

A Kingdom of Fairways

The 1st Fine Fescue Symposium at GCSAA

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Mike Lee from the Kohler courses has taken a farsighted initiative to define the future of golf course management. At this year's GCSAA conference in Orlando, Mike assembled a hodgepodge of roughly 35 superintendents, researchers, and golf course architects for the First Annual Fescue Symposium. Mike had an ambitious goal: to set parameters for managing fine fescue turfs on golf courses in the U.S. Best of all, he invited superintendents from some of Europe's most prestigious golf clubs such as Eddie Adams of St. Andrews, Colin Irvine of Muirfield,

and others to give their impression of fine fescue use and management.

During the 20th century Americans developed increasingly more sculpted and labor-intensive golf courses, some of which, like Augusta National, are instantly recognizable worldwide. But what goes around comes around. While Americans were crafting exotic courses, the United Kingdom (UK) continued to do business more or less as usual. Topdressing was done by hand. Heather was used to line bunkers and as yardage markers. Irrigation and fertilization were minimal, and golf courses remained

reliant on fine fescues for roughs, fairways, and often greens. Now some developers in America are heeding a call to return to these "links" style courses.

Golf course architects and developers are starting to use more fine fescues on American golf courses. Often the fescues are used as a primary component of roughs in order to reduce nutrient and irrigation requirements. Permitting becomes easier when a rough mixture is billed as a "native" mix—dependent largely or entirely on fine fescues, regardless if they are truly native to the U.S.

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Most interesting though is the new propensity to use fine fescues for fairways. This seems to be done for two reasons: 1) To produce a true "links" style golf course, and 2) To provide a more environmentally-friendly golf course. Advocates have preached fine fescues for years—after all, they have worked for centuries on the relatively low-maintenance courses in Scotland and the rest of the UK. In the last few years the U.S. has seen Whistling Straights, Roaring Fork, Brandon Dunes, Sand Hills, and the Vineyard Golf Club plant fairways to fine fescue. It was superintendents from these courses who were most keenly interested in what their counterparts from across the ocean had to say about fine fescues.

Irrigation, drainage, and soil type

Water is vital for many turf functions, particularly growth, but fine

fescues have relatively slow growth rates compared to other cool-season grasses. During my trips to England in 1993 and 1998 I noticed very few courses had fairway irrigation. Our fine fescue fairways plots at the O.J. Noer are irrigated once weekly to replenish 50% of the estimated evapotranspiration (ET) rate (basing irrigation on ET allows us to adjust for rainfall and avoid overwatering). The lack of discussion on the topic indicated irrigation was of minor importance.

