

Pesticides available for Home Gardeners

RHS Gardening Advice
March 2022



The RHS believes that avoiding pests, diseases and weeds by good practice in cultivation methods, cultivar selection, garden hygiene and encouraging or introducing natural enemies, should be the first line of control. If chemical controls are used, they should be used only in a minimal and highly targeted manner. For example, where pests, diseases or weeds pose a serious threat to the wider environment, to important heritage specimens, to habitat, or to native wildlife

The mention of any product, supplier or service does not constitute an endorsement by RHS Gardening Advice. It is a list of products available to the home gardener.

The RHS statement on pesticides in horticulture and how gardeners can help bees and other pollinators by avoiding the use of pesticides can be found at <https://www.rhs.org.uk/about-the-rhs/policies/pesticide-statement>

Trained staff are present, by law, in larger retail outlets who can give good advice on what products to buy, how to use them and alternative methods of control.

Introduction

All relevant EU law in relation to the regulation of plant protection products has been retained in GB law. Northern Ireland will continue to be subject to existing EU law. An independent pesticides regulatory regime is in operation (as of 01/01/2021) in Great Britain (England, Scotland and Wales); new decisions taken under EU regulations will not apply in Great Britain, this includes any new EU plant pesticide legislation.

Products approved in the UK are assigned a registration number, printed on the packaging – MAPP numbers for pesticides for use on plants and HSE numbers for household products. Products with currently listed numbers are approved and considered to meet current

safety standards if used in accordance with the manufacturer's instructions. To check MAPP numbers, see <https://secure.pesticides.gov.uk/garden/prodsearch.asp>

Technically the definition of pesticides also includes fungicides and weedkillers, this leaflet only covers pesticides that control animals (primary insects and mites) that affect garden and house plants. Information on weedkillers and fungicides are available separately. Some products listed in this leaflet, for example plant extracts which act by physical means, are not considered pesticides and do not always require approval.

To use pesticides safely the following rules should be observed:

- **Avoid the use of pesticides, use them only when really necessary.** Tolerate some damage and use cultivation techniques such as rotation of crops or hand removal. Using biological controls and encouraging natural enemies can eliminate the need for spraying.
- **Do not spray open blooms because of the danger to bees, butterflies and other pollinators, some of which are active at night.**
- Identify the problem correctly in order to apply appropriate control.
- Select a pesticide that is approved for the purpose; always read the label before choosing a product. Do not purchase large amounts of pesticide that will some time to use up. If only a few plants require treatment, a ready-to-use formulation may be more appropriate.
- Read the manufacturer's instructions and check for any limitations or specific precautions you should take. As an added safety measure you could wear rubber gloves when applying or handling pesticides.
- Avoid contact with exposed parts of the body, particularly the eyes and mouth. Wash off any splashes immediately.

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- Avoid breathing in sprays, for example by standing up-wind while treating.
- Wash after using pesticides.
- Do not smoke, eat or drink while applying pesticides.
- Make sure no one or pets are nearby when spraying and keep them away until the foliage is dry.
- Follow all the manufacturer's instructions and apply the pesticide at the stated rate and in the manner described. It is a legal requirement to comply with the Statutory Conditions on the label.
- Spray at the correct times and intervals as this is often crucial for effective control.
- When spraying an edible plant, check that the pesticide is approved for that plant and note the instructions for the period of time that must be left between treatment(s) and harvest (harvest interval) and the maximum number of applications permitted per growing season.
- It is illegal to mix two pesticides together unless the manufacturer indicates that this is permissible. Some products are sold as combined insecticide/fungicide for use on ornamental plants.
- Spray plants thoroughly, including stems, buds and the underside of leaves but without excessive run-off or drift.
- Do not spray plants that may be damaged by pesticides or allow spray to drift on to them. Because of the large numbers of species and cultivars of ornamental plants grown in gardens and greenhouses, sensitivity to products should always be checked on a small area or number of plants.
- To avoid drift and potential plant damage do not use pesticides in wet, windy, completely calm or hot sunny weather, or when plants are suffering from drought. Spray in the early morning, late afternoon or evening.
- All pesticides pose a risk to fish, amphibians and other pond life. Keep pesticides, away from ponds, ditches, streams and other water bodies.
- Clean all equipment after spraying. Do not apply pesticides with apparatus that has been used for weedkillers.
- Store pesticides in a cool, safe place away from children and pets, keeping them tightly closed and in their original containers.
- Dispose of unwanted or out-of-date pesticides by taking them to a manned local authority household waste site where they should be handed over to the staff. For

