



Thrips

O & T Guide [O-#09]

Carol A. Sutherland
Extension and State Entomologist



Cooperative Extension Service • College of Agriculture and Home Economics • October 2006

These minute, yellow to brown splinter-shaped insects kill individual cells in succulent plant tissue, causing it to brown and tear easily. They also dot infested foliage with their frass. Some species are known to be vectors of tomato spotted wilt virus and perhaps other viruses affecting some vegetables and ornamentals. Some thrips species are predatory on small insects and mites. (Note: “Thrips” is both singular and plural.)

Metamorphosis: Simple

Mouth Parts: Rasping-sucking for nymphs and adults

Pest Stages: Active nymphs and adults.

Scientifically: Thrips are members of the insect Order Thysanoptera. Among the most common and damaging species of pest thrips are *Thrips tabaci* (onion thrips) and *Frankliniella occidentalis* (Western flower thrips).

Typical Life Cycle: Egg → 2 Nymphs feed on plant → 2 quiescent Nymphs → Winged Adult. Females lay their eggs singly usually on or in the tissues of host foliage, flowers, fruit or stems. Eggs of several common pest species hatch in about 7 days. The first two nymph stages are passed in about two weeks while the second two require slightly less time. Egg to egg development time is about one month. Three to 10 generations may occur annually depending upon hosts, development conditions and altitude.

Some thrips, including some of the common pest species, are known to be predaceous and even cannibalistic.



Adults of the (left) onion thrips, *Thrips tabaci*, and (right) Western flower thrips, *Frankliniella occidentalis*. Photo: Alton N. Sparks, Jr., The University of Georgia, www.forestryimages.org

Description of Life Stages:

Egg: Minute, white, kidney shaped, partially inserted into host tissue by female

Nymphs: First two instars rasp on host foliage, sucking the sap from the wound. Third and fourth instars do not feed; two pairs of stubby external wing pads develop. All nymphal stages resemble miniature white to yellowish versions of the adults they will become. The common pest species all have 6 legs in each stage.

Immatures of some of the less commonly seen thrips, e.g. *Chirothrips falsus* in the heads of various species of range grasses, are legless and almost maggot-like.

Adult: very tiny insects with most 1/16 inch or less in length; colors of adults vary by species from yellow to brown and nearly black. Head rotated downward and flattened such that mouth parts face the rear and are located almost between the bases of the forelegs. Rasping-sucking mouth parts remain asymmetric in the adult stage with one functional and one non-functional mandible. The insect slashes at succulent plant tissue with the functional mandible and suck up the plant sap oozing from the wound. Adults with two pairs of strap-like wings fringed with hairs. Although thrips are weak fliers, the wings help get the insects into the air stream which can carry them quickly to new feeding sites many miles away. While nymphs are either lethargic or quiescent during development, adults of many species are quite active and will hop or fly away when disturbed.

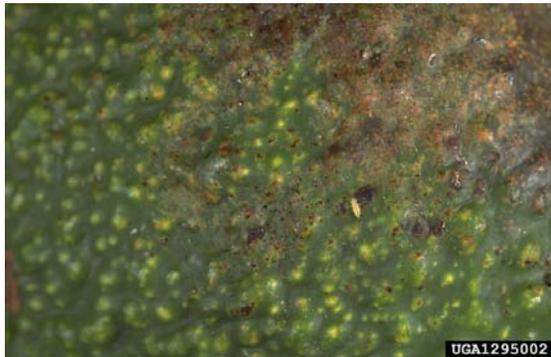
Habitat and Hosts: Many pest species of thrips have extremely broad host ranges. Onion thrips favor onion, beans and cabbage and can damage these plants severely. At times they can be the most numerous pest thrips on garden vegetables and flowers. Western flower thrips populations have soared in recent years on a variety of common forage, vegetable, field and nursery crops as well as garden vegetables and landscape ornamentals. At times, these thrips may be the most numerous pest species on these crops. Western flower thrips is known to transmit tomato spotted wilt virus to a variety of horticultural crops both in greenhouse and field situations as well as backyard gardens.

Damage: Thrips feed preferentially on succulent plant tissues. They may feed on fully expanded foliage, open flowers, and even pollen grains. Light colored flowers (white, yellow or other pale colors) are often preferred. They may also penetrate the bud scales surrounding developing foliage and flowers where they feed on and scar delicate leaf and flower tissues. Affected tissue dies, turns brown and tears easily, a situation especially noticeable on the edges of pastel-colored rose petals. Leaves that are attacked become bleached and dry. Skin of damaged fruit appears sanded and the underlying tissues may be off-flavored, hard and/or dry.

Cuban laurel thrips feeding on the foliage of *Ficus nitida* and *Ficus benjamina* produce spotting and thickened leaf curls on new growth, making it unsightly and often unmarketable if not detected early and controlled. More visible than the thrips themselves are the dark fecal pellets and whitened, desiccated material they leave behind after feeding.

IPM Notes: Thrips prefer a dry environment, so to help control them, mist or water plants regularly. Spraying infested plants with insecticidal soap every few days can be very effective for infested house plants. Various life stages of thrips are preyed upon by syrphid fly larvae, young or small predatory bugs, lacewing larvae and adults, and predaceous mites. A variety of contact and systemic insecticides have been used to control thrips on commercial crops and backyard garden plants. Due to their short generation time and high fecundity, thrips can rapidly develop resistance to these materials; some of these products are more toxic to the natural enemies of thrips than to the pests, hence the possibility of thrips

populations exploding or resurging following these treatments.



Close-up of foliar damage done by greenhouse thrips, *Heliothrips haemorrhoidalis*. Photo: Martin Heffer, The Horticulture and Food Research Institute of New Zealand, www.forestryimages.org



The white marks this gladiolus flower result from feeding by gladiolus thrips, *Thrips simplex*. Photo: Whitney Cranshaw, Colorado State Univ., www.forestryimages.org



Thrips damage (*Frankliniella* sp.) can occur during cool weather on seedling plants like this cotton. Note the puckered, misshaped new growth. When temperatures rise, the thrips are at a disadvantage and the newest foliage will look more normal in size and shape. Photo: Ronald Smith, Auburn University, www.forestryimages.org



Damage by Cuban laurel thrips, *Gynaikothrips ficorum*, causes the foliage of several species of *Ficus* to curl and fold, creating microhabitats for these comparatively large thrips to feed and reproduce. The white eggs are shown here along with a yellow nymph. Photo: Whitney Cranshaw, Colorado State University, www.forestryimages.org

New Mexico State University is an equal opportunity/affirmative action employer and educator. NMSU and the U.S. Department of Agriculture cooperating.