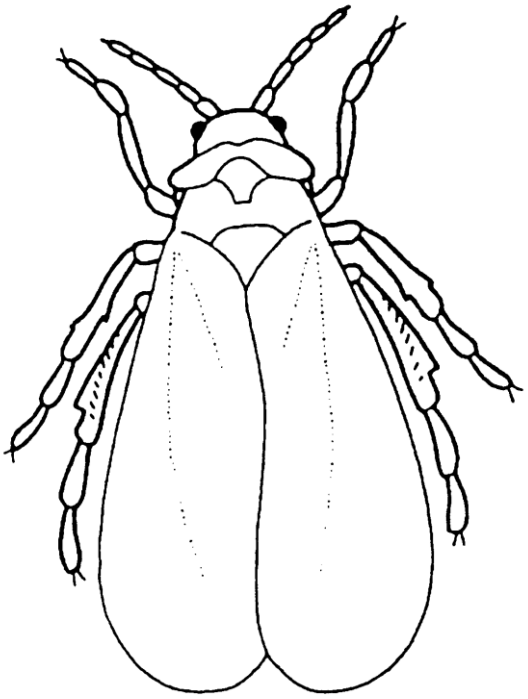
Common Garden Pests and Diseases



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Their Control

Common Garden Diseases and their Control

Recent changes in the pesticide regulations, have led to the withdrawal of many garden pesticides. Some have been withdrawn for safety reasons but many more for commercial reasons. The garden market is too small to justify the expensive tests necessary to get government approval.
Prevention, cultural and organic controls are therefore becoming more important now that fewer pesticides are available.

NB When using Pesticides: ALWAYS READ THE LABEL: USE PESTICIDES SAFELY

Botrytis (Grey Mould)

Description: Grey fluffy mould on leaves, stems, fruit and flowers.
Common hosts: A wide host range especially soft fruits, flowers and young plants.
Prevention: This disease is favoured by cool wet conditions. Plants that are weak or are under stress are liable to infection so maintaining a balanced nutrition and avoiding over or under watering is important. Disease control in protected plants can be improved by reducing humidity by increasing air movement and plant spacing. Botrytis often starts on wounds so avoid damaging plants.
Organic Control: Hygiene is important, as there is no reliable control. Remove and destroy diseased plant material, as soon as it is seen to prevent the spread of spores.
Chemical controls: There are no effective garden fungicides currently available.

Canker (Nectria galligena)

Description: Bark shrinks and cracks, often in concentric rings and peels away from the wood. Wounds with gnarled edges may completely encircle branch or trunk and kill it.
Common hosts: Apples, Pears
Prevention: This disease is encouraged by poorly drained, heavy soil and worse on acidic soils. Ensure the soil is well drained and prepared before planting and lime if required.
Control: Choose resistant varieties where possible from reputable suppliers and check trees for symptoms when buying them. Established trees prune off affected branches ensuring a clean cut and burn or dispose of infected material.
Chemical control: There are no effective garden fungicides currently available.

Damping off Diseases (Pythium + Phytophthora)

Description: These are common diseases of seedlings leading to germination failures or seedling collapse.
Common hosts: Most plant seedlings
Prevention: Clean all pots and trays and use good quality seed compost for optimum results. Water sparingly to avoid wet conditions which favour these diseases. Sow seed thinly to avoid over-crowding. Give maximum light and adequate ventilation. Only handle seed leaves when pricking out. Do not handle the stem as this can cause damage.
Control: Remove affected plants and surrounding compost as soon as disease is seen, to prevent further spread.
Chemical control: There are no effective garden fungicides currently available.

Brassica Club Root

Description: Club Root of Brassicas results in swollen and misshapen roots.
Common hosts: Brassicas.
Prevention: Keeping the pH of the soil high by liming gives some control**.** Either rotate Brassicas around the garden, liming the soil to keep the pH between 6.5 -7 or use one specific area that has been heavily limed to pH 8+ as Brassicas can tolerate these high pH values. Lime annually to maintain pH. Remove all debris from previous crops but do not put in the compost heap. Hygiene is important as spores can spread on tools and boots.

Control: No organic treatment. Check seed catalogues and select resistant varieties.

Leaf Galls

Description: Curled thickened leaves e.g. pale green- pink/white on Azaleas and large pale green-white galls on the leaves or buds of Camellia. Thick pink distorted leaves on Cherry, Pear, Peach, Nectarine and Alder.
Common hosts: Alder, Azalea, Camellia, Cherry, Nectarine, Peach, and Pear
Prevention: Peach leaf curl (Taphrina deformans) is worse in cold wet springs so avoid planting in cool damp area of garden.
Control: No effective chemical available for galls on Azalea and Camellia (Exobasidium spp.) so remove the galls as soon as you see them and burn. Peach leaf curl can be reduced by growing the tree under protection and watering from below to avoid spores splashing onto leaves.
Chemical controls: There are no effective garden fungicides currently available.

