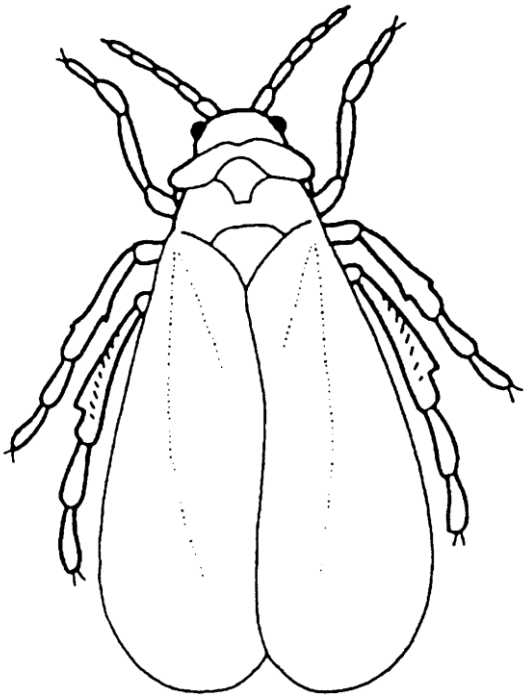
Common Garden Pests and Diseases in Guernsey



&
Their Control

Common Garden Pests and Diseases and their Control

Continuing 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 Some have been withdrawn for safety reasons but many more for commercial reasons.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 a product re-approved or introduced.
Prevention, cultural and natural controls are therefore becoming more important now that fewer pesticides are available and we are giving more consideration to not harming the environment, other organisms as well as ourselves.
The following principles should be considered to both prevent and limit the incidence of pests & diseases on plants before resorting to pesticide sprays. **Not all may be applicable- if you know which pest or diseases you are dealing with and a little about its lifecycle and vulnerabilities it can help in finding a control method that works well in your situation.** The States Analytical Laboratory offers a free pest identification service and general advice on control options to help with this.

General Principles for Disease Control

- **Resistant varieties:** Where possible select varieties that are disease resistant.
- **Good establishment:** Plants that are stressed or struggling will be more vulnerable to infection. Providing the best start for the plant in terms of soil preparation or using a clean, fresh compost will produce a more robust plant. Starting the plant off in the best conditions will also reduce stress. Avoid sowing / planting too early or late as this can prevent good root and shoot growth.
  Over or under watering are common causes of plant stress and should be avoided.
- **Rotation:** Avoid growing the same crops in the same place each year as this can lead to certain diseases building up in the soil. Aim for a minimum of 4-5 years between related crops being grown in the same area.
- **Hygiene** – Start clean by choosing healthy plants / seeds and continue to keep the growing area free from plant debris each season. Use new or disinfected pots and tools when propagating or potting on. Use fresh compost rather than old or second hand when potting. Disinfect cutting tools between plants when pruning. If you suspect a soil borne disease avoid transporting infected soil to clean sites on tools, boots etc. Carefully remove and dispose of infected material soon as you see it.
- **Reduce Humidity**: Most fungal diseases spread and establish faster in wet conditions as their spores require water to be transmitted or germinate. Bacterial diseases are also transmitted by water splash. Avoid overhead watering / splashing where the plant is showing symptoms such as leaf spots or other fungal / bacterial diseases. Give plants the recommended amount of space to grow in so that air can flow through the canopy and discourage disease by drying leaves quickly. Pruning to open up the canopy of trees and shrubs to improve air circulation can also help.
- **Nutrition:** Over feeding plants especially with nitrogen produces soft growth that is easy for diseases to infect. If you see plants producing a lot if soft growth and disease is a problem try changing to a lower nitrogen feed.
  Nutrient deficiency or excess can also stress the plant and make it more vulnerable to infection. Using a balanced feed which has similar amounts of Nitrogen, Phosphorus & Potassium is often recommended as is making sure the growing medium is at the right pH for the plant.
  The use of sulphur as a nutrient can also reduce susceptibility to powdery mildew and black spot.
- **Removal of infectious material** (including weeds): Some diseases can be carried over to the next year on plant debris or on weeds. Ensure that fallen leaves etc. and weeds are removed regularly. If disease is a problem don't use the infected material to make compost as this may perpetuate the problem.

- **Timeliness**: Some operations like feeding & pruning are best done at certain times of year to avoid disease. The Rosaceae family of plants can suffer from a disease called Silver-Leaf which is much more likely to be spread if trees are pruned in winter so pruning when the plant is actively growing is best.
- **Avoid damaging plants** – Many diseases gain entry to a plant via a wound initially. Pests, wind, tools, can all leave wounds on the plant and should be minimised to reduce the risk of infection.

