EXTENSION UtahStateUniversity

Vegetable IPM Advisory

UTAH PESTS

Pest and Production Update, Utah State University Extension, **July 2, 2015**

Insect Information

Cabbage Worms

There are three common caterpillars that are active right now on cabbage and its relatives (e.g., broccoli, cauliflower, kale, etc.) in Utah – the imported cabbageworm, the cabbage looper, and the diamondback moth.

The imported cabbageworm adult is a pretty white butterfly that can be seen flitting through the garden as it searches for host plants to lay eggs. The immature stage, or caterpillar, is lime green with short fuzzy hairs on its body.

Imported cabbageworm adults become active in the spring and are among the most commonly observed butterflies.

Imported cabbageworm adults lay yellow, bullet-shaped eggs individually on host plants.

Imported Cabbageworm larva that has recently hatched (left). Older larva have a faint yellow line that runs along the back (right).

Cabbage looper adult.

The cabbage looper adult is a brown moth and the caterpillar is light green with white stripes down its body. Its "looping" crawl causes its back to arch as it pulls its hind end forward like an inchworm.

Cabbage looper larva.

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Diamondback moth adult

The diamondback moth adult has generally gray wings which, when folded over the body, show a series of white diamond patterns on the back. Larvae are small caterpillars, less than ½ inch when fully grown, and are pale green with the hind pair of prolegs that protrude out.


Diamondback moth larva with protruding pair of prolegs.

Feeding/Damage

The caterpillars chew ragged holes in the leaves and contaminate the harvested product with their frass (excrement) and bodies. A single diamondback moth larva feeds far less than the other two worms, but can be extremely abundant.

Management

To protect plants from egg-laying, cover them with floating row covers, or remove caterpillars, with a stiff spray of water from the hose or overhead sprinklers.

Chemical Treatment Options

Insecticides effective against young caterpillars:

Commercial Growers: azadirachtin (Aza-direct, Azatin, Molt), *Bacillus thruingiensis* (Biobit, Crymax, Dipel), spinosad (Success, Entrust)

Residential Growers: carbaryl (Garden Tech Sevin), Bacillus thruingiensis (Bonide Thuricide, Green Light), spinosad (Bonide Captain Jack's, Monterey Take Down)

Cabbage Aphids

Colonies of cabbage aphid are easy to identify as these aphids have a white waxy coating. These aphids commonly occur in dense colonies, often covered with waxy droplets. The cabbage aphid has a simple life cycle with adult females giving birth to live offspring. Both winged and wingless adults occur; the winged adults have a black thorax and lack the waxy coating.

Cabbage aphid colony

Feeding/Damage

Aphid feeding causes a localized yellowing of the foliage, leaf cupping, and stunting of smaller plants. They generally do not cause reductions in yield, but they tend to move deep into head-forming crucifers, thus making the harvested portion of the crop unmarketable.

Management

Check for cabbage aphids in the youngest, highest, and innermost leaves of young plants. After heading, check the flowering parts of broccoli and cauliflower and pull back wrapper leaves of cabbage.

Broccoli and cauliflower crops can tolerate up to 100 aphids per plant up to heading. Once heads begin to form, cabbage aphids must be controlled even if only a few are present. Because of the overlapping growth of their leaves, cabbage crops require more careful management and have less tolerance for aphids even during the early vegetative stages; treat as soon as 1 to 2% of plants

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are infested with one or more aphids. After treating, recheck fields frequently and treat if populations reappear. Remove and destroy crop debris after harvest, and remove alternate hosts (weeds in the mustard family) from nearby borders. Also, when transplanting Brussels sprouts, make sure plants are clean since infestations can start in seedling trays.

Chemical Treatment Options

When using insecticides to treat aphids, avoid multiple sprays; this will help to conserve natural enemies that help to control crucifer caterpillars. If a treatment is necessary, wait until preheading and apply a single application.

Commercial Growers: acetamiprid (Assail), imidacloprid (Admire), Beauveria bassiana GHA (Botanigard 22 WP).

Residential Growers: insecticidal soap (Bayer nutria)(can be phytotoxic on Brussels sprouts and cabbage), permethrin (Ace Multi-Purpose Dust, Bayer Advanced Complete Dust, Bonide Eight).

Squash Bugs

Squash bugs are laying eggs now and nymphs will be hatching in soon. Squash bugs overwinter as adults and fly to cucurbit plants to feed and mate when they emerge in the spring. Females commonly lay eggs individually in small clusters (about 20) on the undersides of the leaves, especially between the veins where they form a V. The females usually start appearing in gardens in early June and continue to lay eggs through early September. Eggs hatch into nymphs about 10 to 14 days after being laid.

Squash bug adults (right) often lay eggs on the undersides of leaves (inset)

Feeding/Damage

Nymphs feed by sucking plant juices, causing yellow speckling and browning. Adult squash bugs feed on the vines and stems, puncturing the xylem cells, and preventing water transport up to the leaves.

In areas of heavy feeding, wilting and death of leaves or plants can occur. This is sometimes referred to as "sudden wilt." Wilting can occur on individual leaves, a section of a plant, or an entire plant.

Feeding by adult squash bugs can cause leaves to wilt suddenly mimicking other diseases and environmental stresses.

Management

The most critical time to monitor and treat for squash bugs is when your plants are young seedlings and also when they are flowering. Eggs and nymphs are the easiest to treat, and as squash bugs get older (just a few days), they disperse and are more difficult to manage.

Look on the undersides of leaves at V's of leaf veins for the bright orange eggs. To prevent eggs from hatching, they should be crushed or removed by tearing them out or using tape. To manage nymphs, shake them off plants into a bucket of soapy water, this is most effective when nymph numbers are low. Insecticides can also be used to treat squash bug nymphs.

he feather-legged fly (*Trichopoda pennipes*), a member of the parasitic fly family, Tachinidae, is one of just a few natural enemies that plays a small role in reducing squash bug populations. The adult female lays several small whitish eggs on the outside of the host body. When the eggs hatch, the larvae burrow inside the host to feed on its contents. The larvae pupate inside the host and emerge as adult flies, at which time the host insect dies

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Chemical Treatment Options

While plants are in bloom, spray only in early morning or evening to avoid harming pollinators.

Commercial Growers: acetamiprid (Assail), esfenvalerate (Asana), permethrin (Ambush, Pounce), bifenthrin (Tundra), Carbaryl (Sevin), lambda-cyhalothrin (Warrior).

Residential Growers: neem oil (Concern, Ferti-Lome), permethrin, (Ace Dust, Bayer Advanced Dust, Bonide Eight), kaolin clay (Surround), carbaryl (carbaryl can cause plant damage [phytotoxicity] when applied in hot weather).

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