

Organic pest and disease control



Healthy plants and people

It is crucial to check the plants in your garden every day. By regularly examining them, you can prevent a number of diseases and take action before pests take hold. It is important to meet the needs of your plants to keep them healthy, which will make them less susceptible to pests and diseases.

Insects

Careful: fewer than 3% of insects are harmful! The right number of beneficial insects ensures a balanced ecosystem, which will keep your garden healthy. Pollinators (bees and butterflies), decomposers (earthworms) and predators (spiders) are essential in a garden.

This pamphlet only presents the main pests, their impact and ways to eradicate them. There are three possible methods:

- (M) Mechanical, by cutting or removing insects.
- (S) Applying slurries (manure), solutions, macerates and decoctions to soil or plants.
- (N) Encouraging a natural balance in the garden to prevent harmful infestations by means of companion planting, gardening techniques and predators.



Cabbage worm

Description: Pale green caterpillar less than 3 cm (1.18 in) long with a pale orange line on its back that becomes a white butterfly at maturity about 5 cm (2 in) in size. It lays small masses of yellow eggs on the underside or inside of tender leaves.



Aphids



Description: 1 to 4 mm (0.04 to 0.15 in) long. They come in many colours, but green, black and white are the most common. Their eggs are black.

Location: Mostly on young shoots and under leaves.

Type of damage: They suck the sap from plants, which causes them to wither; seedlings can become stunted. This causes leaves to become discoloured and deformed and to curl. Buds and flowers may wilt. Growth may slow, and yields may drop.

Susceptible plants: Tomatoes, eggplants, peppers, lettuce, etc. Plants that are given fertilizer with too much nitrogen are more susceptible.

What can you do?

M	<ul style="list-style-type: none"> • Regularly examine the underside of leaves, young shoots and flowers (prevention). • Dislodge aphids by spraying them with a hose every 2 to 3 days. • Crush them by hand, prune severely affected parts. • Cover your plants with a floating cover.
S	<ul style="list-style-type: none"> • Apply a garlic, onion and hot pepper macerate. • Spray soapy water or an isopropyl alcohol solution (5–8%). • Apply a decoction of rhubarb leaves or nettle manure (slurry).
N	<ul style="list-style-type: none"> • Encourage natural predators, such as ladybugs, lacewings and parasitic wasps. • Practise companion planting: nasturtiums, petunias, garlic, etc.

Snails and slugs



Location: When it is sunny, they hide in the shade. They are active on plants when it is cloudy or rainy. Greater damage in clay soil.

Type of damage: Slugs feed on leaves. They chew them and bite the edges. They munch on and tunnel through tubers and fruits.

Susceptible plants: A large number of plants in the vegetable garden. Their favourites are lettuce and cabbage.

What can you do?

M	<ul style="list-style-type: none"> • Avoid overcrowding plants, excess moisture and excess organic matter (prevention). • Don't overwater, particularly in the evening (prevention). • Build traps: fill containers with a mixture of beer, sugar and baking powder and make a hole in the soil for them so the top of the containers is at ground level. • Create barriers around seedlings: surround the base of the seedlings with crushed eggshells, lime, rock phosphate, wood ash, dried powdered horsetail or coarse sand. • Pick them off by hand in the early morning or in the evening. • Put down wood planks in your garden over top of potato slices. The next morning, kill the slugs in the trap.
S	<ul style="list-style-type: none"> • Apply a garlic and hot pepper macerate, a decoction of rhubarb leaves or a tobacco, tansy or wormwood macerate on the soil to ward them off.
N	<ul style="list-style-type: none"> • Encourage natural predators such as robins, starlings, spiders, centipedes, toads and ground beetles (prevention). • Plant companion plants to ward off slugs: thyme, sage, marigolds and geraniums (prevention).

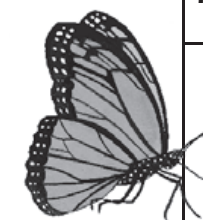
What can you do?



