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Alternatives to pesticides

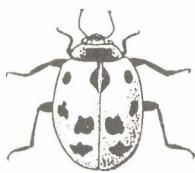
Roses and other flowers

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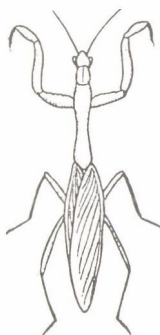
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Ladybug



Rove Beetle



Praying Mantis



Lacewing

The use of pesticides in tending flower beds results in blooms growing in a clean, aseptic environment, but below this outward appearance lies a highly fragile, delicately balanced environment. An insect spells disaster and a disease is a nightmare.

We must review our concept of what is natural. Not all insects are pests, and most of the time it is the lack of predators that leads to an infestation. Various insects living together form a healthy and stable environment. A few holes in a flower's leaves don't ruin its beauty. Sanitary measures are quite effective in preventing disease, as is companion planting. Roses and other flowers can flourish in a pesticide-free garden and still be the envy of the neighbours.

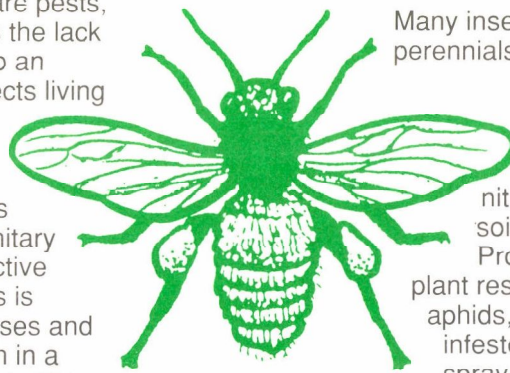
BENEFICIAL INSECTS

You must learn to tell the difference between beneficial insects and those that are harmful. Books and professionals can help you identify beneficial insects.

Bees pollinate the flowers of fruit trees. They are attracted by aromatic herbs such as thyme, mint, basil and parsley. Bats eat many types of insects. **Ladybugs** eat aphids, whitefly and other insects. Ladybug larvae may not be as pretty as the red adults with their black spots, but they are true friends in the garden, so don't kill them. Frogs and toads feed on insects and worms at night. Tiny wasps fertilize flowers and are parasites of many insect pests. Fennel attracts them.

Praying mantises and dragonflies are beneficial because they prey on many insects. Other general predators include **spiders, rove beetles, lacewings**, ground beetles and blister beetles. Birds are also friendly to a garden.

INSECT PESTS



Bee

Many insects feed on annuals, perennials and roses. **Aphids** appear on plants in hot weather or when the plant's resistance is low after flowering or because the nitrogen concentration in the soil is too high or too low. Proper fertilization increases plant resistance. To eliminate aphids, cut and burn the most infested parts of the plant and spray the rest with soapy water for a few weeks. Sometimes a jet of cold water daily can get rid of them.

To keep **cutworms** from cutting shoots, place a **cardboard collar** or a tin can with the ends cut out around the plant, or push a toothpick into the soil. Wood ash sprinkled around new plants keeps cutworms away. Tea leaves at the base of flower bulbs also repels cutworms.

Grubs are fond of flower buds. Plant white geraniums as bait and pick the grubs off the plant after dark.

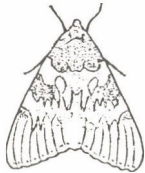
Rose chafers are repelled by mothballs left near the rosebush. Place the mothballs on plastic to avoid killing soil bacteria. Put dead rose chafers in a **glass jar**, let them decay, and leave the open jar under the rosebush. The unpleasant odour will keep other rose



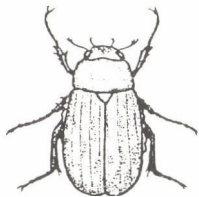
Ground Beetle



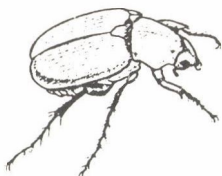
Aphid



Cutworm



Grub



Rose Chafer

chafers away. The same method works for all sorts of insects.

To keep *thrips* and *whitefly* under control, soak cigarette butts in water for a few hours. Dilute one part of the resulting liquid in four parts water. Add liquid detergent. Spray the solution on the plants and rinse with clear water before it is completely dry. Don't use the solution on roses, as it may burn the leaves.

Rub mealybugs with a cotton swab soaked in rubbing alcohol.

Here's another solution to try: put 3 cloves of garlic, a medium onion and 3 mL red pepper in 1 L water. Crush, let stand 10 minutes and strain. Dilute one part of the mixture with three parts water. Spray the solution on the plants in early May and repeat three times at three-day intervals to combat insects before infestation occurs.

Another easy method is to steep 6 rhubarb leaves in 2 L water. Crush the leaves and strain. This spray is effective against grubs and black spot on roses. These last two mixtures can be frozen.

Diatomaceous earth, pyrethrum and rotenone kill leafhoppers, scarab beetles and mealybugs, but they also kill beneficial insects, so they should be used only as a last resort.

Remove and burn all leaves with insects or eggs on them. Flying insects don't like the damp. Spray

plants with cold water when it's sunny, or sprinkle lime on the leaves in the early morning. Place oak-leaf mulch near flowers to repel insects that chew foliage.

