FEATURE ARTICLE II

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Steep Grass Faced Bunkers

The Option of Watering Underground

In the Midwest, we rarely go through a year when non-irrigated turf does not turn brown from drought. Water is the life blood of the turf that superintendents manage. Irrigation technology is continually advancing, but an area that does not seem to be accurately "dialed in" is the uniform watering of steep grass faces in today's golfscape.

At the 2005 GCSAA convention, Luke Baker and I were talking about how to do a better job watering the steep bunker banks at Park Ridge Country Club (not knowing a drought would soon follow in the Midwest). We know that many superintendents utilize small mist type heads which seem to work, but the word on the street is that the mist heads are not totally dependable or durable and therefore create another headache. Others also throw water onto the banks from the outside. Luke and I exchanged thoughts about drip irrigation, but I was skeptical because I was not aware of anything that would hold up commercially. I had only seen drip irrigation on nursery stock and on home lawns. Shortly after our "drip" conversation, we walked into the Toro booth and right in front of us was a display featuring a newer line of drip irrigation that looked to be a good heavy duty grade. Soon after, Larry Collins set up a meeting at Park Ridge with a representative from the Metafin Company who handled the drip components. We viewed the products and set up a small test grid to see how quickly (or slowly) the grid "sweat" out its water. The main lines are not just tubing full of holes like some of the rubber ones that you may have seen in the gardening department. The drip tubing uses special emitters to close and seal the drip hole when it is not irrigating. After an impressive demonstration we were cautiously optimistic and decide to try a test area on the south facing 18th green bunker face.

The crew at Park Ridge Country Club cuts a trench for the new drip tubing.

If there ever was a good time to test the set up, the drought of summer 2005 provided conditions to challenge the best of systems. Installation of this type of irrigation was a first for us, and our methods were more or less trial and error. Our techniques have since evolved, but what follows is the method used on the first trial bunker, which worked fairly well for installing the grid tubing into existing fescue turf.

The grid was dotted out with paint using 12" to 18" spacing, with the closer spacing at the top of the grid. Next a slit trench was cut into the turf using a reciprocating edger. Our goal was to get the tubing at least 3" under ground. The edger blade was not deep or wide enough, but provided a good start. Our crew followed the edger and deepened the slit by hand using a flat-bladed shovel which created more of a "V" trench. Once the slit was deep and wide enough, the tubing was placed into the trench and tapped down with a 1x4" piece of wood. Sod staples were installed to keep the tubing from lifting up. Then the sides of the slit trench were pressed closed as best we could. Now all that was left to do was to tie the system into an existing water source.

Utilizing a nearby water line, we glued in a standard "T" to supply the grid. Next a pressure regulator, screen, and controller were installed. A standard rectangular access box fit well

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over the components. The controller that we installed is capable of programming multiple run-times and durations. The unit uses a nine-volt battery for power, which lasts the season and does not require any wires. In addition, the valve is also equipped with a manual open and close feature. The cost of the entire grid setup was roughly only $350.00. With the installation complete and the *guess*timated run times set, the crew was off to hand water other thirsty turf throughout the course.

The "hose dragging" staff did not water the grid test area or the area immediately around the grid for the remainder of the summer. That summer it was a relief to be able to forget about watering *any* type of area. Best of all, the test bunker face stayed healthy with good color while many of the other south- and west-facing banks became toasty if left un-watered. With a successful test under our belt and a low cost of installation to boot, it was planned and approved for several of the south- and west-facing bunker banks to be fitted with a drip system the following year. In conjunction with the installation process, several of the areas were resodded to at the same time, which makes covering the grids even easier.

Installing drip irrigation while re-sodding the bunker face at the same time.

The new grids continued to perform well and our installation methods kept evolving. The challenge with installation is to find an efficient and safe method for cutting a trench, three quarters of an inch wide and about 3 inches deep, into a steep slope. Using a weedeater sized edger equipped with a blade guard and guide wheel, we modified the edger blade to cut a small trench to our specifications. The blade itself was shortened and a slight front-to-back angle was formed. Next about half of the length of an aerification tine was welded on to each end of the edger blade. The result is a weedeater that cuts the right sized trench for the tubing with ease. The edger does throw some soil, so we covered the bunker sand with a tarp to keep it clean and prevent contamination.

Because of the simplicity and low cost of these drip grids, there are plans to use drip irrigation in other areas such as flower and landscape beds. There is no doubt that caring for steep-faced grass bunker faces can be a pain in the *grass* if the slopes are not properly irrigated. Our "drip" use on several bunker banks continues to show that these inexpensive grids are effective and, so far, dependable (with the exception of a faulty controller).

Eventually, we would like to equip all of the bunkers with subsurface irrigation. After a little bit of experience, you will learn that a proper and efficient method for installation is not too difficult. We find the installation process much less painful than trying to hand water toasty green banks that just seem to shed water when the rest of the course is also screaming for attention with a hose. **-OC**

Just tap it in... Sod staples are used to hold the drip line at the bottom of the slit trench.

Tying the drip line into existing irrigation with control components was easy to do.

The drip system was a success, eliminating the need for hand watering these tough microclimates.