



Gooseberry sawfly

A common pest of gooseberry, Gooseberry Sawfly (*Nematus ribesii*) also attacks red and whitecurrants but not blackcurrants. It is the larvae/caterpillars of the sawfly that do the damage, feeding on the leaves. They are green with black spots and a shiny black head and approximately 30mm when fully grown. The eggs are about 1mm long and pale greenish white in colour



Gooseberry Sawfly larvae (*Nematus ribesii*) and the extensive defoliation caused by the larvae

Life cycle

Sawfly over-winter as cocoons in the soil, emerging as adults from April onwards. They lay torpedo-shaped eggs along the main veins on the undersides of leaves; eggs are usually found on lower leaves in the middle of the bush. These hatch and the larvae remain in the centre of the bush feeding for 1-2 weeks until about half grown. They move through the bush feeding voraciously. It is at this stage that they are usually noticed for the first time.

Approximately 3 weeks after hatching the larvae drop to the soil and form cocoons. There are 3-4 generations in a year between late April and September.

In the garden

They start feeding low down in the centre of the bush, and move outwards, stripping the leaves as they go. The tiny, newly-hatched caterpillars initially make pinhead sized holes in the leaf, but very soon entire leaves are devoured. Sometimes a "skeleton" of leaf veins are left behind. Whole bushes can be stripped in days. Defoliated plants are weakened and tend to produce a poor crop the following year.

Control

Attract predators. A healthy, biodiverse plot with a variety of flowering plants will be more likely to contain natural predators such as small birds which will eat sawfly larvae.

Hand picking. Be vigilant and try to catch gooseberry sawfly whilst they are still small, feeding low down inside the bush. Inspect bushes from late April. Crush any eggs and larvae on the underside of leaves, or remove the entire leaf if heavily infested. If the pest has already moved to the outer areas of the bush it may be too late to do much. The larvae should still be picked off to reduce future generations. If sawfly are a recurrent problem, growing the bushes as cordons allows easier access for hand picking.



Cultural control. Remove mulches in late autumn/winter and cultivate lightly round the bushes to encourage birds to clear up the cocoons in the soil.

It is thought that bushes with an open habit, around which air can circulate freely or plants grown as a cordon, will be less susceptible to attack.

Biological control. The nematode *Steinernema carpocapsae* can be sprayed directly onto sawfly larvae and is very effective if used when they are first seen.

Caterpillars

There are many different caterpillars that are pests of brassicas. The three most common are caterpillars of the large cabbage white butterfly (*Pieris brassicae*), small cabbage white butterfly (*Pieris rapae*), and the cabbage moth (*Mamestra brassicae*). All three can be present at the same time and tend to attack mature plants. Damage will depend on the species and the season. Caterpillars of cabbage moth and small white butterfly can be more damaging as they bore into the hearts of cabbages, whereas the large white caterpillars generally feed on the outer leaves.

Large cabbage white butterfly (*Pieris brassicae*)

The large white caterpillar has five pairs of prolegs, a fawn body with black patches and yellow longitudinal stripes. Damage often occurs in the headlands of fields or in sheltered places and can therefore be worse in small plots.

Life cycle

There are two generations a year in summer and autumn, with the autumn generation generally being larger. The first generation normally occurs in May and June. The second generation starts to emerge and lay eggs from early August onwards. This generation is usually more damaging.

Small cabbage white butterfly (*Pieris rapae*)

This caterpillar has five pairs of prolegs, a dull velvety green head and body. The body has a yellow dorsal line and elongate, yellow spiracular patches.

Life cycle

It has a solitary habit and can be found distributed throughout the crop with many plants infested. It can attack the centre of the plant and the frass can cause crop spoiling especially in cauliflowers. There are two or three generations a year, from June to late autumn, with the second-generation the most damaging.

Risk and monitoring (all caterpillars)

If crops are uncovered frequent inspection is necessary to spot and identify caterpillar pest problems and also the natural predators present. Some predators can destroy all caterpillar pests present. Also some caterpillar species only have one generation and action may not be necessary. Pheromone traps can be suspended within the canopy of the crop, which will attract adult males. They will give advance warning, as the adults tend to move into the field from the field margins.



