

Comparison of Cultivation Techniques

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Target Specialty
Products

The background of the slide features several concentric, light blue circular ripples that resemble water droplets hitting a surface. These ripples are scattered across the lower half of the slide, with a larger, more prominent set of ripples in the bottom right corner.

Objective

- Compare and determine the effects of three cultivation techniques on turf
 - Compaction reduction
 - Salinity and sodium reduction



Equipment

- Vertidrain
 - Solid tines – 0.625" (5/8) x 10"
 - Depth of 8"
- Blec (GB1500)
 - 10" Slit Spacing (6 Slits)
 - 3/4" Slit Width
 - 60" Working Width
 - 4-10" Depth (Variable)
 - 30,000-40,000 sq. ft/hr
- Blec Sandmaster (GSM1500)
 - 4,400 lb Hopper Capacity (1.1yd³)
 - 5,000-7,000 sq. ft/hr

Vertidrain







Blec







BLEC
SANDMASTER

DO NOT RIDE ON MACHINE

BLEC SANDMASTER

Blec Sandmaster





BLEC
SANDMASTER
DO NOT RIDE ON MACHINE

BLEC SANDMASTER



Methods

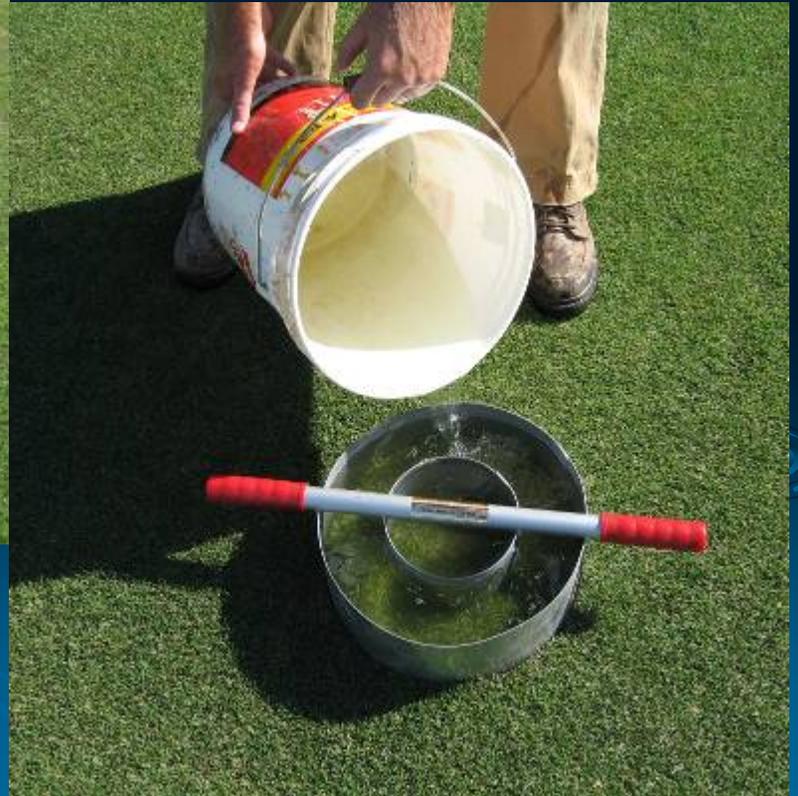
- 4 golf course fairways
 - Legend Trail GC
 - Sun Lakes CC (Cottonwood)
 - Palm Valley GC (Palms)
 - Grayhawk GC (Talon)
 - Treatments replicated 3 times at each site
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Methods

- Soil sample laboratory analysis
 - Pre-cultivation
 - 2, 4, and 8 weeks after cultivation
- Penetrometer
- Klegg
- Water infiltration



Infiltrometer





Klegg



Results

- Blec treatment Na^+ reduction
 - At 2 WAT
 - 25% reduction at Palm Valley
 - Nearly 20% reduction at Legend Trail and Grayhawk



Results

- Blec Sandmaster treatment Na⁺ reduction
 - At 2 WAT
 - Nearly 20% reduction at Palm Valley and Legend Trail
 - 14% reduction at Grayhawk
 - 8% reduction at Sun Lakes

Results

- Vertidrain treatment Na^+ reduction
 - At 2 WAT
 - Nearly 18% reduction at Palm Valley
 - 8% reduction at Legend Trail and Grayhawk
 - No change at Sun Lakes

Results

- Beneficial effects of Na^+ reduction by each treatment declined when soil samples were analyzed at 4 and 8 WAT

Conclusion

- All aerification treatments exhibited beneficial effects
- Na^+ reduction observed by all aerification treatments
- Blec and Blec Sandmaster tended to enhance Na^+ reduction in comparison to the Vertidrain
- Beneficial effects of aerification were observed for 2 WAT

Continuing Research

➤ Plans for 2008

- Compare 2 techniques vs untreated
 - Vertidrain
 - Blec
- Multiple aerification
 - Frequency
- Gypsum application with aerification



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