

Breaking The Winter Green Addiction

Achieving economic and environmental sustainability requires changes to traditional management strategies in Florida.

BY JOHN H. FOY

Over the last three decades, Florida experienced rapid growth in many areas, including golf courses. By 1990, there were more than 1,000 golf courses, and today there are over 1,300 golf courses, which is the most of any state in the country. A large number of Florida golf courses are connected in some manner to real estate development projects. In the central to southern part of the state, where the highest concentration of courses is located, the primary focus has been hosting golfers who are escaping the cold of northern winters and providing a country club lifestyle for retirees. Taking a line from the movie *Field of Dreams*, “Build it and they will come” was a successful business mantra.

The growth and prosperity of the Florida golf industry fueled competition among private clubs, resorts, and daily-fee courses for their share of the market. Providing the best possible course conditions naturally has been of utmost importance, and when combined with technological advances that have been made over the years, it has been possible to raise the bar for overall quality and aesthetic course presentation. With a red-hot real estate market, waiting lists of people wanting to join clubs, and full tee sheets throughout the winter season, progressively increasing course maintenance costs could easily be justified. Over the past two decades, course operating costs have skyrocketed at a rate much greater than normal inflation. According to the accounting firm Parnell, Kern and Foster, which has been tracking golf course expenses since the 1970s, the average maintenance cost per hole in the U.S. has jumped from \$28,114 in 1990 to \$114,699 in 2008.

While the entire country is struggling to recover from an economic recession, the golf industry in Florida has been especially hard hit by the crashes in the financial and real estate markets. With revenues declining at most





The fairways were great all winter, so what the heck happened? Even with a proactive transition management plan, areas of very thin and weak bermudagrass can be exposed when the overseeding cover quickly dies out in the spring to early summer. Additional resources are needed to reestablish a dense and acceptable quality bermudagrass turf cover.

facilities, private clubs are having to deal with an increasing number of member resignations or downgrades; even at well-established clubs, waiting lists for new members have disappeared. Furthermore, there is a growing list of bankruptcy filings and course closures. In response to the economic difficulties that are plaguing golf courses across the country, Green Section agronomists have been gathering and disseminating cost-saving and cutting measures. Although these measures are helping courses cope, if economic and environmental sustainability is to be realized, longtime habits must be changed.

THE COST AND IMPACTS OF WINTER GREEN

Flip through the pages of any golf or travel magazine and there will be numerous advertisements with photos of lush, green, highly manicured Florida golf courses. The majority of these pictures are taken during the summer, when

grass is actively growing and indeed lush and green. Yet, the best time to be playing golf in Florida is the fall, winter, and early spring. During this time, bermudagrass, which is still the dominant turf species utilized throughout the state, is not actively growing, and in central to north Florida bermudagrass is in a semi-dormant stage and lacks green color for two to four months. Thus, to accommodate high expectations and demands for wall-to-wall green grass, over-irrigation, fertilization, and overseeding have been practiced. In the past it has been argued that the associated costs were justified by the revenues generated from peak winter season rounds and real estate sales. However, this expenditure of resources and manipulation of the environment are not sustainable.

Along with the cost of the seed, which can range from \$300 to \$600 per acre for fairways, there are additional costs associated with establishment, ongoing maintenance through the winter and spring, and then transitioning out the

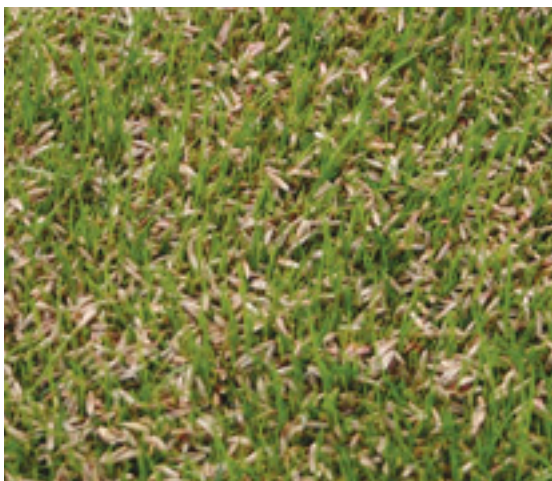
overseeding cover and reestablishing a dense, healthy bermudagrass turf cover and appropriate conditioning.

● **Labor** — The economic downturn has had the greatest impact on labor, and many golf courses have had significant cuts in staff size and overtime hours. Overseeding establishment and maintenance require an increase in labor. First, additional time and work are required to prepare the seedbed to complete the actual overseeding process. Then, once established and continuing for the next four to six months, overseeded tees, fairways, and roughs need to be mowed a minimum of three times per week. Then, more labor and resources are required for transitioning out the overseeding. Although it does not happen every year, laying truck loads of sod can be required to recover from bad transition, depending on the weather. Furthermore, not having to mow each day allows the staff the opportunity to keep up with course grooming.