Leaf Spots

Description: There are various leaf spotting fungi on a wide range of plants
Common hosts: Brassica Ring Spot, Lavatera Leaf Spot, Pestalotiopsis of Conifers, Rose Black Spot, and Willow Leaf Spot.
Prevention: Brassica Ring Spot is encouraged by cool moist weather. Rotate crops and remove all leaf debris. Rose Black Spot is encouraged by warm wet seasons especially on bushes growing on badly drained soils. Gather up and burn fallen leaves to reduce the disease inoculum. A mulch of dry grass clippings or similar around the base of the bush can prevent spores being splashed from the soil onto the leaves when it rains. Choose resistant varieties where possible.
Chemical controls: see Fungicide Chart at back of leaflet.

Downy Mildews

Description: A granular white growth usually on the underside of leaves. Downy mildews are usually host specific. Potato Blight is related to Downy Mildews and should be treated in a similar way.
Common hosts: Brassicas, Hebes, Lettuces, Onions, Pansies, Potatoes, Stocks, and Wallflowers.
Prevention: This disease is favoured by cool wet conditions. Select resistant varieties where possible and avoid overcrowding plants. Under glass do not water too late in the evening or keep plants too wet and ensure there is adequate ventilation. Outside, rotate the crops, and do not plant out vegetables too early in the year, as it is worse when plants are growing slowly.
Organic Control: Hygiene is important so remove and destroy affected leaves regularly.
Chemical controls: There are only fungicides available for use on Grapes.

Powdery Mildews

Description: A superficial white powdery growth on leaves, calyces and fruit. Generally host specific i.e. Rose mildew will not affect Apples and vice versa.
Common Hosts: Apple, Carnations, Cineraria, Clematis, Cucumber, Delphiniums, Gooseberry, Larkspur, Grapevines, Roses, Strawberries and Tomato.
Prevention: This disease likes dry warm conditions during the day with moisture at night. Use resistant varieties where possible. Avoid putting fruit beds in damp shady conditions. Prune gooseberries etc. to allow air to circulate. Avoid lush growth, which is caused by excess of Nitrogen; however, use a balanced fertiliser, as poor nutrition also encourages the disease. Remove debris and weeds from around plants. Ensure adequate ventilation in glasshouses during the summer.
Organic Control: Remove and destroy diseased parts. Sprays of Fatty acids / surfactants can be useful or the old remedy of Baking Soda is quite effective, 1.5 oz/4pts or 20g/litre for Gooseberry Mildew.
Chemical control: See Fungicide Chart at back of leaflet.

Rusts

Description: Yellow, brown or white (for Chrysanthemum) pustules commonly found on the underside of leaves. Rusts are highly specific to their host.
Common hosts: Carnations, Chrysanthemum, Fuchsias, Iris, Mint, Pelargoniums, Rose, Sweet Williams and Willows
Prevention: Avoid excess Nitrogen and maintain good potassium levels. Remove affected plant material, dead leaves and destroy. Remove weeds especially if they belong to the same family as the cultivated plants.
Chemical controls: see Fungicide Chart at back of leaflet.

Pestalotiopsis Dieback

Description: Shoots turn brown and die back, often from the tips. 'Pinhead'-sized black fruiting bodies form in the affected tissues and spores spread easily in wet conditions. Symptoms seen mainly spring and summer. This disease is most common where plants are stressed or have been wounded by pest attack e.g aphids or pruning cuts.
Common hosts: Affects many conifers and woody plants, including *Chamaecyparis, Cupressus, × Cuprocyparis, Juniperus* and *Thuja.*
Prevention*:* Ensure plants are watered well during establishment and pruned at correct time of year and not in very wet conditions.
Chemical control: see Fungicide Chart at back of leaflet.

ALERT NOTICE
Ramorum Dieback (Sudden Oak Death)

We would like your cooperation in identifying any possible outbreaks of this disease locally. In the United States it is causing the death of a number of native oaks and other woodland species. In Europe it is mainly confined to nursery stock although some trees have been infected in the UK.
The symptoms are variable between species and even within host species. The most likely host is rhododendron where you can get die-back of the shoots, blackened leaf petioles and a brown leaf tipping with characteristic diffuse margins bordering healthy green tissue.
There are several other hosts including Camellia, Viburnum, Leucothoe, Arbutus, Pieris, Syringa and Kalmia where leaf tipping is a common symptom.
If you suspect Ramorum Dieback we would appreciate samples for confirmation. Post or bring samples to the the States Analyst laboratory at Burnt Lane, St Martins.
Control of this disease on nursery stock could prevent damage to our native trees.

