



Turfgrass's Cutting Edge

By Linda L. McCandless, CALS Director of Communications, Cornell University

Frank Rossi has never seen a blade of grass either dead or alive that he didn't like. And whether he is working from the back of a tractor, a lawnmower, or a pick-up truck, he is quick to tell you the Cornell University Turfgrass Team is committed to improving the environment one turf at a time. The associate professor of turfgrass science likes being outdoors. He also likes the kind of work where he can let grass die and not sweat it. "In fact, sometimes I encourage it," he says.

The fast-talking New Yorker from the Bronx started mowing lawns when he was 11, got his first job at the Leewood Golf Course in Westchester County when he was 15, and became the superintendent of the Greenwich Country Club when he was 25. He has always spent a lot of time on golf courses, and although he has a serious tan, he says he has no golf game. Don't even bother asking him about his handicap. The fact is Rossi, who has a Ph.D. in plant science with an emphasis on weed science and plant biology from Cornell (1992), rarely frequents the front of the house or swings a nine iron. He is more likely to be found behind the clubhouse, talking with the superintendent about putting greens, fixed-head mowers, and annual bluegrass.

Rossi's work doesn't just cover golf courses - which is what most people think when they hear the word "turf." Rossi and the other members of the team also focus on major league stadiums, parks, public school grounds and playing fields, cemeteries, sod farms, public landscaping projects and home lawns.

"Because the turfgrass industry in New York is the largest in the United States, it is incredibly significant from both an economic and an environmental stewardship point of view," notes Rossi, who served on the faculty of Michigan State (1990 - 1992), and the University of Wisconsin-Madison (1992 - 1996), prior to returning to Cornell in 1996.

Turfgrass covers 3.43 million acres in New York, while farm fields and woodlots take up 7.4 million acres. In 2003, landscapers, golf courses, and other turf-related businesses employed 43,000 people and



Photo by Robert Barker

spent \$5 billion on labor, equipment, and supplies. Rossi's main message is that New York's turfgrass industry is driven primarily by homeowners, scholastic athletes, and golfers. "Homeowners spend more money every years than the professionals do," he says, citing statistics from a survey conducted in 2003 that homeowners spent \$88 million for fertilizer and \$37 million for pesticides. "Private residents control six times the turf acreage of either golf courses or lawn care companies, and most of them are not trained to make applications and assess the lawn's needs."

The Cornell Turfgrass Team develops efficient turfgrass management systems based on sound scientific research from five academic departments in the College of Agriculture and Life Sciences.

Agronomists, horticulturalists, plant pathologists, entomologists, human resource specialists, and toxicologists improve cultural management of turfgrass systems by increasing stress tolerance and providing a greater understanding of turfgrass pest ecology. The primary focus of the interdisciplinary group is to educate homeowners and professionals on the most environmentally responsible research-based information that improves resource efficiency.

In collaboration with a network of turfgrass extension field staff located around the state, the Turfgrass Team also delivers an impressive educational curriculum of newsletters, informational bulletins, diagnostic services, and workshops. The cornerstone of the extension education program is the weeklong Turfgrass Management Short Course, which has trained more than 1,500 turf professionals from around the world since its inception in 1985.

Other educational opportunities include the quarterly research newsletter CUTT, which has 2,500 subscribers, and a weekly e-newsletter - shortCUTT - which Rossi calls "just in time education." The weekly e-newsletter is the direct result of a conference call, during which Rossi chats with turf, weather, and industry specialists from around the Northeast. The conversation is then transcribed, edited, and electron-

ically delivered to members of the New York State Turfgrass Association (NYSTA) and over 500 professionals around the country.

The Turfgrass Team is a strong advocate for the golf turf industry, but is also engaged with citizen action groups and policy makers who rely on good science for decision-making. In the past, they have worked closely with the Breast Cancer Environmental Research Fund (BCERF) on controversial issues that involve pesticide use.

CUTTING edge projects

Cornell turfgrass researchers work on a wide range of projects. They include the use of reclaimed water for irrigation on golf courses on eastern Long Island that feed into the Peconic Estuary; weed programs that rely on natural products produced by plants to control weeds; and the ecology of the annual bluegrass weevil, the most significant insect pest on golf courses in metropolitan New York.

One high-profile project involves the Bethpage State Park Green Course, in Farmingdale, N.Y., a project that is in its fifth year. There, Rossi and Jennifer Grant PhD '01, assistant director of the NYS

Integrated Pest Management Program (IPM), are conducting a systems comparison of conventional, IPM, and nonchemical management of golf course greens under both standard and alternative (stress-reducing) cultural practices. The project aims to maximize playability while minimizing chemical use.

"In the first year, we managed six greens with no chemicals and all six died," Rossi says. But six years later, the research is beginning to pay off. "We aren't able to go with no chemicals," he says, "but by careful management, we have been able to cut traditional pesticide use on those greens by 70 percent."

One invention from Rossi has made a real impact on community soccer clubs, and schools and colleges with multi-use fields: a turfgrass paint that acts like invisible ink. The Remarkable Paint system of paint and paint removers can be used to mark lines on playing fields and other turf and does not damage the grass when applied or removed. This means a field can be marked for soccer, used for a game, then "erased" by the grounds crew, and remarked for a different sport, repeatedly and easily during the same playing season.

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A more controversial project involves a 2004 mower study that links greens mower type to putting green performance. Preliminary data indicated significant difference in turf quality and percentage incidence of anthracnose on putting green plots that were mowed by two brands of professional mowers. "It all had to do with floating vs. fixed heads, and how much difference an extra 0.15 of an inch makes in a green's susceptibility to anthracnose," said Rossi, who plans to expand the study in 2006.

Serving the needs of today's turf industry would not be complete without addressing the future of golf course managers. The undergraduate turfgrass programs at CALS addresses the increased interest in sustainable golf course development and management, both nationally and internationally. Rossi sees unlimited opportunities for turfgrass professionals in China, Vietnam, Thailand, and the Philippines, where thousands of people are taking up golf, and new golf courses are being built daily.

Bachelors and professional masters degrees in golf and environmental management at Cornell offer an alternative to traditional turfgrass programs. Rossi notes there are currently seven students enrolled in the program, but numbers are expected to grow in the next few years as environmental pressures increase and more turfgrass courses are available. CALS students will be able to function successfully in diverse arenas from legislative affairs to natural resource protection on golf courses," he says.

Rossi and the turfgrass team conduct their research at the 28-acre Turfgrass Field Research Laboratory adjacent to the Robert Trent Jones Golf Course at Cornell.

Editor's Note: This article about former Badger and UW - Madison faculty member Frank Rossi appeared in the Fall 2005 issue of Cornell University College of Agriculture and Life Sciences News, pp. 18 - 20. It is reprinted with permission. ♣



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