

# INSECT & 'PEST' PROBLEMS

## Topics covered

- Diagnosis of insect and other 'pest' (slugs, snails, rodents etc.) problems.
- Control of other pests
- Spray programmes.
- Product benefits

**Additional useful references:** Manufacturers' literature (product brochures, pest and disease identification charts), reference books

## Diagnosis of problems

Insects and other pests can badly damage plant roots, stems, leaves, flowers and seeds. Many insect pests multiply very quickly, so it is sensible to check plants regularly, diagnose problems accurately and give the appropriate treatment promptly to prevent a rapid build-up.

**Eaten, distorted or discoloured** parts of plants are possible signs of insect damage. In some cases the pest will be **clearly visible**, but this does not always occur. Descriptions of some of the types of damage caused to various plant parts are given below.

### Leaf damage - pests visible

Pests which can be clearly seen on the leaves and other parts of the plant include greenfly and blackfly (aphids), and whitefly. Scale insects and mealy bugs can also be spotted quite readily.

Various species of **aphids** will attack most garden plants and can be seen massed on stems and flowers as well as leaves. There are many different species of aphids - over 500 in the UK and northern Europe. Although aphids are commonly known as greenfly and blackfly, the colour range can be anything from white to shades of red, yellow, orange, brown or dark blue. The more well-known aphids include rose aphids, black bean aphids, (which affect French and runner beans and some ornamentals); cabbage aphids (attack cabbages and other brassicas as well as swedes); and woolly aphids. The latter are covered by a white woolly 'wax' and attack apples, predominantly, although will affect related ornamentals, such as ornamental crab apples, hawthorn and cotoneaster.

Aphids are sap feeders and can take in large amounts of plant sap. Excess sugars are excreted in the form of a sugary substance, known as honeydew. In some cases, ants will 'farm' aphids for this, which gives the pests some protection from natural predators. Aphid attack can be very debilitating, causing weakening and distortion of the new growth, in particular. A secondary symptom of aphid attack is the growth of black sooty moulds, encouraged by the presence of honeydew.

**Whitefly** are also sap feeders and, as the name suggests, are white in colour. They look like tiny moths and attack many greenhouse and garden plants, especially fuchsias, pelargonium, cucumbers and brassicas.

**Scale insects** are brown, almost stationary 'scale-like' creatures which affect a wide range of plants. **Mealy bugs** have a white covering, which often appears as a gooey, cotton-wool like mass in the leaf axils.

Both scale insects and mealy bugs are sap feeders and, like aphids, they secrete honeydew and infestation can lead to the presence of sooty mould.

### Leaf damage - holes/leaves eaten

Some pests will either eat holes in the leaves or eat part or all of the leaf. Pests in this category include slugs and snails, caterpillars, capsid bugs, flea beetles and weevils such as the pea and bean weevil and adult vine weevil.

**Slugs and snails** are a particular problem in mild and/or damp weather. They eat the leaves of most plants, with a rasping action, leaving irregular shaped holes or tattered shredded edges. Young plants can be completely eaten and slime trails can often be seen on the soil surface around affected plants. Slug pellets are the most common means of slug control. Sometimes gardeners are concerned about using pellets if they have pets. There is no need for concern if they are used sparingly and according to label directions. Some customers may prefer to use a liquid preparation which is less accessible to pets than pellets.

**Caterpillars** can attack most plants, their biting action causing relatively large, irregular but clean cut holes in the leaves. Caterpillar frass (droppings) may be seen on the leaves, which serves as a further diagnostic feature of attack. **Flea beetles** cause damage on turnips, radishes, wallflowers and brassicas, especially at the seedling stage, where small, almost circular holes can be seen on affected leaves.



APHIDS ON ROSES

# INSECT & 'PEST' PROBLEMS



CABBAGE WHITE CATERPILLARS

Pea and bean weevils and adult vine weevils cause characteristic U-shaped notching around the edges of leaves. Pea and bean weevil, in addition to obviously affecting peas and beans can cause similar damage on roses, lupins, carnations and other ornamentals. Adult vine weevils cause notching around leaves of camellias and rhododendrons in particular, but it is vine weevil larvae that are particularly troublesome in the garden. The plants affected and symptoms are discussed in the section on soil pests.

Sawfly larvae can cause severe damage to leaves - gooseberry sawfly and Solomon's seal sawfly can virtually defoliate plants and they do so very rapidly. Gooseberry bushes should be checked every week in May, particularly near the centre of the bushes, as this is where most of the eggs are laid. The sawfly larvae are green in colour and look a bit like caterpillars. Where spotted they should be treated as a matter of urgency because of the potential rapid nature of the damage.

