

HydroJect biweekly	8.4 a	58.9 a
HydroJect monthly	7.7 a	61.2 a
Hollow tine spring and fall	9.3 a	58.6 a

* For each depth within each column, numbers with the same letter are not significantly different at the 0.05 level of probability.

^ Total number of treatments applied before sampling.

HydroJect Effects on Earthworm Populations in a Creeping Bentgrass Putting Green.

A significant amount of earthworm casts appeared on a cultivation study after heavy rains during the autumn of 1994. An earthworm cast count showed that plots receiving frequent HydroJect treatment exhibited significantly lower amounts of earthworm casts than other cultivation treatments. This earthworm cast count, and another taken in 1995 are summarized in Table 4. Earthworms are primarily beneficial creatures due to the air filled channels created from their burrowing activities, but casts left on putting greens can significantly disrupt ball roll, even after mowing. Regular HydroJect use decreases the potential for earthworm castings on putting greens becoming a problem for the turfgrass manager.

Decreased numbers of earthworm casts continued to occur on plots receiving HydroJect treatment during the 1996 growing season. To verify whether HydroJect treatments were allowing for subsurface casting of earthworms or if they were actually decreasing earthworm populations, soil excavations were performed in search of earthworm biomass. Excavations were performed for the HydroJect weekly treatment, a hollow tine cultivation in the spring and fall treatment, and a control. The results from the soil excavations are summarized in Table 5. Plots receiving HydroJect treatment and control plots had significantly less earthworm populations than plots receiving hollow tine cultivation. Although HydroJect treated plots had less earthworms, this difference was not statistically significant. Plots receiving hollow tine cultivation treatment probably had higher earthworm populations than control plots due to increased air filled pores near the surface. Decreased earthworm populations in plots receiving HydroJect treatment were probably the result of either worm death from the high pressure water jets or some other factor caused by the HydroJect that made the soil environment unfavorable for earthworm habitat.

Table 4. Effect of cultivation treatment on earthworm casting

Treatment	10/13/94	9/6/95
	<i>mean earthworm casts per plot</i>	
Control	72 a*	103 ab
Core Cultivate 2X/year	64 ab	151 a
Core Cultivate 3X/year	84 a	135 a
Core Cultivate 2"X1" 2X/year and HydroJect Biweekly	59 abc	115 ab
Core Cultivate 2X/year and HydroJect Biweekly	39 bc	98 ab
HydroJect Monthly	46 bc	99 ab
HydroJect Biweekly	42 bc	58 b
HydroJect Weekly	37 c	51 b

* means sharing a letter are not statistically different ($P < 0.05$)

Table 5. Effect of cultivation treatment on earthworm populations. Samples taken 10/14/96

Treatment	Earthworm Biomass
	mg / cm ³
Control	0.091 b*
HydroJect weekly	0.033 b
Hollow tine spring and fall	0.225 a

* means sharing a letter are not statistically different ($P < 0.05$)