INCREASING PEST PROBLEM
Tuta absoluta (South American Tomato Moth)

Description: Tuta absoluta is a small slender speckled brown moth approximately 7mm long with long antennae. Its caterpillars mine leaves and tunnel into stems and fruit of the host plants in a similar way to leaf miners. They have a rapid life cycle with several generations per year and are resistant to most pesticides. This once quarantine pest is now established throughout Europe and causing significant damage to commercial crops.
Common hosts: Tomato, aubergine, pepper, potato and other members of the Solanacea family of plants.
Prevention: There is little chemical control available to the amateur gardener but deltamethrin (check label for approval on the crop) may give some control of the adults. The use of sticky traps (blue or black are best) and pheromone lures placed over water traps has also proven successful inmonitoring for the pest and reducing the numbers. Biological control using Macrolophus caliginosus is also giving control in commercial crops if established early. The use of a fine mesh over the crop or doors and ventilators will also prevent the moths entering the glasshouse. Good hygiene and the removal of all crop debris each year to burn or compost in sealed bags will also reduce carry- over of the pest from year to year.

Common Garden Pests and their Control

When using insecticides ***do not spray during flowering so as not to affect pollinators such as bees and hoverflies and keep insecticide sprays to a minimum if encouraging natural enemies.***

Ants

Description: These insects cause very little direct damage to plants, however, their nests can undermine plants and cause them to dry out and die. They may be troublesome in lawns by leaving mounds of dry soil. They also 'milk' aphids, mealybugs or scale insects and protect them from natural predators and parasites.
Common hosts: Ornamental and other plants.
Organic control: Ants are also garden predators, which feed on grubs, and caterpillars so do not control unless there is a problem. Grease bands will prevent them protecting aphids etc. Boiling water can be used away from plants. Predatory beetles, lizards and birds should be encouraged. A pathogenic nematode, *Steinernema feltiae*, is available from some mail order suppliers of biological controls for treating ant nests in lawns and flower beds.
Chemical controls: Many proprietary ant powders, baits, sprays and aerosols are available for controlling ants in and near buildings, but may not be approved for general garden use or application.

Aphids

Description: Green, brown, black or pink insects present on leaves or flowering stems. Can cause leaf distortions and induce sooty mould development on sugary exudates. Aphids also transmit many common viruses.
Common hosts: Beans, Blackcurrants, Chrysanthemums, Lupins, Peppers, Pot Plants, Roses and other plants.
Prevention: Plant flowers to encourage predators and parasites; avoid feeding excess nitrogen as soft growth encourages aphids. Grease bands on trees discourage ants that 'farm' aphids, protecting them from predators and parasites.
Organic Control: Sometimes strong jets of water solve the problem, or use sprays of fatty acids or products with a physical mode of action. Encourage natural predators such as ladybirds, hoverflies, lacewings, parasitic wasps and small birds such as wrens, warblers and flycatchers. Parasitic wasps and some other natural predators can be purchased to put into glasshouses.
Chemical controls: see Insecticide Chart at back of leaflet.

Woolly Aphid

Description: A common local problem seen mainly on Apple trees. These small brown aphids cover themselves in characteristic white woolly wax and infest stems and branches. Such infested plants often develop the typical irregular swellings on the twigs and branches, which can be invaded by other pathogens, e.g. Canker. The pest overwinters in cracks in the bark. Left unchecked numbers will increase annually and trees will fail to perform.
Common hosts: Apple, Crab Apple, Cotoneaster, Hawthorn, Pyracantha and Sorbus.
Prevention: Encourage natural predators such as spiders, predatory beetles, predatory bugs, small birds (e.g. Wren, Warblers and Flycatchers) and many more.
Organic Control: Rub off with methylated spirit. Cut out and destroy affected branches. Strong jets of water sometimes solve the problem, or the regular use of fatty acids or those with a physical mode of action.
Chemical control: A winter wash every third year will help to reduce over wintering of the pest.
Note all tar-based products have been withdrawn and more environmentally friendly products are now available but they may prove less effective.

Caterpillars (Butterflies and Moths)

Description: Caterpillars are the larvae of moths and butterflies and over 50 species are common garden pests, affecting all plant parts including roots, foliage, fruit and flowers. Some live in the soil (cutworms) whereas others produce webbing, which they use to draw leaves together (Tortrix). See also Brown-tail Moth
Common hosts: Most garden plants
Prevention: Scatter cabbages around the vegetable garden so it makes it difficult for the female Cabbage White butterflies to find the plants or grow under horticultural films or fleece to prevent the eggs being laid in the

leaves. Remove unwanted and heavily infested Brassica plants from the garden. Crush the eggs or larvae when they are seen. Winter pruning can remove over wintering eggs from some species and fruit trees can be protected from the winter moth by placing grease bands around the trunk in October to catch the females as they climb the tree.
Control: Pheromone traps are available for several species including Codling Moth and Tomato Moth. Encourage natural predators into the garden e.g. parasitic wasp such as Ichneumon flies, birds, spiders, anthocorid bugs, ground beetles and hover-flies. Bacillus thuringiensis is a microbial spray that kills small caterpillars.
Chemical controls: see Insecticide Chart at back of leaflet.