Rose slug sawfly (also known as rose slugworm) has small slug-like larvae which eat away the leaf tissues, exposing the veins and causing a skeletonised appearance. In many vegetable and ornamental crops, **rabbits and wood pigeons** can eat virtually all the plant.

## Leaf damage - distortion

Some pests, such as aphids, capsids and leafhoppers, will cause leaves to become distorted. This is due either to physical puncturing of the leaves and/or the injection of toxins or viruses by the insect. The larvae of the rose leaf rolling sawfly causes rose leaves to roll up tightly, and remain like this for the rest of the growing season. Some rose varieties are more susceptible to attack than others.



LEAF MINER DAMAGE

## Leaf damage - discolouration

Leaf discolouration is a diagnostic feature of some pests. **Mite damage**, including that of red spider mite, causes a speckling and often a yellowing or bronzing of the leaves, typically of fruit trees, bushes and many greenhouse plants. **Aphids** can cause a general yellowing of the leaves. This is a secondary diagnostic feature.

These pests themselves are normally present on the leaves in large numbers when a plant is under attack. **Leaf miners** cause light curved lines of discolouration to appear on the leaves, due to the mining action they use when feeding on plant leaves. Affected plants include chrysanthemum, celery, fruit trees, primulas, cinerarias and other greenhouse plants. **Leaf hoppers** cause a white, relatively large mottling on the upper surface of leaves. Plants attacked include roses, fruit, potatoes and various other ornamental and greenhouse plants.

## Damage to flowers

Earwigs, thrips and capsids are the main pests which will attack flowers. **Earwigs** are especially fond of dahlias, chrysanthemums and clematis, causing ragged holes to appear in the petals. **Capsids** puncture tiny holes in the petals, and will attack roses and chrysanthemums in particular. **Thrip** damage on petals is evident as white areas. Thrips also cause silvery streaking on the leaves. Gladiolus thrip is the one most likely to cause problems in domestic gardens.

## Damage to seeds and seedlings

Pests causing damage to seeds include mice, millipedes and, to a lesser extent, ants. Both **mice and millipedes** are fond of the larger seeds, such as peas and beans. Erratic germination will occur where seeds have been either partially or totally eaten by millipedes. Where mice are the culprits their droppings can often be seen. They also tend to steal seeds in 'sequence'; which will affect germination along a row, whereas germination tends to be more random if a millipede attack is the problem. **Ants** will steal seeds, so this can also cause erratic germination. They are normally more of a problem on sandy soils.

Woodlice, cutworms, slugs and snails and flea beetles are some examples of pests that can cause damage to seedlings. **Woodlice** tend to be a problem where there is a large amount of undecomposed organic matter present, such as dead leaves etc., so hygiene is important as a preventative measure. **Cutworms** are large grey or brown larvae which attack plants at soil level, eating through some or all of the stem. The leaves of affected plants wilt or the top part of the plants collapse. Damage caused by slugs, snails and flea beetles is outlined in the 'Damage to leaves' section.

## NOTES



LEATHER JACKETS

### Damage to roots and tubers (soil pests)

The common soil pests which can damage roots and tubers include wireworm, leatherjackets, chafer grubs, millepedes, vine weevil larvae and some species of slugs and snails. **Wireworm** are stiff yellow or orange grubs which can cause extensive damage in potatoes and root crops, usually, boring holes into the roots or tubers. They are particularly troublesome on areas which have previously been grass. **Leatherjackets** are the offspring of the crane fly or 'Daddy long-legs'. They are legless, leathery grubs which eat the underground parts of many plants. They can be a particular nuisance on lawns, eating the roots of the grass which results in yellowing areas of turf. A sure sign of the presence of leather jackets is a group of starlings pecking at the grass in an attempt to eat the grubs.

**Chafer grubs** are curved, off-white coloured grubs with three pairs of legs. They will feed on the roots of trees, shrubs and flowers and grass, causing wilting and death. **Vine weevil larvae** are whitish coloured grubs with an orange coloured head. They are usually smaller in size than chafer grubs, are less curved and do not have legs. They are mainly a problem on strawberries, alpiners and many pot plants.

The first symptoms of attack by vine weevil larvae attack are wilting and/or collapse of the plant. If the growing medium is inspected the culprits can be seen around the base of the plants.

