WATER INJECTION AERATION OF PUTTING GREENS

P. Charbonneau, D. Telfer and N. Baumgartner*
Ontario Ministry of Agriculture and Food
Department of Horticultural Science
*Department of Land Resource Science

OBJECTIVE

1) To determine the effect of water injection aeration on field saturated hydraulic conductivity of native soil putting greens.

METHODS

The practice putting greens at the Cutten Club, Guelph and the Hamilton Golf Club, Ancaster were divided into 8 plots 1 x 10 m. Four of the plots were treate with the water injection aerator (Toro Hydroject 30000 Aerator). Treatment consisted of three passes with the Hydroject set at the highest setting. Field saturated hydraulic conductivity was measured using the Guelph Permeameter* prior to treatment and 24 hr after treatment.

Table 1. Field Saturated Hydraulic Conductivity (cm/day) of Native Soil Putting Greens Before and After Water Injection Aeration (Toro Hydroject)

	Pre-treatment		Post-treatment	
Location	Hydroject	Control	Hydroject	Control
Cutten Club	27.36	47.52	80.64	69.12
Hamilton Golf Club	67.78	52.42	189.9	101.9

RESULTS

Field saturated hydraulic conductivity was increased by use of the water injection aeration at Cutten Club by 190% and 180% at Hamilton Golf Club (Table 1). Surprisingly, the control plots at both sites showed an increase of field saturated hydraulic conductivity of 45% and 94% at Cutten Club and Hamilton Gof Club respectively. The variability of the pre-treatment and post-treatment hydraulic conductivities on the control plots can be explained by the variability in soil texture of the putting greens. Only one measurement was made per plot before and after treatment. With increased sampling this variation could possibly be minimized. This study demonstrates that an increase in field saturated hydraulic conductivity which reflects the amount of pore space in soil, can be increased substantially with the use of the water injection aerator.

ACKNOWLEDGEMENTS

R.M.C. Equipment
Cutten Club
Hamilton Golf Club