



# CAES

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*Drs. Gale Ridge and Kimberly Stoner*  
*Department of Entomology*  
*The Connecticut Agricultural Experiment Station*  
*123 Huntington Street, P. O. Box 1106*  
*New Haven, CT 06504*

*Phone: (203) 974-8600*

*Fax: (203) 974-8502*

*Email: [gale.ridge@ct.gov](mailto:gale.ridge@ct.gov)*

*Website: <https://portal.ct.gov/caes>*

## APHIDS (Family Aphididae)

Aphids are a common pest of gardens, landscapes, and greenhouses. They are small (typically 1/10 inch or less), soft-bodied insects that feed from sucking plant juices. They are pear-shaped, with long antennae (often as long as the entire body), and usually with cornicles ("tailpipes") on the abdomen. They vary in color, and may be green, pink, white, gray, yellow, brown, or black. Even



**Fig. 1: Aphid colony on Spirea**

within a species, they often vary in appearance or color. Some individuals are winged ("alates"), while other adults of the same species are not. Aphids are often found in large colonies on the underside of host plant leaves or on stems (Fig. 1).

### **Where and When to Look:**

Aphids may be found on plants at any time, but there are some situations in which aphids are more likely to thrive and multiply. They multiply rapidly in enclosed areas, such as in greenhouses, in cold frames, under row covers, and on houseplants, where they are protected from their natural enemies and variations in weather. Aphids are resistant to insecticides, and their populations explode when insecticides have killed off their natural enemies without harming the aphids. Aphids are also very sensitive to the physiology of their host plant. They may multiply rapidly when the host plant has been fertilized heavily with nitrogen, when growth hormones (or pesticides that act like growth hormones) have been used, or when the plant is beginning to senesce.

Some aphids, such as the cabbage aphid, inject chemicals into the plant that change the way the plant grows. Cabbage aphids cause leaves to twist and curl, and thus large colonies are usually found on or under

twisted leaves. Aphids produce a sticky substance called honeydew, on which fungi often grow, causing a "sooty mold." Patches of sticky material or dark, moldy areas may indicate the presence of aphids.

The movement of aphids into fields can be monitored with yellow sticky traps or yellow pan traps. Movement of winged aphids is especially important for those species that carry plant viruses or other plant diseases.

### **Control Methods:**

*Natural:* There are many naturally occurring enemies of aphids. There are predators, such as ladybeetle adults and larvae, lacewing adults and larvae, syrphid fly larvae, and minute pirate bugs. There are also many parasitoids that specialize in attacking aphids, such as tiny aphidiid wasps. The adult female wasp lays an egg inside an aphid, and the developing wasp larva kills the aphid, leaving an aphid "mummy" behind (Fig.2). The best way to take advantage of these natural enemies is to avoid using insecticides as much as possible and let local predators and parasitoids move in on their own.



**Fig. 2: Aphid 'mummies' and parasitoid wasp**

In enclosed spaces such as greenhouses, where these natural enemies may not naturally occur, some growers have successfully used commercially available natural enemies, such as ladybeetles, lacewings, and aphid midges for control.

Non-toxic or low toxicity sprays can be used against aphids. Spraying a hard stream of water will mechanically remove aphids from plants, although high water pressure can injure delicate plants. Insecticidal soaps and horticultural oils also control aphids. Test oils first on a small area of the plant, because they may injure or discolor leaves.

Fungi that attack aphids are also becoming commercially available. The control achieved with these insect pathogens may be dependent on environmental conditions (humidity, moisture and temperature).

*Chemical:* As mentioned above, many aphids are resistant to chemical insecticides, and using insecticides often causes aphid outbreaks. Some aphid species can be controlled with azadirachtin (neem) and some with malathion. Whenever pesticides are used, follow the cautions and instructions on the label.

### **Summary:**

Aphids are most likely to be a serious problem when they are protected from their natural enemies: either in an enclosed area like a greenhouse, or when their natural enemies have been killed by insecticides. They also thrive when the nitrogen in the plant sap is high. They may damage plants by removing sap, by injecting chemicals into the plant that change the growth pattern, by creating honeydew that causes mold to grow on the plant, or by carrying plant diseases. They are often controlled by naturally occurring natural enemies. Additional control can be achieved by using commercially available biological controls or by spraying with insecticidal soap or horticultural oil.