

INVASIVE INSECTS CREATE OPPORTUNITIES

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Less than 1% of all insect species are considered “pests”! Of these, approximately 40% are exotic or invasive species in the United States. Each year millions of dollars are spent to control insects. Gypsy moth, Japanese beetle, and emerald ash borer are invasive insect species that are problematic in the United States.

Gypsy moth presents as challenge in that it is not only a pest in the urban landscape, but it too causes damage in forest ecosystem as well. Gypsy moth is know to feed on over 300 plant species, however oak (*Quercus* spp.) are especially preferred. The caterpillar stage is the primarily the destructive life stage, however the egg masses, pupal cases (cocoons), and adults are often considered a nuisance. Gypsy moth caterpillars are fairly easy to control. Most contact insecticides provide excellent control, however, the difficulty is the placement or application of the control agent. During their first few caterpillar stages, gypsy moth spends the majority (day and night) of its time in the canopy of the trees. Thus, depending on the tree height, application may be difficult. Once the gypsy moth caterpillars begin to develop and mature, they take-on a different behavior whereby they are only active at night. Smaller, younger caterpillars are typically easier to control, this is especially true for biologically based insecticides such as *Bacillus thuringiensis kurstaki* also know as Btk. Another, alternative control strategy is destroying gypsy moth egg masses. Egg masses can be destroyed using Golden Pest Spray Oil (GPSO), GPSO is directly applied to the egg masses, a procedure called “oiling.” GPSO acts as a suffocant, not allowing the egg to hatch.

Japanese beetle is also a troublesome invasive insect species. This pest presents a problem from two perspectives: (1) the adults cause feeding damage to the foliage of woody ornamental plant material and (2) the larvae (grubs) cause damage to the roots of turfgrass as well as ornamental plant material. The control strategies for adults and grubs are quite different. Adult control strategies rely primarily on curative (corrective) insecticide treatment applications, whereby grub control strategies are often reliant on preventative insecticides, especially where a history of grub damage has occurred. Most contact insecticides are effective against Japanese beetle adults; however, the best time to apply the control agents is when the beetles are most active. Japanese beetle adults are sun-loving animals, thus they are most active on sunny day, especially in the upper canopy of the tree typically on the Southern and Western exposure. As for the grubs, they can be difficult to control, especially as they develop and mature, larger grubs the most difficult to control. For this reason, timing of treatment applications is crucial! Moreover, preventative insecticide treatments are often more effective since they are targeted at measurably smaller, newly hatched grubs. Regardless of the management strategy, ALL insecticide treatments for control of white grubs MUST be watered or irrigated with at least 0.25 inch of water to aid movement of the product to the grub located in the soil beneath the turf.

The emerald ash borer (EAB) was first discovered in June 2002 in the Detroit, Michigan metropolitan area. Since then, EAB has been found in Ohio, Indiana, Maryland, Illinois, and Ontario, Canada. EAB is an invasive insect that is native to Asia. EAB is a wood boring insect that is only known to attack ash trees (i.e., *Fraxinus* spp.). The larvae (immature life stage) cause

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damage to ash trees by destroying conductive tissues responsible for the transportation of nutrients and water. It has been estimated that >20 million ash trees are either dead or dying as a result of this insect pest. EAB was discovered <40 miles from the southern Wisconsin border in nearby northern Illinois. It is theorized that the most likely means by which EAB spreads is through the movement of ash products including firewood, nursery stock and wood products such as pallets and logs. To date, EAB has not been discovered in Wisconsin, thus no insecticide management treatment are recommended. Once EAB is discovered in Wisconsin, the Wisconsin Department of Agriculture, Trade and Consumer Protection plans to initiate an eradication process whereby all ash trees within a half-mile radius of an EAB find will be felled (removed) and destroyed. For additional information, including management, regarding EAB, visit our EAB website at www.entomology.wisc.edu/emeraldashborer.