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

Do not spray during flowering as this can harm pollinators such as bees and hoverflies and keep sprays to a minimum if encouraging natural enemies.

COMMON PLANT DISEASES.

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.
Cultural Control: This disease is favoured by cool wet conditions; reducing humidity by increasing air movement and not overcrowding plants can help.
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.
Botrytis often starts on wounds so avoid damaging plants.
Hygiene is important. 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.
Cultural Control: 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.
Choose resistant varieties from reputable suppliers and check trees for symptoms when buying them. For established trees prune off affected branches ensuring a clean cut and burn or safely dispose of infected material. Disinfect secateurs etc. between trees to avoid further spread.
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.
Cultural Control: These diseases thrive in wet conditions and can overwinter on plant debris and in the growing media. Thoroughly clean all pots and trays and use fresh good quality seed compost. Water sparingly to avoid wet conditions. Sow seed thinly to avoid over-crowding. Give seedlings plenty light and adequate ventilation.
Only handle seed leaves when pricking out. Do not handle the stem as this can cause damage.
Remove infected 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 (Cabbage family) including Alyssum, Aubrietia, Stock & Wallflower,

Cultural Control: Select resistant varieties wherever possible. 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. Remove all debris from previous crops but do not put it in the compost heap. Hygiene is important as spores can spread on any soil transported e.g. on animals hooves, machinery, tools and boots.
Chemical Control: There are no effective garden fungicides currently available.

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.
Cultural Control: Peach leaf curl (Taphrina deformans) is worse in cold wet springs so avoid planting in cool damp area of garden. It can be reduced by growing the tree under protection and watering from below to avoid spores splashing onto leaves.
There are no effective chemical available for galls on Azalea and Camellia (Exobasidium spp.) so remove the galls as soon as you see them and burn or safely dispose of them.
Chemical controls: There are no effective garden fungicides currently available.

Leaf Spots

Description: There are many diseases that cause leaf spotting.
Common hosts: Various e.g. Brassica Ring Spot, Lavatera Leaf Spot, Pestalotiopsis of Conifers, Rose Black Spot, Willow Leaf Spot, Septoria on Escallonia, Scab on Apple & Pears, Bacterial Canker on Prunus sp.
Cultural Control: 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 or dispose of fallen leaves to reduce the disease inoculum. A mulch of dry grass clippings or similar around the base of the Rose bush can prevent spores being splashed from the soil onto the leaves when it rains. Choose resistant varieties where possible. Follow the general principles on page 2.
Chemical controls: See fungicide list 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.
Cultural Control: 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. Avoid overhead watering systems.
Hygiene is important so remove and destroy affected leaves regularly.
Chemical controls: See fungicide list at back of leaflet.

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, Squashes, Strawberries and Tomato.
Cultural Control: This disease is unusual in that it likes dry warm conditions during the day with moisture at night. It is often a problem where watering has been erratic.

Use resistant varieties where possible. Avoid putting fruit beds in damp shady conditions. Prune gooseberries etc. to allow air to circulate. Avoid lush growth caused by excess of Nitrogen; use a balanced fertiliser as nutrition deficiency also encourages the disease. Remove debris and weeds from around plants. Ensure adequate ventilation in glasshouses during the summer.
Remove and destroy diseased parts. Sprays of Fatty acids / surfactants.
Chemical control: See fungicide list 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.
Cultural Control: Avoid excess nitrogen and maintain good potassium levels. Remove affected plant material, dead leaves and safely dispose of them. Remove weeds especially if they belong to the same family as the cultivated plants.
Chemical controls: see fungicide list 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.*
Cultural Control: Ensure plants are watered well during establishment and pruned at correct time of year and not in very wet conditions.
Chemical control: see fungicide list at back of leaflet.

ALERT NOTICE – QUARANTINE DISEASES

Xylella fastidiosa

This is a bacterial disease of high concern at present as it can infect a wide range of plants and is responsible for significant crop losses in the USA and Southern Europe where it has caused Pierce's disease in grapes and Quick Decline Syndrome in Olives. **It also has the potential to decimate native plants.** The bacteria is spread by insects which can feed on the water carrying tissue (xylem) of the plant. The bacteria is thought to colonise and block the xylem, effectively stopping the plants water supply reaching all parts. The symptoms therefore look like scorch or drought and are very hard to distinguish from water shortage wind burn or other scorch. Laboratory tests are required to confirm Xylella in a sample.

