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BUNKER IRRIGATION

Recently, bunker face irrigation has become increasingly popular. As architects designed and renovated courses to have steep, grass bunker faces, the difficulties in maintaining these faces without irrigation became obvious.

Bunker face irrigation can provide significant improvement to the quality of the turf over time. Figure 1 shows a bunker face with irrigation covering only part of the bunker. You can see the irrigated side (right) is in



Figure 1

better shape than the non-irrigated side (left). There are ways to irrigate bunker faces that have been attempted over the years, but many lack the ability to maintain the face within tolerable parameters.

In the past, many designers assumed the green or green surround sprinklers would cover the green side bunkers or that an expanded fairway irrigation system would cover the fairway bunkers. In many cases, a double-row system would be expanded to a triple row that included part- or full-circle

sprinklers behind the fairway bunker. It was quickly determined, however, that large golf sprinklers were not adequate to maintain the face itself, as long runtimes were required and parts of the fairway and rough would end up overwatered. The same would happen around the green complex – the amount of water required was more than the surrounding turf needed.

Some courses then attempted to use small, residential-type sprinklers with a 30- to 40-foot

radius in a block configuration, but these still overwatered the surrounding area and did not provide adequate control.

Next, small, spray-type sprinklers were tried. The spray sprinklers were installed at the top of the slope above the bunker face using part-circle sprinklers in a block configuration with the number of sprinklers varying depending on bunker size and how much face there was to water. Spray sprinklers are somewhat fragile and also have a very high precipitation rate. The high-precipitation rate,

even when operated for a short time, caused the bunker to wash out. Cycle and soak was not an option given the short runtimes required by the high-precipitation rates. Despite the drawbacks, these type systems were the most popular solution.

Today's bunker systems utilize small, multiple-stream, multiple-trajectory (MSMT) type nozzles (Hunter MPRotators, Rain Bird Rotary Nozzles and Toro Precision Series Rotating Nozzles) on spray head bodies equipped with pressure regulating stems. MSMT nozzles have much lower precipitation rates than spray heads, in the 0.6-inches-per-hour range versus the 1.75-inches-per-hour range and higher uniformities. The sprinklers are still installed at the top of the slope and water just the area of the bunker that has the face. A 12-foot to 20-foot spacing works best. The sprinklers should be regulated to 40/45 psi for optimum uniformity. Their high uniformity, when compared to spray sprinklers, allows for reduced runtime, saved water and dryer sand.

Not all bunkers need to be irrigated, but those that are south-facing or with very steep faces should be. The flat part of the turf around the bunker will still be watered by the regular irrigation system. Individual valving per bunker is preferred, but bunkers with similar exposures can be valved together to save money. There are still maintenance issues with the sprinklers, but it is a compromise between good irrigation and slightly higher maintenance. **GCI**