

Conference Report

Ground water studies positive for golf

BY PETER BLAIS

Those in the golf business tend to view the industry as very positive for the environment. Unfortunately many others don't see it that way, especially regarding ground water contamination by pesticides, according to Richard Cooper, Ph.D., a University of Massachusetts researcher who spoke at February's GCSAA annual conference in Orlando.

There have been 26 documented cases of pesticides found in ground water in New England, although none have been associated with golf courses, said Cooper.

But the average person doesn't distinguish between agricultural pesticides (the most common source of ground water contamination) and turf management pesticides used on golf courses. Increasingly it's the superintendent's job to serve as industry spokesman and explain those differences.

To help the superintendent better perform this new role, Cooper reviewed some of the basic facts about turfgrass and the results of recent studies regarding pesticide contamination.

Golf course turf provides a very dense plant population, between 1,500 and 2,000 plants per square foot in the rough rising to 3,500 to 4,000 on the green.

"Grass plants intercept most, if not all pesticides before they reach ground water. That's a very important difference compared to agricultural plants like corn, soybeans, etc.," Cooper said.

Thatch, the layer of decomposing matter below the growing grass, is a strong absorber of pesticides. Thatch is common under turf but not agricultural plants.

Grass also has a deep and extensive root system that can reach down several feet. Roots both absorb and adsorb pesticides.

"The nature of the turfgrass community is that it helps protect the environment," said Cooper. That's why the Soil Conservation Service has long recommended a grass buffer strip be planted near water supplies, he added.

Despite the environmental benefits of grass, there is still some

Mechanics

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January or February would be fine."

- Discuss appropriate topics at appropriate places. "Someone once suggested having an OSHA (Occupational Safety and Health Administration) representative come by. No superintendent was crazy about hosting a meeting that could uncover a violation and \$25,000 fine."

- Don't use meetings simply as a bitch session. "If you have problems, have a discussion. Try to do it in a positive manner."

- Don't discuss salaries at every meeting. "Schedule a meeting where salaries and benefits are the the topics. Everyone attending should be expected to verbally participate. That way you have the facts rather than rumor. Superintendents have been doing it for a long time."

pesticide movement. But many things combine to break down pesticides before they reach ground water, according to the UMass professor.

Volatilization — gaseous losses to the atmosphere — claim up to 15 percent of turfgrass pesticides, according to a GCSAA-sponsored UMass study.

Many fungicides and herbicides are designed to be absorbed by plants and are taken up almost completely. Adsorption to roots and minerals bonds the rest to the soil and prevents them from reaching the water supply.

When pesticides do reach water

supplies, they get there in one of two ways — runoff or leaching.

Recent studies at Pennsylvania State University and the University of Rhode Island showed that runoff from turf is not a common event. It takes rain on the order of four to six inches per hour or frozen soil to get pesticide movement through runoff.

"But in the absence of unusual conditions, studies have shown runoff not to be a major avenue of pesticide movement," said Cooper.

Another URI study of 2,4-D and Dicamba placed on sandy soil showed that only one part per billion of 2,4-D leached through to

ground water, well below the federal standard of 100 parts per billion in drinking water. Dicamba showed up at only 1/2 part per billion, again well below the federal standard of 12-1/2 parts per billion.

"Clearly, even with over-application and over-irrigation, we never get close to what is considered a toxicologically significant amount, an amount that we'd start to worry about. Routine applications of 2,4-D and Dicamba do not contaminate ground water," said Cooper.

An Ohio State study by Dr. Harry Niemczyk showed that insecticides, one of the most toxic sub-

stances in the environment, can be recovered at rates of 88 to 99 percent four weeks after application.

A study on the sandy soils of Cape Cod also revealed that pesticides from golf courses rarely leach into ground water.

Cooper said he made a conscious effort not to pick studies that would benefit the golf industry.

"I've reviewed the literature and there are no documented cases of ground water pollution from pesticides to my knowledge," he said. "Instead of polluting the environment, we can make a strong case that golf courses protect the environment."

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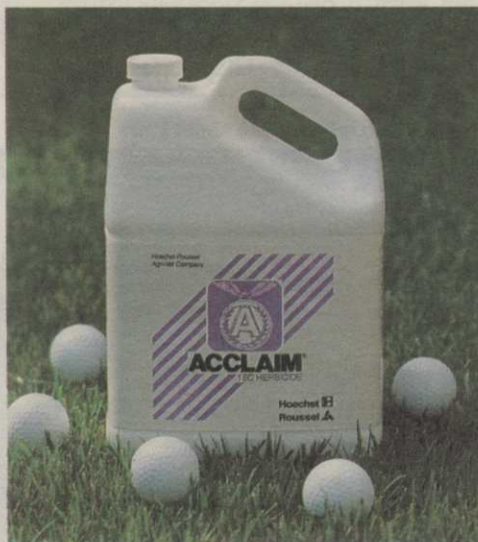
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