

Flood Your Greens — Not Your Bunkers

Using low-precipitation-rate sprinklers for leaching greens.

by **PATRICK GROSS**

EXPERIENCED superintendents agree that the most critical part of putting green management is controlling water applications. It takes a delicate touch and good judgment to manage irrigation, especially on native soil greens. Now that more and more courses are using effluent water, there is increasing concern about salinity in the soil. Controlling salinity requires periodic leaching, but applying the necessary amount of water to leach salts from native soil greens is difficult because most golf course sprinklers apply water too fast for adequate infiltration and percolation through the rootzone. The result is washed-out bunkers and excessively wet conditions around the greens for several days. Successful leaching on native soil greens requires the long, slow application of water to allow infiltration and percolation through the rootzone without runoff to adjacent areas. Two superintendents in Southern California found effective ways to leach salts without making a mess of the bunkers and surrounding areas.

Stephen McVey at Virginia Country Club in Long Beach, California, has 11 soil-based greens with a 5-inch sand cap from years of core aeration and topdressing. The greens are irrigated with effluent water, and controlling salinity accumulation is a major concern during the summer and fall. Stephen monitors the greens on a weekly basis with a portable electro-conductivity meter, and leaching cycles are scheduled when salinity readings reach 2.7 dS/m. To avoid flooding the bunkers and green banks, the maintenance staff sets up three to four impact sprinklers on a roller base that are placed around the perimeter of the green in the late afternoon. The impact sprinklers apply water at approximately 10 gallons per minute, which is almost half the precipitation rate of the existing putting green sprinklers. The

sprinklers are connected to a hose and nearby quick coupler with a flow control valve on top. Each sprinkler is tested and the arc adjusted so that water is only applied to the greens. A maintenance staff member returns in the early evening to turn on the sprinklers. Water is applied during the night for six to eight hours, and the sprinklers are turned off approximately one to two hours prior to mowing the next morning.

Jay Jamison, superintendent at Elkins Ranch Golf Course in Filmore, California, uses a slightly different method. Jay also has salinity problems on his 15 clay-based greens. Since the water infiltration rate is very limited, Jay uses a series of micro-spinner sprinklers that apply water at a very slow rate. The micro-spinners are available from a variety of suppliers with application rates ranging from 0.5 to 1.0 gallon per minute. The small sprinklers are attached to a ½" × 6" schedule 80 nipple and inserted into a ½" sled available through Spears Irrigation Products. Each sprinkler assembly is interconnected with 15-foot to 18-foot lengths of flexible ¾" polyethylene tubing and attached to a nearby quick coupler with a pressure-reducing valve to limit the pressure to 20 psi. A single line of nine or ten micro-spinners is placed on the green in the late evening. The affected greens are watered for eight hours or more during the night and the micro-spinners are shut off one to two hours prior to mowing the next morning. The cost of setting up a micro-spinner system is only \$3 to \$4 per section.

The key to successful leaching on native soil greens is to match the water application rate with the infiltration of the soil to avoid runoff into adjacent areas. A one-hour or two-hour irrigation cycle with regular irrigation heads is usually not enough water for effective leaching and often creates wet, soft

surface conditions on the green and surrounds for several days. A slow and steady leaching cycle for six to eight hours fills the entire rootzone and allows the force of gravity to break the soil tension and effectively flush salts and excess water. Air is drawn into the rootzone as the water drains, which creates drier surface conditions. To get comfortable with this procedure, it is always recommended to do a test on a practice putting green or nursery to get an idea of exactly how long water must be applied for effective leaching. Some courses find it necessary to leach greens over two successive evenings by scheduling a heavy irrigation cycle one night followed by leaching with low-precipitation-rate heads the subsequent night.

Other tips for managing salinity on native soil greens include:

- Monitor salinity on a weekly basis and leach the greens when readings approach 2.7 dS/m.
- Spike the greens in several directions prior to leaching to break through any surface crust and aid in water infiltration.
- Leaching salts also leaches fertilizer. Be sure to schedule appropriate applications of nitrogen and potassium two to three days after leaching.
- Successful leaching must go hand in hand with programs to improve drainage.

If you are trying to leach native soil greens with standard golf course irrigation heads, you are probably applying water too fast and getting undesirable runoff into bunkers and adjacent areas. Using low-precipitation-rate sprinklers to leach greens is an effective way to flood your greens without flooding your bunkers.

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