

CONTROLLING INSECT PESTS Science Page

You can control insect pests using physical, cultural, biological, and chemical methods.

Combining a number of methods may be the best way to control insects in your garden.

Physical control includes methods such as removing insect pests by hand and using physical barriers or traps to keep insect pests away from plants.



These butterfly larvae are eating all the leaves! I'm picking them off the plants and putting them in a bucket of soapy water.

Cultural control includes carefully choosing what, how, when, and where you plant in order to avoid insect attack.

Last year insect pests destroyed my squash plants. This year insects have not been a problem because of the control methods I've used.

What did you do?

I prepared my soil well, so my plants stayed healthier and were better able to resist insect attack.

Which squash did you plant?

Summer and winter squash. I planted butternut as a winter squash because it's resistant to squash vine borer. I waited until July to plant summer squashes so they matured after the adult borers finished laying their egg.

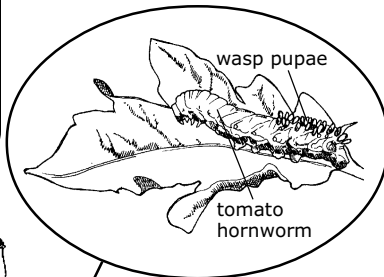
Far from where squash grew last year. That way I avoided the insect pests that over-wintered in the soil.

Where did you plant the crops?

Biological control is the use of natural enemies, such as insect predators and parasites, to keep down the number of insect pests. Helpful insects may be released into the garden, or they may be attracted to the garden by certain flowers or herbs.

A parasitic wasp lays eggs inside the body of the tomato hornworm. When the eggs hatch the larvae feed on the inside of the hornworm. Then the larvae emerge and turn into pupae.

Look! A tomato hornworm covered with wasp pupae. I'll leave it in the garden. When the adults emerge, they will attack other hornworms.



Chemical control is the use of pesticides to control insect pests.

No control treatment has worked. So the gardeners may have to use this pesticide. Both the insect pest and my infested crops are listed on this label. The gardeners will read the directions carefully and use only the amount of pesticide that is needed.





WORD SCRAMBLE

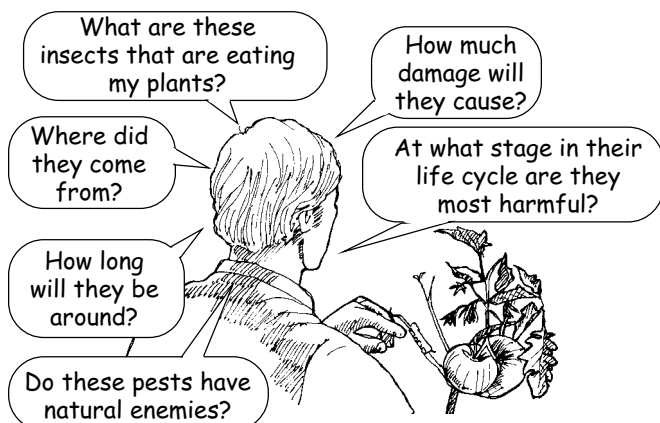
Unscramble each of these words to find out some methods that can be used to control insect pests.

1. SUE SNREATITS SAETIRVEI
2. RETTOA SOCRP
3. EPKE RCPOS HEYTAHL
4. TATRTAC MIESEEN
5. LAEEERS TROPSEADR
6. DAHN CIKP
7. SUE SIRRBEAR
8. SUE CEDSISTEPI



TRY THIS

Controlling insect pests in the garden requires careful observation and research. Check your garden often for insect damage, such as chewed or wilted leaves. Observe insects causing the damage. Identify the insects, and find out all you can about them.



SEARCH FOR INSECT PESTS

What you need

- * paper and pencil
- * magnifying lens, if available
- * insect field guide, if available

What to do

1. Go to a garden to look for insect pests and signs of insect damage on crops. For example, try to find: leaves, stems, or fruits that have been eaten; eggs under leaves; larvae, adult beetles, bugs, or aphids feeding on crops; Spend at least 5 to 10 minutes observing insects that you find. Use a magnifying lens to observe them more closely. What kind of mouthparts do they have? Draw pictures of the insect pests you find.
2. Try to identify the insect pests. If possible,

look them up in an insect field guide or on the web.

3. Do research to find some ways the identified insect pests can be controlled.
4. Share your findings with other youth.



SPOTLIGHT ON RESEARCH

What do lady beetles really eat?

Gardeners welcome lady beetles to their gardens because they eat aphids. But how many aphids do lady beetles actually eat? Do they eat only aphids all summer long, or do they eat other things as well? During a two-year study, scientists set out to answer these questions. They collected adult seven-spotted lady beetles during the growing season, and analyzed the contents of the beetles' guts.

During the spring, they found soil particles, aphids, and the spores of fungi in the lady beetles' guts. (Fungi are organisms like mushrooms and molds that produce spores, or tiny reproductive cells.)

During the summer, when the lady beetles were reproducing, aphid remains were present in almost all the beetles collected. Spores were also commonly found in the lady beetles' guts during this time of year.

In the late summer and autumn, spores and pollen, and not aphids, made up the bulk of the lady beetle diet. Scientists were very surprised to learn that the spores of fungi were such an important part of the lady beetle's diet during that part of the year. That means lady beetles cannot be relied upon to control aphids in late summer and fall, but they can be very helpful from spring until late summer.

Source: Triltsch, H. (1997). Gut contents in field sampled adults of *Coccinella septempunctata* (Col.: Coccinellidae). *Entomophaga* 42 (1/2), 125-131.



RIDDLE

What do moths learn at school?

Answer: *Mothmatics*

Remember, not all the insects that visit a garden are harmful. In fact, most are helpful, and should not be disturbed. Insect predators hunt and kill insects. If you find a praying mantid egg case, place it in your garden. When the eggs hatch, the praying mantids will eat insect pests.

