

CONTROLLING

WHITEFLY

IN YOUR GARDEN



All whiteflies suffer from an identity crisis, as they are not “true” flies at all. Their appearance resembles tiny, pure white “moths” but they are in fact, closely related to sap-sucking aphids (see fact sheets in this series “Controlling Aphids...” and “Controlling Ants...”). Aphid-cast skins can easily be mistaken for whitefly, but whitefly will quickly flutter up and fly away when disturbed.

Their quick flight pattern coupled with the fact that they hide on the underside of leaves make them difficult to control. Whiteflies are also prolific because their numbers increase from two to four, four becomes eight, eight becomes 16 and so on. During the hottest part of the summer, whiteflies may mature from the egg stage to an adult (ready to lay more eggs) in as few as 16 days.

Whiteflies can cause two types of damage to a plant. The first is considered to be “direct” damage. Whiteflies can seriously injure plants by sucking juices from them, causing leaves to yellow, shrivel, and drop prematurely. If the numbers of whiteflies per leaf are great enough, it could possibly lead to plant death.

The second, which is known as “indirect” damage, is caused by the whitefly adults. They can transmit several viruses from diseased to healthy plants through their mouth-parts.

Whiteflies (just like aphids) excrete “honeydew,” a sweet substance that forms a sticky coating on leaves. The honeydew is soon colonized by a fungus called “sooty mold,” making leaves look black and dirty. Generally sooty mold is harmless except when it is

extremely abundant and prevents light from reaching leaf surfaces, causing plants to become stressed. Sooty mold can easily be washed off with a forceful stream of water on sturdy plants.

Often times if there are high populations of whiteflies most likely there are also an abundance of ants present. Argentine ants love to feed on honeydew, and to ensure a continuing supply, they protect whiteflies from their natural enemies (beneficials).

DETECTION

Probably the most common whitefly in California is the greenhouse whitefly. It is distributed throughout the state and is commonly found in outdoor plantings, inside greenhouses, and occasionally on indoor house plants.

Whiteflies, like many insects, have immature (nymphs) and adult stages. Adults lay eggs randomly, in circles or arcs on the underside of leaves where they spend their entire life cycle. Whitefly nymphs have small, oval bodies and no wings and no apparent legs or antennae. The adults that emerge form mature nymphs are winged and look like a very tiny moth.

GIANT WHITEFLY

Aleurodicus dugesii

The giant whitefly or Mexican whitefly has been moving into California and is making an unsightly mess of hibiscus and other landscape ornamentals. It was first discovered in San Diego County in 1992. It is now found in Southern California, parts of Arizona, Louisiana, Texas, and Florida.

Giant whitefly gets its name from its large size relative to many other whitefly species. This species can be identified by spirals of wax which are deposited by adults as they walk on leaves. These deposits occur on both upper and lower leaf surfaces. Eggs are often laid amongst these waxy deposits. The nymphs produce long, hair-like filaments of wax up to 2 inches long. These filaments give a bearded appearance to affected leaves.

Avoid attractive host plants. Giant whitefly finds hibiscus, giant bird of paradise, orchid tree, banana, mulberry and certain varieties of citrus and avocados extremely attractive. If these plants are already in your existing landscape closely monitor the plants to detect early infestations. Control of this newly introduced pest will require early detection, rigorous sanitation, and washing off plants with a forceful stream of water (syringing).

PREVENTION

- **Learn to recognize beneficial insects.** Among the most important natural enemies of whiteflies are the tiny parasitic wasps that lay their eggs inside the bodies of whiteflies. These tiny wasps cannot sting people.
- **Attract beneficials to your garden** by planting a wide variety of flowering plants or certain insectory plants (See fact sheet in this series called “Naturally Managing Pests... With a Healthy Garden”) can provide beneficial insects with the habitat they need (food and shelter). Natural enemies that attack many whiteflies are small birds, spiders, lacewings,

ladybugs, and bigeyed bugs.

- **Inspect new plants carefully.** Don't purchase infected plants.
- **Hang sticky traps** above the plants at the beginning of the season to detect an invasion early.
- **Use slow-release fertilizers.** Maintain healthy plant growth, but do not over-fertilize with high nitrogen fertilizers. Too much nitrogen can over-stimulate succulent plant growth, prompting some aphids to reproduce more quickly. Organic fertilizers are better because they slowly release moderate levels of nutrients.
- **Avoid excessive pruning** because it stimulates whitefly-attracting growth.
- **Use a row cover** (FastStart®) to exclude whitefly and other pests but allow air, light, and irrigation water to reach plants.
- **Control ants** by spraying or painting a 4" wide sticky barrier (Tanglefoot®, Stickem®, Tree Pest Barrier) around woody shrubs or trees. (See the Ant fact sheet in this series.)

