RESEARCH UPDATE

More research on athletic fields

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Many excellent research papers on turfgrass management were presented at the meetings of the American Society of Agronomy held in New Orleans in December, 1986. Some of these research papers have particular relevance to athletic field management and may assist professionals in making decisions.

A.D. Brede, formerly of Oklahoma State University, discussed his work evaluating cultural methods of reducing Bermudagrass encroachment into tall fescue turf. Surprisingly, there was no difference in encroachment of the Bermudagrass into K-31 and Mustang tall fescue. One would have thought that the more dense Mustang would have slowed Bermuda advancement. In general the Bermudagrass was most invasive under lower mowing heights, higher nitrogen levels, lower tall fescue seeding rates and in spring seeding situations.

PRACTICUM: Maintain tall fescue athletic fields with moderate levels of nitrogen (3 to 4 lbs. N/1000 sq. ft./year), reasonable mowing heights (1.5 to 2.5 inches), fall fertilization, which does not favor the Bermudagrass, and when repairing areas utilize adequate seeding rates (4 to 6 lbs/1000 sq. ft.).

P.H. Dernoeden of the University of Maryland presented a literature review on the effect of herbicides on turfgrass rooting. In Kentucky bluegrass the severity of root inhibition among the most commonly used preemergence herbicides at normal use was generally: bensulide>benefin>oxadiazon>DCPA>siduron.

He noted that on Bermudagrass, siduron, napropamide, prosulfalin, metribuzin and bensulide have been reported to inhibit rooting. Root inhibition on both Kentucky bluegrass and Bermudagrass has been reported within four weeks of 2,4-D or dicamba use.

Z.J. Reicher and N.E. Christians of Iowa State University looked at preemergence herbicide-induced rooting inhibition as it was affected by maintenance level and noted that pendimethalin produced root inhibition on Kentucky bluegrass at normal use rates under low maintenance, but did not produce a significant negative effect under high maintenance.

PRACTICUM: When using herbicides be aware of the possible negative effects associated with their use and if possible alter management to minimize the stress. Irrigation, higher mowing heights, proper mowing frequencies, adequate aeration and proper nitrogen timing and amounts to enhance root growth can all minimize the negative effect of any herbicide-induced root inhibition.

R.S. Sowers and M.S. Welterlen of the University of Maryland reported on the use of clear polyethylene covers to enhance the sprig establishment of Midiron and Tufcote Bermudagrass. Early summer sprig establishment success was reduced with the use of tarps because of excessive heat buildup. Late season spriggings made in August, September and October with clear plastic tarp cover, established quicker, went into dormancy later and showed increased winter survival.

August and September spriggings kept under the tarp for the entire winter provided 100 percent ground cover by July 1. October spriggings tarped for winter showed poor establishment cover on the following July 1.

PRACTICUM: Use of tarps to enhance late season Bermudagrass sprig establishment can be beneficial, however there are limits to the ability of the tarp to produce 100 percent winter survival. Avoid use of tarps under mid-summer conditions unless you can monitor them closely and avoid excessive heat buildup.

Additional management factors that will enhance establishment rate and winter survival include balanced nitrogen and potassium nutrition (2.0 to 2.5 lbs. of nitrogen and potassium/1000 sq. ft. disc into the sprig bed). High mowing heights late in the season will help retain soil heat and insulate crown tissue. Adequate irrigation will promote rapid growth. Additional potassium applications late in the growing season will likely improve winter survival of the less winter hardy Bermudagrass cultivars.

R.L. Henderson and D.V. Waddington reported on their attempts to measure impact absorption on athletic field soils. Impact absorption was measured by quantitating the peak decelerations imparted to a falling object when dropped on various grassed and ungrassed surfaces.

Grassed clay soils had 21 percent higher peak decelerations ("hardness") than grassed sand soils. When these same soils were bare, the peak deceleration rates increased 21 percent on the clay soil and 100 percent on the sand soil. Core aerification of a bare surface reduced peak decelerations 33 percent.

PRACTICUM: Reduce potential athletic field-related injuries by maintaining a good dense turf cover. Utilize core aerification on athletic fields as often as growth rates, soil moisture and air temperature conditions are adequate to minimize the time the field surface is disrupted by the cultivation. **LM**

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