

Week 10

Pests and disease control

Pest and disease control is part of organic growing. Without it:

- The quality and quantity of produce is reduced;
- A great deal of effort, time and food is wasted;
- Particular pests and diseases may build up on your plot.

Pests

Here are this week's questions on pests to think about before you look at the notes:

1. List the common pests you may meet in your garden.
2. What are the main organic defence strategies against pests?
3. What are the problems associated with non organic pest control?

As we have looked at the growing of various vegetable and salad crops we have heard about a variety of pests that attack plants below the ground. These include; cutworms and leatherjackets, chafer beetle larvae, carrot fly, cabbage root fly, wireworms, and keel slugs,

Above the ground is an array of other competitors. Small pests include aphids, mealy bugs and scale insects, some caterpillars, sawfly larvae and of course slugs and snails.

Large pests include rabbits, mice, birds and deer.

Defence against pests

Organic growers have a variety of strategies for beating pests. These include barriers, traps, introducing or attracting natural predators, the removal of infected material, the use of vigorous growing plants to withstand attack, intercropping and companion planting and the use of resistant cultivars.

Non organic pest control

Non organic growers have a different array of defences against pests. The wildlife habitats that organic growers encourage may be an anathema to non organic growers. Hedges, unmanaged grassland and boggy areas can all harbour pests as well as predators!

An industry has emerged designing insecticides, molluscicides, vermicides, araccides and fungicides to kill pests either by contact, poisoning or fumigation.

There are a variety of methods of spreading pesticides around. Many are diluted and sprayed. Care has to be taken that the mists only reach the target organisms! Some are used as "drenches" and applied to the roots of plants while others are left around as granules or applied to seeds as dressings. Manufacturers also use smokes, vapours and aerosols. They accept the fact that repeated use of these chemicals may:

- lead to pests developing resistance;
- spread toxins that affect humans and wildlife;
- accumulate in the soil and food chains;
- persist in the environment long after their use;
- damage other useful species.

Organic Chemical Controls

The Soil Association allows organic growers to behave in similar ways to non organic growers. There are a range of toxins that are "permissible." Some of the fiercest critics of the organic movement highlight the potential of these chemicals to cause the same effects as those listed above.

Advanced slug killer

Safe for children and pets, birds, hedgehogs and other wildlife - killing only slugs and snails.

After remaining effective for several weeks in both wet and dry conditions, the pellets based on ferrous phosphate will break down to iron and phosphate nutrients as part of garden soil. You can buy them from The Organic Gardening Catalogue or from IG Owens in Mac

Derris (I think this may have now been taken off the permissible list)

This is a plant based insecticides. They can only be used on a small range of crops. These can kill friends as well as pests.

Soft soap.

This is meant to be useful for destroying the waxy protective coat of aphids. You could try your left over washing up water too or spray the aphids with a fierce jet of water.

Bordeaux Mixture. (I think this may have now been taken off the permissible list)

This is a mixture of copper sulphate and slaked lime. It is an ancient remedy. It can be mixed with water and used against fungal infections. However, I am sure it is better to avoid the problem than use the stuff.

Sulphur. Mix it with water (it doesn't dissolve) and water on fungal infections.

Organic non chemical controls

One of the least toxic methods of controlling pests, especially in potting and seed compost is the use of heat or steam. A good mixture of heated organic soil and leaf mould will make good seed compost. At 80°C most weeds and pests will be destroyed but the nitrifying bacteria will survive!

There is also a case for learning how to make a hot compost heap, at 80°C most pathogens are cremated.

Diseases

There are three main types of plant diseases.

1. Fungal diseases
2. Bacterial diseases spread by insects
3. Viral infections

1. Fungal Diseases.

A. Fungal Diseases that attacks the roots of plants:

1. Damping off

You often get this in a greenhouse, polytunnel etc... It attacks seedlings just above the soil. Roots and stems rot. The cause is seedlings growing too close together in wet, poorly ventilated conditions.

Better ventilation and plant spacing will help avoid this problem.

2. Club root

This is the worst disease to damage brassicas. You get swollen hollow roots which rot and smell! You can't grow brassicas on that spot for many years. Crop rotation and lime before the brassicas is the best defence.

3. Honey Fungus

The dreaded tree killer! A fan of white fungal growth below the bark near the ground is the symptom. Wood with the disease is meant to glow in the dark. Dig the tree up, keep it well away from other trees, and use it as firewood or barbecue fuel.

B. Fungal Diseases that attacks the stems of plants:

1. Grey Mould, sometimes called botrytis

In a wet year this lurks on strawberries, lettuce, tomato and cucumbers.

Cold wet weather, overcrowding and the rough handling of seedlings are all likely causes. If you get this problem, change the conditions and hot compost the worst specimens.

2. Coral spot

Produces pretty pink spots on branches, especially on red currants. The infection may be caused by fresh manure that's too rich in nitrates. Cut back to healthy wood with clean secateurs.

6. Canker

This is a general term for an infected area of trees and shrubs. Canker starts from damage to the bark.

Careless staking and strimming are possible causes. Cut out the infected area

C Fungal Diseases that attacks plant foliage:

1. Powdery mildew

This disease looks like it sounds. It tends to occur in dry spells on many different kinds of plants. Mulching the soil, after watering, probably helps.

2. Black spot

This affects the rose family. Black spots grow on the leaf until it dies and falls off. The disease occurs in summer. Remove and hot compost diseased leaves. It is a symptom of an infertile soil so mulch with compost in spring.

3. Rust

Rust coloured spots on the underside of leaves which can spread to flowers and stems. It is often a sign of potash deficiency. Comfrey liquid, seaweed or wood ash, are the remedies for next year's plants!

4. Scab

The leaf version hits apples and pears. Cut out and paint affected areas each year. Also affects vegetables such as potato, beetroot and radish. The disease makes them look ugly. It is caused by the soil being too alkaline. Add compost thoroughly to the plot where they are grown next year.

5. Blight

Potato and Tomatoes are the victims. This spreads in damp, warm conditions. Grey/ brown patches on leaves are the first symptoms. Hot compost or remove from site affected foliage quickly. If the outbreak is widespread cut your losses and remove all foliage but keep it off the ground. Leave potatoes in the soil for a couple of weeks and harvest them. You may be lucky and get a crop. The best defence is to grow potatoes very early. It's easier to prevent frost damage than blight!

2. Bacterial diseases spread by insects etc.

There are a couple of diseases you may have met or have heard of.

Fire blight

This is a disease of trees and shrubs. Spread by pollinating insects. Leaves and flowers apparently wither and twigs exude a revolting slime. Burning is the unfortunate solution. You're also meant to inform the agricultural authority!

Gall

A lumpy abnormal growth on the root, stem or leaf. Don't panic unless it's on your brassicas. Then it could be club root

3. Virus infections. Usually spread from infected plants by insects such as aphids

There are a huge number of viruses and it can be very hard to diagnose as we've seen with the tomatoes. The general advice for dealing with plants with viruses is to remove and destroy all infected material so if the plants do seem to be getting worse this is probably the line to follow, but give them a chance first. I'd recommend Collins Pests, Diseases and disorders of garden plants by Stephan Buczacki and Keith Harris or you can phone and send samples to the HDRA Garden Organic <http://www.gardenorganic.org.uk/>

Rules that may prevent plant diseases spoiling your crops.

1. Plant sensibly
2. Swap and buy from people you trust.
3. Maintain hygiene on tools, clothes, flower pots etc.
4. Create a healthy living soil with appropriate additions of compost.
5. Avoid too much nitrogen and not enough potassium.
6. Rotate your crops.