information on waste disposal sites see www.garden-care.org.uk

Choosing pesticides available to home gardeners

This leaflet is not a complete list pesticides available to home gardeners but it includes many widely available products. It is largely based on information supplied by the manufacturers'. Some active ingredients listed under manufacturers' brand names may be available from some outlets as "own brand" products. It is not practicable to list these. Check the label carefully to confirm the active ingredient.

The following list of retail packs has been drawn up to assist gardeners in choosing pesticides. Proprietary products sold for the control of insects and mites are listed under the chemical name of their active ingredient. Manufacturers of pesticides subject to regulations made under UK legislation are obliged by law to print the name of the active ingredient on the label but this may be in small print. It is emphasised that the RHS is not liable in any way for any consequences that may ensue from the use of these products.

The lists of insects and mites controlled given under the names of the active ingredients are for guidance only. The instructions for the products' use must be read carefully and followed. Harvest intervals (the period of time that must elapse between treatment and harvesting edibles) are not given in this leaflet and reference must be made to the product label. Products with the same active ingredient may vary in the range of pests controlled and the plants on which they can be used.

Products for control of mammal problems such as mice and rats are not included on this leaflet. Products for controlling animals which do not directly affect plants are also not included.

Further details about most of the products listed can be obtained from The Common Sense Gardening Group of the Crop Protection Association (www.garden-care.org.uk/about) . Further information on pesticide approvals and safe use can be obtained from <http://www.hse.gov.uk/pesticides/user-areas/garden-home.htm>.

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Pesticide products available to home gardeners

Key

* These active ingredients are fungicides. Detail are given in [Fungicides for Home Gardeners](#)

RTU Ready to use sprays

1. Natural (organic) insecticides

These products are derived from plants or are other naturally occurring substances. They are contact in action and require thorough application, especially to the undersides of leaves. They can affect a broad range of small invertebrates, including beneficials if they are present at the time of treatment. The short persistence may mean that frequent applications are required. They are considered safe to use on most plants, including listed fruits and vegetables, these can be treated close to harvest (see label instructions).

a) Natural pyrethrum/pyrethrins

Derived from the flowers of *Tanacetum cinerariifolium* (syn. *Chrysanthemum cinerariifolium*). Broad spectrum insecticide, that can control a wide range of invertebrates including whitefly, small caterpillars, aphids, thrips, leafhoppers, capsids, ants and some beetles.

Sprays	Bug Clear Ultra 2 Gun RTU (also contains vegetable oils) Bug Clear Ultra 2 concentrate (also contains vegetable oils) Neudorff Bug Free Bug and Larvae Killer RTU and concentrate (also contains vegetable oils)
Dusts & Granules	Py Insect Killer Powder

b) Plant oils and extracts

Refined plant oils, such as those derived from rape seed and sunflower, which block the breathing pores (spiracles) of small insects and mites, including aphids, whitefly, thrips, mealybugs, scale insects and red spider mite. Larger invertebrates such as bees and ladybirds are less likely to be harmed. No harvest interval required but do not use on fuchsia or begonia. Also available as winter wash for use against overwintering aphid eggs on dormant deciduous fruit trees and bushes.

Sprays	Bug Clear Fruit & Veg Concentrate Growing Success Winter Tree Wash Vitax Plant Guard Pest & Disease Control RTU & Concentrate (contains fish oils) Vitax Rose Guard RTU Vitax Winter Tree Wash
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2. Compounds with a physical mode of action (not-organic)

Plant invigorators

Consisting of blends of surfactants and nutrients or fatty acids and algae extracts, plant invigorators aid the optimal nutrition of plants and can help control whitefly, aphids, mealybugs and red spider mite as well as some plant diseases. Healthy plants are more resistant to pests and diseases and the invigorators give some control by a sticking and a washing process.