The free movement of plants within the EU or elsewhere poses a significant risk to Xylella being accidentally introduced to Guernsey & the UK so anyone importing or buying in plants for retail or the garden is urged to ensure that the plants have been grown in a Xylella free nursery with the appropriate plant passporting to safeguard the Island**. In addition the public are asked not to bring cuttings/ plants back from holiday, especially from the Mediterranean area, due to the risk of bringing this disease to Guernsey.**

The current control measures could require a 10km exclusion zone for exports be set up from wherever Xylella is found- this would effectively prevent any plant exports from Guernsey and be extremely serious for any local plant business effected by this.

High Risk Plants: Olive, Polygala, Rosemary, Oleander (Nerium), Lavender, Prunus, Spanish Broom, Hebes, Coffee plants. Over 150 different species of plant are known to host Xylella.

If you think you may have seen this disease please contact the Plant Health Inspector on (01481) 234567 or the States Analytical Laboratory on (01481) 707612.

For more information see https://planthealthportal.defra.gov.uk/assets/uploads/Xf-Plant-Pest-Factsheet-2017v2.pdf.

Ramorum Dieback (Sudden Oak Death)

We would appreciate your continuing 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 think you may have seen this diseases please contact the Plant Health Inspector on (01481) 234567 or the States Analytical Laboratory on (01481) 707612.

Control of this disease on nursery stock could prevent damage to our native trees.

For details of other quarantine diseases see https://planthealthportal.defra.gov.uk/pests-and-diseases/pest-and-disease-factsheets/notifiable-diseases/

General Principles for Pest Control

- **Resistant varieties:** Where possible select varieties that are less prone to the pest.
- **Good establishment:** Plants that are stressed or struggling will be more vulnerable to attack. Providing the best start for the plant in terms of soil preparation or using a good compost will produce a more robust plant. Starting the plant off in the best conditions will also reduce stress. Avoid sowing / planting too early or late as this can prevent good root and shoot growth.
  Over or under watering are common causes of plant stress and should be avoided.
- **Rotation:** Avoid growing the same crops in the same place each year as this can lead to certain pests building up in the soil and surrounding area. Aim for a minimum of 4-5 years between related crops being grown in the same area.
- **Hygiene** – Start clean by choosing healthy plants / seeds and continue to keep the growing area free from pests each season. Use new or disinfected pots and tools when propagating or potting on. Use fresh compost rather than second hand when potting. If you suspect a soil borne disease avoid transporting infected soil to clean sites on tools, boots etc.
- **Nutrition:** Over feeding plants especially with nitrogen produces soft growth that is easy for pests to feed on. If you see plants producing a lot if soft growth and pests are a problem try changing to a lower nitrogen or more balanced feed (one which has similar amounts of nitrogen, phosphorus & potassium). Nutrient deficiency or excess can also stress the plant and make it more vulnerable to attack.
- **Regular Monitoring:** There are various sticky and pheromone based traps available to help detect when flying pests are in the crop. If regularly checked they can give valuable warning that further action may be needed as well as mopping up some of the insects on the traps. Yellow sticky traps are good for whitefly & aphid, blue sticky traps are good for thrips but can also attract some bee species, and pheromone traps are available for some moth species. Finding a lot of ants or hoverflies in a crop can also indicate the presence of sap sucking insects such as aphid, whitefly, scale or mealy bug as the sticky honey dew they excrete attracts ants & hoverflies.
- **Removal of Pest Colonies** (including weeds): Some pests can be carried over to the next year on plant debris, in the soil/compost or on weeds. Check plants & weeds regularly and remove pests and pull up weeds. Aphids or whitefly build up on the soft shoot tips of plants which can sometimes be pruned out (depending on the plant) to reduce numbers.
- **Avoid Alternate Hosts:** Some pests, particularly aphids, overwinter on specific plants. The Black Bean Aphid overwinters on the Spindle tree, the Lettuce Root Aphid uses the Lombardy poplar, and the Willow /Carrot Aphid uses the Willow. Similarly weeds can be a host for pests to infect from.
- **Barriers:** Stopping pests from reaching the plant can prevent damage. Using fine mesh or fleece over the crop can be very useful especially for difficult to control pests or in organic growing.
  Carrot Root Fly tends to fly at a set distance above the ground so a vertical barrier of about 60cm fleece or mesh around the crop will prevent much of the damage.
  Sticky / grease bands around the trunks or stems of plants can reduce pests that climb up from soil level such as ants and some caterpillars.
  Cabbage Root Fly needs to lay its eggs in the soil at the base of the plant- plant ‘collars or mulch mats can be stop the root fly from doing this.
- **Disguising the Crop:** Some insects like Carrot or Onion Fly locate their host plant by smell. This can be used to deter or confuse them by planting a another strongly smelling decoy plant that they will be attracted to, disguising the smell of their target crop using stronger smelling plants around it (like onions) or scattering the crop amongst other plants in a mixed planting so they can’t smell them.
- **Sowing / Planting date:** Some pests emerge or fly in at certain times of year so careful timing can avoid these peaks e.g. Late sown carrots (after mid-May) generally avoid the first generation of carrot fly, similarly carrots harvested before late August avoid the second generation in most areas of the UK.

