



# Super Science

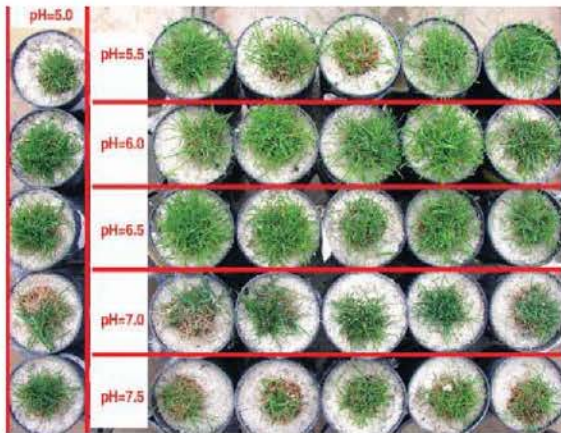
## // SHOOTS AND ROOTS

### ROOT ZONE pH AND PENN A-4 CREEPING BENTGRASS SHOOT/ROOT GROWTH

By Derek T. Pruyne and Maxim J. Schlossberg, Ph.D.

**R**oot zone pH influences nutrient availability, disease susceptibility and growth during both establishment and maintenance of Penn A-4 creeping bentgrass putting greens. While the optimal pH range for creeping bentgrass is considered to be 5.5 to 6.5, sand putting greens constructed in the Mid-Atlantic and Midwest containing slight to moderate (1 percent to 5 percent) calcite inclusions are buffered to higher pH values.

Further alkalini- zation via topdressing sand or irrigation water inputs offsets natural acidification processes at the root zone surface. These issues beg a common question among superintendents: Is nutrient availability to Penn A-4 roots the primary limitation of supraoptimal soil pH levels, or



Replicate "conetainers" of Penn A-4 creeping bentgrass, arranged by soil pH treatment, 30 days following greenhouse study initiation.

are additional physiological/biochemical processes compromised?

To answer this question, Penn A-4 shoot and root growth response to an array of imposed sand root zone pH levels (5.0 to 7.5) was evaluated under conditions of frequent and ample macronutrient and chelated micronutrient (EDTA) fertilization in the greenhouse.

The resulting observations strictly adhered to reference literature. In sands maintained at pH levels from 5.5 to 6.5, Penn A-4 showed 100 percent to 150 percent greater shoot and root growth (3- to 9-inch depth) relative to growth rates observed at the 5.0, 7.0 or 7.5 soil pH levels. Field experiments evaluating acidifying treatments of alkaline Penn A-4 sand putting greens are currently under way in University Park.

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## NEWS UPDATES

### UC TURFGRASS EXPERT HARIVANDI RETIRES AT 60

After 33 years at University of California Cooperative Extension in the San Francisco Bay area, Ali Harivandi, Ph.D., retired on June 27.

Throughout his career, the turfgrass expert advised homeowners and turf professionals throughout northern California.

Harivandi is best known for his research in water conservation and recycled water use, having promoted sustainability long before it was the buzz word that it is today.

"Drought has become part of our life," Harivandi said when he spoke at Rain Bird's Intelligent Use of Water Summit earlier



this year. "For that very reason we have to look into other sources of water if we want to survive as an industry."

Harivandi also had expertise in soils, salinity and general irrigation issues. He eventually expanded his research to weeds, diseases, erosion control and insect management, and is known for introducing to the region tall and fineleaf fescues that use less water than other turf species, a UC release stated.

NEW EXPERIMENTAL RESOURCES AND PERSONNEL HAVE LED RESEARCHERS TO ADD IMPROVED DROUGHT RESISTANCE, LOW IRRIGATION ADAPTATION AND SHADE RESISTANCE TO THEIR MENU OF IMPORTANT TRAITS FOR NEW BERMUDAGRASSES."

Gregory E. Bell, Ph.D.

(see full story on page 44)