Spray	Ecofective House Plant Defender 3 in 1 RTU Ecofective Bug and Mildew Control RTU and concentrate Ecofective Bug Control RTU and concentrate Ecofective Rose Defender 3 in 1 RTU and concentrate Growing Success Bug Stop RTU Growing Success Rose Guard RTU RHS Bug and Mildew Control RTU and concentrate RoseClear 3 in 1 Action RTU SB Plant Invigorator RTU and concentrate
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3. Synthetic insecticides: contact action

Synthetic pyrethroids

Contact and broad spectrum, effective against a wide range of insects including aphids, whiteflies, leafhoppers, thrips, beetles, ants and small caterpillars. By making alterations to the molecular structure of natural pyrethrum, synthetic photostable pyrethroid compounds, such as **cypermethrin**, **lambda-cyhalothrin**, **deltamethrin** and **permethrin**, were developed. These synthetic pyrethroids retain the low mammalian toxicity of other pyrethroids but can remain active against insects for several weeks. Natural pyrethroids break down quickly in sunlight losing their activity within days. Some products can be used on listed food plants.

a) Deltamethrin

A spray concentrate and ready to use for controlling 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 and mealybugs on ornamental plants and a wide range of listed edibles.

Sprays	Baby Bio Houseplant Bug Killer RTU Provanto Ultimate Bug Killer RTU and concentrate Provanto Ultimate Fruit & Vegetable Bug Killer RTU and concentrate Provanto Sprayday Greenfly Killer concentrate Toprose Bug Killer RTU
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b) Lambda-cyhalothrin

A concentrate and ready to use spray for controlling aphids, capsid bug, thrips, whitefly, beetles, caterpillars, pea moth, pea and bean weevil, sawflies, leaf curling midges, carrot fly adults and some other insects. Can be used on ornamental plants and a wide range of listed fruits and vegetables.

Sprays	Westland Resolva Bug Killer RTU and concentrate
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c) Cypermethrin

Available as a ready to use spray and concentrate for application to a wide range of ornamental and edible plants. There is also a ready to use spray for aphid control with a fungicide that is effective against rose rust, blackspot and powdery mildew that can be used on ornamental plants.

Sprays	Py Bug Killer RTU and concentrate RoseClear Ultra Gun 2 RTU (+ myclobutanil*)
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d) Permethrin

Smoke formulations for use against aphids, whitefly and other insects in greenhouses.

Smoke	DeadFast Greenhouse Smoke Generator DeadFast Greenhouse Smoke Fumigator Vitax Greenhouse Fumigator
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4. Synthetic insecticides: systemic action

Systemic insecticides are absorbed into plants through the roots and/or foliage, they usually also have contact action. Invertebrates are affected when they feed on the treated roots and/or foliage.

Withdrawal of imidacloprid and thiamethoxam

Two neonicotinoid pesticides that were available to the home gardener (imidacloprid and thiamethoxam) were withdrawn in 2013. Following concern over their effects on bees and other pollinators the European Commission restricted their use whilst further evidence was gathered and evaluated. In April 2018 the withdrawal was made permanent and extended to include plants that are either not pollinated by bees

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such as cereal crops, which are wind pollinated, or ones that are harvested before they flower such as sugar beet in outside spaces. This withdrawal of approval became effective at the end of 2018. Imidacloprid and thiamethoxam may still be used by professional growers on plants grown in a fully enclosed greenhouse environment with stringent conditions that prohibit treated plants being put outside until they have finished flowering, nor planted in the soil until nine months have elapsed after growing medium treatment. Two other neonicotinoids, both considered of lower bee toxicity, remain available to professional growers; acetamiprid and thiacloprid. The only neonicotinoid available to home gardeners is acetamiprid. It is illegal to use unapproved products and these should be taken to a local authority household waste site where they should be handed over to the staff. For information on waste disposal sites see www.garden-care.org.uk. At March 2021 it remains legal to use the neonicotinoid-based products that are not affected by the withdrawal, listed below.

a) Acetamiprid

A broad spectrum, systemic and contact action pesticide for use as a foliar spray on ornamental plants. Some formulations can be used on tomato, aubergine, pepper, potato, lettuce, apple, pear, cherry and plum. Also as a compost drench on container grown ornamental plants, primarily against vine weevil grubs. This pesticide also controls aphids, whitefly, scale insects, mealybugs and thrips. The spray formulations can also be used against red spider mite, lily beetle and caterpillars. Sprays containing the fungicide triticonazole also control mildew, rust and blackspot on roses.