● **Fuel and Equipment Maintenance** — Quite simply, having to mow throughout the winter, additional fuel is consumed to maintain the overseeding cover. Greater equipment maintenance is required, and the life expectancy of the equipment is further reduced.

● **Water** — While the golf industry is receiving recognition for irrigation efficiency and conservation, it is also a fact that increased irrigation must be practiced for establishing and maintaining an overseeding cover. Even if there is not a direct cost for water, there is an additional power cost for every gallon of water that is pumped onto the golf course. Furthermore, consider the cost of the negative publicity for the industry when the general public sees super-lush green turf in the middle of winter.

Going beyond the cost of overseeding, there are also agronomic effects and consequences. As noted earlier, and especially during the initial establishment phase, increased irrigation must be practiced. The frequent and light irrigation cycles that must be conducted to maintain seedbed moisture for germination and establishment are counterproductive to maintaining optimum bermudagrass root system development and health, let alone being able to provide dry and firm playing characteristics throughout the golf course. Through the rest of the time that the overseeding cover is present, stress and competition are exerted on the base bermuda, which further impacts its health and overall quality.



Fall seedbed preparation and seed application are just the first tasks on the overseeding list. Approximately six to eight weeks is required for establishment and redevelopment of acceptable course conditions. During this time the weather typically is ideal for playing, but golfers must put up with the often wet and soft conditions that are necessary for seed establishment.

This in turn creates the potential for transition problems in the late spring to early summer.

Employment of proactive spring transition management programs has long been recommended; however, because weather is a primary controlling factor, there are no guarantees that a very weak and thin base bermudagrass turf cover will not be exposed when the cool-season overseeding grasses rapidly decline and die in response to increasing temperatures and humidity. With the occurrence of a hard transition out of the overseeding cover, additional resources must be expended for recovery. It should also be pointed out that with overseeding every year, there are cumulative negative impacts on the health and quality of the base turf. Some additional consequences of winter overseeding need to be recognized.

• **Increased Pest Pressures** — When overseeding year after year, there is a progressive

buildup in both winter and summer annual weeds. Of particular concern during wintertime is *Poa annua*, and herbicide treatments must also be conducted to control volunteer overseeding establishment where it is not desired. Furthermore, research conducted by the University of Florida has documented that the juvenile root mass of the overseeding cover greatly favors the proliferation of plant parasitic nematodes. With elevated nematode population levels present in the spring, a greater negative impact occurs when the base bermuda begins to resume active growth and the flush of new root initiation occurs. Over the years there have been numerous cases where overseeding transition problems have been exacerbated by nematodes and have caused ongoing management problems throughout the summer. When combined with the loss of nematicides, nematodes have evolved into the number-one pest concern of Florida golf courses.

• **Increased Thatch/Organic Matter Accumulation** — Compared to northern cool-season turfgrasses, most bermudagrass cultivars have inherently lighter yellow to apple green color. So, to accommodate the desire for a lush, darker green color, additional nitrogen fertilization and irrigation, beyond what is needed to maintain sustained healthy growth and a dense turf cover, have been practiced over the years. When coupled with a seven- to ten-month growing season, significant annual organic matter generation and thatch accumulation have long been problems for courses throughout Florida. When winter overseeding is added to the equation, and an actively growing turf cover is present for literally 365 days a year, the organic load is further increased. Yet, due to golfer objections to the disruptions and inconveniences associated with summertime core aeration and verticutting, it has been virtually impossible to prevent the development of a four- to six-inch or deeper thatch and organic mat layer. In addition to the various agronomic consequences of excessive surface organic matter accumulation, being able to provide firm and dry playing surfaces is simply not possible. With the advent of large-acreage fairway topdressing programs and increased dilution of organic matter accumulation, firmer and drier surface conditions can be achieved. However, given the cost of this practice, it has been cut from most operating budgets.

Based on this review of cost and consequences of meeting unrealistic expectations for a lush,

Aggressive cart management, while never popular, is absolutely essential for survival during the winter, when bermudagrass is not growing.





Volunteer ryegrass establishment, along with a progressive increase in *Poa annua* weed populations, is another consequence of overseeding. Control remedies consume additional labor and materials.

dark green color character during the winter, a very strong case is presented that overseeding is not economically or environmentally sustainable.

BREAKING THE ADDICTION

Getting American golfers to accept changes in aesthetic characteristics has been and no doubt will continue to be a daunting task. The downturn in the economy and the necessity of having to base course management decisions on both cost and sound agronomy is forcing reality back into the picture. The following is a review of avenues that can be utilized for achieving sustainability without compromising quality and conditioning during the winter.

