

# SUCK-CESS

*A turf vacuum can help solve difficult drainage problems on putting greens.*

by PATRICK J. GROSS

**W**HAT does it take to achieve success? When it comes to putting green maintenance, most superintendents would agree it boils down to three factors — drainage, drainage, and more drainage. Good drainage is especially important along the Northern California coast where greens tend to stay wet throughout the fall and winter as a result of high precipitation, low evaporation, and low light intensity. Add to this equation soil compaction from continuous winter play, and you have the perfect formula for anaerobic soil conditions and black layer.

Superintendent Mark Michaud and his assistant, Forrest Arthur, faced this problem on the No. 5 green at Pebble Beach Golf Links. The green sits in a hollow that stays cold and wet. Add the conditions of the winter of 1994-95, one of the wettest years on record in California, and it was even more difficult than usual to keep water moving through the soil profile and dry the green. Ultimately, a serious problem with black layer developed in the front portion of the green. Mark and Forrest had to find a way to keep the water moving and get some oxygen into the soil.

Their first attempt was to spot aerify the front of the green with ¼-inch solid tines. The aerification was only moderately successful and short-lived. The next step was to check the sub-surface drainage and install a smile drain along the edge of the collar to

catch any excess water at the low end of the subgrade. They extended the drain approximately 15 yards to the left of the green, leaving the end exposed (daylighted) at the soil surface. From there it was possible to see if water was actually draining from the green. The new smile drain helped, but they still needed something to remove the water more rapidly. They wondered if suctioning water out of the green would work. Through some innovative work, they came up with a system to speed drainage by connecting extra pipe to the drain line and attaching it to a large-volume turf vacuum.

By taking advantage of the suction action produced by the turf vacuum, Mark and Forrest hoped to draw the excess water out of the soil profile. To test their theory, they attached 4-inch-diameter flexible drain pipe to the access ports on each side of the blower



*The 4-inch-diameter drain lines were inserted into the access ports on each side of the blower housing. After operating the turf vacuum for six hours, the staff had sufficiently dried the soil profile and alleviated the black layer.*

housing. The two pipes were connected using a Y-fitting and then tied into the exit point of the putting green drain. A T-fitting was installed at the connection point to the putting green drain to let water escape before reaching the turf vacuum, and also to provide an observation point to monitor the progress of the vacuum.

The next step was to turn on the turf vacuum and see if any water came out of the drain pipe. Progress was slow at first, but Mark and Forrest found that if they kept a cap on the open end of the T-fitting and briefly removed the cap every

one or two hours, they were able to get a slow but steady water flow through the pipe. After operating the turf vacuum for six hours, they had sufficiently dried the front of the green and alleviated the black layer.

Obviously, using the turf vacuum was only one part of the solution. Aerification and the installation of the smile drain were key elements of the project. The addition of the turf vacuum helped speed the process and possibly helped draw air into the root zone. So, if persistently wet conditions and slow drainage are causing a problem on your greens, consider using this turf vacuum arrangement to achieve “suck-cess.”

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