



## Growing tips: 06 Pest and diseases



### 🍏 Troubleshooting

Fruit trees make fantastic homes for lots of wildlife, although not all of it will be welcome! Keep your eyes open and check your trees regularly for signs of any problems. This is particularly important when the trees are young since an early infestation of pests and diseases can cripple the trees, and they won't establish well. As they get older they tend to be more resilient!

No-one likes spraying nasty chemicals around, especially on the things we are going to eat. If you care for your trees organically and in an environmentally friendly way, you will be helping to minimise the use of pesticides, fungicides and herbicides and letting nature give you a helping hand keeping pests, diseases and weeds at bay. Gardening organically usually involves tolerating a certain number of pests and diseases – after all, they are part of the world we live in – but if your trees are well cared for they will be able to cope with a certain amount of pest and disease pressure. Occasionally, when pests or diseases do get out of hand, it is possible to spot treat problems with a limited number of organically approved plant protection products (most of which are derived from natural plant extracts), although applications of these should preferably be carried out by an adult (or under close adult supervision).

#### Fruit-full Tip

It is great fun to use fruit trees for bug hunting – have a look and see how many 'beasties' you can spot and identify – many, such as ladybirds, will be easily identifiable.

### 🍏 Common pest problems

#### Distorted (curled and twisted) young leaves and shoots

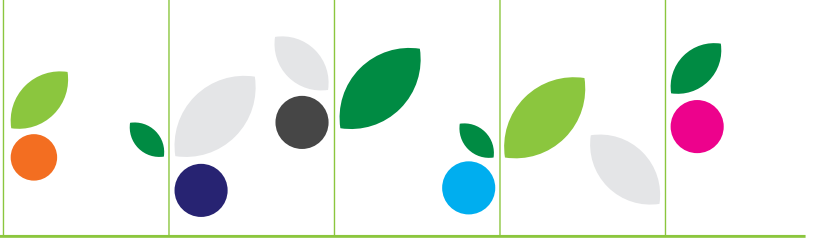
This is usually caused by aphids (greenfly) – there are many species which are troublesome on apple and pear. Most over-winter as eggs in bark crevices and buds on the trees and hatch in spring, sucking sap from shoot tips and fresh young growth. Infestations are often patchy and localised. Check buds and shoots with a magnifying glass or hand-lens in early spring to see if you can spot anything!

**Solution:** Low numbers of infested shoots can also be picked off and destroyed. Encouraging natural predators such as ladybirds and lacewings into the area with the provision of wildflowers and insect boxes\* will help. You can also buy packs of ladybird larvae and adults\* to boost predator numbers quickly. As a last resort, or for spot treatments through the season, use soft soap (insecticidal) sprays, and products made from natural oils or plant extracts (e.g. Bug Clear, Pyrethrum Insect Killer)\*.

\*Available from The Organic Gardening Catalogue  
[www.organiccatalogue.com](http://www.organiccatalogue.com)



Apple aphids



## Sticky honeydew on pear leaves, branches and fruits, which often turn black with sooty mould. Ants encouraged by the honeydew

This can be caused by aphids, but large amounts of sticky honeydew on pear trees are often a result of infestations of pear sucker nymphs (*Psylla pyricola*) which are small (2mm long) insects, pale orange in colour with pinkish-red eyes, becoming increasingly darker orange in colour as they mature. These nymphs live and feed on pear foliage during the growing season. They are usually a problem in warm, dry weather. Rainfall can often wash them off the leaves!

**Solution:** Low numbers of the pest can be tolerated, but it is best to pick off and destroy small colonies on shoot tips and blossom trusses when seen if possible, to prevent populations getting out of control. The insects can also be washed or hosed off relatively effectively. In severe infestations, it may be necessary to resort to spraying with an organic insecticide – products containing Pyrethrum (e.g. Pyrethrum Insect Killer\*) are likely to be most effective – particularly on young nymphs.

## Blistering and blotches on leaves which gradually darken to black-brown in colour

This is likely to be caused by pear leaf blister mites, which are tiny gall mites that live in the foliage of pear trees. They breed quickly, producing several generations during the summer, but damage is usually only cosmetic, although severe infestations on very young trees can cause poor establishment. During feeding in spring, the mites secrete chemicals that cause blotches to appear on new foliage, which eventually turn black and the leaves die off prematurely in late summer.

**Solution:** The only solution is to remove affected leaves and shoots by hand to prevent the mites spreading to other areas.