A strong argument has been presented against winter overseeding, but no doubt there will continue to be situations where it is considered a desirable and necessary practice. If this is the case, limit overseeding only to tees, approaches, and Tifdwarf bermudagrass putting surfaces. Overseeding roughs should be totally eliminated, and reducing the amount of fairway area by 10% to 20% can be achieved by reducing fairway width. The use of lower seeding rates and employment of an interseeding strategy can also produce satisfactory aesthetic and play characteristics while providing some cost savings and

minimizing negative impacts on the base bermudagrass.

With regard to fertilization, cutbacks have already been made at most courses due to reductions in operating budgets. Also, as is the case with putting greens, spoon-feeding tees and fairways is a strategy that can be successfully employed to maintain a dense, healthy turf cover while at the same time providing savings in material costs. There is a tradeoff, however, of requiring additional labor to make applications on a more frequent basis, and the staff must also be allowed the time and opportunity to conduct the applications. Furthermore, during the fall, spray applications of a small amount of soluble nitrogen plus an iron micronutrient source will produce a darker green color and aid in cool temperature color retention. In the late winter to spring, and even though temperatures are not warm enough to support the resumption of bermudagrass growth, spray applications will reestablish a green color.

So far, the focus of this article has been wintertime aesthetics. Providing a lush, green color has definitely been a driving force behind winter overseeding. However, when hosting peak seasonal play during the time when the bermudagrass turf is not actively growing or is in a semi-dormant stage, it is a major challenge to

deal with traffic wear and damage in addition to providing an acceptable playing surface for average to high-handicap golfers. The two most common complaints heard during winter season TAS visits is that the fairway lies are too tight and overly penal, and there is no definition between the fairway and rough cuts. This is because the turf has literally been beaten down and cannot recover from cart traffic wear and damage.

Besides being a revenue source, the high percentage of senior golfers in Florida, combined with course routings through real estate developments, makes golf carts a necessity. Yet, golfers have a limited appreciation of the significant negative impacts caused by cart traffic. Thus, while it will always be unpopular, cart traffic management must be an integral part of winter-time golf course management. Along with strict enforcement of multiple cart usage policies, directional control devices that re-route concentrated flow patterns need to be put into practice before the turf becomes totally worn out. Except during periods of inclement weather, cart-path-only restrictions are usually not tolerated. However, a program that has proven to be very beneficial at many courses is designating one or two holes per nine as cart-path-only for a week at a time, and rotating this setup among the par-4 and par-5 holes. This turf resting program does provide some opportunity for recovery, or at least reduced wear and damage, and does not adversely affect the pace of play. Even if a continuous cart path system is not available, carts can be restricted to designated routes in the roughs so that wear and damage are confined to a limited area.

GOING FORWARD

With courses struggling to cover basic operating expenses, spending money on renovation and updating capital improvement projects is not an option. However, capital improvement projects are still needed and can be justified for achieving sustainability over the long term. A case in point would be conversion to better-adapted turf-grasses. The improved cool temperature color retention and growth of the ultradwarf bermuda-grass cultivars has eliminated the need for winter overseeding of putting surfaces in Florida; at the same time they have raised the bar as far as the level of quality and conditioning that can be provided.

For tees and fairways, the fairly new bermuda-grass cultivar Celebration has exhibited improved wintertime performance compared to the long-time standard of Tifway (419). Celebration has also been found to require less irrigation and fertilization, and it has increased tolerance to plant parasitic nematodes. Seashore paspalum is another option that possesses several desirable characteristics, such as reduced irrigation and nitrogen fertilization requirements, very pleasing aesthetics, plus increased tolerance to poor-quality irrigation water. Yet, it should be reiterated that there is not and probably never will be a perfectly adapted, low-maintenance turfgrass for the sub-tropical to temperate environmental range of Florida.

There are significant improvements in course conditioning and playability that are realized by not overseeding, and they need to be touted. One of the most important of these is improved consistency throughout the year. By not overseeding, the golf course is not taken out of play or made soggy and slow for fall establishment at a time of year when the golf course should provide some of the best playing conditions. Also, there is no turf thinning or re-sodding during spring transition. Even though the turf is not lush green during the coldest months of the year, excellent putting green speed and smoothness can be provided, as well as extra ball roll on fairways.

In closing, turfgrass experts have long known the negative impacts of overseeding bermuda-grass for winter color, but it has been difficult for some courses to get over the initial fear of discontinuing this practice. Some golf courses stopped overseeding years ago due to poor turf health issues or limited resources, and they found the change to be quite successful. The recent economic downturn has forced other courses to follow suit, and they have found similar results. It is easier to move away from the “green is good, brown is bad” mentality as golfers become more educated about the subject. After all, the game of golf is not played on color. Breaking the winter green color addiction will be difficult for some, but it is necessary for achieving economic and environmental sustainability.

JOHN FOY spends a lot of his time educating golfers and course officials on the cost and consequences of winter overseeding in Florida.