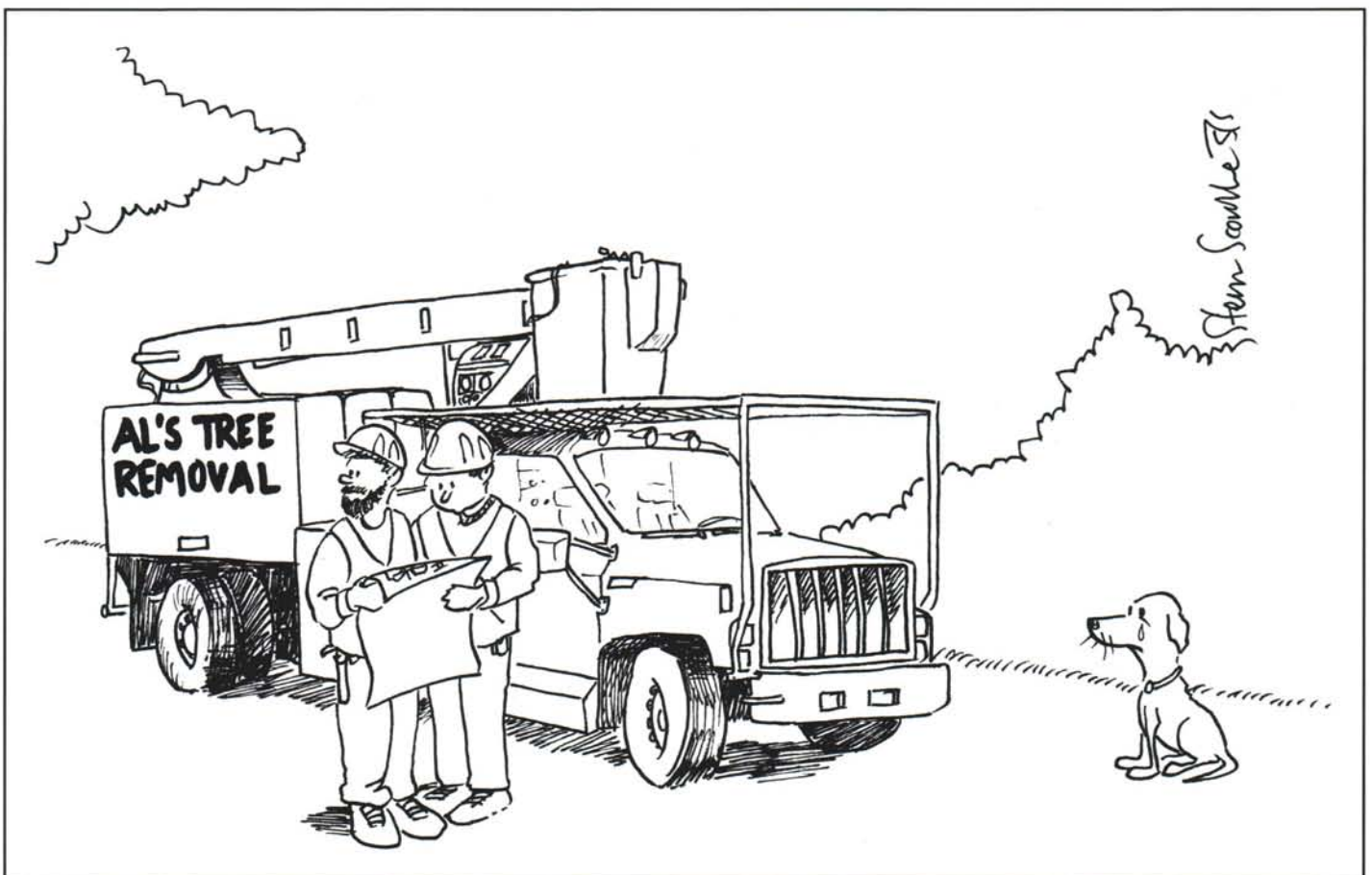
All the superintendents agreed the most important soil aspect for fine fescue management was good drainage. Wherever drainage was poor, people agreed fine fescues performed poorly. Traffic tolerance was especially reduced in wet soils. The most likely reason for poor performance in wet soils is lack of oxygen in the root zone. If so, grasses which perform better in wet soils

may provide a source of genes to develop fine fescues which more efficiently utilize oxygen for root growth.

Dogma has it that fine fescues prefer low pH soils. Comments from the UK superintendents suggest fine fescues can tolerate pH above 7 just fine. Soil type also seemed irrelevant. Some of the UK superintendents maintain sand based greens with turf composed partially of fine fescues. The same superintendents said fine fescues performed well on clay based fairways and roughs as long as drainage was sufficient.

Mowing

Mowing heights in the U.S. and the UK have declined during the past 20 years. Everyone will agree fine fescues can be ideal for unmowed, low maintenance roughs. But can they persist in closely mown fairways? Eddie Adams of St. Andrews mows their



fairways between 8-12 mm (approximately 5/16" to 0.5"). Greens are mowed at 5 mm (approximately 3/16"). Stuart McCown at Kings Barnes in the UK mows his greens at 6 mm and is able to maintain green speeds of 10-11 ft. Golfers like the upright lie provided by the stiff blades. The U.S. superintendents at the symposium maintain their fescue fairways at a range of heights from 0.4 to 0.8 inches.

