

Research Break on the Purdue Golf Course

Working in Purdue University's newest science laboratory is a day enjoying the golf course.

Usually seen as sources of environmental problems, the chemicals and fertilizers used to keep golf greens glowing are thought to pollute nearby waterways and enrich them too much with nutrients that imperil fish and other creatures. Not so, Purdue researchers say.

The newly renovated Purdue Kampen Golf Course that opened June 27 is their unique opportunity to study environmental problems of golf courses in urban America.

"There are a lot of university golf courses, but what makes this course unique is the amount of interaction between the golf course and researchers and students," says Clark Throssell, professor of agronomy.

There are research projects taking place on the Purdue Kampen course as golfers play through. One study of the way golf courses filter water aims to show that they could improve the quality of surface water by building the golf course so that it acts as a filter for pollution.

Research in the 1990s at several institutions has shown that golf courses are environmentally neutral. Many of them use herbicides and chemical fertilizers, but the studies have shown that these chemicals do not run off the course and into the local surface water.

"Research has shown over and over how well golf courses

can clean up the chemicals that are used on them," says Zac Richer, assistant professor of agronomy. "But nobody has looked at how well golf courses can clean up the water that is coming across them. That's what we're trying to do."

The Purdue Kampen course borders a four-lane highway, and across the highway is a mix of businesses and residences, including a gas station and a motel. As rain falls, the runoff moves from the neighborhood through the ground under the golf course.

"All of that drains right across the golf course," Reicher says. "Before the golf course was built, everything went directly into the bog. We assume that antifreeze, petroleum products, road salt and household chemicals were all going into the bog."

The water from the neighborhood now is filtered by the golf course as it flows toward the bog; many of the pollutants break down into harmless components. The water that passes through the course is drained into 15 acres of man-made wetlands that border the Celery Bog. From there, the water is used to irrigate the course, giving it another chance to be filtered by the turf.

The researchers are setting up seven testing sites. In the next three to four years they will have a better idea of how well a golf course can neutralize urban runoff.

— *USGA Green Section*

On The Road With the USGA

By R.A. (Bob) Brame

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As the summer flies by, turf loss increases. While most turf loss observed in August-September has occurred on intermediate and secondary roughs, a few golf courses have lost some fairway grass. It's likely a continuation of the weakening started with the wet and hot weather in late June. Weak and shallow roots don't bode well for turf dependability in late summer.

I have seen more *Pythium* activity on fairways over the last two weeks of August than the entire balance of the season put together. Crabgrass and nutsedge encroachment also has been widespread. Nutsedge encroachment has set a new high for a number of courses. The stuff is everywhere. The fact that it is often called swampgrass tells you something about the weather and/or irrigation practices. Manage® continues to offer good control.

The wet June weather has allowed some interesting observations with regard to the use of wetting agents. Most wetting agents require early season pre-treatment to achieve optimum results during the summer. Generally speaking, wetting agents will reduce surface tension, and thus make it easier to get water into the profile. Does this mean May applications of wetting agents followed by very wet weather will result in a more wet root zone or moisture being held longer in the root zone? There are a number of

superintendents that would answer yes. While wetting agents do have value, they can combine with weather conditions to make the root zone wetter than ideal. Should the irrigation system coverage and/or thatch accumulation be the cause of isolated dry spots, correct the cause of the problem rather than relying upon ongoing wetting agent usage.

'Tis the season, the last few days have revealed some grub damage. Scout carefully for the possible need to spot treat.

Late August did reveal some gray leaf spot damage on perennial ryegrass. In fact, Dr. Vincelli reports finding gray leaf spot damage back in late June. The fact that perennial ryegrass is susceptible to gray leaf spot, *Pythium*, and brown patch points to the potential value of going with a bluegrass and turf-type tall fescue blend in the roughs. Where perennial ryegrass is used on fairways and/or the step cut of rough, maintain fungicide protection into September. As a side note, regardless of the grass type, put the step cut of rough on the same maintenance program as fairways.

Fall is the time to build for next season. It is the time to initiate more aggressive fertilization, aeration and seeding to strengthen the turf for next year. Miss the mark in the fall and you'll be behind all year. Build well.