Overseeded Bermudagrass Fairway Performance and Post Dormancy Transition as Influenced by Winter Overseeding Practices and Trinexapac-ethyl

by

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(ABSTRACT)

Dormant bermudagrass (*Cynodon dactylon*) fairways become matted down and thinned out from winter traffic. This appears to be more of a problem on the coarser textured, winter hardy, improved varieties (e.g., 'Midiron' and 'Vamont') typically used in the colder regions of the upper transition zone. Winter overseeding with cool-season species can improve dormant bermudagrass winter and spring quality. However, bermudagrass persistence can decline in golf course fairways overseeded with ryegrasses (*Lolium* sp.) for winter quality if ryegrasses persist due to cool spring temperatures, use of persistent ryegrass varieties, and management practices that favor ryegrasses over bermudagrass. Winter overseeding practices that facilitate a reliable transition from overseeded species to bermudagrass would enable transition zone golf courses to overseed bermudagrass fairways for winter-spring quality while allowing the bermudagrass turf to persist without excessive competition from cool-season overseeded species. Studies were conducted to determine the effects of perennial ryegrass (*L. perenne*) and annual ryegrass (*L. multiflorum*) seeding rates on winter-spring quality and subsequent transition to bermudagrass in two transition zone locations. Studies were also

conducted to determine the potential influence trinexapac-ethyl (TE), a plant growth regulator used by many professional turfgrass managers to suppress foliar growth, has on encouraging overseeded species to transition to bermudagrass. These studies demonstrated that higher overseeding rates (448 and 896 kg ha^{-1}) can provide greater winter-spring quality but do not enhance transition to bermudagrass over lower overseeding rates (224 kg ha^{-1}). This was especially evident in cooler transition zone climate, where higher overseeding rates delayed transition to bermudagrass. Annual ryegrass transitioned to bermudagrass better than perennial ryegrass, but the overseeded winter-spring quality of annual ryegrass was unacceptable. Perennial ryegrass varieties differed in transition. Some perennial ryegrass varieties were too persistent to fully transition to bermudagrass even with the onset of summer temperatures. Intermediate ryegrasses (*L. multiflorum x L. perenne*) appeared to be promising alternatives to overseeding perennial ryegrass in areas of the transition zone where summer reliance on bermudagrass turf is strongly preferred. Trinexapac-ethyl, when applied to overseeded perennial ryegrasses, did not enhance overseeded ryegrass transition to bermudagrass. Spring TE applications to overseeded perennial ryegrasses were found to reduce or delay their transition to bermudagrass.

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