

Using run-off helps to reduce effects of California drought

Heavy clay, high salt greens also a solvable problem at Rancho Bernardo Inn G.C.

■ Tim Roth was anticipating a real water shortage problem. It wasn't that he might have to stop irrigating, but that the homes and businesses surrounding his golf course would have to stop watering their lawns and washing their cars.

Roth is superintendent at Rancho Bernardo Inn Golf Course, 25 miles north of San Diego. Prior to the recent heavy winter rains, the continuing drought in California had county official contemplating ordering all lawn watering stopped. That would have eliminated most of the run-off that flows into a 10-acre natural lake on the edge of the course. And the lake supplies most of the course's irrigation water.

"Only our greens are watered with city water," says Roth. "Separate irrigation lines for the greens were put in two years ago, because the lake water was starting to cause some problems.

"Besides run-off from the steep rocky hillsides, the lake catches run-off from local car washes and other businesses, as well as some from surrounding lawns. The pH of the water tends to get too high from dissolved alkaline salts.

"We inject sulfuric acid with the lake water when we irrigate. That keeps the pH low enough so we can use it to water the fairways. But now, the greens are irrigated with potable water from city lines."

Heavy clay problems—According to Roth, the original greens were constructed of native "push-up" soil. As a result, the greens are mostly heavy clay, and high in salts, making them more compaction-prone and tougher to manage turf on.

In fact, Roth is gradually rebuilding the greens and sodding them with bentgrass. The first one was rebuilt last October and the plan is to re-do one or two greens each year. The existing greens are covered with a mix of about 20 percent bentgrass and 80 percent *Poa annua*.

Fairways, tees and roughs are overseed-

ed with perennial rye in October to keep them green year-round. Although the heaviest use is generally during January through June, the course gets steady play through the year and averages about 50,000 rounds annually.

Along with a regular aeration program, Roth began an intensive topdressing program this year. He puts on a light dressing of sand every month, then a heavy topdressing after every aeration, usually in February, June and September. Sometimes, he adds an extra summer aeration, using smaller 1/4-inch tines.

Roth has reduced his aeration manpower requirement by picking up cores with a Cushman Core Harvester attachment. "Before, core removal was a three-man operation," he says. "Since we got the Core Harvester, it's now a one-person job."

Because of the heavy clay and high percentage of poa, aeration cores are removed rather than dragged back into the turf. The heavy sand topdressing is dragged in, after aerification and core removal, to increase surface playability.

Cores are dumped off the side of the green and picked up later with a skid loader.

Specialized care—Roth's crews also apply gypsum to greens frequently. Both sulfuric acid and wetting agents are inject-

ed into irrigation water to increase percolation and "flush" salts below the rootzone.

Greens are mowed daily to about 9/64-inch height. Mowing height is reduced slightly to 1/8-inch during the winter months.

Roth follows a consistent spray program, both for fertility and disease control. Summer patch, anthracnose, fusarium patch and pythium blight can all be problems, so Roth follows a preventive schedule of spraying every 10 to 14 days from April to October. During the winter season, he sprays only as necessary, usually every four to six weeks.

Liquid fertilizer is applied weekly, using urea nitrogen in summer and more calcium nitrate in the winter. Nitrogen applications are completed with a micronutrient program, and wetting agents are added to the spray tank to enhance absorption. Extra iron is added to fertilizer, with the heaviest iron boot added in the winter months, when the turf responds better.

The course recently purchased a new Cushman Turf Master for making its spray program more efficient. The Cushman Turf Truckster with mounted Smithco sprayer that Roth had was moved to the another J.C. Resorts course, Oaks North, so spraying can be done on a more timely schedule there.



Superintendent Tim Roth checks with one of his crew members during a post-aeration core removal on a Rancho Bernardo green.