrazol) also is being used increasingly by seashore paspalum growers in conjunction with Primo.

- Less nitrogen is required by seashore paspalum. In fact, most superintendents only apply 25% to 50% of the nitrogen used on an average bermudagrass golf course. However, it is important to supply other necessary nutrients and micronutrients on a regular basis. Micronutrient deficiency can cause a mottled yellow appearance in seashore paspalum. New seashore paspalum turf with an insufficient organic mat layer or turf grown on sandy soil or soil with a high pH requires more frequent applications of micronutrients to maintain healthy turf.

- Seashore paspalum may require less water. This factor could not be quantified, but most superintendents feel that areas like putting greens



Managing bermudagrass in seashore paspalum requires a prioritized, long-term program of physical removal and sod replacement. The brown bermudagrass patches have been recently treated and will soon be replaced with seashore paspalum.

could go an extra day or two without needing water. All superintendents recognize that seashore paspalum has a root system that is two to three times longer and more robust than bermudagrass, and this factor most likely improves water use efficiency. Even so, seashore paspalum should not be allowed to suffer severe drought stress, as turf recovery following drought is often much slower than with bermudagrass.

In addition to greater salt tolerance, seashore paspalum grows much better in low light than bermudagrass. Bermudagrass becomes quite stressed from shade or increased cloudy weather and becomes thin and unsightly in low light situations. Seashore paspalum, conversely, is more adapted to growing in shaded or cloudy conditions and remains dense and green under most low light conditions.

The seashore paspalum root system (left) is much more robust when compared to two popular ultradwarf bermudagrass varieties (middle, right). Each grass was maintained under similar maintenance conditions on a golf course nursery green.



A WORD ABOUT PESTS

Increased disease occurrence has been well documented with seashore paspalum over the years. Most notably, large patch (*Rhizoctonia solani*) and dollar spot (*Sclerotinia homoeocarpa*) or a dollar spot-like disease have occurred on golf courses. Oftentimes, dollar spot has been diagnosed but occasionally fungicides for dollar spot control have been ineffective. Research at the University of Florida has shown that, in addition to large patch and dollar spot, other pathogens can be common on seashore paspalum, including *Rhizoctonia zeae*, *Fusarium* spp., and even a newer pest (*Poculum henningsianum*). Correct diagnosis is necessary for effective disease control, so always send samples to a reputable diagnostic laboratory.

It is important to note disease incidence, since bermudagrass experiences fewer pathogens than seashore paspalum, but it is also important to recognize the comments from most superinten-

dents about diseases. Basically, superintendents note that diseases like large patch and dollar spot are more common, but they rarely receive complaints and very rarely lose turf. Most turfgrass pathogens are nuisances that cause temporary turf discoloration. Fungicide programs for most golf courses include preventative treatments on putting greens every three to four weeks (depending upon weather conditions) and spot treatments on tees and fairways as needed.

Weed management programs for seashore paspalum differ from those for bermudagrass, as there are fewer herbicides labeled for its use. But superintendents also believe that seashore paspalum is more competitive against weed invasion, and they generally do not complain about weeds. Many pre-emergent herbicides are safe on seashore paspalum and can be safely applied for annual weed control. Research has also shown that sedge control chemicals are safe on seashore paspalum, and several three-way 2,4-D combinations can be applied to control broadleaf weeds. Several golf courses still apply salt to control weeds early in the morning, when dew is still apparent on the weeds and not the seashore paspalum. It is important to note that salt is not a labeled herbicide and will also temporarily burn seashore paspalum leaves as well.

Other pests commonly found in seashore paspalum are lepidoptera worms. In particular, sod webworms seem to harbor quite well in seashore paspalum turf and cause decline of turf quality. Insecticides applied to bermudagrass turf can also be safely applied to seashore paspalum.

LOOKING AHEAD

Water quantity and quality is the greatest concern for golf courses, as real estate developments place a greater strain on potable water. Golf courses are increasingly forced to utilize alternative water sources, and this was one of the principal factors for investigating the use of seashore paspalum as a turfgrass for golf courses. Water resources will most likely worsen in the future, and the need for improved salt tolerance will not abate. The USGA continues to fund this important program to develop improved turfgrasses that require fewer inputs for sustainable turf management.

Dr. Ronny Duncan, previously at the University of Georgia (with USGA-funded research grants), was the principal investigator



for developing improved seashore paspalum varieties for golf courses and is responsible for SeaIsle 1, SeaIsle 2000, and SeaIsle Supreme. Dr. Duncan retired several years ago and Dr. Paul Raymer continues this valuable research. In addition to improved salt tolerance and disease tolerance, Dr. Raymer has initiated a multi-departmental program for researching stress physiology, weed management programs, improved insect management, and overall turf quality.

The University of Florida is investigating seashore paspalum susceptibility to plant-parasitic nematodes and plant pathogens. Field observations suggest that some seashore paspalum varieties may be more tolerant of plant-parasitic nematodes than bermudagrass. Research projects include investigating the impacts of nematodes on seashore paspalum and bermudagrass varieties and developing effective disease management strategies for common pathogens that occur on seashore paspalum.

IN CONCLUSION

There is no perfect grass, and it is important to understand your particular goals and determine whether seashore paspalum is the right choice for your course.⁴ Many superintendents believe there is give-and-take when comparing seashore paspalum to bermudagrass in that there may be more funds spent on fungicides, sharper mowers, bermudagrass control, and maintaining comparable putting greens, but it also requires less nitrogen, less water (perhaps), and less winter overseed. Its greater tolerance of salt and shade offer better turf quality under stressful conditions.

Also, many courses view the conversion as an increase in standards as the WOW factor would have caused an increase in funds, regardless of the turf chosen.

Another consideration that should be addressed is the fear factor. It is only human to fear the unknown, and with seashore paspalum still a relatively new grass compared to other turfgrasses, fewer superintendents have experience growing it. One must keep an open mind, review as much literature as possible, and visit other seashore paspalum growers to be successful with this grass. Of all the superintendents who have converted to seashore paspalum, the author has not found any who have regretted the change. In fact, they all preferred growing seashore paspalum and providing excellent conditions for their golfers.

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Large patch and dollar spot are more common diseases on seashore paspalum than bermudagrass and can cause unsightly conditions.