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## Frozen down below

FEATURES - IRRIGATION

Brutal winters like the one experienced throughout the country in 2013–14 test irrigation systems – and catch some superintendents by surprise.

GUY CIPRIANO | August 5, 2014

Turf wasn't the only part of many golf courses reeling after the harsh winter of 2013-14.

Beneath the surface, irrigation pipes were tested by the freeze that didn't thaw. Or, in some places, the freeze nobody saw coming.

"This was the spring that just didn't want to get here," says Paul Roche, national sales manager for golf at Rain Bird. "Golf course superintendents were really challenged. The weather was never really good enough to do their normal spring routine and bring their courses in line like they typically do. A lot of golf courses sustained winter turf damage, let alone irrigation damage."



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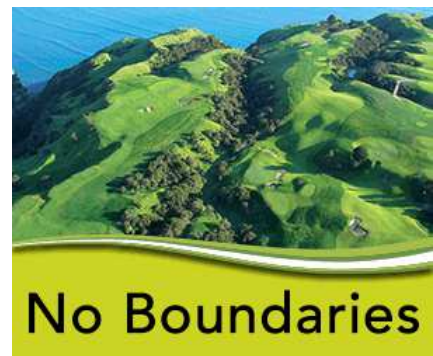
Extreme conditions in New England introduced superintendent Patrick Daly to a reality resting beneath the Framingham Country Club turf: the Massachusetts course's 14-year-old irrigation system is showing its age.

The course received its first snowfall in early December. The covering melted in early January, but more snow and below-freezing temperatures led to what Daly calls "the most severe" frost he has seen in 15 years at the club.

The pump station leaked. Rust entered the irrigation system. Heads cracked. Pipes broke.

When the staff refilled the irrigation system in April in a reverse order of the winterizing process – nearly every fairway has its own main line – the volume of leaks became magnified. The repair work stretched into June, challenging Daly and his staff.

"We checked for leaks and initially we were looking at maybe 15 shells and then as we started running sprinkler heads, we started finding more shells popping on us," Daly says. "It doesn't sound like a lot, but when



you are chasing heads all over the place and we are trying to finish a construction project. ... It has been a long year."

Irrigation consultant Jim Barrett, founder and president of James Barrett Associates, says frost heaves, which are upward swelling of soil caused by freezing temperatures, were more prevalent in the north than recent winters. "I don't know how deep the frost went, but it went way below the sprinklers in my lawn," says Barrett, who lives in New Jersey. "And I think it went way below the golf course-type sprinklers."

Frost heaves will never be a major problem for irrigation systems in the south. But multiple cold snaps exposed systems to unfamiliar elements.

Dirk Hessman, southeast sales representative for Ewing Irrigation, heard stories of pump stations at southern courses with frozen fittings, but he says problems occurred when winter lightning knocked out power. Some of the power outages went undetected for extended periods.

"You get wintertime lightning storms and the electricity seems to be more powerful," says Hessman, a former Georgia golf course superintendent. "You're not using your irrigation and a few things happen with the superintendent. No. 1, they are not using it, so they don't really see it. They look at it like out of sight, out of mind."

Last winter represented an anomaly in the south. "It happens every 10 to 15 years," Hessman says. But Hessman adds that prepared superintendents don't encounter as many major irrigation problems following a once-in-a-decade winter. "The people that kind of shut everything down and did everything they could to get the water out, they were able to get it out where it was exposed," he says. "They were the safe people. The ones that were like, 'We had a warm winter last year. It's not a big deal.' Those are the guys that got hit harder than anybody."

The 40th parallel, which forms the Kansas-Nebraska border, is considered a dividing line when it comes to winterizing an irrigation system. Most superintendents above the line use an air compressor to blow out their systems. But superintendents just south of the line face tricky decisions. "They might need to run irrigation occasionally because you can go through a dry spell where your grass can get pretty dry, even Bermudgrass in the wintertime," Hessman says. "If it desiccates too badly, it can die."

Daly doesn't need to irrigate in the winter. His crew blows out Framingham's irrigation system in late November and turns it back on in early April. Irrigation system damage caused interruptions to early season maintenance routines, but he knows the problems could have been worse.

"Believe me, with the horror stories I heard from this past winter about dead greens, fairways and tees, I will take digging up holes and fixing irrigation," Daly says. "We

### Prepping for the freeze

Preparation represents the best way for an irrigation system to endure a brutal winter.

For courses in the north, a system blowout is major part of a winterization plan. Dirk Hessman, a sales representative for Ewing Irrigation and former golf course superintendent, says there's a "science" to blowing out an irrigation system with an air compressor.

Hessman recommends a blowout pressure of 30 to 50 psi to minimize the damage on pipes and rotors. A gentle blowout is also recommended by Rain Bird's Paul Roche, who says superintendents have improved their winterization tactics in the last 20 years.

"We believe there was a lot of damage to irrigation just done by blowing compressed air into the sprinkler heads and components," says Roche, the company's national sales manager for golf. "Blowing air compressors at a lot lower pressure and thereby putting a lot less stress on the system is key."

The typical blowout of an 18-hole course lasts two days. The same amount of time is required in the spring to return a system to operating form.

An overlooked part of a winterization plan includes a system's electrical components. If irrigation isn't needed during the winter, Hessman recommends disconnecting power in the controller and wires as a preventative measure against power surges caused by lightning. "Disconnect whatever you can," Hessman says. "Don't make it hard on yourself in the springtime."

One tactic that doesn't work is entering the winter and spring on a whim.

"I think having a good winterization and spring startup checklist is one of the best things a golf course superintendent can do and they should really follow up on those checklists religiously," Roche says. "Make sure they get implemented and make sure you allocate enough time to implement them so that when you really do need the irrigation system, it is ready to go."

came out of the winter relatively unscathed on our greens. We were very fortunate. The thing is communication. Our members know we are having irrigation issues. They are seeing us in the ground digging up stuff and fixing stuff all the time. I have already told them that the irrigation repair line will be way over budget this year."

Guy Cipriano is GCI's assistant editor.



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