

# Whiteflies

## Solution Sheet

### The Problem

Whiteflies are tiny, sap-sucking insects that can be major pests of ornamental plants. They are most common during periods of warm to hot weather and can reach high populations on susceptible plants in greenhouses and nurseries. When actively feeding, whiteflies cause leaves to turn yellow and eventually brown as the leaf tissue dies. Large colonies typically develop on the undersides of leaves where they normally lay tiny oblong eggs that range from white to yellow, darkening as they age. After the eggs hatch, the young whiteflies go through four nymphal stages called instars. Winged adults emerge from the last nymphal stage. All stages feed by sucking plant juices from leaves and excrete excess liquid as drops of honeydew. Whiteflies are difficult to control when populations are high, so preventative management is crucial.

### What to Look For

There are numerous species of whitefly associated with ornamental plants. The most common species include the greenhouse whitefly (*Trialeurodes vaporariorum*) and the sweet potato whitefly (*Bemisia tabaci*), and both have a wide range of plant hosts that include many ornamental crops and weeds. Ornamental production areas in warmer climates, such as Florida and California provide opportunity for these pests to breed year-round, moving from one host to another as plants go through the production cycle.

In addition to destructive feeding damage, honeydew excreted on affected leaves provides nutrition for sooty mold fungi. Sooty mold fungi are not plant pathogens but readily colonize the honeydew and cause affected surfaces to turn black, reducing overall plant quality. The best way to eliminate sooty mold is to control the whiteflies.

### The Solution

Effective whitefly management in greenhouse and nursery production requires a preventative approach. Identify and closely monitor plants known to host high populations of whiteflies, because infestations will likely start on the most susceptible plants. Many weeds are susceptible hosts for whiteflies and should be removed or controlled with herbicides. Yellow sticky traps can be used to aid in monitoring whiteflies and, under high populations, even help to reduce their numbers. The use of biological controls (live predators) can be effective but may limit the use of some chemical insecticides. Envu has four neonicotinoid-free insecticides that are efficacious against whiteflies: Altus® (IRAC 4D) is a systemic insecticide that controls whiteflies, including both B and Q biotypes with flexible spray or drench applications made anytime throughout the crop cycle. Altus provides extended residual control of whiteflies (21+ days) and is labeled for use before, during, and after bloom.

Aria® (IRAC 29) controls many sucking pests, including whiteflies, with a neonicotinoid mode of action. Can be applied as a spray or drench. Stops whiteflies from feeding within one hour of exposure, but death may not occur for several days.

Kontos® (IRAC 23) can be applied as a foliar spray or drench and controls whiteflies (both B and Q biotypes). Kontos is both xylem- and phloem-active, meaning that because of the systemic activity, the product moves upward and downward in treated plants. Apply preventatively (2-3 weeks before infestation) for best results.

Savate® (IRAC 23) affects all development stages of whiteflies (including eggs and transformation stages) and controls both B and Q biotypes. Savate is translaminar and moves readily through the leaf tissue, providing extended residual control of whiteflies (28 days).

## Example rotation for whitefly management in nursery or greenhouse

The key to any successful IPM program is an early start. Begin your IPM program as soon as you've received cuttings. Dip cuttings for 5-10 seconds in 0.1% SuffOil-X® (12.8 oz per 100 gallons) to thoroughly cover the entire surface of the plant and kill any hard-to-see hitchhikers or eggs. Wait to apply drenches until root development is underway. After, rotate your pesticides, choosing different Insecticide Resistance Action Committee (IRAC) codes to manage whiteflies and delay resistance development. It takes approximately two weeks for whiteflies to complete a generation in greenhouse conditions. If you are making biweekly sprays, rotating products every application reduces selection pressure across successive generations and delays resistance development. Whiteflies usually feed on the underside of leaves, often deep within the plant canopy; including a spreader-sticker (e.g., Capsil®, Silwet®-77, etc.) for foliar applications improves coverage and pesticide performance.

Table 1: This example rotation is designed for whiteflies and utilizes four different modes of action to aid in resistance management.

Application	Trade Name <sup>1</sup>	IRAC CODE	Application Method	Rate/ 100 Gal.	Restricted Entry Interval (REI)	Notes
1	<u>Reactive:</u> Savate®	23	Spray	2-4 fl. oz.	12 hours	When whiteflies are established. Will also control mites. 14-28 days
	<u>Preventative</u> Kontos®		Drench <sup>3</sup>	3.4 fl. oz.	0 hours	Apply with enough water to moisten media but not flow through container. Will also control mites. 28 days.
			Spray	1.7 to 3.4 fl. oz.	24 hours	14- to 28-day intervals. Will also control mites
2	Altus® <sup>2</sup>	4D	Spray	10.5-14 fl. oz	42 hours	Contact and systemic, 14-28 day control; extended control with drench application.
			Drench <sup>3</sup>	2.8- 3.7 fl. oz		
3	Talus®	16	Spray	6.0 fl. oz.	12 hours	Insect growth regulator (IGR) that prevents molting.
4	Aria®	29	Spray or Drench <sup>3</sup>	2.0 to 4.0 fl. oz.	12 hours	Reapply every 7-28 days, as needed.

<sup>1</sup> See insecticide labels for complete details. Always read and carefully follow label instructions.

<sup>2</sup> The REI for Altus in California is 12 hours.

<sup>3</sup> Drench treatments most effective on plants shorter than six-feet tall.

Spot treat any pockets of whitefly activity with Azatin O® (azadirachtin) or Ultra-Pure® Oil (mineral oil) as needed (IRAC CODE UNM) as needed.

<sup>[1]</sup> ALWAYS READ AND FOLLOW LABEL INSTRUCTIONS

Environmental Science U.S. Inc., 5000 CentreGreen Way, Suite 400, Cary, NC 27513. For additional product information, call toll-free 1-800-331-2867. <https://www.envu.com/> Please verify state registration of these products in your state before selling, using or distributing. Not all products are registered in all states. Envu and the Envu logo are trademarks owned by Environmental Science U.S. Inc. or one of its affiliates. All other trademarks are the property of their respective owners ©2025 Environmental Science U.S. Inc.