Avoid Using Harmful Chemicals

To many people this is the most obvious organic gardening practice – avoid using toxic chemicals. In truth, if you follow the other four principles you will naturally find that you neither need nor want to use harmful chemicals in your growing area. However, persistent pest and weed problems may tempt you to reach for the poison. Here are two main reasons why not:

- **Pesticides and weedkillers can also destroy other life forms.** We know that neonicotinoids (that are used to kill insects) also affect bees and other pollinators, and toxic weedkillers can harm soil-life and create residues in the soil.
- **These chemicals can cause serious pollution** – either in their manufacture, or from their own residues.

The organic gardener will tolerate, not obliterate. For instance, some weeds – such as dandelions – are beneficial to pollinators. Others, such as nettle leaves, provide nutrients for the compost heap and can be used to make an organic plant feed. Insect pests, such as aphids, are food for beneficial insects such as hoverflies and ladybirds. And even the slug is nutritious for thrushes and ground beetles.

In this chapter we look at:

ORGANIC WEED MANAGEMENT

- **Clearing weedy ground** i.e in a new allotment or garden
- **Ongoing weed management** – in beds, paths and lawns

MANAGING PESTS AND DISEASES

- **Physical methods** – barriers, covers, general maintenance
- **Sprays and powders**
- **Rodent control**

Organic Weed Management

Weeds compete for light, water, nutrients and space with 'desired' plants. They also rapidly appear in any bare soil. However, weeds also bring biodiversity to a garden and some can be vital to the survival of butterflies, bumblebees and other wildlife. Here below are many ways of preventing, and managing, weeds, so that they grow where you want them to.

Clearing weedy ground

If you are taking on a new allotment or garden, clearing weedy ground is inevitable. There are no organic weedkillers that clear the ground of perennial weeds – and sadly some weeds you may be unlucky enough to live with, such as marestail. However there are other methods, such as digging out and **mulching**, that can help you clear weedy ground. Although slower than the 'quick fix' of chemicals, a mulch can also feed the soil – supplying nutrients and giving it a better texture. Different mulches are described below.

BEST ORGANIC PRACTICE

- **Cover the ground with a mulch** (see overleaf for types of mulch).
- **Dig out weeds by hand,** especially those with long, sustaining roots such as bindweed and dock.
- **Use chickens to grub out weeds.** But beware, they can also grub out precious plants!
- **Mow or cut weeds** which don't have long, sustaining roots. The foliage can be added to the compost heap.
- **Accept that some weeds may be of benefit to the garden,** such as dandelions and nettles. If left to grow where they won't compete with your chosen plants, they provide habitats and food for beneficial insects, and their foliage provides nutrients for the compost heap.

ACCEPTABLE, BUT NOT ADVISABLE

- **Use a rotavator to dig the ground over.** However, this not only destroys the soil life and structure, it doesn't clear a whole weed root system such as couch grass or bindweed.

NOT ACCEPTABLE IN ORGANIC GROWING

- **Use of weedkillers** containing chemicals, such as glyphosate formulations like Roundup, Weedol etc.

FOR ADVICE ON:

1. How to clear a growing area, such as a new allotment or veg patch, using mulches, go to www.gardenorganic.org.uk/organic-allotment-growing
2. Weeds and how to manage them, go to www.gardenorganic.org.uk/weed-management
3. Glyphosate, go to www.gardenorganic.org.uk/glyphosate-debate

Mulches for weed clearance or control

BEST ORGANIC PRACTICE

- **Light-excluding fabrics** made from paper, wool, hemp and other natural materials. This starves the weeds of light. If you add any recycled plant materials such as leaves, grass cuttings, straw and compost underneath, you will improve the soil nutrients and structure.
- **Cardboard and newspaper.** These also exclude light.

ACCEPTABLE, FOR OCCASIONAL USE

- **Permeable synthetic materials.** These are usually sheets of polypropylene, polyethylene or other polycarbonates, for temporary ground clearance, long-term plantings and for laying under paths, driveways etc.
- **Impermeable synthetic materials,** such as black polythene – for *temporary* ground clearance and to contain invasive root systems.
- **Carpet made from natural fibres, with natural plant dyes.**

NOT ACCEPTABLE IN ORGANIC GROWING

- **Any materials from unsustainable sources.** This includes natural materials, such as leaves, moss and plants taken from woodland.
- **Carpet made from artificial fibres.** The dyes can be toxic and leach into the soil.