Brown Tail Moth

Description: The caterpillar of this attractive white moth can defoliate large areas of vegetation and the microscopic hairs on each caterpillar can cause serious skin irritations. The caterpillars are dark brown with two characteristic orange worts on their backs. Typically the caterpillars construct white tents on exposed branches of their hosts to aid winter survival. In spring they emerge to feed firstly near their nests but later at greater distances as food sources become scarce. It is at this stage that people are at most risk from the hairs. Less sophisticated spring tents may be visible during March and April when they are feeding.
Common hosts: Apple, Blackthorn, Bramble, Cotoneaster, Elm, Oak, Pear, and Rowan.
Prevention: Cut out and burn tents over the winter between November and late February when the caterpillars are resident.
Chemical Control: Spraying with a Pyrethrin based insecticide can be very successful if timed correctly, either in August/September when young caterpillars are feeding or in March when they emerge onto the outside of the tents for 2 weeks prior to further feeding.

Chafers

Description: The larvae of at least 5 species of Chafer beetle live in soil and attack roots of cultivated plants. The larvae are soft bodied, C-shaped and up to 40mm long with a distinct brown head and white body. The adults are large beetles e.g. Maybug. Most damage is caused to grass lawns where in severe infestations the grass will die out in patches over the winter. Crows, Magpies and Gulls cause further damage by ripping up the turf to get at the grubs.
Common hosts: Grass lawns, ornamentals and vegetables.
Prevention: Usually a problem in newly converted lawn. Cultivation will rapidly eliminate the problem.
Organic Control: In lawns use a heavy roller in late spring/early summer to crush the pupae and emerging adults, which are just beneath the surface. Nematode preparations are now available but are only effective when the soil is moist or wet. If you have irrigation it would be prudent to use this prior to the nematode application.

Elaeagnus Leaf Sucker

Description: Heavy infestations of this pest can lead to leaf drop and die-back. The leaf sucker is specific to Elaeagnus but the different species differ in their reaction to the pest with E. augustifolia and E. multiflora being more resistant. The adults cause little damage and can be seen on the upper leaf surfaces: when disturbed they hop or fly off. The larval stages or nymphs are on the underside of the leaves and it is these which cause the damage through intensive feeding on the plant sap. Excess sap is excreted as a white 'honey dew' which makes the leaves sticky and encourages the 'sooty moulds' to develop leading to blackened leaves.
Common Hosts: Elaeagnus species, particularly E. glabra, E. macrophylla, E. cuprea, E. oldhamii and E. x ebbingei.
Organic Control: Natural predation and parasitism occurs in late summer and autumn resulting in a significant population crash. Using organic preparations based on fatty acids or products with a physical mode of action in the early part of the year to contain the pest will allow the beneficial insects to build up to control the leaf sucker later in the year.

Chemical Control: Products based on Pyrethrin will give effective control but may reduce the natural build-up of beneficial insects causing the problem to reoccur.

Flea Beetle

Description: These are small shiny beetles which when disturbed jump like fleas from the plant.
There are several species but two are most common causing damage to Crucifers and Fuchsias respectively. The Turnip Flea Beetle is 3mm long and feeds on young Brassica seedlings, causing a typical shot hole effect of the leaves. The Large Blue Flea Beetle (up to 5mm long) is more specific, feeding mainly on Fuchsias
Common hosts: Turnip Flea Beetle - Alyssum, Cabbage, Stocks, Swedes, Turnips and. Wallflower.
Large Blue Flea Beetle - Fuchsia and Willow herbs
Prevention: Water plants well in dry weather. Clear plant debris in winter as this is where Flea Beetles hibernate. Use floating mulches to protect the early sowings of Brassicas. Encourage birds and other predators.
Organic Control: Hold a greased board or a yellow sticky trap over infested plants whilst moving them - this catches the beetles when they hop off.
Chemical controls: see general pest control in insecticide chart at back of leaflet.

Fuchsia Gall Mite

Description: This minute mite invades the growing tips of fuchsias causing sever swelling and deformation of the leaves and flowers. The galled tissue as it ages turns red. In just one season the vigour of the plant can be seriously reduced and over several years this may cause the death of susceptible varieties. The pest is carried by pollinating insects and is also dispersed by the wind. The pest is easily carried on clothes and pruning knives.
Common hosts: Fortunately the only host of this devastating pest is the fuchsia.
Prevention: Do not accept cutting material from local plants because the pest is widespread.
Control: The mite is extremely difficult to control because of the lack of suitable pesticides and beneficial insects. Extreme action is required: prune all infested plants back to ground level, bag all infested material and burn or compost thoroughly.

