Hops in Ohio: Pests

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This fact sheet introduces some key pests of Ohio hops. The damage caused by these organisms can range from insignificant to total crop loss. If detection is made early, there is a better chance of reducing their effect on the quality and yield of a harvest.

Hop Aphid

*(Phorodon humuli)*

**Size:** 1/20 to 1/10 inch

**Nymphs:** All are wingless and usually pale white to green in color.

**Adults:** Occur in winged (alate) and wingless (apterous) forms. Apterous forms are yellowish-green and pear-shaped. Alates are darker green to brown with black markings on the head and abdomen. Both forms have long, slender antenna on their head and two “tailpipes” (cornicles) at the end of the abdomen.

**Damage**

Adults and nymphs have piercing-sucking mouthparts that remove water and nutrients from hop leaves, causing curling and wilting. Most economic damage occurs when aphids feed on developing cones, causing them to turn limp and brown. Hop aphids also secrete large amounts of sugary honeydew, which promotes the growth of sooty mold on leaves and cones and reduces plant productivity. Hop aphids can transmit plant viruses such as hop mosaic virus and American hop latent virus.

**Monitoring and Management**

Monitoring should begin when daytime minimum temperatures exceed 58–60°F. All life stages are commonly found on the underside of hop leaves. Currently, an economic threshold does not exist for hop aphid. Most growers apply a pesticide when an average 5–10 aphids per leaf are observed before flowering. Generally, aphids are not tolerated after flowering; control with pesticides is difficult once aphids infest cones. When possible, growers should use selective pesticides that control aphid populations while preserving natural enemies of aphids and other hop pests.

Japanese Beetle

*(Popillia japonica)*

**Size:** 3/5 inch long, 2/5 inch wide

**Adults:** Adults are oval-shaped with a metallic green body and copper-colored wing covers. Adulthood is the life stage that causes damage to hops.

**Damage**

Hop leaves damaged by Japanese beetles are skeletonized, with only the veins left behind.

**Monitoring and Management**

Japanese beetles arrive at the very end of June or early July. Even a low number of beetles in the hop yard should be of concern since they tend to attract each other with pheromones. For this reason, growers should
be cautious with pheromone traps because they can lure more beetles into hop yards. Therefore, it would be best to avoid their use. There are many insecticides that can control Japanese beetles; however, growers should use caution since these can also kill beneficial arthropods and may provide an opportunity for the population growth of another pest such as the two-spotted spider mite. There are other methods of control such as the use of trap crops, applications of diatomaceous earth and the treatment of infested areas surrounding the hop yard.

**Two-Spotted Spider Mite**  
(*Tetranychus urticae*)

**Size:** 1/50 inch  
**Eggs:** Eggs are clear to pearly-white spheres.  
**Nymphs:** Nymphs are similar in appearance to adults; however, they are smaller and usually darker, often without distinct spots.  
**Adults:** Adults are pale yellow to green in color, with dark spots on each side of the abdomen. Females turn orange and lose their spots prior to overwintering in the fall. Adults and older nymphs have eight legs.

**Damage**

Two-spotted spider mites feed on the leaves and cones by piercing plant cells and extracting the liquid contents, causing bronzing and a reduction in plant vigor. Heavy infestation can lead to defoliation. Most economic damage occurs when spider mites feed on cones, leading to dry, brittle, discolored cones that have a tendency to shatter. This shattering causes a loss of yield quantity and quality. A severe infestation can lead total crop loss.

**Monitoring and Management**

Scouting should be done weekly beginning in late May or early June by inspecting the undersides of leaves for the presence of mites or mite eggs. Early in the season, leaf samples should be taken between 3–6 feet off the ground. As the season progresses, the mites move up, so samples should be taken higher as well. Two or three leaves from 25–30 plants per block or variety should be evaluated. Use a 10X or 20X hand lens to look at the leaf undersides. If the average is more than one to two adult mites per leaf, a pest management strategy should be implemented. By mid-July, the threshold increases to 5–10 mites per leaf. Any control measures should include consideration of the impact on beneficial insects and predatory mites. Broad-spectrum insecticides such as pyrethroids and sulfur products can cause an increase in spider mite populations because they can kill beneficial insects and predatory mites.
Monitoring and Management

Due to the tendency of potato leafhoppers to have explosive population growth, it is important to scout and control them before major damage can occur. This is especially true if alfalfa is planted close by, as it is their primary host. There is no established economic threshold level for leafhoppers in hops. However, based on other crops, growers should spray when there is an average of two potato leafhoppers per leaf. Fields should be scouted weekly by checking the undersides of two to three leaves per 25–30 plants. If the average number of leafhoppers per leaf meets or exceeds the threshold level, then an insecticide spray is warranted.

Resources