Location: On the midrib of leaves.

Type of damage: The cabbage worm chews on leaves and burrows into apples, leaving behind deposits of green excrement.

Susceptible plants: cabbages, radishes, rutabagas, etc.



M	<ul style="list-style-type: none"> • Remove caterpillars by hand and destroy them. • Place a floating cover around plants during the butterfly's peak flight season.
S	<ul style="list-style-type: none"> • Properly fertilize to stimulate the emergence and rapid growth of young seedlings (prevention). • Apply Bt (bacillus thuringiensis). • Spray with salt water. • Apply a tansy, verbena or wormwood solution or a garlic or tomato leaf macerate to ward off the butterflies.
N	<ul style="list-style-type: none"> • Choose red varieties in the event of a recurrent infestation (prevention). • Do companion planting with aromatic plants such as marjoram, savoury, thyme and tomatoes (prevention). • Encourage natural enemies such as ground beetles, Spanish fly and rove beetles.

Striped cucumber beetle

Description: 5 mm (0.2 in), yellow and black.

Location: They hide in flowers and make holes all over the plant.

Type of damage: They eat leaves, stems and flowers. During severe infestations, the leaves resemble lace. There is scarring on fruit that has been munched. Larvae may dig tunnels at the base of the roots.

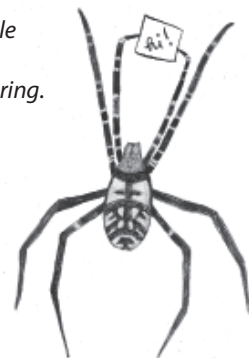
Susceptible plants: Members of the cucurbit family (cucumbers, squash, melons, pumpkins, etc) in dry, windless weather.

What can you do?

M	<ul style="list-style-type: none"> • Pick adult insects off by hand at the first sign of damage and drown them in a container of soapy water. • Install a floating cover right after sowing until the first flowers appear.
S	<ul style="list-style-type: none"> • Spray the plant with a tansy infusion to ward off the beetles.
N	<ul style="list-style-type: none"> • Practice crop rotation. • Encourage natural predators, such as ground beetles and birds. • Use companion plants: marigolds, radishes or broccoli (prevention).



If you see other insects in your vegetable garden, consult a reference manual on insect pests and phytosanitary monitoring.



Diseases

They can be caused by fungi or viruses. Damage to plants caused by insects or other factors, such as overwatering, improper pruning or weather (wind, moisture, etc) can all lead to diseases.

Blossom-end rot

Description: Black patches that harden with time and come to look like leather. This causes the fruit inside to turn black.

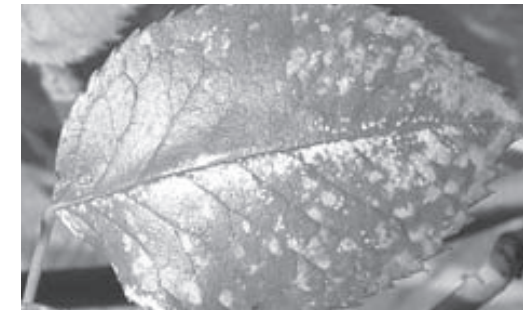
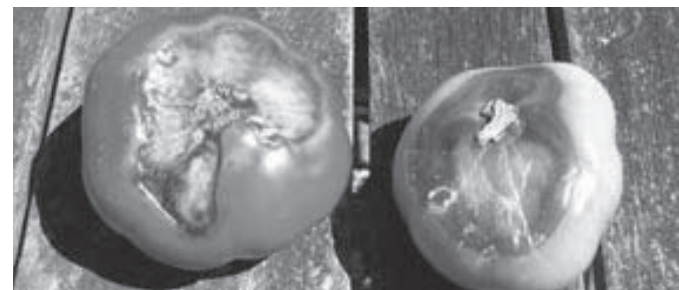
Location: Mostly on the first fruit clusters and on their ends.