## Young leaves folded together and webbed

The culprits here are usually larvae (caterpillars) of tortrix moths which feed on shoots, leaves and fruits, often webbing foliage together for protection whilst they graze. Caterpillars emerge in late March and April and are active until June, before pupating and emerging as adults several weeks later. Adult moths will then mate and lay eggs, producing a second generation of larvae which hatch in summer and feed on the trees until autumn, before over-wintering on the tree. Winter moths are another common species which behave in a similar way: the larvae feed on the tree during the growing season before pupating in the soil and emerging as adults during October – January. The wingless winter moth females crawl up the tree to lay their eggs in bark crevices and eggs hatch in early spring.

**Solution:** Remove and squash the offending caterpillars when seen! A pheromone trap\* hung on the tree from May onwards will help trap male tortrix moths and prevent them mating with the females, which will reduce caterpillar numbers the following year. This approach is best used where there is a small orchard, and examining individual trees in detail is impractical. For control of winter moths, greasebands or gluebands\* tied around tree trunks from October until March will help trap the wingless females as they make their way up the tree and before they have a chance to lay eggs.

Winter moth larvae

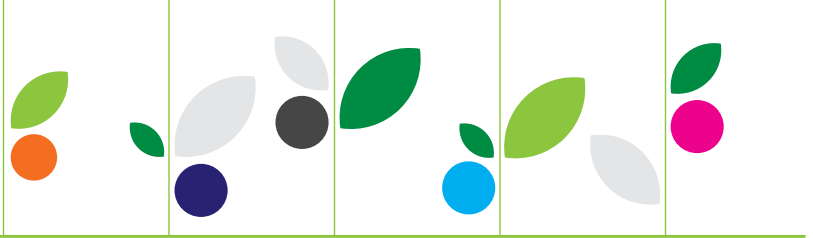


Pear leaf blister mite



Pear leaf blister mite





## Caterpillars within the apples

What's worse than finding a maggot in your apple?...

Finding half a maggot of course!

Nobody likes finding maggots in their apples. If you do, it is likely to be a larva of the codling moth. Adult moths are active from May until August, laying eggs on developing fruitlets which then hatch and the resulting larvae burrow into and feed on the apple. Once mature, the larvae leave the fruit and pupate under loose bark or in leaf litter on the ground, emerging as adults in August or September, or in late spring the following year. Attacked apples usually have a characteristic entry hole on one side, blocked with dry, brown frass.

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**Solution:** attacked fruits can be removed and destroyed when seen during the growing season (particularly where the caterpillar is still active inside). Using pheromone traps\* that attract and trap the male moths from May-August and prevents them mating with the females will help reduce moth populations the following year.

## Black patches on the surface of young pear fruitlets

This is caused by the pear midge – the larvae of which feed inside developing pear fruitlets, causing them to swell, harden and turn black when they are still small. If you open up an infested fruitlet, you will find several yellowish-white midge larvae feeding inside the affected area. Pear varieties vary in their susceptibility to the pest (e.g. Williams is very susceptible).

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**Solution:** Remove and destroy any infested fruitlets as soon as you see them – this will help reduce the pest population, though it may be necessary to do this for at least two successive years. Damaged fruitlets usually drop to the ground early, making them harder to find. Spraying is not effective as the larvae are protected inside the developing fruitlet.

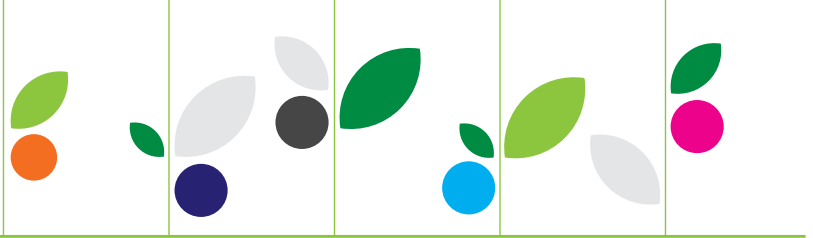


Sawfly scar

## Corky, ribbon-like scars on fruit, and sticky brown frass near a small hole

This is characteristic damage caused by apple sawflies – the larvae of which burrow beneath the skin of developing fruitlets, resulting in the formation of scars on the fruit surface (which becomes most obvious on mature fruits). The larvae then burrow into the core of the apple to feed on the pips, sometimes causing premature fruit drop. During the growing season, the presence of larvae in the fruit can be more easily detected by the wet, brown-black frass exuding from a small hole in the fruit. The larvae can move between fruits, before dropping to the ground to pupate, emerging as adult sawflies in spring the following year. Eggs are laid on young blossoms in April and May and the cycle starts again.

