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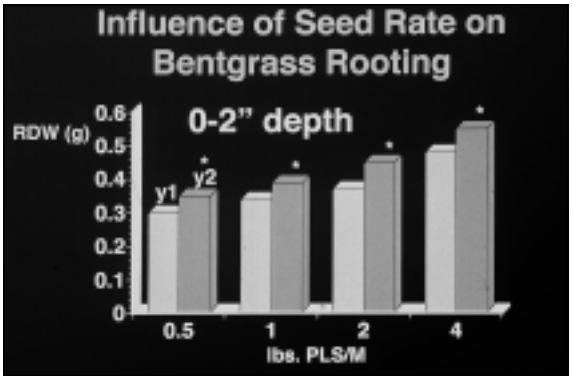
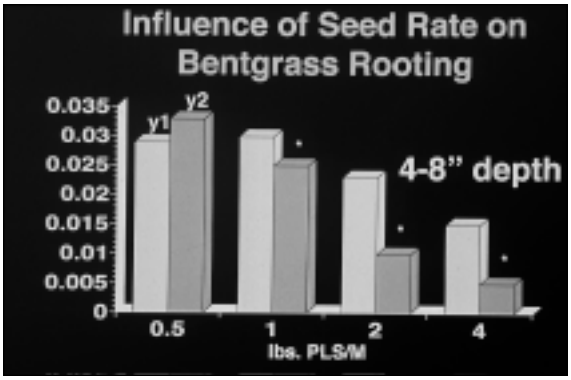
NYSTA Research Reports

The following reports are provided to NYSTA members as a means of keeping you informed of how your annual research grant monies are used.

Establishment Procedures Influences Seedling Survival, Morphology, and Rooting of Creeping Bentgrass

A study was conducted to evaluate golf putting green establishment procedures with four creeping bentgrass (*Agrostis palustris* Huds.) cultivars: Penncross, Penn A-4, L-93, and SR1119. Five seed rates were used (0.5, 1.0, 2, and 4 lb.) with five seed treatments: metalaxyl (Apron), *Pseudomonas aureofaciens*, *Azospirillum brasilience*, *Enterobacter cloacae*, and untreated seed. Seeding was undertaken twice, in June 1997 and August 1998. Seedling survival, morphology and rooting were examined.





A sand (pH 7.8) putting green was constructed to "California" specifications. Data were collected in the establishment phase (up to 12 weeks after establishment) on seedling survival, visual cover and plant morphology. In addition, visual quality and root mass distribution data were collected the second season on the matured plots. Disease and drought occurrences were rated on both juvenile and mature turf.

Seed rate strongly influenced all measured parameters. Specifically, seed rate was inversely related to seedling survival and incidence of *Pythium* spp. Low seed rates produced in larger more prostrate plants All seed rates reached 90% visual cover by week 14. Overall root mass was greatest in high seed rates. However, the lower seed rates had greater root mass below four inches. High seed rates exhibited a greater degree of wilt symptoms than low rates during drought, most likely due to differences in deep root mass. Visual quality varied significantly between cultivars as management intensity increased on mature plots with Penncross consistently receiving the lowest rating.

This research provides compelling evidence in support of the importance of seed rate—independent of cultivar—for successful putting green establishment.

Frank S. Rossi

The influence of seed rate on seedling development.