THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Hardin County Extension News Release

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Bagworms

Hardin County – The continuous rain this spring may have caused us to forget that insects are still active. Often these insects may be controlled if insecticides are applied at the correct time. One of these insects that is past that critical time for chemical control are bagworms as standard insecticides are no longer effective by late summer. Late instar bagworms can detect insecticide toxicants causing them to hasten pupation, but they do not die. However, they do stop feeding which leads to the perception they were killed.

Early-pupating females produce fewer eggs, but they still produce enough to continue the infestation next season. It's important to remember that bagworms may remain attached even if the caterpillars were successfully killed with an insecticide earlier in the season. Therefore, the best way to deal with them at this point in time is to pick them out of the host tree or shrub and step on them before removing them from the area.

Bagworms can be a serious problem in town and on the farm. Bagworms can take out 20-foot tall trees in rural windbreaks, large evergreens in yards, and smaller shrubs around homes and businesses. Bagworms began to hatch from their protective cocoons back in June. A few bagworms do little harm. However, many bagworms on a shrub or tree can cause excessive defoliation. A severe infestation may kill the plant within one or two seasons.

Bagworms do the most damage on arborvitae and cedars, but will attack pines, junipers, spruce and at least 130 other trees and shrubs. They may not harm the deciduous trees, but they spread from these trees to more susceptible evergreens.

Larvae will begin feeding and start to build a camouflage bag with plant parts within a few weeks after hatching. They will continue to feed and eventually build a bag that is one to one and half inches long. Any dried and gray bags seen at this time are from last year. However, upon close examination, larvae can be seen with small new bags.

Most of the emerging larvae will feed on same tree that contained their overwintering home. Others will form silk threads and allow the wind to carry them to adjacent trees. This is the most common way that bagworms spread from tree to tree in a windbreak planting. Rain events may diminish the movement from tree to tree.

The most effective control of bagworms is to apply insecticides about two weeks after the first bagworms begin to hatch. This ensures that all the eggs have hatched from overwintering bags on the tree and the insects are in the crawler stage. Spraying insecticide is an effective control until the larvae have made bags about ¾ inch in length, which generally occurs in late July.

Most foliar applied insecticides should provide effective bagworm control especially when applied to small larvae. One may want to consider the biological insecticide Bacillus thuringiensis var. kurstaki (Bt). Bt products are more environmentally friendly since they are selective for larvae of many moths, such as bagworms, without harming beneficial insects.

However, Bt products have short residual activity and may require more than one application for control. Also, complete vegetative coverage is important for Bt products since the worm has to actually ingest the insecticide while feeding to be effective.

Bt products would work well early on. However, if spraying is delayed until mid-July, one may need to switch to more traditional insecticides. The non-Bt products generally are more effective since the product only has to come in contact with the larvae. Whatever product is selected, make sure it is labeled for bagworms and the tree or shrub.

Control will become more difficult once the larvae stop feeding and attach their protected mobile home to the tree. Hand removal becomes the only effective method of elimination at that time. Bagworms generally attach their protective home to a stem around mid-August and then pupate inside. About a month later male moths will emerge and mate with females in the bags.

Females never leave the bag. After mating a female will lay 300 to 1000 eggs in the bag, die, and form a mummified body around the egg mass for extra winter protection. Eggs will hatch the following spring to start the next generation. Tiny emerging larvae (crawlers) will start to emerge late May and early June depending upon air temperature and accumulating heat units.

Bagworms have become more a problem in recent years for our area. It was thought that numbers had increased from milder winters and warmer springs. However, populations have continued to increase even after severe winter conditions.

Article written by Ed Lentz, OSU Extension-Hancock County and revised by Mark Badertscher, OSU Extension-Hardin County.