

## CULTURAL PRACTICE INTERACTIONS ON GOLF COURSE TURF

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Irrigation and Potassium Effects on Fairway Kentucky Bluegrass Turf - Irrigation based on 100%, 80% and 60% potential ET [ETp] and potassium at 0, 20, 40, and 60 g K m per season were applied to field-grown Kentucky bluegrass turf. The turf was mowed four times weekly at 22 mm and clippings were removed. Potassium soil tests ranged from 310 to 821 mg. kg . Leaf potassium varied from 1.9 to 2.5%. Turf was visually evaluated monthly for color and quality. Turfs maintained acceptable color and quality ratings at all ET levels. Irrigation meters monitored weekly water use. In the summer of 1988 plots maintained at 60% ETp had acceptable color and quality ratings. Water savings of 52% [392,000 liters/hectare] and 27% [186,667 liters/hectare] were recorded for the 60% ETp during September when compared to the 100% and 80% ETp treatments. In the spring of 1989 the 60% ETp had 38% [930,119 l/ha] 21% [430,957 l/ha] water savings when compared to the 100% and 80% treatments. Additional data were taken on load bearing capacity, penetrometer readings, thatch, shoot density and verdure.

Vertical Mowing Frequency and Mowing Height Effects on Putting Green Quality and Plant Stress - This project was initiated to study the effects of vertical mowing frequency and mowing height on putting speed, rooting and stress resistance. Turfgrass root production and distribution increased as mowing height treatment increased from the 1/8 [3.2 mm] inch height of cut to either 5/32 [4.0 mm] or 3/16 [ 4.8 mm] inch. Rooting increased with vertical mowing frequencies of 14 to 28 days, when compared to turfs not receiving vertical mowing. The maximum soil temperature observed at the 1.0 inch [2.5 cm] soil depth was greatest for the 1/8 inch height of cut treatment. The two higher heights of cut had a wider range in diurnal temperatures than the 1/8 inch treatment. Vertical mowing treatments had no significant effect on soil temperatures. Putting speed, measured as ball roll, was highest at 1/8 and 5/32 inch mowing height treatments. Vertical mowing frequencies had no effect on ball roll during the 1989 study.

Syringing on A Creeping Bentgrass Green - A syringing study was initiated to study interactive effects with nitrogen and potassium nutrition. The study was designed so that treatment modifications over time would allow investigation of amount of water applied during syringing, application timing effects, and type of nozzle used to apply

syringing treatments. Only limited data were collected, during 1989. A comparison of syringed versus not syringed treatments indicated lower canopy and higher soil temperatures for the syringed treatment. More data will be collected from this study during 1990.

Creeping Bentgrass Fairway Management - The fairway management study was conducted to determine effects of irrigation frequency, clipping removal or return, nitrogen nutrition, and traffic on Penn-cross creeping bentgrass competition with annual bluegrass and maintenance of fairway quality. No data were presented on annual bluegrass competition due to this year being only the first of a three year study. Preliminary trends may be misleading. Turfgrass color and visual quality ratings increased with irrigation frequency and nitrogen nutrition under trafficked conditions. Ball roll increased with decreased irrigation frequency, clipping removal and decreased nitrogen nutrition. Load bearing capacity or ball holding characteristics of the turf was better for infrequent irrigation, clippings removed, and low nitrogen treatments when compared to their counterpart treatments. Divot tolerance was negatively correlated to soil moisture content. Divot injury was reduced under infrequent irrigation, clippings removed, and low nitrogen levels, but recovery was more rapid for counterpart treatments. Thatch accumulation trends were variable and were not summarized, since these trends need to be assessed over the three year study. Nutrient analysis data were not included because they were not summarized at this time.