

Practical Considerations for the Use of Insecticides in Turfgrass

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Successful pest management in turfgrass almost always requires the use of pesticides within an integrated approach because of the aesthetic nature and high standards required by growers, managers, and users. Unlike conventional crop pest management where economic thresholds are used to determine the necessity and timing of pesticide applications, very little visible damage or loss of quality is typically accepted in intensively managed turfgrass settings, such as commercial sod production, golf courses, and residential and commercial lawns. Many turfgrass managers operate with the knowledge that synthetic compounds will likely be needed to achieve acceptable cosmetic appearances; however, it is still necessary to understand the factors that must be considered when choosing and applying pesticides in turfgrass to achieve optimal success.

Several considerations are discussed in this chapter that are related to the use of insecticides for turfgrass pest management. These factors include identifying the pest spectrum and location, timing of applications (preventative vs. curative treatments), consideration of insecticidal properties, and legal ramifications of choosing and applying a pesticide. The insecticidal properties that are covered are route of exposure to the pest, mode of action, systemic properties of the compound, speed of kill, residual activity, product names and formulations, and label language and restrictions.

Pest Considerations

As is the scenario for all integrated pest management (IPM) approaches, appropriate monitoring, scouting, and identification of the damage-causing pest are a prerequisite to applying pesticides. Many insects and other animals call turf their home, but only a few of those actually cause damage because of their biology and extent of infestation. Turfgrass insect pests are classified as either surface or subsurface dwellers/feeders, and control

methods depend largely on this factor. Foliar/stem feeders are usually easier to detect and control because they are conspicuous and it is easier to achieve contact with the pesticide. Examples of surface pests are caterpillars (i.e., sod webworms, cutworms, and armyworms), chinch bugs, and spider mites. Subsurface pests are located in either the stem/thatch zone or thatch/soil zone, which prolongs detection of their presence until damage to the turfgrass is noticeable. This often makes effective treatment more difficult because the infestation can be quite advanced, the insects may be further developed (thus larger and more difficult to control), and it is more challenging to achieve necessary contact between the insecticide and pest. Examples of subsurface pests are mole crickets, white grubs, and billbug larvae. Turf managers must accurately identify the pest causing damage; and this is often difficult because of the complex interactions between disease, weed, and insect pests. Signs of insect damage also can be mistaken as an incorrect pest or poor management problems and vice versa.

A variety of scouting and monitoring techniques are used to detect insect pests in turfgrass. Some examples of these include light/calling/pheromone traps, flotation methods (i.e., soapy water flush and coffee can method), pitfall traps, destructive sampling (i.e., cup cutter sampling or peeling back sod) or damage (i.e., grid) ratings. Use of any of these monitoring techniques requires early detection of the pest before it reaches damaging levels. Because insect damage can be easily confused with a non-insect factor, turf managers need to frequently scout for signs of insect-caused plant damage (turf discoloration, leaf skeletonization, clipped grass blades, stem tunneling), insect fecal pellets, soil mounding, flying insects (moths, beetles, mole crickets), or presence of predatory birds, animals, or beneficial insects.

Along with scouting, it is imperative to keep good records on the type of pests and symptoms, as well as the location and time of observation. Many turfgrass pests reinfest the same areas year after year, and these records will facilitate future decisions about preventative pesticide applications and pinpoint specific areas for scouting. Once the presence of an insect pest is confirmed, it is necessary to identify the pest in order to choose appropriate control measures.

Although insects have a variety of ways to cause damage, the two broad groups of turfgrass pests are piercing/sucking and chewing pests. Chinch bugs and mealy bugs are examples of piercing/sucking insects; mole crickets, white grubs, and caterpillars are chewing pests.

Because many broad-spectrum chemistries have been