The healthy growth of plants may be disrupted by a pest or disease attack, a nutrient deficiency, or a disorder caused by climatic or environmental conditions. The easiest way of dealing with a problem is to prevent it occurring in the first place, which entails selecting vigorous plants and growing them in the right place, making sure your soil is healthy, and encouraging natural predators. In such conditions the majority of your plants will remain healthy, although it is always worth keeping an eye out so that you can act quickly when the system fails and specific treatment is required.

Know your friends

Although you should encourage a whole range of wildlife into your garden, creatures that are predators of garden pests are particularly welcome. It is useful to recognize these creatures and learn their habits, as this can help you tip the balance between friend and foe in your favour.

Some predators have a limited diet and target specific pests. Hoverfly larvae, for example, feed mainly on aphids. Others, like centipedes and hedgehogs, have a more wide-ranging diet, consisting of what is most available; they will eat more pests during a pest outbreak and thus help to restore the natural balance within a garden.

Sometimes the dividing line between friend and foe is not clear cut. Earwigs, for example, can be pests if you have prize dahlias, but they also prey on aphids and codling moth eggs. The best strategy is to tolerate such creatures and protect vulnerable crops when necessary.

BENEFICIAL INSECTS & THEIR LARVAE

Adult and larval stages of insects can be markedly different. While gardeners may be acquainted with the adult forms of the insects above, their larvae may seem unfamiliar, even though they sometimes play a more significant role when it comes to eating garden pests.
**Garden insects, spiders, & centipedes**

Most of us are familiar with ladybirds, hoverflies, ground beetles, earwigs, spiders, and centipedes, but there are countless other creatures that go unrecognized. Many of these also have larvae that are completely different from their adult form, which makes identification even harder. The larvae of ladybirds, for example, have tapering bodies that are segmented, greyish-black with orange markings; like the adults, they feed on greenfly, mites, scale insects, mealybugs, and small caterpillars. As a general rule, check when you come across something you do not recognize – beneficial insects can easily be mistaken for pests.

Hoverfly and lacewing larvae are keen predators of aphids, and may also eat other small insects. Ground beetles are seen all year round and are important predators of slugs. They also eat the eggs and larvae of cabbage and carrot root flies and lettuce root aphids. Spiders are found wherever they can build their webs, which catch flies and other small insects.

**Garden vertebrates**

The more easily identified garden friends must be the vertebrates: hedgehogs, frogs and toads, slowworms, lizards, newts, bats, and birds. Hedgehogs live in rural and suburban areas, hunting mainly at night from mid-spring to mid-autumn, eating a large number of pests such as slugs, millipedes, cockchafers, and caterpillars. Birds are common to all gardens, either as residents or passersby in search of food. They can be a mixed blessing; song thrushes, for example, like to eat snails, but blackbirds will peck ripe fruit. Small birds such as bluetits, long-tailed tits, and even house sparrows will pick aphids off plants, and starlings on a lawn are probably probing for leatherjackets. Bats are less visible nocturnal garden visitors that should be encouraged as they catch many insects including cockchafers, midges, crane flies, moths, and aphids.

**Beneficial Amphibians**

Garden amphibians include frogs, toads, and newts. They rely on water for breeding and eat, among other things, slugs and snails.
Preventing problems

Choose plants and varieties that are suited to your garden conditions, give them a good start and they will grow strongly. Plants do, however, vary in their susceptibility to pests and diseases and those that are known to have resistance are a valuable means of preventing a specific, recurring problem, such as blackspot on roses.

Buying healthy plants

Young, vigorous plants will establish more quickly than those that are old and pot-bound. While plants in flower may look more attractive, those not yet in flower are in fact a better buy because the plants will be able to put all their energy into settling in before flowering.

Inspect all new plants for pests and disease, especially those destined for the greenhouse. Bulbs should be firm and show no sign of mould. Always buy certified virus-free seed potatoes and fruit trees and bushes where available. Seeds should be as fresh as possible.

Preventative gardening

With experience, gardeners can learn to incorporate preventative techniques as they cultivate plants in order to avoid problems later. Digging organic matter into the soil will improve its water-holding potential and lessen the effects of drought, which can cause stress to plants. Planting at the correct spacing will encourage good airflow and thwart disease. Sowing times can be adjusted to avoid the periods when certain pests and diseases are most active, while mixed or interplantings can confuse pests, and so reduce large-scale infestations.

