



# Insect Pest Scouting for Crucifer Crops

## (Open Field and High Tunnel Crops)

Scout for insect pests regularly. Use this field scouting guide for basic information. For pest management information, organic and high tunnel crop producers should use ANR-2190, “Organic Vegetable IPM Slide Chart,” after proper insect identification. Conventional producers should consult the Southeastern Vegetable Production Handbook. Always consult the insecticide label for correct usage.

### Sampling Method

Use the scouting form on the back to examine 50 plants in 10 locations across the field. The example scouting form shows larval unit calculations for cabbage looper, imported cabbageworm, and diamondback moth. Count the number of caterpillars separate from aphids or other insects, and refer to the economic thresholds (ET). Remember that the accuracy of IPM decisions increase with sample size.

**ET** = Economic Threshold (*number of insects above which there will be economic losses*)

**Generalized ET for caterpillar complex =**  
 10% Infestation in Seedbed  
 30% Infestation in Cupping  
 10% Infestation Near Maturity

### Beet Armyworm (BAW)

#### Identification

Plump green caterpillars up to 30 mm long with three longitudinal stripes on dorsal surface; pair of black spots on the second body segment behind the head



John Capinera, University of Florida

#### Plant Injury

Damaging to young leaves in the fall season; rapid defoliator if uncontrolled in open field and high tunnel crops

#### Sampling Method & Economic Threshold

- Use pheromone-baited sticky traps for monitoring pest pressure/activity.
- Look for egg masses under the leaf (covered with white fuzzy scales).
- ET = 3% infested plants from a random sample with live caterpillars or egg masses.

### Cabbage Aphid

#### Identification

Many species of aphids can be present at one time; soft-bodied insects with winged and wingless forms; winged forms are migratory and may be darker in body color with transparent wings



Whitney Granshaw, Colorado State University

#### Plant Injury

Large number of aphids can deform plant parts

#### Sampling Method & Economic Threshold

- Use a good quality magnifying lens for identifying various forms on the underside of leaves.
- Sudden presence of ants or lady beetles in the vicinity of crop may indicate building population of aphids.
- Aphids are generally a problem in late fall when the activity of natural enemies is reduced.
- ET in cabbages = 2% infested plants with five or more aphids.

### Cabbage Butterfly/Imported Cabbageworm (ICW)

#### Identification

Green velvety caterpillars have row of faint yellow spots on each side of body; green-colored pupa on undersurface of leaves attached by a silken thread



Whitney Granshaw, Colorado State University

#### Plant Injury

Sluggish, velvety caterpillars may feed in groups on old leaves, particularly near leaf veins; caterpillars may move closer to the stalk or near the center head in late stages

#### Sampling Method & Economic Threshold

- Prefer cabbage, broccoli, and cauliflower but can feed on a variety of other crops.
- ET (together with DBM and CL) = see scouting form for example.

### Cabbage Looper (CL)

#### Identification

Green caterpillar with several fine longitudinal stripes; head is slightly tapered with broad abdomen; three pairs of green thoracic legs; larvae move in looping fashion



David Cappaert, Michigan State University

#### Plant Injury

Caterpillars cause leaf skeletonization (everything except the veins are consumed); may occur together with other caterpillars

#### Sampling Method & Economic Threshold

- Use pheromone-baited sticky traps for monitoring pest pressure/activity.
- Larvae are often hard to see. Look for feeding injury (loss of leaf lamina between veins) or green fecal pellets.
- Detect small caterpillars and treat crop early.
- ET in cabbage (together with ICW and DBM) = see scouting form for details. Scout 50 plants and treat when larval units exceed 0.5 per plant in seedling or head formation stages.
- ET = 0.5 in seedling, 1.3 in precupping, and 0.5 in head formation stages.

### Cabbage Webworm (CW)

#### Identification

Yellowish gray caterpillars about 15 mm long; five brown longitudinal stripes on dorsal surface; has distinct body hair



Afon N. Sparks, Jr., University of Georgia

#### Plant Injury

Minor pest in Alabama; larvae cause leaf deformation/webbing; may be found inside webs along the leaf veins (underside)

#### Sampling Method & Economic Threshold

- Look for webbed leaves.

### Cross-Stripped Cabbageworm (C-CW)

#### Identification

Very common in open field and high tunnel crops; late instar caterpillars have grayish blue body with numerous black transverse stripes; stout body hair visible on dorsal surface



#### Plant Injury

Caterpillars feed on buds and tender leaves in masses after hatching, and then move out to other leaves; builds up on uncontrolled vegetation

#### Sampling Method & Economic Threshold

- Larvae feed in groups early on, and feeding injury is easy to detect. Treat leaves when larvae are small and in groups.
- Detect small caterpillar and treat crop early if more than 3% of plants are infested.

### Diamondback Moth (DBM)

#### Identification

Pale green or translucent caterpillars about 7–8 mm long; abdomen is tapered with anal prolegs (forked appearance); caterpillars wiggle rapidly when disturbed; pupae attached in loose cocoon on leaves; adult moths have diamond-shaped markings on folded wings



Clemson University - USDA Cooperative Extension Slide Series

#### Plant Injury

Most active in early spring and summer; larvae feed on underside and riddle leaves with holes rapidly; may have resistance to many synthetic insecticides

#### Sampling Method & Economic Threshold

- Use pheromone-baited sticky traps for monitoring pest pressure/activity.
- Look for window-pane effect from small larvae feeding on leaves.
- Control is too late if cabbage heads are deformed.
- ET (together with ICW and CL) = see scouting form for example.
- Yellow rocket plants can be used as trap crops.

### Flea Beetle

#### Identification

Small insects that jump readily using muscles in their hind legs; hind legs appear swollen



Whitney Granshaw, Colorado State University

#### Plant Injury

Common in spring on seedlings; shot-hole feeding symptoms on small leaves

#### Sampling Method & Economic Threshold

- Use a good quality magnifying lens when scouting seedling.
- Shot-hole leaf injury is distinctive.
- Scout on field edges that usually get the worst damage from flea beetles.
- No economic thresholds are available.
- Young plants are susceptible to flea beetle damage.

### Harlequin Bug

#### Identification

Brightly colored bugs with piercing-sucking mouthparts (orange, red, and yellow patterns on adults); eggs are barrel-shaped with black bands on top; overwinter as adults



Russ Ottens, University of Georgia

#### Plant Injury

Nymphs and adults feed on leaf veins causing extensive browning or wilting of leaves; extensive feeding will cause plants to wilt and die

#### Sampling Method & Economic Threshold

- Look for colorful adults or masses of nymphs feeding together.
- ET (Georgia) = 1 adult bug per 10 plants.

### Yellow-Margined Leaf Beetle (YMLB)

#### Identification

Adult beetles are 5 mm long and dark brown with a yellow wing margin; eggs are bright orange, oval shaped, and laid in masses; caterpillars are dark brown with black head; body is covered with stout hair



Natasha Wright, Florida Department of Agriculture and Consumer Services

#### Plant Injury

Adult beetles and caterpillars cause extensive leaf feeding and crop damage occurs rapidly; also feed on exposed tubers of turnips and radishes

#### Sampling Method & Economic Threshold

- Early detection and management will prevent rapid colonization of this pest.
- Look for adult beetles that migrate into the field during late September or early October. Early morning or late evening when beetles are most active is the best time to scout.
- Highly attracted to turnips and napa cabbage compared to other crucifers.
- Turnips should be scouted at least weekly to detect rapidly growing populations (turnip and napa cabbage can be used as a trap crop).