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CASE STUDY

Best Management Practices
Resource Management

Root Zone Modification And Drainage Installation Improve Soft Putting Greens

Montclair Golf Club **West Orange, N.J. 07092**
Greg Vadala, superintendent

Issue

The putting greens at Montclair Golf Club were built in the 1920s, and while a few were rebuilt over the years, most were the original soil-based greens. These drained very poorly and had become increasingly unreliable and difficult to manage. It was impossible to mow or roll greens following prolonged rain events, and ball marks were deep, plentiful and difficult to repair. Moss became increasingly prevalent, and outbreaks of summer patch and anthracnose were common as well.

Action

Starting in approximately 2008, a more aggressive soil modification program was implemented. This included hollow core aeration twice annually, with large hollow tines on close spacing. The cores were removed and the greens were topdressed heavily enough to fill the holes with sand. Routine topdressing was also increased, making light applications on a weekly or bi-weekly basis. Improvements in the putting surfaces were observed within a year as the surfaces became firmer and ball marks became less problematic.

The soil-based greens at Montclair Golf Club drained poorly, and it took days for them to dry out following prolonged rain events.

However, after several years of increased aeration and topdressing, prolonged rain still softened the greens unacceptably. The next step was to install internal drainage systems in the three wettest greens, and this resulted in a major improvement in drainage. The greens still were soft and wet following a rain event, but they were quicker to dry and playability improved much faster after the drains were installed. The three wettest greens became the best draining of the soil-based greens. Based on the positive experience, internal drainage systems were installed in the remaining soil-based greens.

Once the drainage was installed, a deep-soil modification program was initiated. The greens were double drilled and filled once with three-quarter inch drill bits and single drilled and filled annually thereafter.

Results

Combining conventional and deep-soil modification techniques with drainage installation has significantly improved the playability and maintainability of the soil-based greens at Montclair Golf Club. The greens can now be mowed and rolled following normal rain events, and they are rarely closed due to excessive moisture. The greens play much better, fewer rounds are lost annually due to wet conditions, and moss and disease are less problematic.

There are many reasons for the success of this project, but a key was adjusting cultivation and soil modification programs to complement the drainage installation. Installing drainage without soil modification would only have achieved partial success. Another reason for the project's success was that Superintendent Greg Vadala spoke with other superintendents that had installed putting green drainage systems and learned from their experience. He took care to choose a good contractor and the right material to backfill the drains with. The contractor's workmanship was superb, and the backfill material drains well but still retains adequate moisture and nutrients. The drain lines had to be hand watered frequently during the first season because they were quick to dry out, but as rooting improved they required less attention and now are seldom visible.

Hiring a skilled contractor is essential to a successful drainage project. Workmanship and attention to detail are critical with a delicate job like putting green drainage installation.

Installing drainage systems in the putting greens at Montclair was extremely successful. The putting greens are healthier now and playability is much improved.