THE CABBAGE WHITEFLY CYCLE

Whitefly move on in late spring from overwintered Brussels sprouts, broccoli and other brassicas to newly planted crops. During summer they will move on to other brassica plants. They will spend winter on overwintering brassicas, continuing the cycle of infection. To solve the problem you will need to bury all your overwintered brassica plants before planting any new crops in spring.

INTERPLANTING VEGETABLE CROPS

Carrot root fly is thought to be deterred by the smell of onions, so a row of carrots is often planted every 4 rows of onions. The effectiveness is questionable, so extra controls may be necessary.

To reduce aphid and root fly damage, alternate rows of cabbages with French beans. Plant out when both types of plant are the same size so that one crop does not dominate the other.
Understanding problems

Despite our best endeavours, plants may suffer from pest damage or diseases. Adverse environmental conditions and shortages of plant foods can also cause unwanted symptoms. Whatever the problem, it is important to identify the cause correctly. Having done so it is useful to know when the problem first appears, when it leaves, how it spreads, the range of plants it will attack, how and where it survives the winter and what level of infestation or infection can be tolerated. This information will help in planning a control strategy.

PESTS
This is the term given to any creature that affects a plant in a way we do not approve. The aim of the gardener is to keep pests at a manageable level.

Many different creatures can act as pests, and they vary considerably. Some, such as slugs and certain aphids, attack a variety of plants; others, such as the lily beetle and potato eelworm, restrict their activities to one or a few plants. Pests may look more or less the same from birth to death, like slugs, or go through several very different stages of growth during their life cycle, like moths. Some creatures are active all year while others may only be active in certain seasons or during the ‘pest’ stage of their life cycle.

Symptoms & identification
If the pest is visible, identification is relatively easy, although the presence of a creature does not mean that it is the guilty party. Often, symptoms are the only clues the gardener has to go on.

Holes in foliage, stems, or roots, or plants disappearing completely, are caused by pests with biting or rasping mouthparts. Curled leaves and distorted growth are caused by creatures that feed on plant sap, either by piercing the plant tissue or by living within the plant. Be aware that similar symptoms can have different causes. For example, the red blisters that appear on the leaves of red and white currants in early summer are caused by a pest, known as the currant blister aphid. Similar red blisters on peach leaves in the spring, on the other hand, are caused by a disease – peach leaf curl.

Knowing pests from diseases

**Currant blister aphids**
cause raised blisters to appear on the leaves of red and white currants.
These pale yellow aphids can be seen initially on the underside of affected leaves, but symptoms will remain after they have moved on.

**Peach leaf curl**
symptoms are superficially very similar to the blistering caused by the currant blister aphid.
Closer inspection, however, will reveal that no pest is present and the formation of spores on the blisters is a sign of fungal disease.

**Leatherjackets**
are a garden pest, feeding on grass roots and causing patches of lawn to turn yellowish-brown during dry spells in summer. Its adult form, the daddy-longlegs or crane fly, however, does not harm plants.

**Black bean aphids**, or blackfly, are common pests of broad beans. They overwinter as eggs on garden plants such as vibernums and Philadelphus when the broad bean food supply is finished.
DISEASES
Disease symptoms are caused by fungi, bacteria, and viruses, all of which are mainly too small to be seen. Diseases also tend to be known by the symptoms they produce, such as ‘white rot’ or ‘downy mildew’.

Fungal diseases
The majority of plant diseases are caused by fungi, even though the majority of fungi do not cause diseases. Fungi spread from plant to plant mainly in the form of spores, which are spread by wind, rain, or soil contact. Some disease-causing fungi can live on both dead and living plants, so dead plant material can act as a source of further infection. A few, including rusts and powdery mildews, can survive only in living plants. Some fungi, including club root and onion white rot, produce tough resting bodies, which are difficult to eradicate.

The myriad effects of fungal diseases range from mild to life-threatening. Some affect just a localized area, while others are systemic, meaning they spread throughout the plant. Typical symptoms include death of plant tissue (spots), abnormal increase in tissue (peach leaf curl, club root), change in colour such as silvering or yellowing (silver leaf), wilting (wilts, foot rots), wet rots (damping off), and powdery and fluffy moulds (mildews, grey mould).