Sowing carrots thinly to remove the need to thin the crop will prevent the smell of the carrot thinnings from giving away the location of the plants.

- **Cultivations:** Some pests like pear midge pupate close to the soil surface so shallow cultivation beneath affected trees can expose the pupae to the birds who feed on them. Rolling turf can also help to squash Chafer grubs.
- **Environment:** Some pests require certain conditions to thrive. Red Spider Mite like hot dry conditions so can be deterred by raising the humidity or regular sprays of water. Cutworms (the soil dwelling larvae of several moth species) are deterred by regular watering when the larvae are young.
- **Encourage Beneficial Insects & Animals:** There is a wide range of natural enemies that can help to control pests in the garden from insects to reptiles, birds and mammals. Increasing the biodiversity of your garden by providing habitat and shelter for them will help reduce pest levels naturally. See also https://pollinatorproject.gg/ for more ideas on encouraging pollinator insects into the garden. The same principles of providing food & shelter apply for predatory species.
  Predatory or parasitic insects like pollen and nectar rich flowers to provide energy for them to forage and find plant pests. Plants from the Apiaceae and Asteraceae families are particularly beneficial. Lacewings, Hoverflies and Ladybirds are particularly useful in controlling many plant pests.
  A pond or water in the garden encourages many creatures but in particular frogs and newts are very good at keeping slugs and snails under control. Hedgehogs are also good for controlling slugs & snails. Birds such as thrushes will take snails, and wrens, warblers and flycatchers etc. will feed on insects.
- **Biological Control:** There are several beneficial organisms that are commercially available to the gardener. Most are for use under protection in glasshouses and polytunnels. The RHS has produced a good guide and links to suppliers on their website https://www.rhs.org.uk/advice/profile?PID=506
- **Non-Pesticide Sprays:** There are several products now available on the market that rely on smothering or incapacitating insect pests rather than using poisonous substances. These offer a much better alternative to pesticides when trying to maintain biodiversity in the garden.
- **Pesticide Choice:** Where a pesticide is required use the least persistent and most specific you can. Long lasting broad spectrum pesticides will harm more beneficial insects. The RHS has produced a guide to the various garden pesticide options https://www.rhs.org.uk/advice/pdfs/pesticides-for-home-gardeners.pdf and https://www.rhs.org.uk/advice/pdfs/fungicides-for-home-gardeners.pdf for fungicides.
  ALWAYS READ AND COMPLY WITH THE LABEL INSTRUCTIONS. ADHERE TO ANY SPECIFIED HARVEST INTERVALS.

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

Do not spray during flowering as this can harm pollinators such as bees and hoverflies and keep sprays to a minimum if encouraging natural enemies.

COMMON PLANT PESTS.

Agapanthus Gall Midge

Description: The lifecycle and biology of this midge is not yet fully understood as it is a relatively new pest. It is thought that the adult midge emerge and start laying eggs in the developing flower buds. The eggs hatch into larvae (maggots) which feed on and damage the flowers which fail to open. There appear to be many overlapping generations every year and it is likely that pupae are produced that overwinter in the soil.
Cultural Control: Remove and destroy any affected heads as soon as midge damage is noticed will help to reduce the number of midges. To date trials using nematodes have not reduced midge numbers. Some cultivars are more resistant than others.
Chemical Control: There is very little knowledge as yet on which pesticide work of this midge. A systemic drench with Provado Vine Weevil Killer may be helpful but is only approved for use on ornamental plants grown in containers.

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 'farm' aphids, mealybugs or scale insects and protect them from natural predators and parasites in exchange for the sweet honey dew they excrete.
Common hosts: Ornamental and other plants.
Cultural 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. Predatory beetles and birds should be encouraged. A pathogenic nematode, *Steinernema feltiae*, is available from 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 so check the product label first.

