

# Delaware prepares to battle gypsy moth

NEWARK, Dela. — Battle lines are being drawn up in Delaware against the gypsy moth. All indications are that this pest is going to be a serious problem in some parts of the state this summer—especially in northern New Castle County.

According to University of Delaware Extension urban entomologist Dale Bray, surveys taken last year by the state department of natural resources identified a number of potential "hot spots" in the county, including Alapocas State Park, the Westover Hills, Hockessin and Greenville-Hoopers Reservoir areas, and the Winterthur Museum grounds. There are other less serious infestations in other parts of the state.

Predictions of outbreaks are based on counts of moths captured in traps and on the presence of their egg masses. A single chamomile-like egg mass may contain anywhere from 100 to 1000 eggs. They appear to be laid indiscriminately by moths and may be found on tree trunks, rocks, fences, trailer hitches, camping gear, in the wheel wells of trucks, and many other places.

Gypsy moth larvae start hatching out in late April or early May. They continue to emerge for about a month. From the time they hatch until they pupate eight weeks later, the caterpillars spend much of their time voraciously devouring tree leaves.

Depending on their sex, larvae go through five or six molts or instars as they develop.

The first instar tends to be flat headed with big eye-like protrusions on each side of its head and characteristic large tubercles with long tufted hairs on them.

After hatching, the young larvae climb to the tops of trees, trailing silken threads behind them, but they don't make "tents" or webs. When they reach the outer branches, they hang by these strands until the wind carries them to favorable feeding sites. The thread of silk and their long hairs make them so buoyant they may drift 20 miles or more on air currents before settling onto foliage to their liking. This is one way infestations spread.

By the fourth instar the larvae have developed characteristic markings—five sets of blue dots behind the head and six red double dots running down the rest of the back. By the time they're ready

to pupate, they're between one and one-half and two and one-half inches long.

Favored food plants of the caterpillars in all stages include the alder, apple, aspen, basswood, birches (gray, river and white), boxelder, hawthorn, hazelnut, larch, mountain ash, spruce, sumac, willow, witch hazel, and all species of oak (their special favorites). Older larvae are also quite partial to beech, chestnut, all kinds of pines and spruces.

Bray says they'll also accept black or yellow birch, cherry, cottonwood, elms, blackgum, hackberry, hickories, hornbeam, maples of all kinds, pears, sassafras and sweetgum.

One reason for the present buildup of Gypsy Moth populations in the state is the extremely dry weather last year. This kept the spread of Gypsy Moth diseases to a minimum and may have taken a toll of natural enemies.

Large populations may suddenly collapse or decline under pressure from parasites, predators and disease, or from starvation when available food supplies have been consumed. Infestations in the Northeast have followed anywhere from a three to five year cycle.

No one knows what to expect yet in Delaware, though Bray is inclined to think that in the long run the state will experience less severe outbreaks than those reported in other parts of the Northeast, both because so much of the land is flat, and because the general tree mix is less attractive to the pest.

According to the entomologist, there are only a few spray materials for use against the Gypsy Moth which have proven effective.

The most thoroughly tested, effective insecticide is carbaryl (Sevin). Though there was some public opposition to its use in New Jersey last year, the manufacturers subjected it to intensive tests which appear to have convinced EPA authorities that it does not pose a human health hazard and are recommended for use against the Gypsy Moth.

Care must be taken to protect honey bees from Sevin, however.

"If you're going to use Sevin, be sure to notify beekeepers in the area so they can protect their bees," says Bray.

By covering hives with moist burlap and keeping this moist, they can confine their bees for up to

three days. This should be long enough to protect them from the insecticide.

"If you have any pollen," he adds, "it would be a good idea to feed this to the bees while they're shut up, since young workers will need the food."

Do not treat with Sevin when leaves are wet or when high humidity or rain is expected within 48 hours. This material injures Boston Ivy, Virginia creeper and maidenhair fern, he warned.

Other chemicals which have proven reasonably effective against Gypsy Moth are acephate (Orthene), phosmet (Imidan, and Dylox. Orthene is also toxic to honey bees, while Dylox may in-

jure carnations, hydrangeas and zinnias.

There also is a biological insecticide — *Bacillus thuringiensis* — which can be used against Gypsy Moth instead of chemical insecticides. This comes in a number of commercial formulations of which the most effective is Dipel 4 L, says Bray. Other trade names for this disease-causing insecticide are Thuricide, SOK, and Biotrol.

One problem in treating the Gypsy Moth is that all the larva don't emerge at once. This makes control harder. They're easiest to control right after hatching, while they're still tiny.

"You should spray twice no

matter what material you use" says the entomologist, "Once in early to mid May and again toward the end of that month, depending on how the growing season goes and when emergence begins. If the weather is wet and cold, spray later. If it's warm and dry, you may need to spray early."

Bray has prepared a fact sheet on the gypsy moth and its control. For a free copy, call the county extension office in Newark, 302/738-2506.

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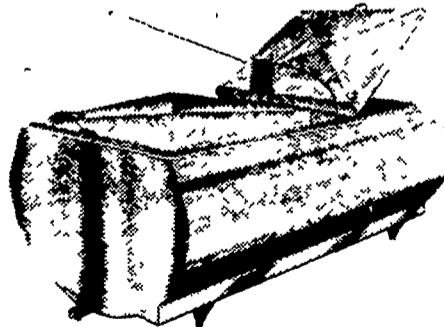
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