Bacterial diseases
These tiny, simple organisms cause few diseases but those they do are difficult to control. Symptoms include soft rots, leaf spots, and cankers. Bacteria are spread in soil water, in and on planting material, and by wind and rain. Their main point of entry is through a wound.

Viral diseases
The majority of viruses are moved from plant to plant by aphids, eelworms, hands, or secateurs. Infected plants may not show obvious symptoms, so it is advisable to buy plants that are certified virus-free.

Symptoms include mottling or mosaic patterns on leaves or flowers, sometimes confused with mineral deficiencies; a virus is initially likely to appear on one or two plants only, whereas a deficiency is more likely to affect a whole row. Once a plant is infected with a virus there is no cure.

IDENTIFYING DISEASES

Viruses on tulips
cause the flower colour to break, with the petals having either white streaks or darker streaks than the normal colour.
Destroy any plant showing these symptoms unless the plant was bought specifically to exhibit such coloration.

Grey mould causes affected tissues to become covered with a grey fluffy growth of fungus, which should be cut off as soon as it is seen. In severe cases whole plants will need to be destroyed.

Canker affects apple, pear, ash, beech and Sorbus trees. It shows as sunken and discoloured patches on the bark. The branch usually becomes swollen around the canker, which can cause die-back.

Rose blackspot is probably the most common disease of roses. Circular dark brown or black spots develop on the leaves, surrounded by yellowing tissues. As they increase in size, the whole leaf becomes discoloured and falls prematurely.
IDENTIFYING DISORDERS

Potassium deficiency causes the scorching of leaves, which may also start to curl, as seen on this bean plant. Such mineral deficiencies are most likely on light, sandy, peaty, or chalky soils on plants that require lots of potassium, such as tomatoes, beans, and fruit.

Oedema is caused by an excess of water in the plant, brought about by a wet soil or overly moist atmosphere. The symptoms are small warty growths on the stems and undersides of leaves, typically seen on eucalyptus, ivy-leaved pelargoniums, peperomias, camellias, and vines.

Splitting of fruit, such as tomatoes, and vegetables like carrots and cabbages, as well as the bark of trees, is caused by an irregular supply of water. Heavy rain after drought, for example, will cause very rapid growth, which can lead to splitting.

Frost can cause considerable damage to the leaves, stems, buds, and flowers of plants. Typical symptoms are sudden browning of the leaves overnight on frost-sensitive plants, such as potatoes or bedding plants.

Crown rot often occurs where the soil is too wet or waterlogged. Such conditions promote infection by a soil-borne bacteria, which rots the tissue.

DISORDERS

Problems caused by environmental conditions, such as low temperature, day length, or herbicide drift, are known as plant disorders. They can also result from shortages of particular plant foods. Knowing the underlying cause usually makes it easy to correct the problem.

Poor fruit set: Poor pollination will result in a poor crop on vegetable and fruit plants. This may be due to cold, wet, and windy weather preventing the work of pollinating insects, frost killing the flowers or lack of pollen. Providing windbreaks and choosing later-flowering varieties can help to solve the first two problems. Lack of pollen can be due to the absence of flowers of a compatible variety (many fruit trees need a partner nearby). Water shortages and high temperatures can also reduce fruit set, as can poor flowering caused by overfeeding or hard pruning.

Bolting: This is the term used when a plant flowers prematurely, usually a problem with vegetables that are normally picked before they flower. It can be caused by adverse temperatures, day length, root disturbance at transplanting, or shortage of water.

Distorted growth: This can be caused if spray from a weedkiller finds its way onto other plants. Once a plant is damaged in this way there is no cure. Distorted growth may also be the result of frost or pest damage.

Mineral deficiencies: These are caused by shortages of nutrients in the soil, and can be rectified simply by applying the missing mineral to the plant or to the soil. Examples include potassium deficiency (see above), lack of iron causing yellowing between the leaf veins, and magnesium deficiency – typically seen on sandy soils.
TAKING ACTION

Good cultural practice is not always enough to keep pests at bay. Some, like slugs and snails, are persistent, and defensive action will have to taken if susceptible plants are to survive. The main control measures are chemicals, biological control agents, barriers, traps, and repellents.

