

## Drought-Tolerant Grasses In Rough

Carolina Golf Club  
Matthew Wharton, CGCS, superintendent

Charlotte, N.C.

### The Problem

Carolina Golf Club underwent a four-phase, master-plan renovation that began in May 2005 and concluded in fall 2008. The renovation included establishing nearly 20 acres of fine-leaf fescues – chewing's fescue, sheep fescue and hard fescue – from seed to create expansive natural and native areas. The fine fescue areas were intended to be low maintenance – i.e., require less water and mowing – and were a core aesthetic component of the architect's vision for the remodeled golf course.

In 2009 a cool summer and excessive rainfall – over 54 inches of rain – helped the fine fescues establish with little difficulty. By spring 2010 the fine fescue areas exceeded expectations, but then came summer. The resulting heat and humidity of summer 2010 took its toll on the fine fescue – a grass poorly adapted to intense sunlight and environmental conditions prevalent in Charlotte, N.C. The need arose to identify and establish a grass that provided a similar look and definition as the fine fescues but was capable of surviving a typical transition-zone summer.

### The Solution

After summer 2010 it was clearly evident fine fescues were incapable of surviving alone in certain microclimates on the Carolina Golf Club property. The fine fescues managed to persist in shade under tree canopies and on north-facing slopes but did not survive on vast, open areas with southern exposure. Broomsedge (harvested on site) and a commercially available seed mixture – Native Short Mix – were selected as alternatives to fine fescue and used to reestablish areas where the fine fescue failed. The Native Short Mix contained three warm-season grasses – little bluestem, blue gramma and side oats gramma – and two fine fescues. The goal was to allow natural selection determine which grasses would colonize specific areas.

Before reestablishing, nonselective herbicide was applied to remove unwanted weeds like common bermudagrass, crabgrass, and others. Next, the areas were core aerated using a commercial-grade, walk-behind lawn aerator. Compost was applied to the poorest soils and raked into the seed bed. All seeding was done by hand to create a more varied, naturally established appearance. Areas of barren soil were mulched with either a pelletized material –

e.g., Seed Aide® – or matting depending on slope and grade. Irrigation only was applied to encourage quick establishment before letting nature take its course.

### **The Results**

After finally achieving the necessary maturity for sward survival, it was noted that some of the warm-season grass types in the Native Short Mix can take close to 18 months to fully establish. Eighty full-circle irrigation heads were changed to part-circle types so that the natural and native areas are now non-irrigated – reducing the total amount of water used on the property. Also, we have eliminated all mowing in the natural and native areas that were previously mowed once annually.

The biggest challenge was overcoming the original expectation held by many golfers. Some believed the failure of the fine fescues was the result of poor management rather than poor grass selection. Convincing golfers of an alternative to fine fescue took several years of engagement and involved the USGA Green Section, traveling to other courses and comparing notes with other superintendents dealing with similar issues growing fine fescue in ill-suited climates. Several attempts were made to reestablish fine fescue in areas where it previously did not survive simply because the golfers wanted the playability and texture of fine fescue over the coarser texture of warm-season grasses.

Also, weed management has been a huge issue in the native and natural areas. Although the native and natural areas are not irrigated, above-average rainfall during recent summers caused a surge in weed populations. Increased labor was needed to manually remove weeds from the native and natural areas.

One thing that Superintendent Matthew Wharton, CGCS would do differently is change the golf course irrigation plan at the onset of the renovation. The original golf course irrigation plan called for head-to-head coverage throughout the property without regard to grass type. Designing the irrigation plan around the grass types to avoid unnecessary over watering in naturalized areas while simultaneously providing better coverage of the playable bermudagrass surfaces would have been ideal.

