

Turf Grass TRENDS



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Effective management of Japanese beetles

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JAPANESE BEETLES are among the most damaging turfgrass pests east of the Mississippi River. Unlike many turfgrass insects that feed at only one life stage or on only one plant part, Japanese beetles feed on the leaves and fruits of many weeds, ornamentals and tree varieties as adults—and on turfgrass and other plant roots as grubs. Because of this, turfgrass managers may consider Japanese beetles as two separate pests, each requiring a different strategy for effective control.

Deciding when, where and how to treat adult Japanese beetles is relatively straightforward, but that is not the case for beetle grubs in the soil. The management of Japanese beetle grubs will never be easy. Knowing where, when, how and if to treat for grubs is difficult to determine. Short residual insecticides require a better understanding of when and where to treat for grubs, and public demands that insecticide use be decreased or eliminated dictate that turfgrass managers become increasingly knowledgeable of the ecology of this pest.

Understanding how Japanese beetles live

MOST JAPANESE BEETLES have a one year life cycle—that is, one cycle of adults, eggs and grubs in the soil each year. Adult beetles begin to emerge from the soil in early to mid-summer, with peak populations in the Northeast occurring during the first week in July. Years with



unseasonably cool temperatures (such as 1992) may cause an emergence delay of two weeks or longer.

Female beetles have as many as 20 mature eggs to lay soon after they emerge and mate. In many cases, a high number of eggs are laid by females close to the turf from which they emerged. For

this reason, some turf areas seem to have high populations of grubs year after year. After laying her first batch of eggs, a female beetle must feed to mature more eggs. Males beetles are attracted to females by a sex lure compound (pheromone) that is given off by females. Both male and female beetles fly to feeding sites soon after initial mating and egg-laying. Feeding adult beetles are closely associated with such weed species as smartweed, wild blackberry, wild grapes, crabgrass, ragweed and cattails, and common ornamentals such as crab apple, wild cherry, peaches, plums, maples, birch, roses, sassafras, mountain ash and linden.

Female Japanese beetles do not simply lay their eggs on the soil surface. They crawl down into the soil 2 to 6 inches to deposit their eggs. Eggs and young grubs are extremely sensitive to temperature and moisture extremes and the soil environment is more moderate and stable at those depths. Under extreme environmental conditions of dryness and high soil temperatures, the eggs may not hatch and young grubs may not survive. The ideal soil for egg laying is well-drained, non-compacted and loamy. This type of soil generally will not flood in rainy periods or dry completely during drought. As a good rule of thumb, soil conditions that are ideal for growing turf are also ideal for growing Japanese beetles.

Locating and controlling grubs

MOST PROPERTIES HAVE AREAS that have the potential for grub problems every year, some areas that will have grub problems most years and other areas that seldom, if ever, see grubs. This is mainly

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