

No-Till Bermudagrass Fairway Renovation

The no-till method is a lower-cost and less-disruptive option for converting fairways to newer, improved bermudagrass cultivars.

BY JOHN FOY



Excellent fairway playing conditions can be provided for golfers of all skill levels with new bermudagrass cultivars.

At golf facilities across the Sunbelt of the United States, bermudagrass has been the primary turfgrass species utilized on all playing areas. Since its introduction in the early 1960s, the hybrid cultivar Tifway (commonly known as 419) has been an industry standard for fairways, roughs, and tees. However, in recent years, several new bermudagrass cultivars have been introduced with improved performance characteristics and stress tolerances. Compared to previously used bermudagrass fairway renovation processes, the no-till renovation method is less expensive and less disruptive. It has been used successfully to convert fairways to new bermudagrass cultivars at a number of golf facilities in Florida and along the lower coast in the Southeast. Also, in the eastern part of the transition zone, a similar approach is being used to convert cool-season turfgrass fairways to cold-hardy bermudagrass cultivars. Along with improved fairway playing conditions, the desire for a more economically and environmentally sustainable golf course is prompting facilities to undertake no-till renovation projects when upgrading to newer, improved bermudagrass cultivars.

THE FLORIDA NO-TILL STORY

The challenge at golf facilities in Florida is that peak play occurs during the fall, winter, and spring months when bermudagrass is dormant, or at least semi-dormant. Overseeding bermudagrass fairways with perennial ryegrass was a common practice for providing wintertime golfers with dense and lush green playing surfaces. However, large acreage overseeding is neither an economical nor environmentally sustainable management



Persistence of uniform turf character and better wintertime performance have resulted in Celebration bermudagrass gaining popularity and use in Florida.

practice and is no longer conducted at many facilities in Florida (see [“Breaking the Winter Green Addiction”](#)). A bermudagrass cultivar with better cool-temperature growth, color retention, wear tolerance, and divot recovery compared to Tifway would be of great benefit for courses in Florida and other regions where winter is the primary golf season.

Celebration was the first bermudagrass cultivar to be introduced with improved shade tolerance. This characteristic prompted its initial use in historical problem areas on several golf courses. It was observed to also possess better color retention and growth during cool weather compared to Tifway. In several university research trials, Celebration was a top-rated cultivar for wear tolerance and recovery, divot recovery, and drought tolerance and recovery. Another important characteristic for Florida golf facilities is its tolerance to plant parasitic nematodes (see [“Still Stinging”](#) and [“Evaluating Bermudagrass Cultivars for Traffic Tolerance and Recuperative Ability”](#)).

In 2005, Bob Bittner, CGCS, at The Club Pelican Bay in Naples, Florida, established several Celebration test plots to evaluate its performance in shaded rough areas. A fairway test area was also established to allow the membership to evaluate the general

performance and quality of Celebration. An additional concern at The Club Pelican Bay and other golf facilities throughout the region has been invasion and establishment of coarse-textured and poor-quality common bermudagrasses in Tifway fairways.



Invasion of coarse-textured and poor-quality common-type bermudagrasses into fairways has long been a problem for Florida golf facilities. No-till renovation is an option for reestablishing a uniform turf cover and converting to a cultivar with improved year-round performance.



Golfers can continue to play while the existing turf cover is being killed and will enjoy increased roll on their tee shots. Total kill of bermudagrass is almost impossible, however, and replanting with an aggressively growing cultivar is needed to ensure that a uniform turf cover persists.



With the exception of the actual planting/sprigging process, additional specialized equipment is not required for no-till renovation of fairways.

In the fairway test area, minimal preparations (two applications of non-selective herbicides followed by verticutting and core aeration) were conducted to determine the feasibility of establishing a dominant Celebration turf cover. Additional trials were conducted over the next couple of summers. Even in test areas where no herbicide treatments were applied, it was possible to establish a dominant turf cover in six to eight weeks. Based on the overall quality and uniformity of the initial fairway test area, the decision was made to initiate a larger-scale fairway regrassing project beginning in 2009. The no-till process was used to convert to Celebration on all 27 holes at The Club Pelican Bay over three years.

Celebration was also planted on several new golf courses and in a few renovation projects in South Florida in the mid-2000s. Good wintertime and year-round performance, combined with persistence of a uniform character, has resulted in Celebration quickly gaining popularity and expanded use throughout Florida.