Sprays	BugClear Ultra concentrate BugClear Ultra Gun RTU RoseClear Ultra concentrate (+ triticonazole*) RoseClear Ultra Gun RTU (+ triticonazole*)
Compost drench	BugClear Ultra Vine Weevil Killer

b) Flupyradifurone

Flupyradifurone is a newly developed systemic insecticide, chemically classified as a butenolide. It has the same mode of action and a similar chemical structure to neonicotinoids. It is used as a foliar spray for the control of sucking insects such as aphids (greenfly, blackfly), whitefly, scale insects and leafhoppers. It can be used on ornamentals and a variety of edibles: tomato, pepper, chilli, cucumber, aubergine, courgette, summer squash and can also be used on apple.

Sprays	Provanto Smart Bug Killer RTU
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5. Slug control pesticides

In addition to the chemicals listed below for controlling slugs and snails, there are many products available that deter or act as a barrier to these pests. There are also biological controls available. Further details of these products are given in the advisory information on “Slugs and Snails” <https://www.rhs.org.uk/biodiversity/slugs>.

a) Ferric (iron) phosphate

A pelleted bait for use against slugs and snails. Less toxic to birds and mammals than metaldehyde and is approved for use by organic growers around ornamental and edible plants.

Pellets	Doff Slug & Snail Killer Growing Success Slug Killer Advanced Protect Garden Slug & Snail Killer Max RHS Slug Killer SlugClear Ultra³ Sluggo Slug & Snail Killer Sluggo Slug & Snail Killer Ultra Spot on Garden Slug Killer Vitax Slug Rid
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Withdrawal of metaldehyde

In September 2020 the government announced the withdrawal of metaldehyde slug control, with product sales ending in March 2021. The withdrawal was planned following advice from the UK expert committee on pesticides and the Health and Safety Executive (HSE) who consider that metaldehyde poses an unacceptable risk to birds and mammals. An initial withdrawal in 2019 was overturned due to problems with incorrect implementation. Remaining stocks of the following products must be used up or disposed of by 31st March 2022.

Pellets	Doff Slug Killer Blue Mini Pellets Protect Garden Slug & Snail Killer
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ALWAYS READ THE LABEL
USE PESTICIDES SAFELY

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Pesticide and plant protection product companies

Job Done, Baby Bio, Provanto, Protect Garden and Toprose products are marketed by SBM Life Science Ltd. Hyperion House, Ground Floor, Fordham Road, New Market CB8 7XN.

www.protect-garden.co.uk Tel: 03303 303563

Doff products are marketed by Doff Portland Ltd, Aerial Way, Watnall Road, Hucknall, Nottingham NG15 6DW. www.doff.co.uk Tel: 0115 983 4300

Ecofective and RHS products are marketed by Sipcam Home & Garden Ltd, 4 Archway House, The Lanterns, Melbourn Street, Royston, Hertfordshire SG8 7BX.

www.ecofective.uk.com Tel: 01763 212103

SB Plant Invigorator is marketed by Stan Brouard Ltd, PO Box 383, Landes du Marche, Vale, Guernsey GY1 3FE. www.sbproducts.co.uk Email info@sbproducts.co.uk

Bug Clear, Rose Clear and Slug Clear products are marketed by EverGreen Garden Care, 1 Archipelago, Lyon Way, Frimley, Surrey GU16 7ER. www.lovethegarden.com Tel: 01276 401300

Neudorff and Sluggo products are marketed by DLF Seeds Ltd, Thorn Farm, Evesham Road, Inkberrow, Worcestershire WR7 4LJ. www.neudorff.co.uk

Westland, Growing Success and Deadfast products are marketed by Westland Horticulture, Customer Services, Westland Horticulture Ltd, Alconbury Hill, Huntingdon, Cambridgeshire PE28 4HY. www.gardenhealth.com Tel: 01480443789

Vitax, Py and Nippon products are marketed by Vitax Ltd, Owen Street, Coalville, Leicestershire LE67 3DE. www.vitax.co.uk Email info@vitax.co.uk Tel: 01530 510060

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