CHEMICAL CONTROL

Garden chemicals can give rapid and effective control of pests and diseases that would otherwise destroy or badly spoil the appearance of plants. Before their use, make sure that the correct treatment is applied, and follow the manufacturer's instructions carefully. Only apply chemical controls when necessary, and avoid days that are windy, frosty, hot, or wet. In this way, garden chemicals are used efficiently and only as needed.

Wear rubber gloves when handling pesticides. Garden chemicals must be treated with respect at all times, since incorrect use may harm the user or damage plants. After use they must be stored in a locked cupboard where children and pets cannot reach them.

BIOLOGICAL CONTROLS

Cards bearing whitefly scales killed by Encarsia larvae can be hung on greenhouse plants to control whitefly. The larvae develop into small wasps that emerge and lay eggs to parasitize more whitefly. You are unlikely even to notice the tiny wasps themselves.

Aphidoletes pupae help control aphids in greenhouses. Leave them under an upturned pot to hatch, and after a couple of days small flies emerge. The orange larvae are voracious predators of aphids and will kill and eat their prey until fully grown and ready to pupate.

Nematodes (microscopic worms) for controlling vine weevil larvae can be watered onto the soil of individual container plants.

Predatory mites are typically provided in small tubs or tubes. Open and place these on greenhouse plants: the mites soon climb out to search for their prey – red spider mites – which they hunt down and consume in large numbers.
Biological control
This method of control uses natural predators and parasites to keep certain pests in check. Most of these biological control agents are tiny or microscopic and are very specific in their action — the majority of them are only suitable for use in a conservatory or greenhouse as they require warm conditions to be effective. However, some are available for outdoor use, such as the parasitic nematode Phasmarhabditis hermaphrodita, which controls slugs. Biological control agents are often supplied by mail order as they have a limited shelf life.

Tips on using biological control
If you plan to use biological control, do not use any persistent pesticides. The aim of biological control is to reduce pest levels and related damage rather than to eliminate pests completely. In some cases this can be achieved with one application, but sometimes you may need a further batch of biological control agents.

There is no advantage in introducing the agent before pests are present. If pest levels are high, try to reduce them using other non-chemical means before using the agent.

Before ordering check that you can meet the required conditions of temperature, humidity, and daylight. Try to use the agents as soon as they arrive, and read the instructions carefully before opening.

Barriers & crop covers
The age-old technique of placing a barrier between a plant and its pest can be highly effective. Tree guards are the classic example, protecting newly planted trees and shrubs from rabbits, deer, and other mammals. Plastic bottles with the base removed can be used to protect seedlings from pests, particularly slugs and snails.

A non-drying glue is available for making sticky barriers on pots and legs of greenhouse staging, which will protect against vine weevil, ants, and woodlice. Wrap a strip of wide sticky tape around first, then smear it liberally with the non-drying glue. The glue can then be removed easily at the end of the growing season by peeling off the tape.

Grease bands can help to protect fruit and ornamental trees from winter moths and ants, which both climb up trunks. Copper bands are available to deter slugs and snails.
For food crops, very fine mesh netting is available to protect plants against small pests such as flea beetle, carrot and cabbage root fly, and cabbage caterpillars. These covers are very lightweight and some can be placed directly over a growing crop without the need for any framework for support. They allow air and rain to penetrate.

When using a crop cover it is important to put it in place before the pest is present — usually as soon as the plants are sown. Covers can, if necessary, be left in place for the life of the crop. Be sure to check for weeds and diseases, which can thrive in the sheltered environment.

Keeping out large pests
The only effective control for large pests, such as rabbits or deer, is a wire mesh or electric fence. Plastic netting is usually sufficient to keep out birds and smaller mammals, and for fruit growers, fruit cages are available in many sizes. Deer can be excluded by tall fences.

Grouping soft fruit plants together within a fruit cage is an efficient method of protecting ripening fruit from birds. The netting of these should be removed when fruiting has finished and not replaced until after the blossom has set. This allows access for pest-clearing birds and pollinating insects and also avoids the danger of snow bringing down the roof. Individual fruit trees can be protected by draping netting over them. This is much simpler where the plants are trained against a wall.

Traps
Traps can be used in the garden to reduce pests in a small area. Pheromone-baited traps and sticky yellow traps are the most commonly used. Traps are also used to monitor the activity of pests so that the timing of an appropriate chemical spray or introduction of a biological control agent can be made accurately.

