

# CONTROL OF BERMUDAGRASS (CYNODON DACTYLON) IN ZOYSIAGRASS (ZOYSIA JAPONICA) TURF BY USING POST-EMERGENCE HERBICIDES

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## ABSTRACT

Bermudagrass and zoysiagrass are two commonly used turfgrass on golf course fairways in the southern and transition zone of the United States. Due to its excellent turf performance and superior cold tolerance compared to bermudagrass, zoysiagrass are the dominant turfgrass used in upper transition zone area, including Missouri. However, bermudagrass still brings encroachment problem on many zoysiagrass fairways. Similar sensitivities of the two species to most commonly used herbicides make it difficult to remove one from the other.

Experiments were first conducted in the greenhouse with different herbicides and plant growth regulators applied on 'Quickstand' and 'Riviera' bermudagrass, and 'El Toro' and 'Meyer' zoysiagrass. The most promising chemicals that produced highest discoloration to bermudagrass but minimum impact on zoysiagrass were tested on a golf course where severe bermudagrass encroachment happened on the zoysiagrass fairway. The results show that aryloxyphenoxypropionate (AOPP) herbicides fenoxaprop or fluazifop combined with triclopyr at  $0.14 + 0.23 \text{ kg ha}^{-1}$  or  $0.09 + 1.0 \text{ kg ha}^{-1}$  provided 100% bermudagrass control without compromising desired turfgrass quality. However, the greenhouse study showed that 'Quickstand' and 'Riviera' bermudagrass exhibited different sensitivities to AOPP herbicides, leading to 2~7 folds discoloration differences. Although they are in the same species, genetic variations still exist and most likely contribute to the differentiated responses. This study suggested that both inter- and intra-species variations need to be considered before developing a turfgrass herbicide program to control bermudagrass encroachment into zoysiagrass. Future studies focused on investigation of the mechanisms underline the intra-species differentiation among bermudagrass varieties are still on-going.