Susceptible plants: Tomatoes, peppers, etc.

Favourable conditions: Sandy soils with a pH below 6.5. Too much or too little water. High temperatures, which cause the fruit to grow rapidly. Calcium, boron, potassium or magnesium deficiency. Too much nitrogen, potassium or magnesium. High salinity. Superficial root development. Compacted soil. Exaggerated size. Root damage.

What can you do?

M	<ul style="list-style-type: none"> • Water regularly as needed (prevention). • Avoid tilling near seedlings during flowering (prevention). • Remove affected fruit.
S	<ul style="list-style-type: none"> • Use a balanced fertilizer based on an analysis of the soil (prevention). • Keep the pH of the soil above 6.5 (prevention). • Apply calcium every week for three weeks. • Soak approximately 200 ml of wood ash in 1 L of water for 36 hours and use it to water the base of the seedlings. • Early in the season, mix dolomitic lime with planting soil (1 cup of lime for 25 L of soil).
N	<ul style="list-style-type: none"> • Spread mulch to better regulate soil moisture during dry spells (prevention).



Powdery mildew

Description: White powdery fungus on the top or underside of older leaves and stems. Pale yellow spots will appear first.

Location: On foliage.

Susceptible plants: Cantaloupes, cucumbers, melons, endive, lettuce, eggplant, peppers, tomatoes, strawberries, etc.

Favourable conditions: Temperature between 23 and 26 degrees Celsius. Humidity between 50 and 90%. Rain halts its spread.

What can you do?

M	<ul style="list-style-type: none"> • Water in the morning and let dry between waterings (prevention). • Remove crop residues (prevention). • Remove affected leaves. • Spray a copious amount of water on the top and underside of leaves every week.
S	<ul style="list-style-type: none"> • Remove excess nitrogen (prevention). • Use a horsetail decoction (prevention). • Apply a baking soda solution every 3 to 4 days.
N	<ul style="list-style-type: none"> • Space plants properly (prevention).



Rust

Description: Fungus causing the appearance of 2-mm orange pustules, which then become reddish brown or black. This also causes yellowing, wilting and the premature falling of leaves.

Location: Mostly on leaves and the stem.

Susceptible plants: Beans, asparagus, peas, mint, leeks, etc.

Favourable conditions: Temperature between 16 and 24 degrees Celsius. Wet weather. Moist or wet seedlings for 10 to 18 hours. Long days. Young shoots.

What can you do?

M	<ul style="list-style-type: none"> • Avoid watering foliage and picking fruit when leaves are wet (prevention). • Remove plant debris. • Cut the first affected leaves when the leaves are dry.
S	<ul style="list-style-type: none"> • Apply a sulphur or 3% copper sulphate solution every 7 to 10 days under the leaves and on the affected areas. • Spray a horsetail concoction.
N	<ul style="list-style-type: none"> • Lay down mulch (prevention). • Rotate crops (prevention). • Vary sowing dates and respect planting distances (prevention). • Encourage air circulation (prevention).

Early leaf blight

Description: Fungus that causes brown spots which grow in concentric circles on leaves. Between the lesions, the leaves are yellow.

Location: On foliage.

Susceptible plants: Eggplants, peppers, potatoes and tomatoes.

Favourable conditions: Temperature between 18 and 25 degrees Celsius. Rain. Not enough fertilizer. High productivity.



What can you do?

M	<ul style="list-style-type: none"> • Prune suckers carefully (prevention). • Avoid splashing earth on seedlings when watering (prevention). • Eliminate all crop debris. • Remove affected leaves and fruit.
S	<ul style="list-style-type: none"> • Spray seedlings with a baking soda or hydrogen peroxide solution.
N	<ul style="list-style-type: none"> • Use seeds or young healthy seedlings (prevention). • Place stakes and mulch around seedlings (prevention). • Do a rotation every 3 to 4 years (prevention).