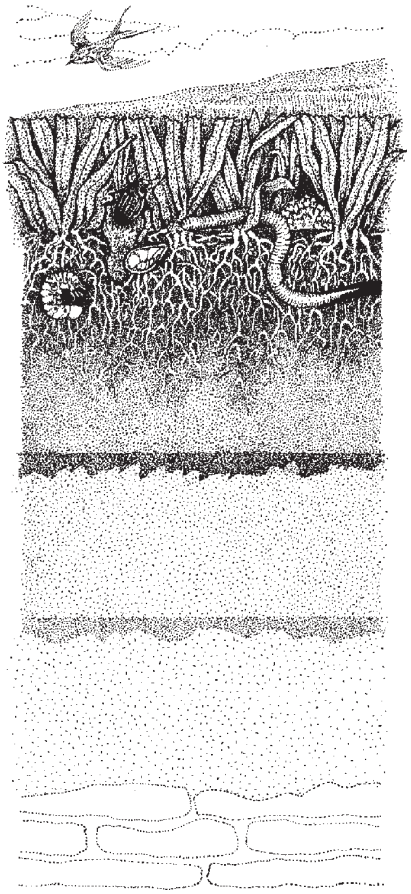
CORNELL UNIVERSITY TURFGRASS TIMES

CUTT

Winter 1991 • Volume Two • Number Four • *A Publication of Cornell Cooperative Extension*



Subsurface Placement of Pesticides

Sometimes when a turf manager uses a pesticide and it does not meet his expectations, he thinks the material has "failed". In fact, there are many circumstances when the material was not used appropriately – the wrong rate, the wrong time of year or even the wrong time of day, the wrong use of water before or after the application, the wrong material for the pest, or the wrong formulation for the conditions. ■

One insect pest which causes headaches to turf managers is the white grub complex. The damaging stage, the white grub, is active at or below the soil-thatch interface. Insecticides which are applied to the turf surface must be moved down into the thatch or the grubs must be drawn higher into the thatch so that the grubs come in contact with the insecticide. In most cases post-application irrigation (or rain) is used to initiate that movement, but often the water is not put on quickly enough after application or it is not put on in sufficient quantity to accomplish the job.

High Pressure Liquid Injection

The challenge faced by northern turf managers regarding white grubs is virtually identical to that faced by southern turf managers when dealing with mole crickets, which are very mobile soil insects. Several years ago some engineers in the Southeast came up with a concept of using very high pressure and small nozzle tips to drive materials deeper into thatch than a conventional surface application. They built a prototype "high pressure liquid injection" (HPLI) unit which was used to make small research plot applications. This unit had four separate 15 gallon tanks which could be used independently or in combination. The delivery system included two independent two foot booms, with nozzles placed at three inch spacing. The booms rode directly on the ground with the nozzles projecting a few degrees forward of vertical, and the nozzle tips were no more than 0.5 inch off the ground. The technology used in the research unit is available on commercial units with as large as 1,000 gallon tanks with 16 foot booms.

This unit was used to apply numerous field trials testing control of mole crickets. Many of those trials were conducted under the direction of Dr. Pat Cobb at Auburn University in Alabama. Preliminary indications were that the technique had tremendous potential and certainly had many advantages over a conventional surface application. Environmentally, the surface exposure to pesticides was reduced considerably. (One study on warm season grasses showed that surface residues were reduced up to 90%.) In addition there was virtually no drift during the application, because the nozzles rode so close to the ground. In certain circumstances the rate of application could be reduced 50% using HPLI and still provide the same level of control as a conventional application at the full rate.

The same prototype unit was brought to Massachusetts in the spring of 1989 to put out some Japanese beetle grub trials. Several of those trials looked at Triumph 4E® (primarily because we

continued on page 4

This Times