DISEASES

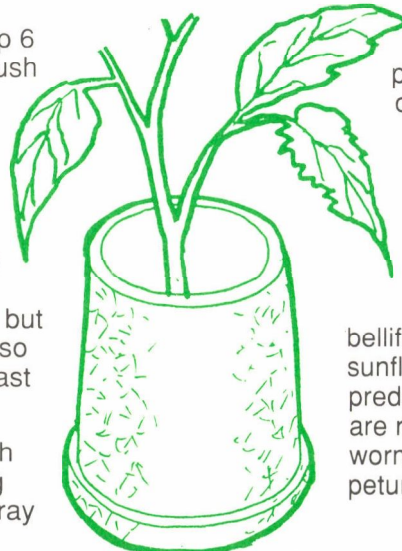
As a preventive measure, always buy disease-free flowers, bulbs and seeds. Generally, plants sold in garden centres are disease-free. Buy a few extras to replace dead or diseased plants. Rotate annuals to reduce the incidence of disease. Steep fresh chives for 15 minutes and spray the infusion on plants to prevent fungal infections such as mildew. A spray of milk or diluted human urine is also effective against mildew.

COMPANION PLANTING

Plant aromatic herbs in June and nicotiana in your flower beds to keep insect pests away.

Plant garlic, chives, mint, anise, coriander, parsley, lavender, geraniums, petunias, nasturtiums, lupines or marigolds beneath rose-bushes. (Mint spreads quickly, so plant it in a pot.)

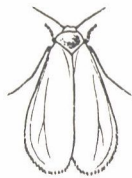
These companion plants work against diseases and pests. Tomato plants in a sunny, well-aerated flower bed will repel insects. Umbellifers such as parsley and sunflowers attract beneficial predators in early spring. Aphids are repelled by chives, garlic, mint, wormwood, anise, coriander, petunias and nasturtiums.



Place a cardboard collar around the plant



Put dead insects in a glass jar



Whitefly



Mealy Bug



Leafhopper

GENERAL MAINTENANCE

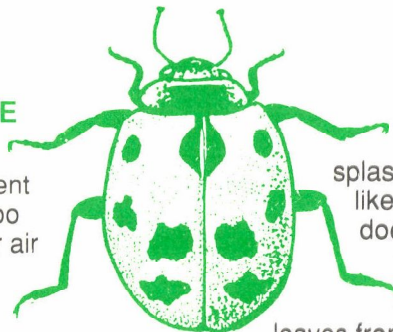
Some conditions may be harmful to your flowers: nutrient deficiencies, poor drainage, too much manure or peat, or poor air circulation, for example.

Fertilize your plants with peat moss, bonemeal and blood meal. Too much nitrogen increases aphid infestations and may introduce diseases like rust or mildew. Perennials should be fertilized twice a year, in spring and mid-July. In fall, incorporate bonemeal into the ground where you wish to plant bulbs, stop using nitrogen fertilizer, and remove garden debris before winter.

In spring, remove winter protection from roses, perennials and flower beds. Prune weak, diseased, or damaged stems and turn over the earth. Water flowers during the dry spell. Remove dead flowers from both annuals and perennials throughout the summer months.

ROSES

Roses are more susceptible to disease than other flowers. They require full sun for eight hours a day or six hours of sun in the morning. Soil must be loose, well-drained and slightly acid (pH 5 to 6). Air circulation between bushes is very important, and roses planted too close to the house are more susceptible to mildew because of poor air circulation. Roses need plenty of water during the dry season. Water liberally one morning a week. Watering roses at the end of the day or too often promotes disease. You can use a peat moss mulch to keep the soil moist during the dry months. Remove the mulch before



winter if it hasn't decomposed. The mulch also reduces water splash, which may propagate fungi like black spot. A peat moss mulch doesn't serve the same the purpose as a fall mulch.

In autumn, remove fallen rose leaves from the ground as well as any leaves showing signs of disease. Watch for mildew. Cool, damp evenings favour mildew. Mound up soil around rosebushes and cut back long branches. After the first frost and after the mice have made their nests elsewhere, protect the rosebush against winter injury with straw mulch, leaf mulch or a **cone**.

In spring, remove the mulch and mounds of earth before buds appear. Prune dead branches. Remove leaves showing signs of black spot or other disease. Stay in the habit of removing fallen or diseased leaves all summer. Transplant roses in spring or fall. Don't plant roses too close to trees, which block the sun and steal nutrients. Fertilize in spring and summer with a combination of fish meal, blood meal and bonemeal. Stop fertilizing in early August.

NATURAL METHODS

There are many books that can tell you how to take care of your annuals, perennials and roses. With a minimum of care, your plants will flourish. Being better informed, you will be able to prevent infestations and disease, or treat them with natural methods if necessary.

SUGGESTED READING

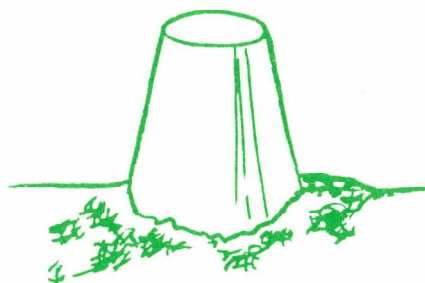
Foster, Catherine Osgoode. 1975. *Organic Flower Gardening*. Emmaus, PA: Rodale Press. 305 p.

Kourik, Robert. 1986. *Designing and Maintaining your Edible Landscape Naturally*. Santa Rosa, CA: Metamorphic Press. 370 p.

Riker, Tom. 1978. *The Healthy Garden Book: How to Control Plant Diseases, Insects and Injuries*. New York: Stein and Day. 224 p.

Smith, Miranda and Anna Carr. 1988. *Rodale's Garden Insect, Disease and Weed Identification Guide*. Emmaus, PA: Rodale Press. 328 p.

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