ALSO AN OPTION FOR THE TRANSITION ZONE

As discussed in [“Warming Up in the Transition Zone,”](#) bermudagrass and zoysiagrass require fewer inputs and thus are less expensive and more environmentally friendly to maintain, compared to most cool-season turfgrass species. A limiting factor with bermudagrass, however, has been its lack of cold tolerance. USGA-funded research has resulted in the development of new cultivars such as Riviera, Latitude 36, Yukon, Patriot, and Northbridge that have both improved cold hardiness and overall quality. In particular, the vegetative hybrid cultivars Latitude 36 and Northbridge have consistently received top ratings in the [National Turfgrass Evaluation Program](#) (NTEP) bermudagrass tests in multiple locations across the country. Early spring greenup and aggressive summertime growth habit provide both cultivars with a competitive advantage over other bermudagrasses. In turn, they are able to better resist contamination by other grasses. These charac-

teristics also make these cultivars good candidates for no-till fairway renovation.

THE NO-TILL PROCESS

No-till fairway renovation is not a totally new concept. In the early 1980s, row planting of bermudagrass was used in the Southeast for repairing winterkill damage. Row planting was also promoted as a means of converting common-type bermudagrasses to Tifway with reduced course disruption and downtime. In Florida, satisfactory results were seldom achieved due to the reemergence of the common types. The aggressive growth habits of Celebration, Latitude 36, and Northbridge have been a game changer because of their ability to establish and maintain a uniform character throughout the fairways. Other adjustments and fine tuning the row-planting process have been made. Below is a summary of the basic steps used with no-till fairway renovation.

Herbicide Treatments — In the spring and as soon as bermudagrass growth is occurring, a broadcast application of glyphosate plus fluzifop is conducted to begin killing the existing turf cover. Following up with at least one and preferably two more broadcast herbicide treatments on a 21-day interval is recommended to ensure a high degree of bermudagrass kill. Also, during this time, regular irrigation is continued and one or two applications of a readily available nitrogen source are applied to stimulate regrowth and further increase the percentage of kill. If seashore paspalum is also a component of the turf cover, including other herbicides in the tank mix is advised. The golf course usually remains open to play during this time, and while golfers may complain about brown grass, they also enjoy an extra 20 or more yards of roll on their tee shots.

When converting from a cool-season base turf to bermudagrass, one or two broadcast applications of a non-selective herbicide are also recommended to eliminate competition during the initial establishment phase. While successful conversions have been accomplished without non-selective herbicide treatments, bermudagrass establishment is slower.

Sprig Bed Preparation — The best results with no-till renovation have been achieved when aggressive verticutting and core aeration are conducted to prepare the sprig bed. Verticutting (or scalping) followed by sweeping is conducted first to remove dead grass and provide good sprig-to-soil contact. Once as much of the debris as possible has been removed, multiple core aerations are performed to bring additional soil to the surface. Some have opted to perform heavy sand topdressing as well, but this adds significant cost.



No-till renovation (on the left) versus total renovation (on the right) side of this fairway. The retention of a percentage of organic matter in the no-till side resulted in faster turf establishment and a more mature stand of bermudagrass.

Sprig Planting — A standard planter that spreads and then cuts sprigs into the soil surface has been used in most no-till fairway renovation projects. Some growers use an alternative “sod to sprig” planting process. This equipment shreds big roll sod and then cuts the sprigs into the soil surface. Rolling fairways with a two-to seven-ton unit has also been a common practice for increasing sprig-to-soil contact along with restoring a firmer and smoother surface. A sprigging rate of 600 to 800 bushels per acre has typically been used. While the higher sprigging rate is more expensive, it speeds establishment.

For most, full turf coverage and playable conditions are achieved six to eight weeks after planting.

It should be pointed out that there are additional agronomic benefits with the no-till process compared to previously used renovation processes of stripping the sod and rototilling the soil. When a percentage of organic matter is retained in the upper rootzone, nutrient and moisture retention increases, and this speeds grow-in and lessens the time for the turf to reach maturity.

In conclusion, the no-till fairway renovation process has proven to be

a good option for converting to new bermudagrass cultivars. In addition to providing superior fairway playing conditions, these cultivars are more environmentally friendly to maintain, which serves to increase long-term sustainability for the golf facility. USGA Green Section regional agronomists can provide more information on which cultivars are best adapted to a specific location as well as details for a successful conversion.

***JOHN FOY** is director of the USGA Green Section's Florida Region. He has observed fairway renovations in Florida for 28 years.*