There are species of aphids which attack roots of plants such as lettuces, auriculas, primulas, carnations and pinks. Root aphids are whitish in colour and often covered by a white powdery wax. They cause affected plants to wilt where infestation is severe.

Cabbage root fly can be a serious problem on cabbages and other brassicas. Radishes, swedes, turnips and wallflowers are also particularly prone to attack. Transplanted brassicas are especially susceptible. Affected plants wilt and can be tinged purple/red. Similar symptoms are caused by club root, so it is easy to confuse symptoms with this or other root damage. Sometimes, however, the attack of cabbage root fly is limited to one or two plants along a row, initially at least.

### Fruit trees and bushes

A wide variety of insect pests attack fruit trees and bushes. Pests of top fruit (apples and pears) include aphids, capsids, caterpillars, suckers, moths, sawfly and blossom weevils. Codling moth and sawfly are generally the most troublesome pests of apples. Codling moth larvae tunnel into the fruit, towards the core. Sawfly larvae eat just under the skin and cause brown, ribbon-like scarring of the fruit. Pear midge is a common pest of pears. The fruitlets swell and do not develop properly, often falling from trees prematurely in May or June.

Stone fruit (peaches, plums, nectarines, almonds and cherries) are susceptible to attack by aphids, caterpillars, weevils, sawfly and slugworm. Plum sawfly larvae tunnel into the fruit and dark sticky frass can be seen around the entry holes in affected fruit.

The main pests of cane fruit (raspberries, blackberries and loganberries) are aphids, capsids, leafhoppers and raspberry beetle and bush fruit pests include aphids, capsids and caterpillars.

In many instances once the damage is seen, it is often too late to do much about controlling the pest or pests responsible. Preventative fruit spray programmes minimise the attack of various pests. For details of these, please refer to the notes on spray programmes later.

## Control of other pests

### Ants

A wide range of antkillers are available either as sprays, gels or dusts. Many may be used for control of other crawling insects and can be used either outside or indoors. When using these products in the kitchen or in food storage areas, take particular care to follow product label advice.

### Houseplant pests

Although it is acceptable to use general insecticides to control pests on houseplants, it is important to take the plants outside to spray them if the insecticide is not approved for indoor use. The plants may be brought back inside when the product has dried on the leaves. However, it is important to remember that not all insecticides intended for use on outdoor plants have been tested on houseplants so there is a possibility that damage may be caused if they are used on sensitive species. Thus, it is better to select a product specifically made for use on houseplants.

### Rodent control - rats and mice

There are various products available for the control of rodents. Users should be encouraged to take extra care when siting these baits to avoid accidental consumption by non-target animals such as pets or wild birds. Follow product label advice.

### Wasps, cats and dogs

There are products available to control wasps indoors and to tackle wasp nests. Products which will help to deter cats and dogs are available.

# INSECT & 'PEST' PROBLEMS

## Spray programmes

Spray programmes are recommended for fruit trees and bushes and roses. With fruit, in particular, once the damage is spotted it is too late to do much about it, therefore prevention is certainly preferable. This needs to be communicated clearly and gardeners should take advice on preventative spraying at the time of purchase. Although it may seem like a lot of hard work, it is almost inevitable that fruit trees will have some pest attack and the amount of spoilage can be tremendous. It is much easier to spray the more compact varieties of fruit trees - for older, larger trees it is often not worth the effort!

### Spraying guidelines

**Apples and pears** - Spray at the following stages:

- i) Bud burst
- ii) Green Bud
- iii) Pink/white bud
- iv) Petal fall
- v) Fruitlet

**Plums and other stone fruit** - Spray at:

- i) Bud burst
- ii) White/pink bud
- iii) Petal fall
- iv) 14 days after petal fall

**Cane fruit** - spray from white bud to harvest at 14 day intervals

**Roses** - Spray against insect pests and diseases at 10 to 14 day intervals from April onwards throughout the season.



## Product benefits

Many products, including insecticides and other pest killers have special features which result in benefits to the user. Some possible features and benefits of insecticide products are as follows:

- Broad spectrum (controls a wide range of pests)
- Narrow spectrum (limited range of pests - may mean that damage to beneficial insects is minimal, depending on product)
- 'Organic' or based on natural ingredients
- Systemic - ie gets into plant sap - may mean less thorough spraying is necessary and/or that product is more effective against particular pests
- Short/zero harvest interval
- Ready-to-use - ie quick, easy and less potential wastage
- Combined product - eg combined insecticide and fungicide
- Particularly effective/new active ingredient

## NOTES

**ALWAYS READ THE LABEL. USE PESTICIDES SAFELY**