FOR ADVICE ON:

1. How to clear a growing area, such as a new allotment or veg patch, using mulches, go to www.gardenorganic.org.uk/organic-allotment-growing
2. Weeds and how to manage them, go to www.gardenorganic.org.uk/weed-management

Ongoing weed maintenance

Prevention is the best method to keep on top of weeds, certainly to stop them from spreading and setting seed. Here we look at weed prevention in beds, lawns, paths, drives and other hard surfaces.

In beds:

BEST ORGANIC PRACTICE

- **Plant using close spacing (where appropriate);** **intercropping** and **undersowing** will prevent bare soil where weeds can germinate and grow.
- **Grow ground cover plants,** including **green manures**, which also prevent bare soil.
- **Clear perennial weeds thoroughly** before planting perennial plants.
- **Hand weeding,** hoe, dig out.
- **Cover bare soil with a mulch** (see opposite for types of mulches).
- **Create a stale seedbed.** If you are sowing in a bare patch of land, let weeds germinate first, remove, then sow.

NOT ACCEPTABLE IN ORGANIC GROWING

- **Use of weedkillers** containing chemicals, such as glyphosate formulations like Roundup, Weedol etc.

In lawns:

BEST ORGANIC PRACTICE

- **Accept a certain level of 'weeds' in a lawn** and recognise their benefits for soil and pollinators.
- **Choose appropriate varieties of grass seeds** for location and use.

NOT ACCEPTABLE IN ORGANIC GROWING

- **Use of weedkillers** containing chemicals, such as glyphosate formulations like Roundup, Weedol etc.

Explanations of **highlighted** words can be found in the Glossary on page 50

In paths, drives and other hard surfaces:

BEST ORGANIC PRACTICE

- **Construct paths, driveways and other hard surfaces well,** to prevent weeds growing through from below, or taking hold on the surface.
- **Hoe gravel.**
- **Reduce shade from plants** to discourage algae and moss growing on damp, hard surfaces.
- **Clean with a stiff brush.**

ACCEPTABLE, FOR OCCASIONAL USE

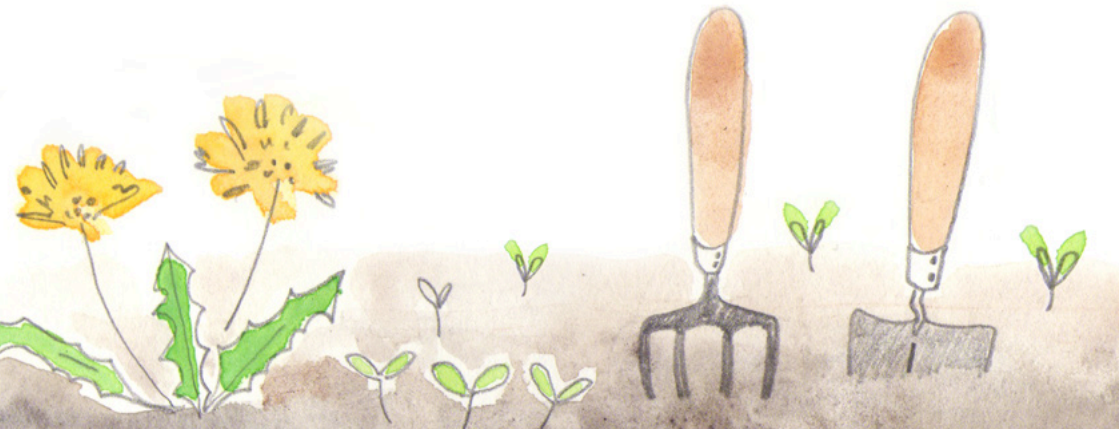
- **Pressure wash.**
- **Use a thermal/flame weeder.**
- **Weed killing sprays containing fatty acids,** such as pelargonic acid, as the active ingredient.

NOT ACCEPTABLE IN ORGANIC GROWING

- **Use of weedkillers** containing chemicals, such as glyphosate formulations like Roundup, Weedol etc.

FOR ADVICE ON:

1. How to grow an organic lawn, go to www.gardenorganic.org.uk/organic-lawn
2. Glyphosate, go to www.gardenorganic.org.uk/glyphosate-debate
3. Weeds and how to manage them, go to www.gardenorganic.org.uk/weed-management



Managing Pests and Diseases

The idea of a healthy garden, rather than one which has pest and disease free plants, is at the heart of organic growing (see **A Healthy Growing Area**, p. 42). Prevention rather than treatment is the organic principle. Be observant and check your plants regularly and as often as possible.

