

Waging war on garden insects

LITITZ — Protecting plants from all the hungry insects that threaten a vegetable garden can be an endless job. You start the growing season with visions of wonderful harvests to come and before you know it, you're at war. There are root maggots in the radishes, juicy green caterpillars on the tomatoes (the ones the cutworms didn't get earlier) and cabbage loopers are making lace out of the broccoli.

The experience can be particularly unnerving to a beginning gardener—one not yet hardened to this inevitable battle of the bugs. But don't throw in the sponge just because of a few ravenous beetles. There are lots of ways to win the war.

First of all, know the enemy. For controls to be effective, the pest doing the damage has to be identified.

Insects that attack garden plants can be placed in three distinct groups: soil insects, sucking insects, and chewing insects.

Soil insects are those that spend a part of their life in the ground, attaching either the seed at planting time, or small tender seedlings. Included in this group are wireworms, cutworms, white grubs, mole crickets, and various maggots or fly larvae.

Sucking insects are those that have their mouthparts developed for piercing and sucking. They damage plants by inserting these mouthparts into plant tissue and removing the juices. Plants heavily infested with this type of pest become yellow, wilted, deformed, or stunted and may eventually die. Some sucking insects inject toxic chemicals into plants while feeding and some transmit disease organisms such as bacteria and viruses.

Some examples of sucking insects are aphids, leafhoppers, stinkbugs, squash bugs, thrips, and spider mites. Mites are not true insects, however, but are often grouped with them for convenience.

Chewing insects cause more damage in the home garden than either soil or sucking insects. They feed on many parts of a plant, consuming both foliage and fruit. A wide range of pests fall in this troublesome category, including beetles, weevils, leaf miners, grasshoppers, and numerous caterpillars.

Some of these chewers can also be vectors for disease. The striped cucumber beetle, for instance, transmits bacterial wilt to cucumbers.

Cultural practices play a

significant role in reducing or eliminating many insect problems in the home garden. For one thing, keep soil at maximum fertility and well watered. Also, dispose of any trash, boards, or old plant debris in the garden area. If only a few plants show signs of infestation, handpick larger insects, crush insect egg masses, or wash insects off plants with a forceful stream of water.

Use cardboard protectors around transplants to ward off cutworm attacks. And at the conclusion of the growing season, remove all plants and plant debris from your garden.

Most soil insects can be controlled by treating the ground a week or two before planting. Use Diazinon (3/4 cup of 25 percent emulsion concentrate in 3 gallons of water or 1/2 cup of 50 percent wettable powder in 3 gallons of water). These mixtures will treat about 1,000 square feet of surface area. The insecticide should be applied to the soil surface and mixed in thoroughly to a depth of 4-6 inches.

Sucking and chewing insects can also be controlled with a variety of commercial sprays and dusts. Be sure to read the labels on all sprays and dusts.

Watch for hunger signs

LITITZ — Plants get hungry too! You must not only feed yourself, your animals and your car with gas, but you must water and fertilize plants.

According to the cooperative extension service of Penn State, garden vegetables express their need for fertilizer through hunger signs which are specific for various nutrients. Usually plant growth has slowed down even before these symptoms become apparent. The hunger signs you follow can be used year-round for house plants as well as garden crops.

Yellowed or light green leaves, especially on the lower part of the plant, indicate insufficient nitrogen.

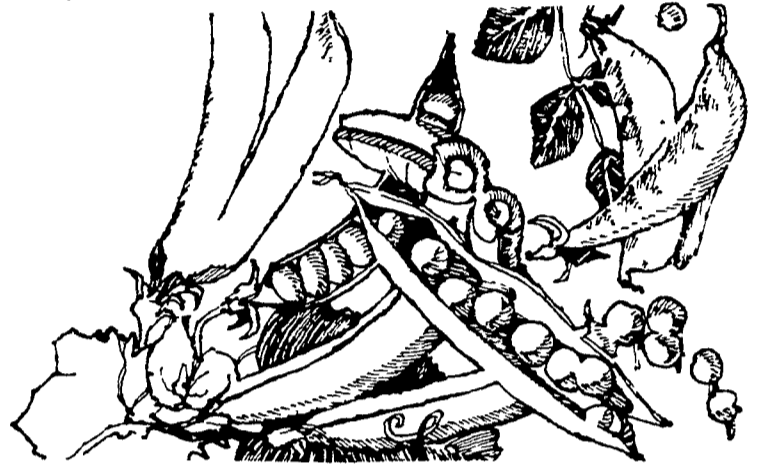
Purple-tinged leaves and stems on stunted plants are often a sign of phosphorus deficiency. Tomatoes

are particularly sensitive. Plants exposed to prolonged cold weather can also turn purple.

Potassium deficiency shows up commonly as a yellowing or browning of edges of older leaves.

A lack of manganese in most nutrient elements differ among vegetables. Boron deficiency causes dry rot or brown-heart of beets, cracked stalks of celery, hollow-stem of cauliflower, and discolored areas on cauliflower heads.

Disease, insects, unfavorable soil conditions, injury due to improper use of fertilizers, and weather unsuited to some crops all have harmful effects on plant growth. Do not confuse poor growth, due to these conditions as well as faulty cultural practices, with specific nutritional deficiencies.—DK



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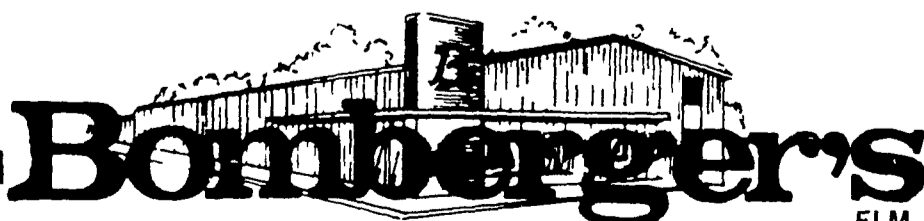
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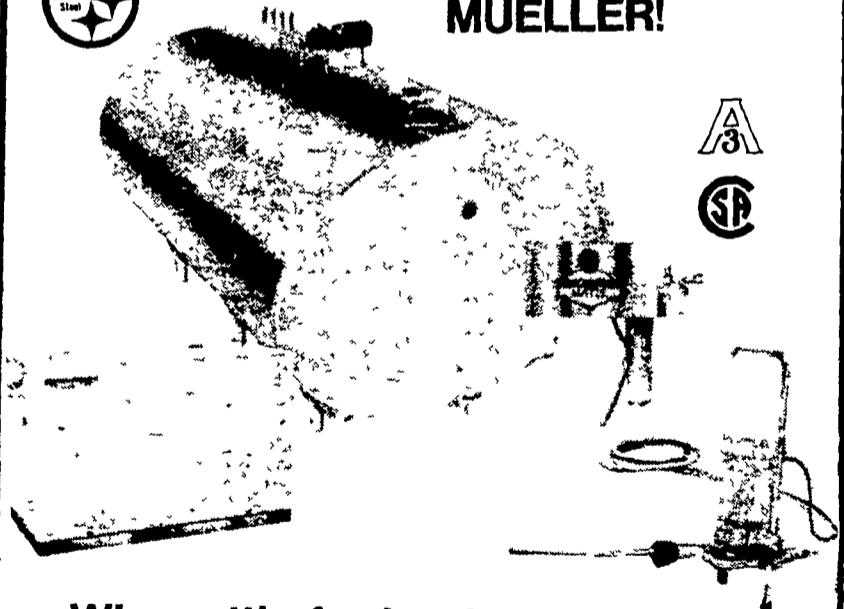
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