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Pheromone Traps for Insect Pest Management

Sex pheromones are powerful chemical attractants emitted by female insects. These chemicals are detected by the males, assisting them in locating unfertilized females for mating. Pheromones of many species have been identified and are synthetically produced for use in insect pest management programs. Some pheromones attract only one type of insect, while others (such as the clearwing borer lure) attract several related species. A few lures (such as for Japanese beetle) may include floral or food analogues that attract females as well as males. Pheromone traps (traps baited with these lures) are not intended for controlling pests alone, but aid in determining if a pest is present and whether a population is increasing, peaking, or decreasing. This information is essential in determining when and how often to time control actions. Different lures should never be handled at the same time since cross-contamination will affect their performance.

Traps come in several designs, capitalizing on certain behaviors of some insects, such as a tendency to fly upward or search for protected sites.

Color may also influence attractiveness. Most pheromone traps used in the nursery are of the "wing" type (**Figure 1.**) In this design, the inner surface of the trap bottom is coated with a sticky substance and a pheromone-impregnated material is placed inside the trap. After the insects emerge during their normal life cycle, attracted males enter the trap through openings in the side and become stuck to the bottom, where they can be identified and counted. The bottoms can be changed as needed and the lures changed every 30-75 days depending on the type. The "delta" trap (**Figure 2.**) is another design which can be used when changing the bottom is not necessary. For trapping clearwing borers, a "bucket" or funnel-type trap with a toxicant strip will trap moths without a sticky adhesive, making identification easier.

The efficiency of traps for monitoring pest populations depends also on proper placement. Set traps out at least two weeks before the pest is expected to emerge and at the proper height above the ground or in the plant canopy. One trap per ten acres maximum should be placed in the field's center or where prevailing winds will carry the pheromone into the planting. If acreage is dispersed over a large geographical area, then additional traps may be necessary. Where two or more traps are used with the same or similar pheromone, space them at least 30-50 ft apart. Complete directions specific to each pest are supplied with the trap.

For some insects, first capture and peak emergence are important to record. When determining the occurrence of peak emergence, record the number of new individuals captured at least twice each week until no new pests are being trapped. An example of a record sheet is given on the following page (**Figure 3.**) Control measures may be timed for a specific period, such as after so many [growing degree-days¹ \(GDD\)](#) have elapsed following either first or peak emergence.

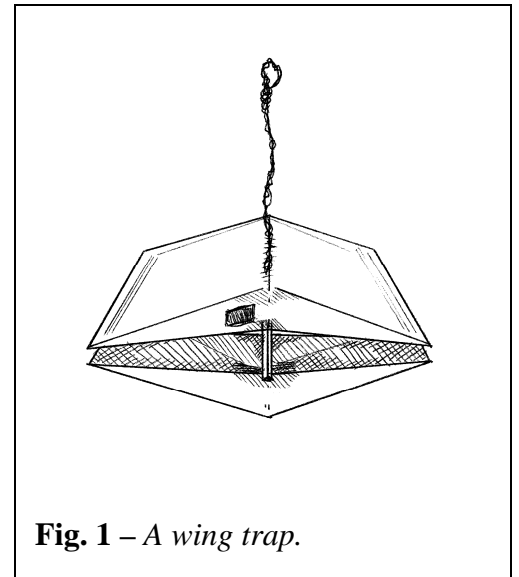


Fig. 1 – A wing trap.

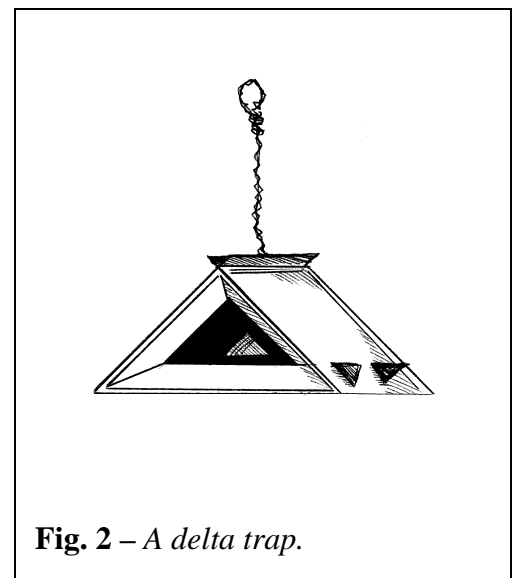


Fig. 2 – A delta trap.

The decision to control should be based on the history and severity of plant damage present, proximity to other infestations, plant tolerance, cost of control, other management strategies (such as pruning), as well as the pheromone trap counts. Pheromone kits are available for many common pests of ornamental plants including clearwing borers such as banded ash borer, peachtree borer, lilac/ash borer, oak borer, rhododendron borer, dogwood borer, lesser peachtree borer; Nantucket pine tip moth; pitch pine tip moth; elm bark beetle; peach twig borer; spruce budworm; and European pine shoot moth. Included in the kits are enough parts to assemble four separate stations.

Location: _____				
Species: _____				
Date Set: _____				
Changed		Date	Number	
Lure	Base	Checked	Trapped	GDD

Figure 3. – A sample of a record sheet used for a pheromone trap.

Pheromone trap kits as well as other types of traps can be purchased from various sources including many local garden centers and agriculture supply stores. The following are some mail order sources of traps:

Pest Management Supply
 Phone 800.242.1211 or 888.242.1211
<http://www.pestmanagementsupply.com/catalog.html>

IPM Laboratories
 Phone 315.497.2063
<http://www.ipmlabs.com/home.php>

Great Lakes IPM
 Phone 800.235.0285
<http://www.greatlakesipm.com/>

Scentry Biologicals, Inc.
 800.735.5323
<http://www.scentry.com/index.htm>

Trécé, Incorporated
 Phone 866.785.1313
<http://www.trece.com/index.html>

Gardens Alive!
 Phone 513.354.1482
<http://www.gardensalive.com/default.asp>

Gempler's
 Phone 1.800.382.8473
<http://www.gemplers.com>

1/Contact Cornell Cooperative Extension – Suffolk County for information on ordering a printed copy of the leaflet *Using Growing Degree Days For Insect Pest Management*.

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