Agronomic Spotlight

Seminis grow forward

Some Important Cucumber Insect pests

- Aphids, cucumber beetles, whiteflies, and thrips are some of the important insect pests of cucumber.
- Insect scouting is needed to monitor insect populations and damage.
- Management strategies may include cultural practices as well as the use of insecticides.

Aphids

Although several species of aphids may be found on cucumbers, the melon aphid (also known as the cotton aphid) is the most important as a pest. Melon aphids vary in size and color. Most are approximately 1/16th of an inch long and light yellow to green to black in color. They have black eyes, leg joints, and cornicles ("tailpipes") (Figure 1).[1,2]

Figure 1. Melon aphid. Pest and Diseases Image Library, Bugwood.org.

Aphids usually start to colonize cucumber plants after the plants start to form runners. Aphids are typically found on the undersides of leaves where they feed by inserting a straw-like mouthpart, called a stylet, into, the leaves to suck out plant sap. This feeding can result in leaf distortions, including twisting, puckering, and cupping. Eventually, colonized leaves will turn brown and die. Aphids excrete honeydew on the leaves, which gives the leaves a glossy appearance. The honeydew provides nutrients for the growth of sooty mold fungi, which can cover leaves and fruit with dark brown fungal growth that is difficult to remove from fruit and reduces the plant's ability to photosynthesize.[1,2] The melon aphid can also transmit several viruses, including *Cucumber mosaic virus*.

To scout for aphids examine the undersides of leaves on two runners at five sites per field. Also check for the presence of natural enemies, including lady beetles, syrphids, and lacewings. If more than 20% of runners have live aphids, the plants may need to be treated. Consider using spot sprays if the infestations are limited to a few areas. The application of insecticides can hurt populations of beneficial insects, such as natural enemies and bees. So, insecticides should only be used if necessary, and insecticide applications will not prevent the transmission of virus diseases. Reflective mulches can be used to repel aphids. Late season plantings should be located as far away as possible from existing cucurbit crops.[1,2,3]

Cucumber Beetles

Striped, spotted, and banded cucumber beetles can be found on cucumbers, with the banded cucumber beetles found mostly in warm, southern areas. Spotted cucumber beetle adults have yellowish-green wing covers with eleven black spots, a black thorax, head, and yellow abdomen. Adult striped beetles have yellow wing covers with longitudinal black stripes, black head and abdomen. Adult banded beetles have yellowish-green wing covers with three bright green bands or stripes running across the wing covers (Figure 2).

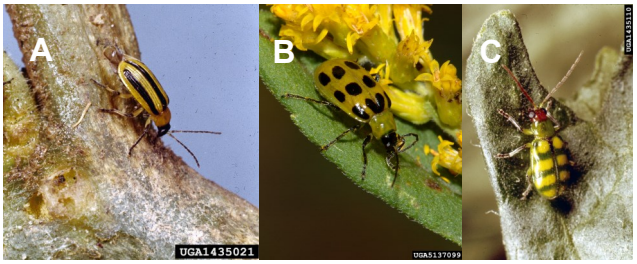

Figure 2. Striped (A), spotted (B), and banded (C) cucumber beetles. (A and C) Clemson University - USDA Cooperative Extension Slide Series, (B) Susan Ellis, Bugwood.org.

Cucumber beetle adults lay eggs near cucumber stems, and the larva begin to feed on plant roots as soon as they emerge. Adults feed on leaves and in flowers. Leaf damage appears as shot-holes or the feeding wounds may have a net-like appearance. The feeding can kill or significantly slow growth of plants. The adult beetles also transmit the bacterial wilt pathogen. Cucumber beetles like moisture and dislike heat, so they are attracted to irrigated fields during periods of hot weather.[1,2,4]

Management of cucumber beetles can include the use of fabric row covers to physically exclude the beetles from cucumber plants, at least early in the season before plants need bee visits for pollination.[1] Eliminating weeds and deep plowing may reduce the overwintering populations of the beetles. The primary means for managing cucumber beetles is the application of insecticides. Pre-plant (soil applied) or seed-treatment insecticides are taken up by germinating