Leatherjackets

Description: These are the legless larvae of the Crane Fly or Daddy-long-legs. They are grey brown in colour and up to 5cm in length. They live mainly in the soil where they feed on roots and stems. High populations can cause yellow patches in lawns and severe losses of young plants and seedlings. In very wet weather when the soil is waterlogged they are often found in large numbers on patios.
Common hosts: Grass and young plants/seedlings.
Prevention: This is mainly a problem of old grass areas, which are now being cultivated.
Organic Control: Cultivation and removal of weeds will eventually alleviate the problem. If lawns are watered and the area covered with polythene overnight, the grubs come to the surface and can be swept up the next morning, as can the ones on the patio. Nematode preparations are now available but are only effective when the soil is moist or wet. If you have irrigation it would be prudent to use this prior to the nematode application.
Chemical controls: There are no garden insecticides available to control leather jackets.

Mealybug

Description: White fluffy colonies on leaves, stems, buds or fruit causing plants to become sticky and colonised with sooty moulds. Mostly on indoor and glasshouse crops.
Common hosts: Cacti, Fuchsia, Palms, Pot Plants, and Vines.
Prevention: Avoid introducing infested material. Check and wash pots and trays, which may harbour the pest.
Organic Control: Can be brushed off with soapy water or methylated spirit. In Glasshouses, introduce Cryptolaemus montrouzieri (a ladybird) and other natural predators and parasites are available.
Chemical controls: see Insecticide Chart at back of leaflet. Better control is achieved by removing the wax from the pest with a dilute soapy spray before the pesticide application.

Mites

Description: There are numerous mites that can invade plants causing various symptoms. The most common is the Two-spotted or Glasshouse Red Spider Mite. Look out for severe leaf speckling and webbing. Other mites can cause distortion or blistering.
Common hosts: Currants, Cyclamen, Fruit Trees, Peppers, Pot Plants, Strawberries, and Tomatoes.
Prevention: Two-spotted or Glasshouse Red Spider Mite - if possible wash down the glasshouse in winter, and remove debris as this will remove some of the over wintering population. Mites like hot dry conditions and also attack stressed plants so spray foliage on hot days to increase humidity and ensure good growing conditions. Pear Leaf Blister Mites - pick off affected leaves. Fruit Tree Spider Mites - avoid using pesticides and encourage natural predators to establish.
Organic Control: The predatory mite Phytoseiulus persimilis can be introduced under glass to control the Glasshouse Red Spider Mite and spraying with Fatty acids or physically acting products will also give some control. Fruit Tree Red Spider Mite spot spray with fatty acids.
Chemical controls: see Insecticide Chart at back of leaflet.
Do Not Spray during Flowering and keep insecticide sprays to a minimum if encouraging natural enemies.

Potato Cyst Nematode (PCN)

Description: Frequent cropping of Potatoes or Tomatoes in soil can encourage the build-up of this serious nematode pest. Plants, which are infested by the pest, are often stunted with yellow or brown foliage and the roots typically have numerous yellow, white or brown cysts. Severe infestations can result in patches of dead plants.
Common hosts: Potatoes and Tomatoes.
Prevention: Avoid importing the problem and avoid moving soil around the garden.
Rotate your crops around to discourage build-up of the pest. Check the roots at lifting for signs of the pest. If PCN is suspected bring a soil sample to the States Analyst's Laboratory where we can check soil for cysts and give advice on what action should be taken.
Organic Control: First Early crops often escape serious damage on infested land as temperatures are too cold for pest activity. If you suspect the problem then do not grow susceptible varieties like King Edward, Romano, Wilja or Maris Bard but try Maris Piper, Pentland Javelin, Rocket, Cara or Sante. Grow tomatoes out of infested soil (grow bags).
Chemical controls: There are no chemical controls available for the gardener.

Rosemary Leaf Beetle

Description: The adult beetle is 8mm long with metallic green and purple stripes. The grubs are greyish white with five darker longitudinal lines; fully grown larvae are 5-8mm long. The 2mm long sausage-shaped eggs are laid on the underside of the leaves. The adults and larvae can cause significant defoliation.
Common hosts: Rosemary, lavender, thyme, sage and Russian sage.
Organic control: Hand pick the adults and larvae.
Chemical control: See general pest control in the Insecticide Chart at the back of the leaflet.
Apply pesticides in late summer/early autumn or in the spring when the adults and larvae are active on the plants.

Sawflies

Description: The adult Sawfly is an inconspicuous insect that feeds mainly on pollen. The larvae resemble caterpillars and can cause serious damage through voracious feeding on leaves. There are many different species but the most common in gardens is the Gooseberry Sawfly, which can strip a bush in just a few days.
Common hosts: Apple, Cherries, Gooseberry, Pears, Plums, Poplar, Rose and Willow.
Prevention: Remove leaf debris from around the base of infested bushes and encourage birds.
Organic Control: Pick off infested leaves and fruits. Encourage predators including birds, beetles, spiders and social wasps.

Chemical controls: see general pest control in insecticide chart at back of leaflet.

