



Cross-linked polyethylene tubing carries warm water/glycol mixture under practice green. Inset: Same green one year after heating system installation.

GREENS WARMING SYSTEM OFFERS HOPE FOR EXTENDING PLAY

By Matthew Trulio

As golf's immense popularity continues to grow, the push to extend the playing seasons of northern courses grows with it. This desire can be particularly strong on busy municipal courses, where even an extra week of rounds for golf-hungry players can translate into substantial revenue for the course.

Extending the golf season means either starting it earlier, ending it later, or both. Yet even the most savvy superintendents can't change the weather, so attempts to prolong the season often have more to do with what weather and course conditions players will tolerate, rather than specific golf course management practices.

While golfers in the fall will put up with less than ideal fairways, roughs, and tees, even the most die-hard players bristle at putting on sub-standard greens created by nightly frosts. Ideally, there would be a way for course superintendents to "cheat" the seasons, and keep greens from being attacked by frost for a couple

of weeks in the spring and fall. The million-dollar question, of course, is how.

At the Glendale Country Club in Edmonton, Alberta, Canada, participants in a technological "experiment" are hoping to provide some of the answers. Last year, during the construction of two practice greens, the club installed a Thermoturf Heating System under these areas. The system is based on Wirsbo (an Apple Valley, MN-based company) radiant hydronic heating technology and its Meltaway cross-linked polyethylene tubing, which is typically used to prevent snow and ice accumulation.

"We came up with the concept, felt it had possibilities, and worked with the manufacturer of the heat controller components and Canapex [the Canadian distributor for Wirsbo in Regina]," says Bill Roberts of Thermoturf Heating Systems in Calgary, Alberta. "It's already used in Europe to heat soccer and rugby fields. In Iceland, they play soccer on a heated field year round."

"Radiant hydronic heating" means, basically, running heated water through tubing below the area you're trying to heat, so that the heat can radiate upward (which is its natural tendency). And that, in a nut shell, is what they're doing under the two practice greens at Glendale. The system uses a boiler to gradually heat a water/glycol mixture. That in turn is pumped to the green through insulated piping.

Once the mixture reaches the greens, it is circulated through a matrix of the polyethylene tubing, buried at a 10-inch depth, and then returned to the pumping station for recirculation. Temperature sensors, both at the greens' surface and root zone, provide an LED readout at the station. Depending on the selected temperature, the system is designed to operate like a thermostat.

In the summer months, the system can be used to cool the greens, Roberts says. He adds that the system will require a mechanical cooling system to accomplish this.

Working Out Kinks

The heating system was installed during construction of the bentgrass practice greens in the fall of 1990, which meant that when it was turned on in March the grass seed had not yet germinated. The goal at that point was to make sure the system would actually heat the greens, which it did.

"After maybe 10 days after we turned it on, you could see the snow start to disappear daily," says Daryl Asher, superintendent of the private, 160-acre club for the past seven years.

"Radiant hydronic heating" means running heated water through tubing below the area you're trying to heat.

Although the system did melt the snow and frost in an efficient yet gentle manner, Asher says, the time they chose to turn it on created a problem. At the close of each golf season, the superintendent drains his irrigation system, using a compressor to blow out the excess water.

Unfortunately, when they turned on the heating system in the spring, the irrigation system was still three weeks away from being operable.

The ground was defrosted, the seed was ready to germinate, and Asher didn't have an irrigation system. They had to pump water, from a nearby pond on the course, to portable irrigators in order to water the greens.

"I wouldn't recommend using the heating system during germination situations," Asher states.

Playing It Cool On Warming Greens

Because the system has yet to be used on fully established greens, Asher is cautious in predicting how it will affect the growth and maintenance aspects of the two greens.

"In theory, I think, it is correct," says Asher. "But then, there are a lot of theories that come out in the turf industry that aren't perfected yet, or never work out at all. It's not like someone comes up

with an idea and it goes perfectly, right out of the shoot. I think there will be some rough spots with this system."

If Asher seems guarded, it may be because he knows he is not a turfgrass researcher and that the course's experiment with the system is far from "scientific." He is lightning-quick to point out that he is neither a salesman for the system, nor a spokesman for its manufacturer. He also says he plans to put the system through its paces this winter.

"When we put it in I thought, 'Hey, what's the worst that could happen? It

won't work,'" he admits. "I also thought that if it did work, it would be kind of neat to play with. Last year, I didn't really get the chance because the greens weren't established. This year, I'm going to see what the system can really do.

"I want to see if we can keep putting on the greens until there's too much snow on the ground to reach them. If I kill one of the greens in the process, no big deal, because it's not on the golf course. I'll just reseed."

Adds the superintendent, "Next spring, we'll have a lot more to talk about." □

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