Fertility

Fine fescues are deemed environmentally desirable partially because their slow growth rate requires little fertility. Their slow growth rate, though, may cost them some traffic tolerance. In our fairway NTEP evaluation at the O.J. Noer Facility, we've been fertilizing with 0.5 lb N/1000 ft² each growing month, approximately 3 lb N/1000

ft² each year. One of the superintendents from the UK, who has fine fescues on a sand-based green, said he applies only 0.75 lb N/1000 ft² per year, part of it from ammonia sulfate and the rest from dried blood. The nutrition is supplemented by seaweed extract-containing products. The topdressing mix is 80:20 with the organic fraction composed of "fen" soil. Fen soil is the top soil layer from peat bogs. Such an enriched medium likely adds additional nutrients for turf growth.

On fairways as well as roughs, though, most UK superintendents agreed they are likely to use no fertilizer once the turf is fully established. Full establishment of some fine fescue swards can take up to five years. While some UK courses may have only 50 rounds per day, others have a more American-like 25,000 rounds per year. This lack of

fertilizer is in sharp contrast to our habits of routine fertilization.

Traffic tolerance

When I was in college my professors gave fine fescue short thrift, teaching us that while fine fescues were low maintenance grasses they could not withstand short cutting heights and traffic. Dan Lucas of the Kingsley Club in Michigan feels the fine fescue on his golf course handles foot traffic just fine, but cannot tolerate cart traffic. Dr. Bill Meyer (Rutgers University) reported hard fescue can show traffic effects one year later, while strong creeping red fescues have the best recovery. The recovery rate of Chewings fescue is in between that of hard and strong creeping red fescues. Bill further noted that traffic tolerance is especially compromised by hot, humid conditions. Mike Lee said the Chewings fescue at Whistling



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Straights has acceptable traffic tolerance—what it lacks is recuperative ability once it is worn out. What needs to be determined is if there is a specific level of nutrient inputs that will enhance traffic tolerance. Traffic tolerance is likely also dependent on species and even cultivar type. Dr. Leah Brillman (Seed Research of Oregon, Inc.) noted that some of the experimental lines of hard and creeping red fescue have superior heat and wear tolerance, but aren't being released commercially due to poor profit margins.

Cultivation

Despite their slow foliar growth fine fescue turfs may need regular cultivation. At St. Andrews thatch production is a problem on old greens. Greens are typically aerified twice during the winter with 0.75 inch tines. Other UK superintendents use solid tines when *Poa annua* is dormant (November through April) or slit-tine at 14-day intervals. It is no surprise the rhizomatous creeping red fescues can develop thatch, but Dr. Meyer concurred that even Chewings fescue can develop thatch in some cases. Various types of aerification are useful to improve drainage, mix soil layers, and prevent thatch buildup. At St. Andrews, the deep-tine aerification may help in producing their 12-14" root depths.

Diseases

One of the main strengths of fine fescues is their relatively good disease resistance. Dollar spot is rare. Snow mold is of little consequence. Leaf spot can be harmful but can be controlled with resistant varieties and good water management. Red thread, a cosmetic disease during periods of cool, moist weather, is considered an indicator of "good" (lean) nitrogen levels by UK superintendents. One of the UK superintendents reported using a fungicide only three times in the past four years. Troy

Russell of Brandon Dunes has not used a fungicide in two years.

Weeds

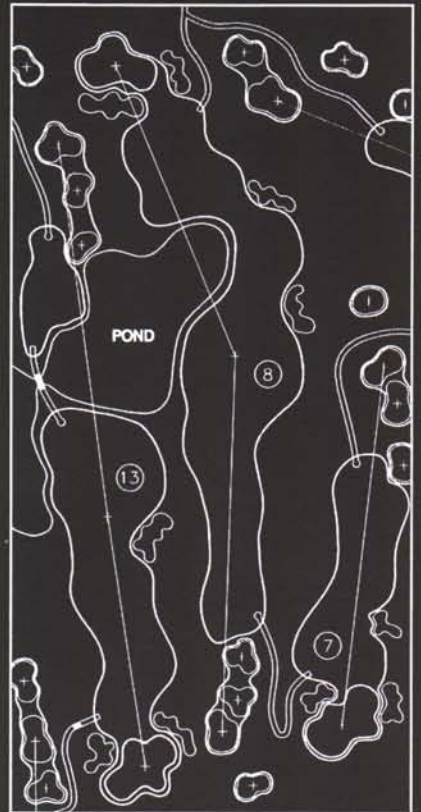
Herbicide options in fine fescue turf are similar to those for other cool-season turfgrasses. The main weed problem in fine fescue turf, both in the UK and the U.S., is *P. annua*. Unfortunately there are still few herbicide options for selective removal of *P. annua* from cool-season turfgrasses. The best option is to maintain a dense turf to prevent the establishment of *P. annua*.