Scale Insect

Description: White, yellow or brown waxy scales on leaves of a wide range of plants both under greenhouse conditions and outdoors. The adults remain anchored to the foliage imbibing sap and exuding honeydew, resulting in sticky leaves with extensive sooty mould. The young crawlers can move great distances in search of new plants.
Common hosts: Brown Soft Scale is common on Camellia, Citrus, Ferns, Ficus and Pot Plants. Other species can infest other ornamentals and woody plants such as Apples, Currants and Hawthorns.
Prevention: Avoid importing infested material into the garden or glasshouse.
Organic Control: Small numbers can be carefully brushed off with soapy water or methylated spirits on a small paintbrush. In Glasshouses, Cryptolaemus montrouzieri (a ladybird) and other natural predators and parasites are available. Outside predators such as birds, Anthocorid bugs and beetles should be encouraged.
Chemical controls: see Insecticide Chart at back of leaflet.

Slugs & Snails

Description: Slugs and Snails feed on foliage and other parts of plants leaving large holes in leaves, stems and tubers.
Common hosts: Many types of plants and seedlings but especially Delphiniums, Hostas and vegetables such as Potato.
Prevention: avoid using unrotted mulches, or polythene mulches which favour slugs and snails. Improve drainage and soil structure. Weeds attract slugs so remove them if possible. Put coarse scratchy materials around plants e.g. broken eggshells or grit, ash, sand, soot, lime. Copper tapes and other deterrents are also available at most garden centres. Use resistant varieties if available.
Organic Control: Slug pubs, orange / melon skins and night-time patrols with a torch to collect them will help. Encourage natural predators such as Frogs, Carabid beetles, Hedgehogs, Shrews and birds such as Blackbirds, Thrushes, Robins and Starlings. Biological control products (nematodes) are also available.
Chemical controls: see insecticide chart at back of leaflet. A more environmentally friendly pellet available based on ferric phosphate rather than metaldehyde is now available.

Thrips (Thunderflies)

Description: These tiny yellow or black flies are only 3-4mm long and feed on leaves and flowers. They cause a silvery speckling and sometimes distortion. They can also transmit viruses. Thrips can be blown long distances by the wind and adults can over winter in the soil. In the past couple of years the Glasshouse Thrip has caused significant damage to outdoor Viburnum species, in particular, V. tinus.
Common hosts: Beans, Brassicas, Carnations, Chrysanthemums, Gladioli, Onions, Peas, Roses, Tomatoes, and other flowers and vegetables.
Prevention: These are more of a problem on plants stressed by hot, dry conditions so try to avoid these situations.
Organic Control: Fatty acids and products with a physical mode of action
Chemical controls: see general pest control in Insecticide Chart at back of leaflet.

Vine Weevil

Description: The feeding effects of adult beetles can be seen as notching of the leaves. More serious damage is caused by the larvae, which can chew plant roots and girdle the stem base. The legless larvae are cream coloured with a brown head and often assume a 'C' shape when disturbed.
Common hosts: Azalea, Cyclamen, Rhododendron, Strawberries and many other shrubs and ornamentals.
Prevention: Avoid importing infested material into the garden or glasshouse and throw out any infested plants. As the adults cannot fly grease bands can be used as barriers to prevent them climbing up staging or entering

the glasshouse. Standing the legs of staging in pots of soapy water is also effective in preventing them reaching the plants.
Organic Control: Treat susceptible plants in September with nematodes to control the new hatch of larvae. More frequent treatments can be beneficial in serious outbreaks. Encouraging birds and ground beetles should also help.
Chemical controls: see Insecticide Chart at back of leaflet.

Whitefly

Description: Evident as small scales on the underside of leaves with the white tiny moth-like adults present on the younger foliage. Sooty mould development may indicate Whitefly activity.
Common hosts: Field Brassicas, Fuchsias, Gerberas, Pot Plants and Tomatoes.
Prevention: Glasshouse Whitefly - Position Yellow Sticky Traps above the plants to mop up some of the adults. Cabbage Whitefly - Remove old plants as soon as possible and try to break the cycle. Floating mulches will help with this pest and Cabbage Root Fly.
Organic Control: Introduce Encarsia formosa on to protected crops. To control the scales and adults apply frequent sprays of fatty acids or products with a physical mode of action to the top of the plants. Companion planting with French marigolds (Tagetes) or Nasturtiums is claimed to be beneficial.
Cabbage Whitefly - Remove badly infested leaves. Encourage natural enemies by inter-planting with flowers especially form the Umbelliferae and Compositae families.
Chemical controls: see Insecticide Chart at back of leaflet.
NB The common Glasshouse Whitefly is resistant to most pesticides but the Cabbage Whitefly can be controlled with sprays.
The Tobacco Whitefly (Bemisia tabaci) is a quarantine pest and looks very similar to Glasshouse Whitefly. If you are concerned you may have this pest please contact the State's Analyst laboratory or Plant Health Officer for further assistance.

Garden Pesticides – April 2017

Changes in the pesticide regulations, have led to the withdrawal of many garden pesticides. Some have been withdrawn for safety reasons but many more for commercial reasons. The garden market is often too small to justify the expensive tests necessary to get government approval.