Having a healthy growing system will prevent many pests and diseases. Biodiversity, having many different species in your garden, helps to create this resilient system. Plants, animals, birds and soil life all work together to manage pests and diseases – birds will eat aphids, insects will pollinate plants and earthworms will help break down the soil, releasing nutrients. The use of toxic chemicals can seriously damage and disrupt this complex interdependency of wildlife (see **Encourage Biodiversity** on p. 18).

In this section we look at the organic principles behind managing pests and diseases using:

- **Physical methods**
- **Sprays and powders**
- **Rodent control**

Physical Methods

BEST ORGANIC PRACTICE

- **Encourage biodiversity.** See p. 18.
- **Check plants regularly,** squashing or picking off pests and infected foliage as they occur.
- **Shake the plant** or dislodge pests with a sharp jet of water.
- **Learn about the life cycle of pests and diseases** to help develop strategies to combat them.
- **Learn to tell the difference between creatures** that can harm plants and those that will not.
- **Cabbage root fly mats,** preferably homemade from recycled felt or cardboard.
- **Dry matter against slugs.** A barrier of suitable dry matter, such as grit, wool, oats, copper bands etc. may be used to deter or dehydrate slugs.

ACCEPTABLE, FOR OCCASIONAL USE

- **Biological agents that help control pests.** These are natural controls, such as nematodes, that can be purchased for controlling specific pests.
- **Barriers to cover crops** and protect them from pests such as carrot fly, cabbage white butterfly and birds. These include **cloches**, that can be homemade from reused plastic bottles and recycled window glass, and **horticultural fleece, fine mesh, netting and wire**. As these are often made of materials such as types of plastic, be sure to keep for reuse.
- **Electric fencing** – to prevent rabbits, foxes and deer.
- **Fruit tree grease and grease bands** – to prevent insect infestation.
- **Yellow sticky traps, without added pesticides.** For use in greenhouse, coldframe or conservatory only.
- **Slug traps baited with beer or other attractants.** Make sure their edges are raised slightly above ground so as not to drown ground beetles and other helpful insects.
- **Commercial granules (slug pellets)** that are organically approved, and contain **ferric phosphate** only, never metaldehyde. Use sparingly.

NOT ACCEPTABLE IN ORGANIC GROWING

- **Use of toxic chemicals to destroy pests,** such as poisons, insecticides and slug pellets containing metaldehyde.

FOR ADVICE ON:

1. Pest and disease management, go to www.gardenorganic.org.uk/pests-and-diseases

Sprays, Powders and Pellets

There are a few pesticide sprays that can be used in organic growing, but they are not harmless, and it is good practice to keep their use to a minimum, since they can still disrupt the natural ecosystem, and may harm other creatures. It is advisable to use only those products containing the 'active' ingredients listed opposite.

If you find yourself having to use pesticides regularly, despite using the other strategies suggested, then consider growing something different, or putting the plants in a different place.

ACCEPTABLE, FOR OCCASIONAL USE

- **Commercially available plant oils, plant based products and starches** which affect the pest, not necessarily the plant i.e they can cause the pest to asphyxiate, or lose its protective covering. *Note, use only products certified for organic growing. However, some may have been certified in other countries, and therefore not legal for organic use in the UK i.e those containing neem oil.*
- **Commercial slug pellets** that are organically approved, and contain **ferric phosphate** only, never metaldehyde. Use sparingly.
- **Natural pyrethrum products** (pyrethrins extracted from *Chrysanthemum cinerariaefolium*)
- **Microbes and microbial extracts.** For example, *Bacillus thuringiensis* (Bt), which is only available to professional growers.
- **Fatty acid sprays.**
- **Potassium bicarbonate** for the treatment of powdery mildew.
- **Sulphur** – used as a tonic to prevent black spot in roses.
- **Diatomaceous earth.** The dust from diatomaceous earth is used as an insecticide, causing insects to dry out and die.

NOT ACCEPTABLE IN ORGANIC GROWING

- **Any active ingredient/product not registered with hse.gov.uk/pesticides**
  This includes homemade pesticide sprays, those made from washing up liquid, chilli powder or any other household products.
- **Copper based fungicides.** Organic farmers have to apply for special permission to use this.

Rodent Control

ACCEPTABLE, FOR OCCASIONAL USE

- **Mouse and rat traps.**
- **Rat and mouse poisons,** approved by the HSE Pesticides Guidance, used in tamper-proof bait stations.

NOT ACCEPTABLE IN ORGANIC GROWING

- **Any active ingredient/product not registered as a poison with hse.gov.uk/pesticides**

(i) Explanations of **highlighted** words can be found in the Glossary on page 50