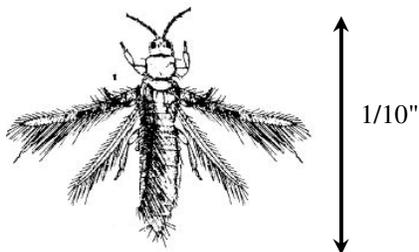


# Western Flower Thrips

## DESCRIPTION

Thrips are tiny insects that have four featherlike wings, each consisting of a thick supporting strut with fine hairs on the front and hind edges.

Thrips go through six life stages: egg, first instar, second instar, prepupa, pupa, and adult. Thrips insert eggs into plant tissue. The first two instars and the adults feed by piercing and removing the contents of individual plant cells.



## DAMAGE

Western flower thrips primarily feeds on flowers but also sometimes on new vegetative growth. Feeding by thrips causes tiny scars on leaves and fruit, called stippling, and can stunt growth. Damaged leaves may become papery and distorted. Infested terminals may discolor, become rolled, and drop leaves prematurely. Petals may exhibit "color break," which is pale or dark discoloring of petal tissue that was killed by thrips feeding before buds opened. Western flower thrips are primarily pests of herbaceous plants, but in some situations western flower thrips is considered beneficial because it feeds on spider mites.

## MANAGEMENT

High infestations on certain herbaceous ornamentals and developing fruits or vegetables may justify control. If control is necessary, use an integrated program of control strategies that combines the use of good cultural practices and conservation of natural enemies with the use of least toxic insecticides, such as narrow range oils. Because western flower thrips and greenhouse thrips feed on a large variety of plant species, keep production areas free of weeds, which can serve as hosts for thrips populations.

### *Monitoring*

Monitor thrips adults and nymphs by branch beating or shaking foliage or flowers onto a sheet of paper. Adult thrips can also be monitored using bright yellow sticky traps. Blue sticky traps are most effective for capturing western flower thrips, but thrips are harder to discern on this darker background. *Remember that the presence of thrips does not mean that damage will result from their feeding.*

### *Biological Control*

Although certain predators and parasites of thrips are produced commercially and can be purchased through the mail, little or no research has been conducted on the effectiveness of releasing thrips predators or parasites in landscapes and gardens. Conserving naturally occurring populations of beneficials by controlling dust and avoiding persistent pesticides is the most important way to encourage biological control of thrips.

### *Cultural Control*

Thrips often move into gardens and landscape plantings when plants in weedy areas or grasslands begin to dry in spring or summer, so it is wise to avoid planting susceptible plants next to these areas or to control nearby weeds that are alternate hosts of certain thrips. In small gardens, thrips can be knocked off plants with a spray of water. Vigorous plants normally outgrow thrips damage; keep plants well irrigated, but avoid excessive applications of nitrogen fertilizer, which may promote higher populations of thrips. Remove and dispose of old, spent flowers.

**Row Covers**, hot caps, and other types of cages can exclude thrips and other pests from vegetables and other young herbaceous plants. Any type of covering that excludes insects but allows light and air penetration can be used. Wood, wire, or plastic frames covered with muslin, nylon, or other mesh can be used for several years. Floating row covers can be placed on top of beds with no frames or hoops. Apply row covers during planting or before crops emerge. Plants are normally covered or caged only while they are young and most susceptible to damage. Once plants get larger or temperatures get warmer, remove covers to provide enough growing space and to prevent overheating. A drip or furrow irrigation system is necessary when using row covers.

**Reflective Mulch**, or mesh confuses and repels certain flying insects searching for plants, apparently because reflected ultraviolet light interferes with the insects' ability to locate plants. Most uses of reflective mulch have been against winged aphids, but infestation of young plants by other pests including leafhoppers, thrips, and whiteflies has also been prevented or delayed

### *Chemical Control*

Currently the most effective products are spinosad containing products, some of which are organic, such as Bonide Spinosad Concentrate, Captain Jack's Deadbug, Entrust, Monterey Garden Insect Spray, and Green Light Lawn & Garden Spray,

Sprays must be applied to thoroughly cover susceptible plant tissue, such as new leaf growth and buds. On plants with a history of severe, unacceptable damage, begin treatment early when thrips or their damage is first observed. Repeat applications (usually 5 to 10 days apart, depending on temperature) are usually required because these insecticides only kill newly hatched thrips and recently emerged adults. With most thrips species, eggs are protected within plant tissue and prepupae and pupae are in the soil and will not be killed.

For ornamental nonfood plants, several applications of a systemic insecticide such as the organophosphate acephate (Orthene), imidacloprid (Bayer Advanced Garden, Marathon, and Merit), can provide temporary control of thrips. Other materials available to licensed pesticide applicators include the microbial-derived materials abamectin (Agri-Mek and Avid) and spinosad (Conserve and Success), which have low to moderate impact on natural enemies. None of these materials, however, provides complete control of thrips.