Some traps use synthetic pheromones (sex hormones) to attract specific moth pests into a trap from which they cannot escape. These traps capture males of codling moth, which affect apples, and plum moth, indicating when it is time to spray against the newly-hatched larvae.

Scaring & repelling devices
Various devices for scaring and repelling cats, deer, rabbits and moles are available. Most are not that effective but may be worth a try if you have a persistent problem and other methods have failed.

COVERING CROPS

Horticultural fleece is a finely woven material placed directly over a crop and held in place with pegs or stones. It also protects from frost.

Fine mesh netting is used in the same way as fleece, but does not protect from frost. Hoops are used to support it over the crop.
Common pests

The range of plants grown by amateur gardeners is extremely wide and, correspondingly, there are many pests that can occur. Listed below are some of the most common, wide-ranging pests. Pests that affect particular plants are listed in the relevant chapters.

Slugs & snails
Seedlings and new shoots on herbaceous plants are particularly vulnerable to slugs and snails. In wet weather they are more active and this increases the damage they cause. Some slug species live in the soil where they damage potato tubers and bulbs.

Slugs and snails cannot be entirely prevented. Concentrate control measures on protecting the more vulnerable plants. Scatter slug pellets containing metaldehyde or ferric phosphate thinly among the plants, or try physical barriers of copper strips, water-absorbent minerals, or repellent gels. Biological control with a nematode, *Phasmarhabditis hermaphrodita*, will control slugs when they seek shelter in the soil but is less effective against the surface-dwelling snails.

Capsid bugs
Capsid bugs are small green or brown insects that suck sap from shoot tips and flower buds. This kills the cells that have been probed in the embryonic leaves, resulting in many small holes in the leaves once they have grown and expanded. Damaged flower buds abort or produce distorted flowers. Many herbaceous plants and shrubs are affected by capsid bugs, including dahlias, geraniums, fuchsias, forsythias, and hydrangeas. Control capsid bugs by spraying with imidacloprid or bifenthrin.

Aphids
Most plants are attacked by these sap-feeding insects, which are commonly known as greenfly or blackfly. Infested plants may suffer distorted growth and become sticky with the honeydew that aphids excrete, which becomes blackened with a sooty mould.

Control aphids before heavy infestations develop. Systemic insecticides, such as imidacloprid and thiacloprid, are absorbed into plant tissues and kill aphids when they feed. Contact insecticides include bifenthrin, pyrethrum, plant oils, and fatty acids. With edible plants, check the manufacturer’s instructions to see whether the insecticide is suitable for that specific plant. Biological control with *Aphidoletes* or *Aphidius* can be used against aphids in greenhouses.
Rabbits, deer & squirrels
New plants are particularly vulnerable to rabbits and deer, which gnaw bark, especially in winter, causing young trees and shrubs to die. Squirrels eat flower buds and shoot tips, ripening fruits and seeds, and bulbs and corms. They also strip bark from the trunks of trees. Wire netting is an effective barrier; for rabbits, use small mesh netting 1m (3ft) high with another 30cm (12in) below soil level angled outwards to prevent burrowing. Deer need robust fencing, 2m (6ft) tall. Repellent substances and scaring devices are unreliable and at best give only short-term protection. Shooting or trapping must be carried out over a wider area than a single garden if it is to make any difference.

Vine weevil
Both the adult beetles and the grubs damage many plants. The adult weevils are active at night when they crawl up plant stems and eat notches in leaf margins. The larvae are creamy white, legless grubs with brown heads; they feed on roots, especially those growing in containers. Such plants may be killed during autumn to spring.

Search by torchlight for adult weevils on plants showing leaf damage and destroy them. Insecticides are not very effective against adult weevils. Control the larvae by treating pot plants with thiacloprid. Alternatively use biological control with the pathogenic nematode, Steinernema krausei. Treat plants in late summer.

Caterpillars
Many caterpillars feed on the foliage and flower buds of garden plants. Damage is often limited to unsightly holes in the leaves but some cause more extensive defoliation. Hand removal is feasible for light infestations. This is more effective if the caterpillars are searched for by torchlight on mild evenings. Heavier infestations may require spraying with bifenthrin or pyrethrum.
Common diseases

As with pests, there are many diseases that can infect plants. Listed below are some of the most common, wide-ranging diseases that you are likely to encounter at one time or another in your own garden. Diseases that affect particular plants are listed in the relevant chapter.