(Continued on page 2)

Some Important Cucumber Insect Pests

(Continued from page 1)

seedlings and protect plants from feeding for a few weeks, after which foliar applications are used when beetle populations exceed the action threshold.[3] Start scouting for beetle adults shortly after emergence or transplanting. Initiate treatments when counts average one beetle per plant in the seedling to four-leaf stage. Older plants can tolerate more feeding than younger plants, but feeding on flowers can reduce yields.[4] Applications should target adult beetles, which are most active at dawn and dusk. Many insecticide products are available to treat cucumber beetles, but some are harmful to bees, so precautions should be taken to protect bees. Blue hubbard squash is especially attractive to cucumber beetles, and it can be used as a trap crop planted around a cucumber planting.[2]

Whiteflies

Several species of whiteflies can be found on cucumbers, with the silverleaf and greenhouse whiteflies causing the most damage. Accurate identification is important to avoid treating whitefly species that do not cause significant yield losses. A hand lens is required for identification.[4] Silverleaf whiteflies typically hold their wings vertically tilted, like a pitched roof on a house, and the wings do not meet over the back. By contrast, greenhouse whiteflies hold their wings flatter with no space visible between the wings where they meet over the back.

Figure 3. Silverleaf whiteflies. Scott Bauer, USDA Agricultural Research Service, Bugwood.org.

Whiteflies are usually found on the undersides of leaves where they feed on plant sap. Feeding by large populations of whiteflies can result in plant desiccation, and infested plants become unthrifty with reduced fruit production. Like aphids, whiteflies produce honeydew that coats plant surfaces and results in the growth of sooty mold fungi that reduces fruit quality and photosynthesis.[4]

With the exception of the silverleaf whitefly, whitefly infestations rarely require the application of insecticides for management. The use of row covers and reflective mulches can help keep whiteflies from infesting plants, and good field sanitation and practices that foster populations of natural enemies, whitefly populations can usually be kept at a level that does not impact yield and fruit quality. Avoid planting at times that result in crop development periods that coincide with peak whitefly levels.[4]

Thrips

Thrips are small (1/25th-inch long), slender insect with sucking and rasping mouth parts. Species, such as the western flower thrips, feed on plants, which can cause damage and yield reductions if population are high. However, the western flower thrips also eats spider mites, so it can also act as a beneficial insect.

Figure 4. Western flower thrips. Whitney Cranshaw, Colorado State University, Bugwood.org.

Monitor thrips populations with yellow sticky traps during the flowering period, and evaluate plants for thrips damage. If the presence of thrips is damaging the shoot tips, flowers, or fruit, then an insecticide application may be needed. Several insecticide products are available for thrips management, including Spinosad. The active ingredient chemicals in Spinosad were derived from the bacterium *Saccharopolyspora spinose*, and this insecticide is often approved for use in organic production systems. Proper weed management will also help keep thrips populations at a low level.[4]

Sources:

[1] Williamson, J. and Griffin, R. 2016. Cucumber, squash, melon & other cucurbit insect pests. Clemson Cooperative Extension. HGIC 2207.
[2] Reiners, S., Bellinder, R., Curtis, P., Helms, M., Landers, A., McGrath, M., Nault, B., and Seaman, A. 2017. Cornell integrated crop and pest management guidelines for commercial vegetable production.
[3] Egel, D., Foster, R., Maynard, E., Weller, S., Babadoost, M., Nair, A., Rivard, C., Kennelly, M., Hausbedk, M., Hutchinson, B., Eaton, T., Welty, C., and Miller, S. 2017. Midwest vegetable production guide for commercial growers 2017.
[4] Natwick, E., Stapleton, J., Stoddard, C. 2016. Cucurbits: Cucumber beetles, whiteflies, thrips. UC Pest Management Guidelines. UC IPM.

For additional agronomic information, please contact your local seed representative. Developed in partnership with Technology, Development & Agronomy by Monsanto.