Prevention and organic controls are therefore becoming more important now that fewer pesticides are available. Choosing good quality plants, resistant varieties, maintaining good hygiene and helping the plant to strengthen its natural defences by optimising watering and feeding regimes are also key. Encouraging natural enemies and introducing Biological controls are also becoming increasingly important. The RHS lists suppliers of biological controls for the gardener on its website: https://www.rhs.org.uk/advice/pdfs/biological-control-suppliers. It is important to remember that biological controls are living organisms so greater care (as instructed on the label) is required in their handling, storage and application to get the best results.

Pesticides still have their place but should only be used as a last resort if no other less harmful way to control the problem can be found.
The following active ingredients are still approved for garden use as of 13 April 2017. To check if a product is currently approved go to https://secure.pesticides.gov.uk/garden/prodsearch.asp
If you would like any further information on pesticides or alternative control measures please contact the States Analyst Laboratory on 707612.

NB When using Pesticides: ALWAYS READ THE LABEL: USE PESTICIDES SAFELY.
To protect pollinator insects do not spray plants in flower.

Fungicides.

Chemical Name	Group	Example of Trade Name	Mode of Action	Crops	Diseases controlled
Copper oxychloride*	M1	Bayer Fruit & Vegetable Disease Control	Contact & preventative	Table Grapes & Wine Grapes only	Downy mildew.
Myclobutanil **& Cypermethrin (Insecticide)	3	Bayer Multirose 2 Westland Rose Rescue Doff Rose Shield	Systemic, protective, & curative.	Ornamentals	Powdery mildew, blackspot, rust, scab, Pestalotiopsis.
Tebuconazole	3	Bayer Fungus Fighter Concentrate	Systemic, protective, curative & eradicant	Roses & Ornamentals (Phytotoxic to some Fuchsia varieties)	Broad spectrum including Leaf Spots, Rust, Powdery mildew, Blackspot, Box Blight.

Tebuconazole + Trifloxystrobin	3 +11	Bayer Fungus Fighter Plus Bayer Mulitrose Disease Control	Systemic, protective, curative & eradicant	Roses & Ornamentals (Phytotoxic to some Fuchsia varieties)	Very Broad spectrum including Leaf spots, Rust, Powdery mildew, Blackspot, Box Blight, Pestalotiopsis.
Trifloxystrobin	11	Bayer Lawn Disease Control	Protectant, translaminar & some curative.	lawns	Fusarium Patch, Red Thread
Triticonazole	3	Scotts Fungus Clear Ultra	Systemic	Ornamentals (Phytotoxic to some Fuchsia varieties)	Blackspot, Powdery mildew, rust, leaf spot, Conifer Blight, Pestalotiopsis.
Triticonazole + Acetamiprid (insecticide)	3	Scotts Roseclear Ultra Scotts Roseclear Ultra Gun	Systemic	Ornamentals (Phytotoxic to some Fuchsia varieties)	Blackspot, Powdery mildew, rust, leaf spot, Conifer Blight, Pestalotiopsis.
Urea/Foliar Lattice/ surfactants	Physical action	SB Plant Invigorator Westland Resolva Natural Power Bug & Mildew	Physical	Ornamentals + Edibles	Powdery Mildew

*Copper oxychloride is only available for use on wine and table grapes until 12 July 2019.
** Myclobutanil only available as formulations with the insecticide Cypermethrin.

Reducing Pesticide Resistance

Numbers in the Group column indicate the fungicide group for each product. Where possible select products from different groups to reduce the risk of the fungus developing resistance. Due to the reduced number of fungicide products there are only 3 major groups available to gardeners. A fungus resistant to one group will be resistant to other fungicides in the same group. For example, a powdery mildew resistant to a fungicide based on Myclobutanil will also be resistant to fungicides based on triticonazole.

Insecticides/Molluscicides

Chemical Name	Group	Example of Trade Name	Mode of Action	Crops	Pests
Acetamiprid	4A	***Bug Clear Ultra Vine Weevil Killer (Drench) Bug Clear Ultra (Spray) RoseClear for Bugs		Ornamentals. Fruit & Vegetables (see BugClear Ultra)	***As a drench for vine weevil grubs. Sprays control aphids, whitefly, scale insects, mealybugs and thrips and can also be used against red spider mite, lily beetle and caterpillars. Bug Clear Ultra has approvals for certain fruit & Veg - apple (outdoor), aubergine (protected), cherry (outdoor), lettuce (outdoor), lettuce (protected), pear (outdoor), pepper (protected), plum (outdoor), potato (outdoor), tomato (protected) – ALWAYS CHECK THE LABEL.
Cypermethrin	3	Vitax Py Bug Killer Doff Ultra All in One Bug Spray	Contact & stomach poison. Some residual activity	Some Brassicas, potato & ornamentals. (Check the Label)	Broad spectrum insecticide used for flies, bugs, beetles, aphids and caterpillars.
Cypermethrin + Myclobutanil (Fungicide)	3	Bayer Multirose 2 Westland Rose Rescue Doff Rose Shield	Contact & stomach poison. Some residual activity	Roses & Ornamentals	General pest and disease control
Deltamethrin	3	Bayer Provado Ultimate Bug Killer. Baby Bio Houseplant Bug Killer	Fast acting contact & stomach poison. Some residual activity	Ornamentals, Fruit & Veg as per label.	General pest control including aphids, whitefly, caterpillars, codling moth, plum moth, tortrix moths, raspberry beetle, flea beetles, weevils, sawfly larvae, apple and pear suckers, leafhoppers, capsid bugs, scale insects, thrips and mealybugs
Deltamethrin + Tebuconazole (Fungicide)	3	Multirose Concentrate 2	Fast acting contact & stomach poison. Some residual activity	Ornamentals	General pest and disease control

