

## Cabbage Thrips in Alberta

In recent years, an increase in the incidence of bronzing and roughened leaf texture on cabbages grown in southern Alberta has sometimes made the cabbages unacceptable for either the fresh or processing market.

This damage is associated with high populations of thrips, tiny insects that feed by rasping and piercing the outer cell layers of the leaves and ingesting the exposed cell contents. The damaged tissue desiccates and allows the entry of disease organisms. When thrips feed, they leave small black specks (fecal pellets) on the injured plant parts.

Thrips are tiny insects, less than two millimetres long. They vary in color from cream to brownish black. The adults are very active and may fly readily when disturbed.

*Thrips tabaci*, the onion thrips, is a common cabbage pest in North America (Figure 1). Several other thrips species have also been implicated, but these are usually of secondary importance. In addition to cabbage, many other vegetable crops can be infested with thrips including onion, cauliflower, spinach, beets and a variety of other cultivated and wild plants.

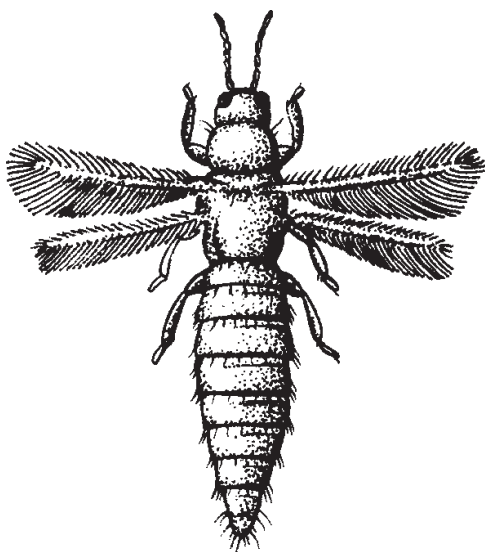


Figure 1. Onion thrips

### Biology

Thrips females use their saw-like ovipositor to deposit their eggs into plants. Hatching larvae pass through two feeding larval stages and then through two non-feeding pupal stages. Pupation usually occurs on the ground in the summer and within the cabbage head in the fall. Egg to adult development may take 11 to 30 days, and up to 11 generations may be completed annually. Generations usually overlap under field conditions and are often difficult to separate. Males are very rare in Alberta.

Thrips overwinter as adults or pupae in plant debris or in stored crops. Spring populations of thrips infesting cabbages remain at relatively low levels until early July, when they begin to increase. At this time, the outer leaves are damaged.

During cool weather, thrips colonize the inner areas of cabbage plants and cause damage to the inner leaves. As a result, late season cabbage varieties are more severely damaged than early season varieties.

If the food supply suddenly deteriorates, the thrips may move en masse from one crop to another. Such migrations have been reported when thrips-infested fields have been cut.

### Control

Natural control agents including syrphid fly larvae, lacewings, spiders, predacious wasps and pseudoscorpions tend to keep thrips numbers low. Some thrips species prey on other thrips. Several parasitic wasp species lay their eggs into the eggs and nymphs of thrips. Thrips may also be parasitized by several mites and by the fungus *Entomophthora thripidum*. Heavy rains may significantly reduce thrips populations on onions and on the frame leaves of cabbage.



*Figure 2. Thrips damage to a cabbage plant.*

There is some evidence that susceptibility to thrips damage varies with different cabbage cultivars. However, not enough work has been done under Alberta conditions to determine which of the cultivars are less susceptible to thrips damage.

At present, there are no readily available insecticides registered for thrips control in cabbage. Cygon is registered for aphid control and will give some control of thrips. Begin treatments when heads start to develop and repeat at regular 10 to 14 day intervals during the growing season if thrips are abundant. Consult the label directions when using any insecticide to ensure proper application and appropriate wait periods to harvest.

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