Aphids

Description: Small 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 many other plants.
Cultural Control: 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.
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 list 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.
Cultural Control: Encourage natural predators such as spiders, predatory beetles, and predatory bugs, small birds e.g. Wren, Warblers and Flycatchers etc.
Rub off manually or cut out and destroy affected branches. Strong jets of water sometimes solve the problem, or the regular use of fatty acids or similar products with a physical mode of action.
Chemical control: A winter wash every few years may help to wash off over-wintering pest eggs. See insecticide list at back of leaflet.

Carrot or Onion Fly

Description: Both of these pests locate the crop by smell then lay eggs at the base of the plants. Maggots then hatch and burrow into the crop causing damage. They can have 2-3 generations / year in the UK
Common Hosts: Carrot fly attacks carrots, parsnip, celeriac, parsley. Onion fly attacks onions, shallots, leeks.
Cultural Control: Resistant varieties, barriers, rotation, disguising the crop, sowing date (see general principles p.7). The use of Steinernema feltiae nematodes can also be helpful. In onions growing from sets rather than seed can also help avoid the first generation of onion flies.
Chemical Control: There are no effective garden insecticides currently available.

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.
Cultural Control: Plant cabbages around the vegetable garden in several places rather than in a block - this makes it difficult for the female Cabbage White butterflies to find the plants. 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 flightless females as they climb the tree.
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.
Chemical controls: see insecticide list 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.
Cultural Control: Cut out and burn tents over the winter between November and late February when the caterpillars are resident. Wear suitable protective clothing when handling the ‘tents’
Chemical controls: 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 just as 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 that live in the soil and attack roots of plants and turf. 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 often called 'Maybugs'. 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. Often a problem in newly laid lawns especially on sandy soils.
Common hosts: Grass lawns, ornamentals and vegetables.
Cultural Control: Encourage the grass and make it more resilient to attack by providing adequate fertilizer and irrigation if necessary, top dress the lawn annually with a fine compost mix to add organic matter particularly on sandy soils and remove thatch. Bird scarers or deterrents can help reduce bird damage to lawns.
Use a heavy roller on lawns in late spring/early summer to crush the pupae and emerging adults, which are just beneath the surface.
Cultivate badly affected areas to expose larvae to birds etc. before resowing. Reseeding of affected areas is best done in spring when larvae move deeper to pupate.
Biological control with Nematodes (e.g. Nemasys) can reduce numbers in the right conditions- this requires a moist soil and soil temperatures (check the product label). Applications from July- September are likely to give the best results but will only control the smaller grubs near the surface.
Chemical controls: There are no effective garden insecticides currently available.

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 than other types. 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.
Cultural Control: Natural predation and parasitism occurs in late summer and autumn resulting in a significant population crash for this pest. 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 or Deltamethrin 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. 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
Cultural Control: 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. 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 list 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.
Cultural Control: Do not accept cutting material from local plants because the pest is widespread.
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.
Chemical controls: There are no effective garden insecticides currently available.

Leaf Hoppers

Description: A large group of species present in the British Isles. Generally do not cause a major problem but produce speckling of leaves from their feeding marks & droppings which can make herbs like sage look unsightly. Tend to be specific to certain plants.
Common hosts: Tomato, sage, apples and roses – can be seen on many types of plant including trees.
Cultural Control: Barriers, resistant varieties, hygiene & weed control, keeping plants strong & encouraging natural enemies.
Chemical Control: see Insecticide list at back of leaflet.

Leaf Miners

Description: A wide range insects including moth, weevil and fly species can be responsible for the symptoms of leaf mining symptoms. An egg is laid on or within the leaf from which a larvae or caterpillar hatches, burrows into the leaf layers and continues to tunnel within the leaf, feeding until it pupates.
Common hosts: Wide range of herbaceous & woody plants.
Cultural Control: In glasshouse situations, remove affected leaves as soon as symptoms are seen. Remove susceptible weeds like thistles. Grow crop under fleece or mesh to prevent the leaf miner getting to the crop. Use as many of the general principles on page 7 as can be applied to the situation.
There is very little that can be done where trees and shrubs are attacked other than keeping the plant well fed and watered and encouraging as much biodiversity as possible into the garden. Removing plant debris can also help to minimises the number of pupae that will hatch in the next season.

