

Summer stress affects insect timing

By R. L. BRANDENBURG
/North Carolina State University

Summer challenges landscape managers. Turf often suffers from heat and drought and possibly even increased traffic and activity.

Employee morale can suffer, and of course, some pest problems peak in the heat of summer. Extreme weather conditions often make the timely deployment of pest management strategies difficult.

Since insects are cold blooded, we assume that warmer temperatures speed insect development and thereby increase the likelihood of pest outbreaks. Generally this is true because certain pests do seem more common when it's hot and dry. Turf damage from pests such as some of the billbugs, mites and chinch bugs can be more severe when it's hot and dry.

Warm springs may cause various caterpillar pests (cutworms, armyworms) to appear earlier than normal. However, popu-

lations of some white grub species may be reduced under hot, dry conditions due to poor survival of the eggs and small grubs.

Although we have no control over the weather and how it affects pest problems, we do have insight into how weather can influence pest control and can take advantage of opportunities to adjust our program accordingly. This area of knowledge is becoming increasingly important with the arrival of a wide variety of novel new insecticides and biological control strategies.

Since the weather affects development and behavior, a good understanding of this relationship for the key pests in your area is important and can pay big dividends in time, money, turf quality, and customer satisfaction.

Products like Merit (imidacloprid) and Mach 2 (halofenozide) have increased our awareness of the importance of timing for insect control. Directed against the early instar or small grubs these products give excellent control. As grubs grow larger, the level of control seems to decline proportionally more than for some of the other conventional insecticides. Some of these newer products, including many of the "natural" products, act as insect growth regulators and their impact is most profound on the earlier stages of the insect. Since weather can influence the rate of development, close monitoring of insect development is critical. Hot, dry weather can also influence insect behavior by moving below-ground insect pests deeper into the soil. This



The close relationship of pests to their environment makes monitoring and scouting critical during periods of hot and dry weather.

may make them less susceptible to insect control strategies. Pre- and post-irrigation of the affected area can be beneficial in improving control by moving the insects closer to the surface.

Pesticides may be rendered less effective by hot, dry conditions by increasing the amount of volatilization or loss to the air. The hot, dry soil, organic matter, and thatch may also bind or "tie up" the pesticides so that much of the material never reaches its site of action.

Biological control strategies are also challenged by hot, dry conditions. Insect-attacking nematodes, bacteria, and fungi are adversely affected by these conditions. A general rule of thumb is to apply after the sun is low in the sky. Pre- and post-irrigation also help. **LM**

—The author is a turfgrass entomologist at North Carolina State University.



Summer weather may consist of extremes which can dramatically influence pest abundance and behavior such as forcing white grub populations deeper in the soil.