

Cultural Practice Interactions of Golf Course Turf

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Dr. Garald L. Horst
Principal Investigator

Annual bluegrass is recognized as a serious weed problem in highly maintained turf. The invasion of annual bluegrass has negatively influenced turf quality and playability on golf courses. This study was initiated to determine the effects of irrigation frequency, clipping removal, nitrogen nutrition and traffic on creeping bentgrass fairway turf quality, playing conditions and annual bluegrass encroachment.

Attempts at controlling annual bluegrass with herbicides date back to the 1930's. Even if the existing *Poa annua* can be eliminated, it will doubtlessly return unless a good cultural program is established. A basic principle of turfgrass science states that each grass species will thrive best under a specific environmental and cultural regime, and that the regime for each species will be different. Thus by structuring a cultural maintenance program to fit a desirable species as much as possible, it would be possible to reduce the population of *Poa annua* in a turfgrass stand.

The typical conditions found on golf course greens, tees, and fairways are high fertility, close mowing, and frequent watering. These areas generally have compacted soils caused by traffic of vehicles, equipment, and golfers. Under these conditions, annual bluegrass (*Poa annua* L.) invades, persists and becomes a major component of the turfgrass stand. In other words, the cultural practices and soil conditions on current golf courses are ideal for the invasion of annual bluegrass.

Interactive effects of irrigation frequency, clipping removal or return, nitrogen rate and traffic on 'Penncross' creeping bentgrass competition with annual bluegrass (*Poa annua* L.) were evaluated under fairway management conditions. Differences were observed for turfgrass color and quality, playing conditions and annual bluegrass encroachment when traffic and nontraffic conditions were compared. Turfgrass color and quality rating values increased with irrigation frequency, nitrogen rate and lack of traffic. Fairway playing conditions improved with reduced irrigation frequency, clipping removal, reduced nitrogen nutrition and traffic. Annual bluegrass encroachment (*Poa annua* var *reptans*) increased with nitrogen rate. These preliminary results support the premise that cultural practices play an important role in enhancing or deterring annual bluegrass and creeping bentgrass interactions. The various interactions demonstrate the need for a combination of management practices to maintain quality creeping bentgrass fairways.

Trying to contain the *Poa* population on a golf course to a reasonable level is a difficult and somewhat frustrating problem even under the best of circumstances. By knowing which cultural practices will optimize fairway turf quality and playability, yet limit *Poa annua* to a relatively small populations, the golf course superintendent can then choose a proper fairway maintenance program.