Honey fungus
This fatal disease can affect all woody plants and some herbaceous ones too. Typical symptoms include thinning of the canopy, branch die-back, or the sudden death of a plant. Examination of the stem base or larger roots reveals a white sheet of fungal mycelium growing between the bark and wood, which smells strongly of mushrooms. Sometimes, but not reliably, clumps of honey fungus mushrooms may appear at the base of the trunk or along root runs in mid-autumn. The mushrooms are honey coloured, with white gills and a collar on the stalk.

It is not possible to eradicate an established infection, and ultimately affected plants will die. Honey fungus mainly infects new plants by root contact using rhizomorphs (bootlace-like structures that grow through the soil). You should therefore destroy infected plants, taking care to remove as much of their root system as possible. Severed rhizomorphs in the soil can cause new infections, so leave soil fallow for several months before replanting. Where honey fungus is known to be present it is wise to choose plants that are less susceptible to infection, such as *Acer negundo*, beech, hox, ivy, laurel, sweet chestnut, and yew.

Verticillium
This wilt disease affects a broad range of plants, but maples, *Cotinus* and *Catalpa* are most commonly affected. Individual branches wilt and eventually die back, often over successive years. Typically, dark streaking is evident within the vascular tissue of these branches. Sometimes plants may recover.

If the disease is in its early stages, applying an ammonium-based fertilizer to the root zone may encourage the production of a new ring of disease-free vascular tissue. The disease is soil-borne, so badly affected plants and their roots should be removed and replaced with resistant species. You will also need to sterilize tools.

Phytophthora
There are many species of phytophthora (pronounced ‘fi-top-thora’), some of which are highly specific (such as holly blight), while others have a wide host range. Infected plants most commonly suffer from a root or stem rot, characterized by an inverted v-shaped lesion.
beneath the bark at the stem base, together with rotten roots. Die-back of the canopy becomes evident as infection of the root system advances.

Prevention is the only method of control as the disease can remain dormant in the soil for many years in the form of resting spores. On soil that is known to be infected, you should take measures to improve drainage, and it is important to sterilize garden tools and use clean tap water for irrigation to limit the amount of cross infection. Avoid using high-nitrogen fertilizers.

Remove affected plants promptly, including their root system and the soil. If it is possible to identify the type of phytophthora involved, replant with a non-susceptible species. If the type is unknown, it is advised that the affected area be kept free of woody plants for three years.

Rusts
The first sign of infection is the appearance of pustules of powdery orange or brown spores on leaf and stem undersides. Corresponding pale spots on the upper surface of leaves may appear, and the leaves may fall prematurely.

Hygiene is important in controlling an outbreak of rust. Pick off diseased material and destroy it promptly, and at the end of the season, remove dead material. Several fungicides are available to protect against infection or to eradicate existing disease. If rust occurs despite these measures, resistant varieties of plants are often available.

Scabs
Crab apple and pyracantha fruit are susceptible. The fruits develop brown or black scabs, though on pyracanthas they may be reduced to clusters or small, blackened ruts. Prevent infection of crab apples by destroying severely affected plants and replace with resistant varieties.

Powdery mildews
This large group of related fungi affects a very wide range of plants. Typically, a powdery white coating appears on any part of the plant and infected tissue becomes distorted. The leaves may drop, buds die, or stems die back. Outbreaks are most severe on dry soil. Promptly remove infected tissue to reduce further spread.

If available, grow resistant varieties; improving soil conditions and watering regularly will reduce drought stress. It is equally important to encourage good air circulation around the foliage by proper pruning, and ventilation if in a greenhouse. Spraying infected plants with an appropriate fungicide may also help.

Sclerotinia diseases
These affect many vegetables and ornamentals. Symptoms include sudden wilting, yellowing of basal leaves, and a brown rot of the stem. This is associated with white mould, often containing hard, black structures called sclerotia. These fall into the soil to germinate the following spring to cause new infections. Typically the stem base is attacked, but bulbs, carrots, and parsnips in storage can also be affected.

Destroy infected material before sclerotia can be released into the soil, where they may survive for years. Material should not be composted. The potential host range is very wide, so control weeds that could act as hosts. If infected soil cannot be changed, avoid growing susceptible plants there for up to eight years.