

Pesticide Risk Assessment for Golf Courses and the Development of an Environmental Database

Bruce Branham and Thomas Fermanian
University of Illinois

Stuart Cohen
Environmental and Turf Services

Jennifer Grant
Cornell University

Objectives:

1. To develop a software tool to permit golf turf managers to make informed decisions regarding the environmental risk of choosing a particular pesticide.

Start Date: 2006

Project Duration: two years

Total Funding: \$90,000

Golf course superintendents frequently apply pesticides to control a variety of pest problems. Many factors go into a decision on which pesticide to use including cost, efficacy, and turf safety. Currently, it is much more difficult for a superintendent to include environmental risk into the decision-making process. What is the risk to groundwater supplies when a particular pesticide is used? What is the risk to surface water, bees, or humans?

These are complex questions requiring not only data, but also a method to put the data into context. The purpose of this project is to first collect relevant data on environmental fate, toxicology, and environmental endpoints and to compile this data into a database that will be available to golf course superintendents. However, the database will probably be of minor significance to most golf course superintendents.

The second part of the project is to develop a model, or software program, that calculates the risk to specific environmental features from using a particular



One of the goals of this project is to provide information that can be used to select chemicals based on their tendency to leach or run off the site of application.

pesticide. For example, a stream flows through a local golf course. The golf course superintendent may want to know whether a pesticide he intends to use is likely to reach surface water bodies, and if it does, what is the likelihood that it will cause problems for the trout in the stream? This is a rudimentary risk assessment, determining the likely concentration of the pesticide in a stream, and then determining if this concentration is high enough to cause concern.

The challenge of this project is to develop a tool that is easy to use, while

retaining a sound scientific basis for estimating the risk of using a particular pesticide. The upcoming year will be devoted to developing the software tool or program that will allow us to meet this challenge.

Progress during 2006 consisted of a series of conference calls between the four primary investigators. The task of collecting all the data necessary for this project was divided among the group and we spent much of 2006 on this data collection phase. Dr. Fermanian is responsible for taking the collected data and building a database that will serve as the foundation of the project. The next step, to be completed during calendar year 2007, is to develop an easy-to-use approach for evaluating pesticide risk on golf courses.

Summary Points

- A database of pesticide properties needed for risk assessment has been developed.
- The database will serve as the foundation for a method of assessing environmental riskiness of pesticide use.
- The ultimate result of this research will be a simple tool to estimate and compare the risk of using one or more pesticides on the golf course.



It is important to understand what effects, if any, pesticides applied to golf courses have on the quality of surface water, including wetlands.