Getting to Know Thrips
Identification in Apple Orchards

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There have been more reports of thrips in Ontario apple orchards this season than usual. Growers and scouts have observed thrips on blossoms, developing fruit and new terminal growth (Figures 1 & 2) prompting questions about their identity and potential impact on crop development.

Presently, as we work through identification, the species remain unknown, making it difficult to determine whether their presence represents a pest concern or simply normal orchard biodiversity.

And, of course, the answer is not always straightforward.

Thrips are small, slender insects belonging to the order Thysanoptera. While some species are capable of damaging apple blossoms and fruit, others are beneficial in the orchard that feed on fungal spores, pollen, and other insects. Simply finding thrips in an orchard should not automatically be interpreted as a cause for concern.

What Are Thrips?

Adult thrips are tiny insects, typically 1-3 mm long, with narrow bodies and distinctive fringed wings that give the group its common appearance under magnification (Figure 3). Most species range in colour from pale yellow or tan to dark brown or black. Immature stages, or larvae, are generally wingless and lighter in colour than adults (Figure 4).

Because of their small size, species identification often requires the use of a microscope. Features such as

Figure 1. *Thrips on young leaf of Ambrosia.*

Figure 2. *Thrips on growing terminal of Ambrosia.*

body colour, wing characteristics, antennae structures, and setae (body hair) arrangement are commonly used to distinguish species.

> Some great resources for this identification is the *Thrips ID Key for Growers* and *Thrips Species Profiles* which can be downloaded from ONfloricutlure.com.

In the field, however, it is usually possible only to recognize insects as thrips rather than identify them to species.

In apples, thrips may be found within blossoms, on developing fruitlets, on expanding foliage – and even on sticky traps and tapping trays. Their cryptic behaviour and small size often result in these insects going relatively unnoticed in an orchard – especially with so many other pests to think about – until higher populations have us scratching our heads.

Friend or Foe?

A number of thrips species may occur in Ontario apple orchards, but it is important to emphasize that species-level information in apples is limited. Thrips diversity in Ontario orchards has not been studied extensively, largely because thrips have not historically been considered key pests of concern.

The following groups may be encountered in the orchard, either within apple trees or in surrounding vegetation.

Flower thrips (*Frankliniella* spp.)

Flower thrips are amoung the most commonly found thrips in fruit crops. Species such as western flower thrips (*F. occidentalis*) and eastern flower thrips (*F. tritici*) are often associated with blossoms where they feed on pollen and floral tissue.

While generally considered sporadic pests in apples, high populations during bloom can occasionally damage flowers, causing browning, distortion, or injury to reproductive structures. Feeding on young fruitlets shortly after petal fall may result in russeting or superficial scarring.

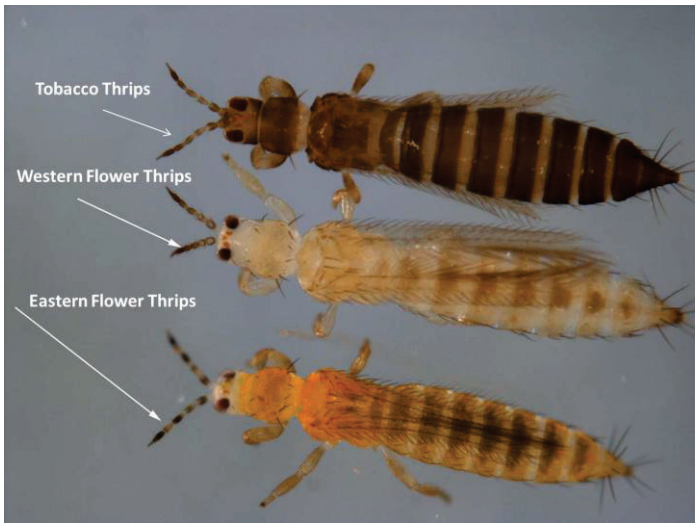

Figure 3. *Adult thrips - colour can vary from light tan to dark brown or black depending on species. (Photo: J. Reed, Mississippi State University)*

Figure 4. *Thrips larva are wingless and often lighter in colour than adult. (Photo: W. Cranshaw, Colorado State University, bugwood.org)*

Pear thrips

Pear thrips (*Taeniothrips inconsequens*) are early season feeders that emerge in spring and may attack swelling buds, blossoms, and young foliage. Heavy infestations can reduce fruit set and distort developing tissues

Although pear thrips have caused significant injury in certain regions of North America, they are not considered a regular pest of Ontario apple orchards.

Onion thrips

Although primarily recognized as a pest of vegetable crops, onion thrips may occasionally be observed in orchards. They are generally pale yellow to light brown and feed by rasping plant tissues and consuming the contents of damaged cells.

In apples, onion thrips are not usually considered an economically important pest but may contribute to minor feeding injury when populations are high.

Predatory thrips

Not all thrips feed on plants. Predatory thrips in the genus *Aeolothrips* feed on mites, aphids and other small insects.

Predatory thrips are often larger and more robust than common flower thrips and may exhibit distinctive banding patterns on their wings. However, these species are often overlooked in field scouting because they are easily confused with plant-feeding thrips as quick glance. Their presence, though, may indicate a beneficial component to the orchard.

Thrips in context

Taken together, thrips in orchards represent a diverse group of species with different ecological roles, ranging from incidental pollen feeders to predators of other small insects.

In Ontario, we still lack clear information on which thrips species are present in orchards and how commonly they occur. Equally important, there is limited local evidence linking thrips observations to consistent patterns of crop injury (though that could be changing…). This makes interpretation difficult, as neither presence nor damage reports can be used confidently to define their significance.

The Damage We Know

Plant-feeding thrips possess specialized mouthparts that scrape the surface of plant tissues before consuming the contents of damaged cells.

This feeding activity can result in:

- Browning or injury to blossoms
- Distorted leaves
- Silvering or bronzing of foliage
- Surface scarring on young fruit
- Russeting around feeding sites

Damage is most likely when high populations coincide with bloom and early fruit development, when tissues are particularly susceptible to injury.

Pansy spot

However, one of the most distinctive forms of thrips injury on apples is a cosmetic disorder known as pansy spot (Figure 5).

Unlike feeding damage, pansy spot results from egg-laying activity, most commonly associated with flower thrips. Female thrips use a saw-like ovipositor to insert eggs into developing fruit shortly after bloom.

Symptoms typically appear as small, shallow depressions consisting of a dark central puncture surrounded by a pale ring. As the fruit grows, the injury becomes more visible and may resemble the petals of a pansy flower, hence the name.

Seeing thrips? Let me know!

Continued **monitoring of suspected damage** and **specimen collection** will help improve our understanding of the role thrips are playing in Ontario orchards – a temporary curiosity or developing concern?

Figure 5. *Pansy spot, oviposition damage caused by thrips on developing apple.*