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**Solution:** adult sawflies are particularly attracted to apple varieties which have very bright, white blossom (such as Discovery) – so one method of control is to hang white sticky traps on the trees during warm weather in spring to help trap adults on the wing, although other insect species may also be caught. Otherwise, removing attacked fruitlets during the growing season will help reduce populations – pick off any fruits which have characteristic holes and wet brown frass present. It is particularly important to carefully examine fruitlets growing together in clusters as this provides an ideal hiding place for the larvae and opportunity to move between fruits.



## Common disease problems

### Brown spots on leaves and fruit

The most common cause of this is apple scab (due to the fungus *Venturia inaequalis*) which is a problem on susceptible varieties during wet weather. Pears are also attacked by a similar fungus (*Venturia pirina*). All parts of the plant are attacked, but brown corky lesions on leaves and fruit are the most obvious symptoms. Infection occurs mostly during April-June, particularly when leaves remain wet for prolonged periods. Infection on the fruit is superficial – once the skin is peeled, the fruit is perfectly acceptable for eating.

**Solution:** Use resistant varieties where possible, especially in areas which experience frequent rainfall. Do not store infected fruits. Prune the trees to encourage an open and airy habit, helping leaves to dry quickly after rainfall.

### White powdery deposits on leaves and stems

This is caused by powdery mildew (*Podosphaera leucotricha*) which tends to occur during dry spells – particularly in spring. Young leaves and shoots become infected from April onwards when primary mildew develops, although infection continues during the growing season in warm, dry weather and badly infected leaves will become brown and shrivelled. The fungus overwinters in buds and shoots. Infected fruits are often russeted, but perfectly good for eating.

**Solution:** It is important to cut out infected shoot tips when symptoms are first seen in spring, to prevent the fungus spreading. Ensure trees are receiving adequate water and nutrients so that they are better able to withstand infection. Some varieties are resistant.

### Brown blistered and corky lesions on the stems

This is usually caused by canker (*Nectria galligena*) – a common disease problem on apples and pears. Some varieties are more susceptible to the problem than others, but in severe cases it can severely cripple and weaken affected trees. Fungal spores enter the tree during autumn at leaf fall through openings in the bark in bud scales and leaf scars and via wounds caused by pruning, pests and diseases. Affected shoots and branches become sunken and blistered in places, resulting in die-back and eventual death of the affected branch.

**Solution:** The best way of dealing with canker is to remove infected shoots and branches – ensuring that you prune back to a healthy part below the cankered area. The best time to do this is during late winter and early spring.

### Brown cavities within the apples

The most common cause of this is a condition known as 'bitter pit' – which arises as a result of a shortage of calcium and water, especially on large cooking apples such as Bramley. Fruits affected by bitter pit do not store well.

**Solution:** applying a general purpose fertilizer containing calcium – particularly those which contain calcified seaweed\*, or similar preparations or soil improvers which contain calcium and lime, during the growing season will help. Ensure trees are watered regularly.

Apple mildew



Canker



Brown rot on pears



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## Leaves brown and wilting

This is usually caused by a shortage of water, especially in newly planted trees during hot weather. Ensure that trees receive adequate water during establishment. Mulching the base of the tree with organic material (e.g. compost, well rotted manure) will help retain moisture. Mulch mats can also be used to keep the weeds down.\*

## Poor growth

There are many possible causes of poor growth, but where young trees are affected it is most likely to be due to competition from neighbouring grasses and weeds, especially if trees are planted into a rough pasture area. Ensure that the base of the tree is kept weed-free up to a radius of 0.3-0.5m (12-20") around the trunk – using an organic compost mulch or mulch mat will help. Feed and water the tree well during the growing season.

## Not much fruit

Again, there are many possible causes for lack of fruit, although it is usually linked to inadequate pollination, either where there are insufficient pollinator trees nearby, few pollinating insects, or even frost or wind damage during flowering. Planting a few crab apples or other apple varieties to improve pollination may help. Encouraging beneficial insects by growing plenty of flowering plants nearby and providing wildlife habitats will help improve numbers of naturally occurring pollinating insects.

Some varieties of apple are naturally biennial – producing abundant crops one year and ‘resting’ the next. This can be discouraged by thinning the fruits adequately during late June in years of heavy fruit set.



Apple scab  
Rosy apple aphid damage