

Cultivation and Topdressing Effects on Recovery and Playability of a Bentgrass Golf Green Under Playing Conditions

C.A. Proctor, W.J. Johnston, C.T. Golob, and M.W. Williams, WSU Pullman

In the intermountain west, the growing season is relatively short. If the practice of aeration is extremely disruptive, it can make the already short playing season even shorter. This study seeks to determine the most efficient methods for removing organic matter while decreasing the recovery time from aeration to a minimum.

The study began May 2008 at the recently opened (August 2008) Palouse Ridge Golf Club (PRGC) at WSU, in Pullman, WA. The research site is a practice putting/chipping green. This green was constructed according to California green specifications and planted with 'T-1' creeping bentgrass (*Agrostis stolonifera* L.) in June 2007. The area is maintained by the golf course maintenance staff and will be utilized by golfers throughout the study.

The study consists of a total of five cultivation treatments and one untreated control and two sand topdressing treatments (Table 1). After each cultivation treatment, either tan topdressing sand (Atlas Sand and Rock, Lewiston, ID), or black sand (Grass Roots Agronomics Inc., Emmett, ID) was applied.

Data collected during the 2008 growing season include cultivation injury recovery time, turf quality, surface firmness, soil temperature, thatch/mat depth, percent carbon for soil and thatch/mat layer, and water infiltration. The study will continue for three years (2008-2010). In 2008 all the black sand treatments had higher quality compared to the tan sand treatments. The verticut only treatment and the "1/2" hollow tine with verticut treatment had the highest quality when quality ratings were averaged over the entire year. The verticut only and the untreated control (UTC) were the firmest treatments. Sand type had no effect on firmness. The UTC had a thatch only layer since no topdressing sand was added and thus the shortest thatch/mat depth. All other treatments had a thatch/mat layer. The verticut only treatment had the deepest thatch/mat layer. There was no difference in thatch depth between any of the other treatments. Percent carbon in the thatch/mat layer was highest in the untreated control while there was no difference in percent carbon between the other treatments. The number of days injured per season was highest for the verticut only treatments but was lowest for the "1/2" hollow tine with verticut treatment except for the UTC which had no injury. The "1/4" hollow tine with verticut treatment had the highest number of days with severe injury.

Table 1. Cultivation and sand topdressing treatments at the Palouse Ridge G.C. at WSU in Pullman, WA.

Cultivation Type	Sand Type	Frequency		
		Greensaire	Verticut	PlanetAir
1/2" Hollow Tine, PlanetAir	Tan	1x year		Every 3 wk
1/2" Hollow Tine, PlanetAir	Black	1x year		Every 3 wk
PlanetAir	Tan			Every 3 wk
PlanetAir	Black			Every 3 wk
1/2" Hollow Tine, Verticut	Tan	2x year	Every 3 wk	
1/2" Hollow Tine, Verticut	Black	2x year	Every 3 wk	
1/4" Hollow Tine, Verticut	Tan	2x year	Every 3 wk	
1/4" Hollow Tine, Verticut	Black	2x year	Every 3 wk	
Verticut	Tan		Every 1 wk	
Verticut	Black		Every 1 wk	
Untreated Control	None			
Untreated Control	None			

Figure 1. Putting/Chipping Green at Palouse Ridge Golf Course at WSU in Pullman, WA.

