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Water Use of Kentucky Bluegrass Varieties

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I. Introduction

• With drought so prevalent in the West, water use on urban landscapes is being closely scrutinized with up to 60% of urban water use directed to landscape irrigation—primarily our lawns.

• Kentucky bluegrass (Poa pratensis L.) is widely used because of its soft texture, attractive color, and ability to recover from intensive use. (Image 2)

• More water-efficient varieties of Kentucky bluegrass may result in less irrigation yet maintain quality and function of the turf.

II. Objective

• Evaluate water use, quality, and growth characteristics and their relationships in several Kentucky bluegrass varieties.

Image 1: Kentucky Bluegrass varieties

III. Methods

• Nine varieties and two mixtures of Kentucky bluegrass were grown in pots (4”x4”x12”) with a soil consisting of 50% sand and 50% loam soil (Image 1).

• Plants were maintained in the UAES Research Greenhouses with 20°C day and 15°C night temperatures and supplemental light. Treatments started when grasses were fully established and roots extended to the bottom of the pots.

Data Collected

• Water use was measured 3x/week and irrigated when 50% of plant available water was used.

• Two irrigation regimes: Watered to 100% plant available water or 80% plant available water in the root zone.

• Average height of the leaves (turf) was measured every-other-week then clipped to 7.5 cm from the soil surface.

• Clippings were collected and weighed.

• This was done for 11 weeks.

• At the conclusion of the experiment, root and shoot mass was measured.

IV. Results

• Ridgeline used the least water with an average daily water use of 66 mL/day. Chateau had the highest daily water use average with 84 mL/day

• Abbey had the fastest growth with an average growth of 17.9 cm in 2 weeks. Noble had the slowest growth with an average growth of 13.5 cm.

• Clipping weights were correlated with water use (Figure 5).

• Diva had the lowest root to shoot ratio of 1.22 while Chateau had the highest 1.76.

V. Conclusions

• Bluegrass varieties showed significant variation in water use, clipping weight, growth rate, and root to shoot ratio.

• Water use correlated with traits such as clipping weight and root to shoot ratio (Figures 5 and 6)

• Varieties that used the most water also had a higher root/shoot ratio and clipping weight.

• No correlation between daily water use and growth rate was observed.