LESS-TOXIC CONTROLS

- **Syringe** undersides of leaves on sturdy plants with water to wash off whiteflies and honeydew. In University of California studies, side-by-side comparisons with several pesticides indicated that **syring=ing performed as well or better than chemical treatments.**
- **Vacuum whiteflies** in the early morning when they are cold and slow moving. This removes adults before they have a chance to lay more eggs. After vacuuming, empty the vacuum bag into a sealed plastic bag and removed from the property.
- **Prune away** severely infested portions of the plant. The removed material should be placed and sealed in plastic bags and removed from the property. Dispose of properly and do not compost.
- **Purchase Beneficial insects.** One tiny black ladybug *Delphastus* are a voracious feeder and can consume up to 150 whitefly eggs in a day. These extremely mobile, small black beetles are usually used in green-

house environments. For outdoors, release the beetle under a **row cover** (FastStart®) which will concentrate its efforts in that particular area.

Another important predator and parasitoid of whiteflies is the tiny wasp *Encarsia formosa*. Encarsia wasps kill whitefly nymphs in one of two ways: they either lay an egg inside the nymph(which provides food for their young) or they kill the nymph right away and feed on it. Once the whitefly nymphs are parasitised they turn black and no longer feed.

- **Use insecticidal soaps** to kill whiteflies on contact while causing less harm to beneficial insects. Good coverage of the underside of leaves is essential for effective use. These products do not leave toxic residues, sparing injury to the natural enemies.
- **Use spray (horticultural) oils** to control whiteflies minimizing adverse effects on natural enemies.

PRODUCTS AND RESOURCES

Examples of trade names of products listed in this fact sheet:

(Note: Product labels should list plants to be treated.)

Insecticidal Soaps:

Safer® Insecticidal Soap Insect Killer

Spray (Horticultural) Oils:

SunSpray Ultrafine®, Volck®, Monterey Take Down Spray (RTU)

Sticky Barrier (for ant control):

Tanglefoot®, Stickem Tree Pest Barrier

Organic Fertilizers:

Whitney Farms or Dr. Earth

Row Covers:

Fast Start®

Sources for Beneficials:

Buena BioSystems – 805/525-2525

Rincon-Vitova Insectaries – 805/643-6267

Tip Top Bio-Control – 805/445-9001

PESTICIDES & WATER POLLUTION

Pesticides can damage our health and kill beneficial insects necessary for a healthy garden. Common household pesticides show up in our waterways, sometimes at levels that can harm sensitive aquatic life.

The County of Ventura Environmental and Energy Resources Department is working with local nurseries and hardware stores to reduce the risks associated with pesticide use. This fact sheet is part of a series of informative publications and store displays designed to educate Ventura County residents about less-toxic pest management.



Look for the “Our Water Our World” logo next to products in participating nurseries and hardware stores throughout Ventura County. For a list of participating stores, call 805/289-3333 or visit <http://www.wasteless.org>

Pest control strategies and methods described in these publications are consistent with Integrated Pest Management (IPM) concepts, and are based on scientific studies and tests in actual home and garden settings. IPM is an environmentally sound approach to pest management combining various methods with good horticultural practices. Follow all label directions on any suggested products. NO endorsement of specific brand name product is intended, nor is criticism implied of similar products not mentioned. Different products with the same active ingredients are equally suitable.

HOUSEHOLD HAZARDOUS WASTE COLLECTION PROGRAMS

Most cities offer FREE monthly collection events that accept pesticides, fertilizers, latex and oil based paint, motor oil and filters, car and household batteries, pool chemicals, stains, solvents, fluorescent light tubes, automotive fluids, cleaning products, photographic chemicals and more. For more information and collection schedules call 805/289-3333 or visit www.wasteless.org.

FOR MORE INFORMATION

Participating stores have been provided books on Integrated Pest Management (IPM) you may use while in the store. The store staff has been extensively trained in IPM to assist you.

The Certified Master Gardener Program operated by the University of California Cooperative Extension provides a free assistance Helpline and offers a variety of workshops and school education programs. Call 805/645-1455.

Check these websites:

<http://www.watoxics.org>

<http://www.ipm.ucdavis.edu>

<http://www.pesticide.org/factsheets.html>

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