

USGA continues research

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will minimize the impact of a pesticide? "To an uninformed person, the use of some products is like putting a gun in their hands. For 99 percent of products we have found no negative effects and this would be a waste of research effort. But for a few, you can run into situations that can cause a problem if you don't proceed correctly. We want to focus in on that 1 percent where there may be a problem."

The Green Section and university researchers will "take some basic studies and put the information into more real-world situations and have a positive story to tell on how to use a product and not have any environmental impact," Kenna said. "This is stuff not for scientific journals but for superintendents."

While the new funding will include two or three projects dealing with Best Management Practices, the remainder will support further investigation of pesticide-nutrient fate and attempts to improve models to determine pesticide fate, Kenna said.

"The American public is totally ignorant about pesticides," he said. "They do not understand the concept of quantification of risk."

To most people, the mention of any trace of a pesticide being discovered means danger even though pesticides are found naturally, he said, adding people do not know:

- The mere presence of a pesticide does not mean ill effects.

- The dose makes the poison.
- Chemicals behave in a consistent and predictable way.

Kenna paraphrased University of Florida toxicologist Chris Borgert, who said if chemicals didn't behave that way you could eliminate the Food and Drug Administration because there wouldn't be any drugs.

"People wouldn't be receiving antibiotics and chemotherapy, for instance," Kenna said, "because you could not predict what was going to happen. And even though you could administer a dose, the results would be so inconsistent, you'd never know whether to give it to a person."

"So, it's this failure that we're coming to grips with," he continued. "People have no idea what it means if the USGA releases information that there were 2 parts per billion of a certain pesticide found in leaching fractions from a green. That is the crux of our situation. We have to take it to the next step and start explaining what it means."

Research from the past three years is undergoing peer review and later will be published as a book in 1995. Scientists intend to present the findings at a meeting of the American Society of Agronomy in Seattle the week of Nov. 13.

Among the findings Kenna cited:

- Research has demonstrated that nitrogen leaching is minimal, the turf/soil ecosystem enhances pesticide degradation, and the current agricultural models (particularly Groundwater Loading Effects of Agriculture Management Systems) are inadequate at predicting the fate of pesticides and fertilizers

Projects chosen for future support

Meeting in Houston in August, the Green Section Environmental Research Committee evaluated 35 research proposals and pared them down to eight.

The funded projects include:

- Degradation of Fungicides in Turfgrass Systems, by Dr. Ron Turco of Purdue University.
- Evaluation of Best Management Practices To Protect Surface Water Quality from Pesticides and Nitrogen Applied to Bermudagrass Fairways, by Dr. Jim Baird of Oklahoma State University.
- Modeling Pesticide Transport in Turfgrass Thatch and Foliage, by Dr. Mark Carroll of the University of Maryland.
- Quantification of the Effect of Turf on Pesticide Fate in Soils, by Dr. Bruce Branham of Michigan State University.
- Evaluation of Management Factors Affecting Volatile Loss and Dislodgeable Foliar Residues, by Dr. Richard Cooper of the University of Massachusetts at Amherst.

- Measurement and Model Prediction of Pesticide Partitioning in Field Scale Turfgrass Plots, by Dr. Marylynn Yates of the University of California-Riverside.

- Mobility and Persistence of Pesticides in a USGA Green, by Dr. George Snyder of the University of Florida.

- Evaluation of the Potential Movement of Pesticides Following Application to Golf Courses, by Dr. Al Smith of the University of Georgia.

The last four are followup studies primarily dealing with runoff, volatilization and dislodgeable residues of pesticides.

Each study will receive around \$45,000 to \$50,000 per year for three years, Kenna said. The remaining \$300,000 of the \$1.5 million total funding is set aside for wildlife research. Ron Dodson of the Audubon Cooperative Sanctuary Program is coordinating a meeting in early November with other wildlife organizations to devise a research funding proposal for issues dealing with wildlife on golf courses.

applied to turfgrass maintained under golf course conditions.

- At Rutgers University, a new nematode was developed and released, holding promise for control of white grubs equal to some insecticides.

- Researchers at the University of Kentucky have documented several beneficial predators of white grubs and cutworms that can help reduce pest egg population.

- Pennsylvania State University runoff

plots irrigated with six inches of water per hour yielded nitrogen and phosphorous amounts less than or equal to that found in the irrigation water itself.

- Dislodgeable pesticide residues were only significant immediately after a pesticide was applied to turf.

- Pesticides break down faster in the turfgrass environment than what is typical when these materials are applied to agricultural crops, according to most preliminary results.

WINTER PREP

Chemical companies attack snow mold

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- PBI/Gordon Corp.'s flagship product is Teremec SP, which combats gray snow mold, pythium and brown patch, according to Central and Northwest Regional Manager Earl Tracy.

- Since 1987, Banner has been Ciba's main product to combat snow mold, according to Doug Houseworth, manager of technical support in the Turf and Ornamental Department. Banner is very effective against pink snow mold, he said. It works well on *Typhula incarnata*, a gray snow mold found primarily in the

eastern United States and Canada.

But it is less effective in heavier-snow-cover areas such as upper Michigan where the *Typhula ishikariensis* strain of gray snow mold is found, Houseworth added.

- DowElanco has marketed Rubigan AS for about 15 years, according to Mark Urbanowski, communications director for the Turf and Ornamental Division. Rubigan AS is a broad-spectrum, systemic fungicide that is effective against both gray and pink snow mold, Urbanowski added.



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Microfoam and Velcro key to experiment

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ers start paying for themselves compared to straw. Plus, he said, "you have far less labor putting the covers on and off."

Last winter, Crayton said, his greens "wintered better than they have in the last few years. I'm optimistic. If I get a lot of ice, I'm not going to get complete kill. Some of the crowns will still be there and the greens will green up come spring."

Crayton is rebuilding the greens on his 18-hole facility and plans to add one per year of his self-made covers to protect the old greens until they get rebuilt. "We're rebuilding two greens a year. Hopefully, when I get the new greens built to USGA (U.S. Golf Association) specs, they will have good drainage and won't puddle, so I'll have less need for the covers," he said.

He suggested that superintendents in-

terested in his method experiment by making a small Crayton cover and trying it on a problem green or tee.

He also stressed that covers should be kept out of the sunlight while in storage.

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When the greens come out of the winter and the covers are removed, Crayton recommended using breathable covers on them.

"Once spring comes, the greens have to be able to breathe more than when they're in a dormant state," he said. "Breathable covers protect them from the cold nights and allow them to warm up quicker, increasing the temperatures and acting almost like a greenhouse so the grass germinates quicker. I've seen greens germinate two weeks faster with a greens cover than without."