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CASE STUDY

Best Management Practices
Resource Management

Deep Fairway Aeration For Improved Water Infiltration

White Cliffs Country Club **Plymouth, Mass. 02360**
Lianne Larson, superintendent

Issue

White Cliffs Country Club is an 18-hole, executive golf course located above the shores of Cape Cod Bay in Plymouth, Massachusetts. The fairways were built from native soil and developed problems related to soil compaction. As the soil conditions worsened, turf conditions deteriorated. To make matters worse, the soils became water repellant in some areas and overly wet in others. The maintenance staff tried several methods to address these issues. They implemented an extensive hand watering program and applied wetting agents in an attempt to manage the soil issues and create more uniform playing conditions. The fairways were also aerated twice annually with conventional hollow tines to manage thatch and alleviate surface compaction. However, a hardpan layer below the depth of conventional aeration was sealing off the soils and inhibiting water flow through the root zone.

Monthly deep-tine aeration improved water infiltration and turf quality in the fairways at White Cliffs Country Club in Plymouth, Massachusetts.

Action

Breaking up the underlying hardpan layer required aerating the fairways to a depth below conventional aeration. To achieve this they utilized a deep-tine aeration machine that is capable of aerating and fracturing the soil to a depth of 6- to 8-inches using 0.75-inch solid tines. A contractor was hired to perform the deep-tine aeration every month from May through September on a Monday morning when the golf course was closed for maintenance. The staff marks the sprinkler heads in an area before it is aerated so that the machine operators can avoid damaging them. On average the contractor is able to aerate the 8 acres of fairways in approximately four hours using two machines. In addition to the deep-tine aeration, conventional hollow-tine aeration is still performed every September.

Results

The benefits of deep-tine aeration were apparent almost immediately. Water infiltration improved, and there were fewer wet and dry areas. Turf in aerated areas developed deeper roots and now requires less-frequent scheduled irrigation and hand watering. Superintendent Lianne Larson also indicated that fairway fungicide applications have decreased by 25 percent as a result of the improved soil conditions and turf health. Best of all, golfers are enjoying more consistent playing conditions and are happier with the appearance of the golf course.

One challenge Larson faced was convincing the golf committee that deep-tine aeration could be performed during the golf season with minimal disruption to the playing surface. However, those concerns faded once golfers saw the process firsthand. When asked if there is anything she would change, Larson replied that she would, "add a monthly topdressing program if we had the resources and equipment to do so."