Insect & Mite Pests Of Saskatoon Orchards - Part II

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Cherry Shoot Borer

Symptoms

New, green shoots wither and die in late-May and early-June. The presence of small holes may be noted at the base of these shoots. Small, light-green larvae may be found within the stems of these shoots.

Life Cycle

The cherry shoot borer (*Argyresthia oreasella*; *Argyresthiidae*) is a moth species whose larvae damage shoot tips. The adults are small, silver-white moths that have dark gold markings. Adult moths are present from June through late-July and into mid-August. Young larvae tunnel into the tips of tender green shoots and cause a typical wilting, and subsequent death, of the shoot (Figures 14.1 & 14.2). Some observations have indicated that in certain localities, 50% of the flower clusters can be affected. Mature larvae are about 7 mm in length. It is likely the egg that overwinters on buds of the saskatoon. The cherry shoot borer may also be found on the chokecherry and hawthorn.

Control

Prune out dying shoots as soon as they are observed.

McDaniel Spider Mite

Symptoms

Leaves with a stippled appearance; yellowing of leaves; presence of very fine webbing and excessive, fine hairiness on the undersides of leaves (Figure 14.3); heavily damaged leaves may drop off the plant.

Life Cycle

McDaniel spider mite (*Tetranychus mcdanieli*) is not actually an insect but a close relative of the spiders. These mites overwinter as adult females beneath bark or among fallen leaves. Depending on their age and food source, female mites range in color from yellow-green to almost black. Overwintered female mites move up saskatoon stems in the spring and begin feeding on leaf and flower buds, and subsequently on leaves. They lay about 50 spherical, translucent eggs. The eggs become opaque immediately prior to hatching. Immature mites molt 3 times before reaching the mature, adult stage. Mites have numerous generations each season and serious infestations can develop very quickly. The McDaniel spider mite can produce 8 to 15 generations per season, depending on the temperatures. Mean generation time at 18^{o}C is 30 days, while at 27^{o}C, it is only 18 days. Hot, dry sunny conditions create ideal conditions for mite

infestation. Possible effects of mite damage include some fruit drop, smaller fruit, and decreased flower bud production. Effects are dependent on the timing and severity of mite damage.

Control

Start scouting for mites early in the season. Predatory mites (*Amblyseius* or *Typhlodromus* species) may be introduced into the orchard once levels of infestation are such that 25% of the leaves show presence of McDaniel's spider mite.

Hawthorn Lace Bug

Symptoms

Stippled or mottled, yellowing leaves; presence of many, lacy-winged insects and also many, small dark cone-like structures on the undersides of leaves (Figure 14.4).

Life Cycle

The hawthorn lace bug (*Corythucha cydoniae; Tingidae*) may occur in very large numbers on saskatoons. These insects feed on the undersides of leaves, piercing them with their mouthparts and sucking out the juices. The egg cases of these insects are clearly visible as small, black cones. The hawthorn lace bug produces two generations per year.

Control

No specific recommendations. Damage by these insects is not considered to be of economic concern.

Plate 14. Cherry Shoot Borer, McDaniel Spider Mite & Hawthorn Lace Bug

Figure 14.1: Wilting and death of a flower cluster caused by cherry shoot borer damage; 1 1/4 times actual size (Photo by L. Harris).

Figure 14.2: Cherry shoot borer larva (indicated by arrow) and feeding damage to the central axis of a flower cluster; 5 times actual size (Photo by L. Harris).

Figure 14.3: Infestation of McDaniel spider mite on the underside of saskatoon leaves; actual size.

Figure 14.4: Hawthorn lace bugs on the underside of a saskatoon leaf; 1 1/4 times actual size.

Pear Slug

Symptoms

Mottled leaves with variously colored patches; heavily skeletonized leaves; presence of black, green, or orange slug-like larvae approximately 1 cm long (Figures 15.1 & 15.2).

Life Cycle

The pear slug (*Caliroa cerasi; Tenthredinidae*) is actually the larva of a leaf-feeding sawfly. These larvae are green-black in color and sluglike in their early stages. Their bodies are enlarged at one end and narrow towards the other. The last larval stage of the pear slug is green-orange and 12 mm long. The larvae can cause considerable damage, primarily before fruit harvest, to the leaves. The pear slug overwinters as a pupa in the soil. Adults emerge in early-summer. Adults are shiny black, and about the size of a housefly. They lay their eggs in slits on the undersides of leaves.

Control

No insecticides registered. Generally, not much of a problem.

Similar Insects

Green slug sawfly (*Fallocampus albostigmus; Tenthredinidae*); occurs on foliage about harvest time.

Flower & Leaf Gall Insects

Symptoms

Vary with leaves or flowers. Leaves - various shaped, purple-colored abnormal growths, up to 5 mm in length or diameter, occurring on either side of the leaf; these growths may or may not be hairy (Figures 15.3 & 15.4). Flowers - petals remain unopened; bases of flowers are swollen and reddish in color (Figure 15.5). Buds - terminal buds prematurely break dormancy and the small, folded leaves become swollen; these contain a number of aphid-like insects (Figure 15.6).

Life Cycles

Gall insects cause sporadic, minimal, primarily cosmetic damage. Leaf galls are caused primarily by various midges (*Cecidomyiidae*) or mites (*Eriophyiidae*). The midge larvae, or mites, are very small and live and feed inside the galls. Flower galls are caused by a midge (*Cecidomyiidae*) which lays its eggs within the flower bud. Feeding by the larvae causes the nectaries of the flower to swell. The bud galls are formed by an unidentified, aphid-like insect.

Control

Control is not necessary.

Plate 15. Pear Slug & Various Galls

Figure 15.1: Extensive leaf damage by the pear slug; 1/2 times actual size.

