



North Carolina State University Study

On Athletic Traffic Simulation

Summary

- Eight Bermudagrass cultivars were evaluated for their performance under athletic foot traffic simulation
- The study was conducted in 2004 and repeated in 2005 on the following cultivars: 'TifSport', 'Tifway', 'Tifton 10', 'Navy Blue', 'GN-1', 'Patriot', 'Celebration' and 'Quickstand'.

Results

- Celebration exhibited the lowest surface hardness of any non-trafficked cultivar; excessive surface hardness has been directly correlated to an increase in player injury on athletic fields.
- Recovery rates were assessed by the rate of lateral spread of each cultivar. From zero cover, Celebration achieved the greatest recovery at 86%

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Athletic Traffic Simulation Effects on Eight Bermudagrass Cultivars.

James M. Rutledge, **Charles H. Peacock**, Richard J. Cooper, and Arthur H. Bruneau. North Carolina State University, PO Box 1618, Banner Elk, NC 28604

Bermudagrass (*Cynodon* spp.) cultivars selected for use on athletic fields and golf course fairways must possess the ability to thrive under a variety of stresses brought about by extensive use. **The objective of the study was to evaluate cultivar performance differences under athletic foot traffic simulation** using a variety of approaches including: analyzing root mass, assessing turf quality, and determining surface hardness. The study was conducted in 2004 and repeated in 2005 on the following cultivars: 'TifSport', 'Tifway', 'Tifton 10', 'Navy Blue', 'GN-1', 'Patriot', 'Celebration' and 'Quickstand'. Traffic simulation was artificially induced beginning during the last week of July and was continued for a five (2004) or six (2005) consecutive weeks. Clegg impact values were obtained to quantify surface hardness differences among cultivars in May, June, and August immediately following the termination of the traffic simulation. **Data from 2004 found that Celebration exhibited the lowest surface hardness of any non-trafficked cultivar. Excessive surface hardness has been directly correlated to an increase in player injury on athletic fields.** Clegg Impact Values (CIV) for Celebration remained low throughout the 2004 season, ranging from 6.7 at the first sampling date to 4.4 during the last sampling date. Traffic simulation had the greatest effect on Quickstand, GN-1, Navy Blue, and Tifton 10 in 2004 while other cultivars showed little injury due to traffic. Non-trafficked plots of Celebration, Patriot, Quickstand, Tifway, TifSport, and Tifton 10 all had greater mean percent cover than Navy Blue. This variation was then taken into account when analyzing the effect of traffic on these cultivars. **Recovery rates were assessed by the rate of lateral spread of each cultivar. From zero cover, Celebration achieved the greatest recovery at 86%** followed by TifSport and Quickstand, each with 70% recovery after four weeks.

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