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.
Cultural Control: 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 patios. Nematode preparations are now available but are only effective when the soil is moist or wet. If you have irrigation it may help to use this prior to the nematode application.
Looking after the grass to make it more resilient (See Chafers) will also help.
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.
Cultural Control: Avoid introducing infested material. Check and wash pots and trays, which may harbour the pest. Can be brushed off with a fine paintbrush soaked in soapy water or methylated spirit. In glasshouses, introduce Cryptolaemus montrouzieri (a ladybird) or other natural predators and parasites that are available. Encourage natural enemies.
Chemical controls: See insecticide list 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.
Cultural Control: 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. Red spider 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.
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. For Fruit Tree Red Spider Mite spot spray with fatty acids. Encouraging natural enemies can also help.
Chemical controls: See insecticide list at back of leaflet.

Potato Cyst Nematode

Description: Frequent cropping of host crops 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 on them. Severe infestations can result in patches of dead plants.
Common hosts: Potatoes, Tomatoes, Aubergine and any other solanaceous plants or weeds.
Cultural Control: Avoid importing the problem and avoid moving soil around the garden on footwear, tools or machinery. Rotate your crops to discourage build-up of the pest – a minimum of 6 years between susceptible crops is best. Check the roots at lifting for signs of the pest. If PCN is suspected bring a soil sample to the States Analytical Laboratory where we can check soil for cysts and give advice on what action should be taken.
First early potato crops often escape serious damage on infested land as temperatures are too cold for pest activity. If you suspect the problem then avoid susceptible varieties like King Edward, Romano, Wilja or Maris Bard but try Maris Piper, Pentland Javelin, Rocket, Cara or Sante. Grow Potatoes or tomatoes out of infested soil in grow bags, pots or bins.
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.
Cultural Control: Hand pick the adults and larvae.
Chemical control: See general pest control in the insecticide list 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.
Cultural Control: Remove leaf debris from around the base of infested bushes.
Pick off infested leaves and fruits. Encourage predators including birds, beetles, spiders and social wasps.
Chemical controls: See general pest control in insecticide list 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.
Cultural Control: Avoid importing infested material into the garden or glasshouse. Small numbers can be carefully brushed off with soapy water on a small paintbrush. In Glasshouses, commercially available biological control organisms are available. Natural predators such as birds, Anthocorid bugs and beetles should also be encouraged.
Products containing entomopathic nematodes are also available for use against Scale Insect and may be helpful.
Chemical controls: See insecticide list at back of leaflet. Timing is important as only the crawler stage is susceptible.

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.
Cultural Control: Avoid using unrotted mulches, or polythene mulches which favour slugs and snails. Improve drainage and soil structure. Weeds can 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.
Slug pubs, orange / melon skins and night-time patrols with a torch to collect them will help. Encourage natural predators such as Frogs, Newts Slow-worms, Carabid beetles, Hedgehogs, Shrews and birds such as Blackbirds, Thrushes, Robins and Starlings. Biological control products (nematodes) are also available.
Chemical controls: See insecticide list at back of leaflet. Metaldehyde based slug pellets can endanger the environment, pets and water quality and will be withdrawn from 30 June 2020 so use Ferric Phosphate based products wherever possible.

Thrips (Thunderflies)

Description: These tiny cream, yellow or black coloured 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 Thrips has caused significant damage to outdoor Viburnum species, in particular, V. tinus as well as Bay and Elaegnus.
Common hosts: Beans, Brassicas, Carnations, Chrysanthemums, Gladioli, Onions, Peas, Roses, Tomatoes, and other flowers and vegetables.

Cultural Control: These are more of a problem on plants stressed by hot, dry conditions so try to avoid these situations. Fatty acids and products with a physical mode of action will help control them. Applications of the nematode products based on Steinernema feltiae can also be effective.
Chemical controls: See general pest control in insecticide list at back of leaflet.

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 Solanaceae family of plants.
Cultural Control: The use of sticky traps (blue or black are best) and pheromone lures placed over water traps has also proven successful in monitoring 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.
Chemical controls: 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.

Vine Weevil

Description: The feeding effects of adult beetles can be seen as notching of the leaf edges (This is not to be confused with the larger more circular leaf symptoms of the Leaf Cutter Bee). 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, Sedum and many other shrubs and ornamentals.
Cultural Control: Avoid importing infested material or compost 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.
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 list 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, Tomatoes and many others.
Cultural Control: 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.
Introduce the biological control 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 Apiaceae and Asteraceae families.
Chemical controls: see insecticide list at back of leaflet.

NB The common Glasshouse Whitefly is resistant to most pesticides but the Cabbage Whitefly can still be controlled with pesticides.