Control

Encourage natural control. By far the most environmentally sound control is to encourage the natural enemies of caterpillars which include birds and numerous parasitoid wasps such as Brachonids, Chalcids and Ichneumonids. Ladybirds may also consume smaller caterpillars.

Make your garden a hospitable place for a range of helpful creatures by providing suitable habitat and grow flowers that attract beneficial insects. Small, simple flowers are best, particularly members of the Apiaceae and Asteraceae families, as well as the poached egg plant (*Limnanthes douglasii*), *Convolvulus tricolor* and *Phacelia tanacetifolia*. Starlings and other small birds will often take caterpillars to feed their chicks. Frogs and toads will also eat them, if they are within reach.

Biological control. There is a nematode treatment which attacks caterpillars. The nematodes are mixed with water and sprayed or watered onto the plants infested with caterpillars. They need to come into direct contact with the caterpillars quickly as they will die if left to dry out on the leaf. Once in contact with the caterpillars, they enter through a natural body opening, release a bacteria and the caterpillar dies within a few days. Repeat treatments may be necessary, 5-7 days later for heavy infestations.

Crop covers. Crop covers such as fleece and mesh can exclude adult butterflies and moths, thus preventing egg-laying. As with all pests it is important to ensure the cover is on before the pest is present; if eggs have been laid on the crop, the cover could exacerbate the problem due to the exclusion of natural enemies.



Limnanthes douglasii



Convolvulus tricolor



Phacelia tanacetifolia



Cabbage white caterpillars (*Pieris brassicae*) causing typical damage



Thrips

Thrips is a term used to describe a range of small insects from the order Thysanura. Many thrips feed by sucking sap from leaves and flowers. They vary in colour but otherwise look very similar to one another.

Adults have narrow bodies up to 2mm long and two pairs of strap-like wings which are fringed with hairs and folded back when at rest. The immature nymphal stages are wingless, generally creamy yellow and paler than the yellow/brown or black/brown adults.



Adult thrip (*Thysanura*)

In the garden

Damage by thrips is not usually severe. Leaves damaged by thrips often become dull green and later develop a silvery-white discoloration on the upper surface. The discoloured areas are usually marked by many tiny black excrement spots. When thrips feed on developing tissues they can cause distorted growth. Flower petals are marked by a white flecking where the pigments have been lost and heavy attacks may prevent flower buds from opening. Some thrips, like western flower thrips, can be vectors for plant viruses.

Control

Though the damage may be significant in commercial floriculture, damage by thrips is not usually a problem to the gardener.

Biological controls in the form of *Amblyseius* or sometimes the predatory mite species *Hypoaspis*, are available to control thrips in greenhouses.

Sticky traps can be used to monitor thrips in glasshouses. Where available blue traps can be more efficient at trapping thrips than yellow. These are not ideal as non-target species such as hoverflies can be captured.



Spider mite (*Tetranychus urticae*)

Glasshouse red spider mite or two-spotted spider mite is not a spider and is only red for a short time in its life cycle. The mite is a tiny eight-legged creature (up to 0.6mm long), pale yellow or greenish in colour with two dark patches on the body when mature. Overwintering females are orange/bright red, hence the name. The eggs are minute (0.13mm), globular and translucent, turning pale reddish before hatching.



Spider mite (*Tetranychus urticae*) magnified under a microscope

Life cycle

Adult mites emerge from hibernation in March/April and move on to plants where they breed and feed until the days shorten in September. Breeding is favoured by hot, dry conditions, when there can be as many as 7 generations each year. Development is greatly slowed at temperatures below 12°C. The red female form appears from September onwards and hibernates in cracks, crevices, leaf litter, soil, potting media, canes etc. In a heated glasshouse mites may remain active all year.

In the garden

Spider mite attacks a wide range of plants in greenhouses, house-plants and to a lesser extent some outdoor crops, especially in hot, dry seasons. This tiny mite is sometimes found on fruit trees such as apricot and peach, and sometimes on apples, pears and plums. As the mite is so tiny, the damage it causes is usually the first thing to be noticed. Mites feed on the underside of the leaf, causing fine, light speckling of localised pale yellow spots on the upper surface. As the attack continues the leaves can take on a bronzed appearance and may wither and die.