Insect Management in Cole Crops and Crucifer Greens

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Cole crops ... Who are the key players?

Because of its coating of wax, some growers call the cabbage aphid the "gray aphid." Freshly molted individuals lack the gray wax.
Cabbage Insects

- Root maggots
- Crucifer flea beetles
- Cabbage aphid, turnip aphid
- “Leps”
  - Diamondback moth, imported cabbage worm, and cabbage looper
- Onion thrips
Cabbage maggot control

- Most necessary where planting / transplanting into cool, wet soils and where organic matter is high
- Lorsban, diazinon, Capture LFR
  - Transplant or seed-furrow drenches
  - Some resistance problems noted for diazinon

Degree-day model uses a starting date of [March 1]. At base 43 F, peak emergence of the first three generations is at 300, 1475, and 2650 degree-days.
Flea beetles
Flea beetle control

- Threshold? Where numbers are high enough that feeding stresses seedlings and slows growth or damage to foliage of greens prevents marketing
- Greatest populations occur in weedy fields and on smooth, glossy-leafed varieties
- Cultural: Intercrop with tomatoes; till in crop residues immediately after harvest
- Effective insecticides: All the pyrethroids, Actara, Provado, or Sevin; kryocide / cryolite for organic growers
Cabbage Aphid
Cabbage aphid control

- **Thresholds:**
  - Treat any infestations in seedbeds
  - Infestations in broccoli and cauliflower can reach 100 per plant before heading; keep to <5 per plant after heading
  - Treat cabbage if >20 percent of plants are infested (at all)
  - Rogue out infested plants if practical

- **Insecticides:** (treat only if thresholds are met; let natural enemies do their jobs)
  - Actara, Admire, Assail, Fulfill, Movento, and Provado are specific aphicides
  - M-Pede for organic growers
  - Diazinon, Dimethoate, Endosulfan, Orthene
Imported Cabbage Worm
Imported Cabbage Worm

- Overwinter as pupae in a chrysalis; adults are active early in the season – day-flying white butterflies
- Larvae are velvety-green, about 1 inch long when fully grown
- 4-5 week generation time; 4 or 5 generations per year in much of the Midwest
- The easiest of the three major Leps to kill with insecticides … Bt is very effective
Diamondback Moth
Diamondback Moth

- Overwinters as an adult in protected areas; larvae and pupae are brought in on transplants (and their insecticide resistance spectrum comes from the region of their origin)
- Larvae are light green, 3/8-inch long when fully grown
- 3- to 4-week generation time; 4 to 6 generations per year (the first often on mustard family weeds)
- Lots of insecticide resistance problems around the world
Cabbage Looper
Cabbage Looper

- Little successful overwintering in the Midwest (adults in protected areas?); adults migrate in from the south on weather systems
- Larvae 1 ½ inch long when fully grown; only 3 pairs of abdominal prolegs – so a “looper”
- 4 to 6 week generation time; 3 or 4 generations per year in most of Midwest
- Large larvae are difficult to control and not very susceptible to Bt; pyrethroids work best where “cleanup” is necessary
Thresholds for “Leps”

- **Broccoli and cauliflower**
  - Seedbed = 10%
  - Transplant-head = 50%
  - Head to harvest = 10%

- **Cabbage**
  - Seedbed = 10%
  - Transplant – cup = 30%
  - Cup – head = 20%
  - Maturing head = 10%

Percentages refer to the portion of plants with any live larvae of CL, DBM, or ICW. Check 5-10 plants in each of 5-10 areas in each field, once or twice weekly. On greens, use the thresholds for heading-to-harvest for cole crops or treat if infestations threaten marketability.
“Lep” control

- Use BT products early
- Proclaim, Avaunt, Larvin, Entrust, Intrepid, Coragen, Radiant, and Rimon are also alternatives … see labels
- Pyrethroids (Ammo, Brigade, Warrior, Danitol, Asana, Pounce, Ambush, and Mustang Max:
  - Best choices for medium and large loopers and for late “cleanup” in general
  - Do not rely on them for the whole season
- Resistance in DBM to: pyrethroids, BT, and more …use rotations to slow resistance development and kill DBM larvae that are resistant to BT or pyrethroids
Onion Thrips
Onion thrips control (in cabbage)

- Pay extra attention as thrips move to cabbage from maturing wheat
- Use resistant varieties if practical
- Control must be best for kraut cabbage
- Treat as heads begin to form
- Registered insecticides include Actara, Assail, Baythroid, Brigade, Entrust, Radiant, Mustang Max, and Warrior
Annual Guides

- Midwest Vegetable Production Guide
  - Production and pest management information
  - Updated annually
  - Especially useful for listings of insecticides, fungicides, and herbicides

To order, contact Information Technology and Communications Services at the University of Illinois … 1-800-345-6087 or https://webstore.aces.uiuc.edu/shopsite/
Resources

- **Illinois Fruit and Vegetable News**
  - 20 issues per year
  - $20.00 by mail
  - Free via the web … subscribe for email notifications

- **Midwest Vegetable Production Guide**
  - [http://web.extension.illinois.edu/state/publications.html](http://web.extension.illinois.edu/state/publications.html)
  - [http://www.btny.purdue.edu/Pubs/ID/id-56/](http://www.btny.purdue.edu/Pubs/ID/id-56/)