

Thrips

At least two species of thrips are regularly associated with outdoor-grown hemp, **onion thrips** (*Thrips tabaci*) and **western flower thrips** (*Frankliniella occidentalis*). Both are very small insects with an elongated body, typically about 1.2-1.5mm (about 1/15-inch) in length.

Thrips feed by piercing surface cells of leaves and sucking out the cell contents. This results in a small light area, known as a **stippling injury**, at the feeding site. This injury is somewhat similar to that produced by twospotted spider mite.

Under normal field conditions such injuries are widely dispersed through the plant and attract very little, if any, attention. When thrips populations are sustained at high levels cumulative injuries can cause extensive leaf scarring. Also, thrips that feed on expanding immature leaves may cause some leaf distortion. Such numbers are unlikely to occur in outdoor crops, where natural controls of thrips are robust. On indoor crops noticeable leaf



Adults of two species of thrips that occur on hemp: onion thrips (left) and western flower thrips (right). Photograph courtesy of Alton N. Sparks, Jr., University of Georgia/Bugwood.org.



Immature stages of onion thrips feeding at base of onion plant and associated leaf injury.

injury is more likely to be observed. To date, only onion thrips have been recorded in Colorado from indoor-grown hemp. However, western flower thrips is a well known pest of many greenhouse crops grown in the state and likely also is present on some indoor grown crops.

Both onion thrips and western flower thrips are among the most common and widely distributed insects that occur in Colorado. Both have a very wide host range of plants on which they can develop. Of the two species,

western flower thrips is more commonly associated with flowers, but may also develop on leaves of plants such as winter wheat and legumes such as alfalfa and beans. Western flower thrips also will feed on pollen. Onion thrips develops on leaves of a great many kinds of plants, including many common weeds and vegetable crops.

Regarding the life cycle of these thrips, eggs are inserted into plant tissues. The egg will normally hatch within a couple of days after being laid and the stage that follows (Instar I) is tiny and wingless. It feeds on the leaves and within a few days will molt to a larger second stage (Instar II) that feeds more extensively on the plant. After this stage is completed it molts again, but to a non-feeding form (Instar III) that may occur in soil or in leaf axils. Another molt occurs (Instar IV) with the thrips in the same site, that also is non-feeding stage, which further transitions its development. Ultimately, after the next molt, a winged adult form emerges to repeat the cycle.

The time required to complete a single life cycle of both onion thrips and western flower thrips is dependent on temperature. Under normal temperatures during a growing season thrips can complete a generation in about 2-3 weeks. Multiple generations are produced annually and outdoors thrips can continue to survive and develop (at a slowed rate) on available living plants that are present through the cold months (e.g., winter annual mustards, certain hardy perennials).

On outdoor-grown crops thrips are subject to a great many natural controls, including predators such as minute pirate bugs. On confined indoor crops thrips may develop higher populations, although the damage they do is minor and usually well compensated by the plant.

Thysanoptera: Thripidae



Some light flecking wounds (stippling) on this leaf are the result of thrips feeding. This injury is somewhat similar to what can be produced by spider mites.