Fine fescue and colonial bentgrass mixtures may be the best thing since sliced bread

Fine fescues are often mixed with colonial bentgrass for fairways in the UK. This approach has been followed by Jeff Carlson at the Vineyard Golf Club in the U.S. Superintendents in the UK say the bentgrass/fescue combination provides better results than either species alone. Depending on the time of year and climatic conditions one species will predominate over the other, and the relationship changes again with conditions. The traditional seed mix is 80% fine fescue, 20% colonial bentgrass by weight (because of the difference in seed size the result is a nearly equivalent amount of both species). Brandon Dunes in the U.S. used such a mixture for their fairways which are now entering their fourth year of play.

Our own research at UW-Madison agrees with the UK experience. Jeff Gregos' M.S. project has shown fine fescues have excellent snow mold tolerance, while even colonial bentgrass has better snow mold tolerance than creeping bentgrass. Fine fescue by itself, though, is prone to *P. annua* invasion, a problem noted both by UK and U.S. superintendents in their fine fescue fairways. Dr. Brillman pointed out that both species are much less susceptible to dollar spot than creeping bentgrass. She also suggested the

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use of endophyte-enhanced fine fescue cultivars to enhance disease resistance. While fine fescues provide a different look and feel than our conventional monostands, mixtures of fine fescue and colonial bentgrass may well become part of the future solution to golf course maintenance as regulations limit fertility and pesticide inputs.

Where do we go from here?

Three hours of discussion produced a wonderful exchange of information between UK and US attendees. It seemed clear that fine fescue provides an ideal turfgrass for many golf course situations in the UK. Less water, fertilizer, and pesticides are apparently needed than on our bentgrass or bluegrass fairways in the U.S. There is no doubt in my mind that fine fescues and other novel turfgrasses will play a bigger role in U.S. golf courses in the near future. Several differences exist between UK and U.S. situations, though, which must be kept in mind.

First, the UK has less environmental extremes than most of the U.S. Temperature swings, highs, and lows often are not as great as in most of the continental U.S. Rainfall also is more consistent, allowing

superintendents to maintain turf with less reliance on irrigation. Secondly, UK golfers have different expectations than U.S. golfers. On my 2nd trip to England, I saw hay production from the rough on one of the golf courses—something that would never be tolerated in the U.S. It is not uncommon to see fairways in England (and other parts of Europe for that matter) in a state of semi-dormancy from drought. Comments from the UK superintendents indicate this is changing, though, as the younger generation of golfers has been Americanized and are increasingly expecting the Augusta “green grass” syndrome. Thirdly, it has been my experience (albeit limited) that superintendents at golf courses in the UK are less subject to the whims and follies of green committee members. In my conversations with superintendents in England it seemed fairly typical for superintendents to spend most or all of their career at a single course. Job security gives superintendents more flexibility to have droughty conditions or dormant turf during the playing season.

The symposium concluded with the question “Where do we go from

here?” One attendee suggested we need to find ways to communicate the benefits of fine fescue use to the golfing public in order to achieve public acceptance. I suggest the following: get the PGA to speak up for the benefits of fine fescue and environmentally sound golf management. Televised tournaments must be played on non-conventional courses which utilize environmentally-sound management, including non-traditional grass mixtures. The USGA promotes environmentally sound turf to a certain extent and needs to continue to educate their members as well as the public. Ultimately it may be the force of legislation which will drive us down the path towards using more fine fescues for golf courses. Anyone wanting to build an experimental, low-maintenance and environmentally sensitive golf course in the upper Midwest might do well to try fine fescue/colonial bentgrass fairways and velvet bentgrass greens. Ryegrass, regularly overseeded, might be a good option for tees. As Dan Lucas said, “We need a philosophy, not just a single grass, for an environmentally sound golf course.” ♻

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