Figure 15.2: Pear slug on saskatoon leaf; 1 1/2 times actual size.

Figure 15.3: Leaf galls caused by a cynipid wasp; 1 1/4 times actual size.

Figure 15.4: Cecidomyiid midge galls on saskatoon leaves; 1 1/4 times actual size.

Figure 15.5: Midge galls of saskatoon flowers; 1 1/4 times actual size.

Figure 15.6: A leaf bud gall caused by an aphid-like insect; 1 1/4 times actual size.

Lygus Bugs

Symptoms

Yellow, aborting flower buds. Droplets of brownish liquid may exude from newly pierced buds.

Life Cycle

Several species of lygus bugs feed on the saskatoon; they include the alfalfa plant bug (*Adelphocoris lineolatus*) and the tarnished plant bug (*Lygus lineolaris*). Lygus bugs feed on a wide variety of crops including strawberry, raspberry, cabbage, bean, cucumber, alfalfa, various grasses, and broadleaf weeds such as dandelion and chickweed.

Lygus bugs are sucking insects that pierce flower buds, blossoms, and developing fruits when feeding; such damage can cause fruit deformation, or the loss of these parts. The tarnished plant bug is about 6 mm long, brown or yellow, or sometimes green in color, with dark markings. Adults overwinter in the leaf litter, or under debris, and become active in early spring. Egg laying occurs when temperatures exceed 20ºC for 10 to 31 days, with 5 eggs being laid per day. The eggs are laid into stems, leaf petioles, the midribs of leaves, buds and flowers. In 7 to 10 days, the eggs hatch into nymphs that resemble the adults. Nymphs may be present as early as mid-May. There are 2 to 3 generations annually.

Control

Lygus bug damage is usually considered tolerable. Control of lygus bugs generally requires the removal of weeds, especially leguminous plants. Alfalfa should not be planted close to a saskatoon orchard because it may be a significant source of lygus bugs. The insecticide Decis has been registered for use against lygus bugs on the saskatoon.

Leaf-rolling Caterpillars

Symptoms

Leaves rolled and bound together with webbing; rolled leaves may include flower or immature fruit clusters; substantial feeding damage to leaves, flower and immature fruit clusters; presence of caterpillars inside the rolled leaves.

Life Cycle

A number of related, leaf rolling caterpillars may be found feeding on the saskatoon. These caterpillars include the fruit tree leaf rollers (*Archips argyrospilus* and *Argyrotaenia quadrifasciana*; *Tortricidae*), and the oblique-banded leafroller (*Choristoneura rosaceana; Tortricidae*). Their host plants include the saskatoon, hawthorn, pear and cherry.

These caterpillars bind and roll leaves together to form a shelter as they feed. In the saskatoon, these rolled leaves often include the flower or immature fruit clusters. These caterpillars can defoliate small shrubs and destroy large numbers of flowers and developing fruit. Their life history is not well known. Adult moths emerge from hibernation about the time of

budbreak, and deposit egg masses on the undersides of branches. The moths are about about 10 mm long and are variously brown with white markings. Eggs probably hatch about the time the saskatoon flowers. The larvae are pale green caterpillars up to about 15 mm long. The larvae complete their development by late-June. It is possible that a second generation occurs.

Control

Although not registered for use specifically against these caterpillars, applications of Decis made for control of the saskatoon bud moth, saskatoon sawfly, and apple curculio will probably control leafrollers as well.

Other Leaf-feeding Caterpillars

Symptoms

The most obvious symptoms include large, silken or webbed nests or tents containing numerous, variously colored caterpillars; substantial defoliation of branches or entire shrubs.

Life Cycles

A large variety of caterpillars feed on leaves of the saskatoon, primarily from early-spring until late-June. These include:

Prairie tent caterpillar (*Malacosoma californicum lutescens*; *Lasiocampidae*); these are fuzzy, blue caterpillars up to 5 cm long which spin webbed tents in the crotches of branches.

Forest tent caterpillar (*Malacosoma disstria*; *Lasiocampidae*)

Green fruitworm (*Lithophane anennata*; *Lasiocampidae*). The green fruitworm is a smooth, light-green caterpillar which feeds on leaves and fruit in mid-summer, but rarely causes extensive damage.

Spring cankerworm (*Paleacrita vernata*; *Geometridae*)

Fall cankerworm (*Alsophila pometaria*; *Geometridae*)

Control

Prune out and burn heavily-infested branches.

Insect Pests Of Minor Importance

The following insects have been reported as being found on the saskatoon but are not considered of economic importance. Specific control measures are not necessary.

Stem-boring Insects

Roundheaded apple borer (*Saperda candida*; *Cerambycidae*). The roundheaded apple borer is a brown, cylindrical beetle with long antennae and 2 white stripes running the length of its body. The underside of its body is also white. Adults are present in June and July, during which time they mate, and deposit eggs at the base of saskatoon stems. The larvae feed beneath the outer bark of the stem, on the inner bark and sapwood for 2 to 3 years, making large

tunnels. This feeding may girdle the stems and cause dieback.

Metallic wood borer (*Agrilus crataegi*; Buprestidae)

Weevils

Hawthorn weevil (*Pseudanthonomus crataegi*; *Curculionidae*), and also *Anthonomus corvulus* (*Curculionidae*). The larvae of these weevils tunnel along new shoots, killing flower clusters in a manner similar to that of the cherry shoot borer.

Other Insects

Western flower thrips (*Frankliniella tritici)*, a seed-feeding wasp (*Habrocytus* species; *Chalcididae*), and bark beetles (*Scolytidae*) have also been found on the saskatoon but do not appear to be of economic importance.