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 Analytical laboratory or Plant Health Officer for further assistance.

ALERT NOTICE – QUARANTINE PESTS

The following pest are noted as High Profile by UK Plant Health – see https://planthealthportal.defra.gov.uk/pests-and-diseases/high-profile-pests-and-diseases/

The Citrus Longhorn Beetle: (*Anoplophora chinensis*) is a serious invasive pest that is found in South East Asia, with outbreaks in Italy, Croatia and Turkey. It can infest a very wide range of broadleaved trees and would be a major threat to horticulture and the wider environment if they became established. https://planthealthportal.defra.gov.uk/assets/factsheets/CLB-Plant-Pest-Factsheet-update-May2016v5.pdf

Asian Longhorn Beetle: *Anoplophora glabripennis,* is a serious invasive pest that is found in East Asia. Asian longhorn beetles and the closely related Citrus longhorn beetle can infest a very wide range of broadleaved trees and would be a major threat to horticulture and the wider environment if they became established. https://planthealthportal.defra.gov.uk/assets/uploads/ALB-poster-for-PHSI.pdf

Oriental Chestnut Gall Wasp, *Dryocosmus kuriphilus*, is an insect of Asian origin which affects sweet chestnut trees in the *Castanea* family of trees. The only species of the *Castanea* family grown in significant numbers in Britain is the European sweet chestnut (*Castanea sativa*). https://planthealthportal.defra.gov.uk/pests-and-diseases/high-profile-pests-and-diseases/oriental-chestnut-gall-wasp/
If you think you may have seen these insects or the damage they cause please contact the Plant Health Inspector on (01481) 234567 or the States Analytical Laboratory on (01481) 707612.

Other quarantine pest details can be found at https://planthealthportal.defra.gov.uk/pests-and-diseases/pest-and-disease-factsheets/notifiable-pests/

Garden Pesticides – April 2019

Continuing 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 a product re-approved or introduced.
Prevention, cultural and natural controls are therefore becoming more important now that fewer pesticides are available and we are giving more consideration to not harming the environment, other organisms as well as ourselves. 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 11 April 2019. 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 Analytical 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	*FRAC Group	Example of Trade Name	Mode of Action	Crops	Diseases controlled (CHECK PRODUCT LABEL)
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 Bug & Fungus Killer	Systemic, protective, & curative.	Ornamental Garden Plants	Powdery mildew, blackspot, rust, scab, Pestalotiopsis.
Tebuconazole	3	Bayer Fungus Fighter Concentrate	Systemic, protective, curative & eradicant	Ornamental Garden Plants & Houseplants (Phytotoxic to some Fuchsia varieties)	Broad spectrum including Leaf Spots, Rust, Powdery mildew, Blackspot, Box Blight.

Tebuconazole + Trifloxystrobin	3 +11	Bayer Fungus Fighter Plus SBM Fungus Control & Protect	Systemic, protective, curative & eradicant	Ornamental Garden Plants, (Phytotoxic to some Fuchsia varieties), houseplants, protected courgette, squash, & cucumber	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	Fungus Clear Ultra	Systemic	Ornamental Garden Plants (Phytotoxic to some Fuchsia varieties)	Blackspot, Powdery mildew, rust, leaf spot, Conifer Blight, Pestalotiopsis.
Triticonazole + Acetamiprid (insecticide)	3	Roseclear Ultra Roseclear Ultra Gun	Systemic	Ornamental Garden Plants (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	Ornamental Garden Plants + Edibles	Powdery Mildew

*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 Controlled (CHECK PRODUCT LABEL)
Acetamiprid	4A	#Bug Clear Ultra Vine Weevil Killer (Drench) Bug Clear Ultra (Spray) RoseClear for Bugs	Systemic, translaminar, contact, stomach poison (Neo-nicotinoid)	Ornamental Garden Plants & Houseplants Fruit & Vegetables **(see BugClear Ultra)**	#As a drench for vine weevil grubs - **only to be used on containerised plants**. Sprays control aphids, whitefly, scale insects, mealybugs and thrips and can also be used to reduce numbers of red spider mite, lily beetle and some caterpillars. **Bug Clear Ultra** has approval 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 Greenfly & Blackfly Killer	Contact & stomach poison. Some residual activity	Some Brassicas, Potatoes & Ornamental Garden Plants. (Check the Label)	Broad spectrum general insecticide including flies, bugs, beetles, aphids and caterpillars.
Cypermethrin + Myclobutanil (Fungicide)	3	Bayer Multirose 2 Westland Rose Rescue Doff Shield & Fungus Killer	Contact & stomach poison. Some residual activity	Roses & Ornamental Garden Plants	Broad spectrum general insecticide including flies, bugs, beetles, aphids and caterpillars.
Deltamethrin	3	Bayer Provado Ultimate Bug Killer. Baby Bio Houseplant Bug Killer Provanto Ultimate Fruit & Vegetable Bug Killer	Fast acting contact & stomach poison. Some residual activity	Ornamental Garden Plants, Fruit, Vegetables & herbs **as per label.**	General pest control including aphids, whitefly, caterpillars, codling moth, plum moth, tortrix moths, raspberry beetle, flea beetles, weevils, sawfly larvae, leaf sucker, 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	Ornamental Garden Plants	General pest control including aphids, whitefly, caterpillars, codling moth, plum moth, tortrix moths, raspberry beetle, flea beetles, weevils, sawfly larvae, leaf sucker,