Fatty acids	N/A	Bayer Bug Free Doff Universal Bug Killer	Physical	Fruit, Veg & ornamentals as per label.	Useful against greenfly, blackfly, whitefly, red spider mites and scale insect.
Fatty acids + Pyrethrins	3	Lodi - Bio Pro Multi-Purpose Bug Killer Doff – Lorbex Indoor Bug Killer	Contact, non-persistent.	Ornamentals, Fruit and veg	Aphid, caterpillar, beetles, bugs, whitefly, red spider mites, thrips and scale insect.
Ferric phosphate	N/A	Bayer Garden Slug Killer Doff Super Slug Killer B&Q Advanced Slug Killer	Feeding disruption once ingested.	Ornamentals+ Edibles	Slugs+ snails
Lamba-Cyhalothrin	3	Westland Resolva Bug Killer Westland Plant Rescue Fruit & Veg Bug Killer	Contact & stomach poison. Some residual & repellent activity	Wide range of Edibles+ Ornamentals as per label	General pest control including aphids, capsid bug, thrips, whitefly, beetles, caterpillars, pea moth, pea and bean weevil, sawflies, leaf curling midges, carrot fly adults and some other pests
Metaldehyde	N/A	Bayer Ultimate Slug & Snail Killer Doff Slug Killer Blue Mini Pellets Westland Eraza	Contact & stomach poison. Dehydrates by causing over production of slime	Edibles+ Non edibles (around)	Slugs+ snails NB: Dangerous to pets
Plant Oils / Rapeseed Oil	N/A	Scotts- Bug Clear All Purpose Spray Scotts – Bug Clear Fruit & Veg.	Physical	All Edibles & Non Edibles	General pest control – aphid, Scale, Mealy Bug, Red Spider Mite. Do not use on sensitive plants such as Cyclamen, Poinsettia, African Violet, Kalanchoe, Ferns , Ivy and open blooms.
Pyrethrins	3	Pyrol Bug & Larvae Killer Growing Success Advanced Bug KIller	Contact, non-persistent.	All Edibles & Non Edibles	General pest control including caterpillars, sawfly larvae, asparagus beetle, thrips. Also some activity against mites.
Pyrethrins & Rapeseed Oil	3	Scotts - Botanico Bugclear Spray. Scotts BugClear Ecomax	Contact. Physical, non-persistent	Ornamentals and some fruit & Veg as per label	General pest control including caterpillars, sawfly larvae, asparagus beetle, thrips. Also some activity against mites.
Thiacloprid	4A	Bayer -Baby Bio Houseplant Insecticide	Systemic, contact, stomach poison.	Houseplants Ornamentals	Aphids, whitefly, scale, mealybug, thrip, vine weevil

		Bayer - Provado Ultimate Bug Killer Bayer - Provado Vine Weevil Killer 2		Check label for Fruit & Veg use.	
Thiacloprid & methiocarb	4A & 1A	Bayer – Provado Ultimate Bug Killer (Aerosol)	Systemic, contact, stomach poison	Containerised ornamental garden plants only,	Approval expires 17/08/2018. Broad spectrum insect and mite control. Greenfly, Blackfly, Whitefly, Lily Beetle, Mealybug, Scale Insect, Red Spider Mite, Thrips, Leafhopper.
Urea/Foliar Lattice	Physical action	SB Plant Invigorator	Physical	All Edibles & Non Edibles	Aphids, whitefly, mealybug, scale, red spider mite, woolly aphid, Bay Sucker

Reducing pesticide resistance

Numbers in the Group column indicate the chemical group for each product. Select products from different chemical groups to reduce the risk of pest resistance. A pest resistant to one group will be resistant to all members of the group. For example, an aphid resistant to products based on acetamiprid will also be resistant to products based on thiacloprid.
Products without group numbers are less likely to induce pest resistance.

Useful links

Bayer CropScience Limited: http://www.bayergarden.co.uk/Products
The Scotts Company (UK) Limited: https://www.lovethegarden.com/products/pests-disease
Westland Horticulture Limited: http://www.gardenhealth.com/pests-diseases
Stan Brouard group: http://sbproducts.co.uk/