



## CAPE COD COOPERATIVE EXTENSION

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### NONCHEMICAL METHODS OF INSECT & DISEASE CONTROL IN THE HOME VEGETABLE GARDEN

**General Control Methods:** Keep plants healthy by providing adequate and even moisture, sufficient nutrients, and the proper pH. Avoid planting too close since this reduces air circulation and increases likelihood of disease. Remove and destroy badly infested or infected plants. Keep area around the garden free of weeds and rubbish. Rotate crops from year to year, and use resistant and quick-maturing varieties whenever possible. Check plants regularly for pests. Learn to recognize different insects and to distinguish between the harmful, beneficial, and harmless.

**Aphids:** Plan sowings to minimize hazard of cold injury. Ladybugs, braconid wasps, green lacewings, and their larvae are natural predators. Encourage plant vigor. Use slow release nitrogen, and avoid applying in excess. Collect and destroy aphids frequently unless predators are present. Repel with aluminum foil spread around and under plants, especially crops affected by aphid-carried diseases such as mosaic, virus of strawberry, etc. Sticky yellow traps or water in yellow pans will trap some. Remove and destroy heavily infested leaves. Wash off with a strong stream of water. Horticultural oils and insecticidal soaps may be used.

**Beetles (General):** Many beetles such as ladybugs, ground beetles, and rove beetles are predators of other insects, so learn to recognize and encourage these. Handpick adults and larvae of pest species.

**Colorado Potato Beetle:** Handpick larvae and adults. Destroy yellow-orange egg masses on undersides of leaves. Pay special attention to eggplant.

**Cucumber Beetle:** Protect young seedlings by loosely covering with floating row cover before they emerge; bank edges of cloth with soil. Remove when plants are larger (before flowering).

**Flea Beetle:** Dust plants frequently with a mild alkali such as wood ash or lime. Mild infestations are usually outgrown.

**Japanese Beetle:** Manage white grubs in turf. Handpick adult beetles early in the morning.

**Mexican Bean Beetle:** Handpick adults and larvae. Destroy clusters of orange eggs found on underside of leaves. Check plants frequently. Plant early and use quick-maturing varieties.

**Caterpillars (General):** Identify and handpick eggs, caterpillars, and pupae. Apply *Bacillus thuringiensis* (B.t.) spray to young caterpillars or use a product containing spinosad. Encourage nesting of robins, wrens, and swallows.

**Cabbage Looper, Cabbage Worm:** See Caterpillars (General). Use floating row covers.

**European Corn Borers:** Winter sanitation is essential to kill pupae over-wintering in stalks. Handpick white egg



masses in late May to early June. Plant corn late (late June through early July).

Squash Vine Borers: Use floating rowcover over plants until the egg-laying period ends, around the second week in August. Cut out larvae with a lengthwise slash. Cover slash with soil. Encourage multiple rooting by covering nodes with soil. Butternut is resistant.

Tomato Hornworm: Handpick unless parasitized. Use B.t. on young caterpillars.

Cutworm: Use 3" vertical collars around young plants; set 1" into soil.

Diseases (General): Encourage plant vigor. Avoid over watering and over fertilizing. Do not water at night when foliage will be slow to dry. Purchase disease-free seed with genetic resistance, if possible. Avoid crowding plants and eliminate weeds. Burn or remove infected plants. DO NOT compost infected plants.

Clubroot of Cabbage Family: Use sterilized soil for starting seedlings, and inspect purchased transplants carefully. If the disease is present in the garden, raise the pH of a confined area to 7.2. Grow all cabbage family crops in that space for 10 years. Do not allow any wild mustard to grow in or near the garden.

Mosaic Virus: Encourage plant vigor; choose varieties with genetic resistance. Do not smoke tobacco or handle plants after smoking; this may spread mosaic to tomatoes, eggplant, and peppers.

Earwigs, Pillbugs and Sowbugs: Remove debris and rotting wood. Use wooden board as a trap. Collect the pests during heat of the day, and destroy.

Leaf Miners: Use floating row covers over beets, spinach and Swiss chard. Remove and destroy infested weeds (i.e. lambs quarters).

Cabbage Maggots: Use floating row cover over young seedlings.

Nematodes: Plant marigolds throughout the garden every year. The African marigold, *Tagetes erecta*, seems to be more effective than the French marigold, *Tagetes patula*.

Slugs & Snails: Use pans of beer or yeast dissolved in water as death traps. Avoid using piles of green weeds or grass as mulch. Handpick early in morning or in evening. Place boards in garden; mid-day remove the slugs which hide there.