					apple and pear suckers, leafhoppers, capsid bugs, scale insects, thrips and mealybugs
Fatty acids	N/A	Bayer Bug Free Doff Universal Bug Killer	Physical	All edible Crops & Ornamental Garden Plants as per label.	Useful against aphid, whitefly, thrips, red spider mites, mealy bugs, leafhoppers and scale insect.
Fatty acids + Pyrethrins	3	Lodi - Bio Pro Multi-Purpose Bug Killer Doff – Lorbex Indoor Bug Killer	Contact, Non-persistent.	All edible Crops & Ornamental Garden Plants or as per label.	Useful against aphid, whitefly, thrips, red spider mites, mealy bugs, leafhoppers and scale insect.
Ferric phosphate	N/A	Bayer Garden Slug Killer Doff Super Slug Killer B&Q Advanced Slug Killer	Feeding disruption once ingested.	Edibles (around) & Non edibles (around)	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 & Ornamental Garden Plants 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 (around) & Non edibles (around)	Slugs & snails **NB: Dangerous to pets**
Plant Oils / Rapeseed Oil	N/A	Bug Clear All Purpose Spray Bug Clear Fruit & Veg. Fytomax PX	Physical	All Edibles & Non Edibles	General pest control – Aphid, Scale, Mealy Bug, Red Spider Mite, whitefly, thrips **Take Care when using on sensitive plants such as Fuchsia & Begonia, Cyclamen, Poinsettia, African Violet, Kalanchoe, Ferns, Ivy and open blooms.**
Pyrethrins	3	Pyrol Bug & Larvae Killer Advanced Bug Killer	Contact, Non-persistent.	All Edibles & Non Edibles	General pest control including aphid, whitefly, small caterpillars, sawfly larvae, asparagus beetle, thrips, leafhoppers, capsids. Also some activity against mites and other beetles.

Pyrethrins & Rapeseed Oil	3	Botanico Bugclear Spray. BugClear Ecomax BugFree Bug and Larvae Killer	Contact, Physical, non- persistent	Ornamental Garden Plants and some fruit & Vegetables (Pear, Apple, Kohlrabi) as per label	General pest control including aphid, whitefly, small caterpillars, sawfly larvae, asparagus beetle, thrips, leafhoppers, capsids. Also some activity against mites and other beetles.
Urea/Foliar Lattice / surfactants/ fatty acids	Physical action	SB Plant Invigorator Westland Resolva Natural Power Bug & Mildew	Physical action & nutrient boost for the plant.	All Edibles & Non Edibles	Aphids, whitefly, mealybug, scale, red spider mite, woolly aphid, Bay Sucker, Psyllids.

** Following concerns over the environmental impact of metaldehyde based products all products will no longer be approved for use from 30 June 2020.

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 Cypermethrin will also be resistant to products based on Deltamethrin.
Products without group numbers are less likely to induce pest resistance.

Useful links

SBM Life Science Ltd	https://www.protect-garden.co.uk/our-garden-home-products
Evergreen Garden Care (UK) Ltd	https://www.lovethegarden.com/products/pests-disease
Westland Horticulture Limited:	http://www.gardenhealth.com/pests-diseases
RHS Website pages:	https://www.rhs.org.uk/advice/profile?PID=506
	https://www.rhs.org.uk/advice/profile?pid=817
Common Sense Gardening	https://garden-care.org.uk/

If you have any further questions please contact:-

THE STATES ANALYTICAL LABORATORY
BURNT LANE
ST MARTINS
GUERNSEY
GY4 6LD

Tel: (01481) 707612