

SYSTEM UNIFORMITY vs. SYSTEM DEFORMITY

By definition, uniformity is a condition that remains consistent and doesn't vary. Turf grass can grow in a relatively uniform manner if consistent growing conditions are present. We strive to have uniform growth of our turf grass on the fairways, tees and greens of our golf courses. Uniformity in the irrigation of turf grass is important if we are going to be successful in maintaining consistent turf surfaces.

Irrigation system uniformity is dependent on several physical properties of the sprinkler heads that we are able to control, and a few environmental factors that we can only guess about. Golf course rotary sprinkler heads, when operated properly, throw water a certain distance, or radius, with a consistent rotation speed. Proper sprinkler operation, including radius and rotation speed, is often dependent on water pressure at the head. If the water pressure is too low, the sprinkler may have difficulty "popping up" to begin operation, will often rotate too slowly to complete efficient rotation of an area, and will probably not be able to reach its intended radius. Conversely, if the water pressure is too high for proper sprinkler operation, it will often cause some of the water to become a fine mist which is lost to evaporation and wind drift, and the rotation of the sprinkler will whip around to fast causing a reduction of radius. Therefore, it is important to maintain a properly regulated operating pressure at the sprinkler heads in order to control system uniformity. Most "valve-in-head" sprinklers are equipped with pressure regulating devices that control sprinkler operating pressure up to a certain maximum pressure.

A system that is designed to provide proper pressures at the sprinkler heads must be properly "staked-out" and installed with the sprinklers at a uniform spacing in order to be effective. A properly installed system will provide sprinklers in a "triangular spacing" pattern. The distance between any two sprinklers in the pattern should remain consistent and should not exceed the maximum radius of the sprinkler pattern at the actual operating pressure. If sprinkler spacing is "deformed" the sprinkler heads will tend to overwater areas where spacing is tight, or turf stress due to lack of water may occur where spacing is stretched too far.

Another factor contributing to system deformity is the effect of wind on the sprinkler pattern. Sprinkler radius is significantly reduced when throwing into the wind, and is elongated when the water is traveling with the wind. The resulting pattern deformity can vary from an egg-shaped sprinkler pattern if wind direction remains constant, to an irregular pattern during frequent wind directional changes. This condition will be magnified if spacing deformity already exists on your golf course.

Finally, the fact that golf courses are designed and built from irregular surfaces can create system deformity. Sprinkler heads must be set perpendicular to the turf surface to provide a uniform radius as they move around their arc. If the turf surface is on a slope, the sprinkler will have to throw uphill for part of that arc, and downhill as it rotates to the opposite direction. Depending on the steepness of the slope, the radius will shorten in the uphill direction and elongate when throwing downhill. The resulting oval pattern is similar to the effect of a constant wind.

Often the effects of slope and wind can be offset by proper uniformity of spacing, proper controller programming, and proper control zoning. Unfortunately, there is no easy cure for system deformity due to improper sprinkler spacing.

NEXT MONTH: SYSTEM CONTROL AND ZONING

Doug Macdonald is an associate design

NAUMANN'S NORCAL NEWS

Blake Swint has accepted the supt. position as Castlewood CC in Pleasanton. Blake was the supt. at Sequoyah CC in Oakland prior to his move. He is replacing **Bob Dalton**...**Campbell Turner** has accepted the supt. position at El Macero CC near Davis. He is replacing **Mike Azevedo** who moved from the Golf Course Industry. Campbell was the supt. at De Lavega GC in Santa Cruz...**Dean Sorenson** has accepted the interim position at De Lavega GC. Dean has been the assistant Supt. there prior to the promotion...**Jeff Hardy** is the new supt. at Laguna Seca GC in Monterey. Jeff was the supt. at Moffet Field GC. He is replacing **John Kukawski** who moved to Oregon to pursue a different career...**Tom Estrada** has accepted the supt. position at Corral de Tierra CC in Salinas. Tom was the assistant at Big Canyon CC in Newport Beach prior to his move. he is replacing **Grant Thompson** who moved to La Rinconada CC in Los Gatos.

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