

# Hop aphid

*Phorodon humuli*

## QUICK FACTS ABOUT HOP APHID

- An important pest of hop and can cause major damage and economic loss.
- Hop aphids are small (1/10"), pear-shaped insects that may or may not have wings.
- Aphids remove nutrients and moisture from plants with piercing-sucking mouth parts.
- Aphids secrete a sugary honey dew frass, the perfect growth medium for sooty mold. Sooty mold greatly diminishes the quality of hops.

Damson hop aphids are small (1/20-1/10"), pear-shaped, and soft-bodied insects that may be either winged or wingless. Wingless aphids are pale white to green in color and are typically found on the underside of leaves. Winged aphids are dark green or brown with black markings on the head and abdomen. Aphids have two cornicles or "tailpipes" at the end of the abdomen.

Aphids remove nutrients and moisture from leaf and cone tissue with their piercing and sucking mouthparts. Damaged leaves may curl and wilt, heavy infestations can cause defoliation. Cone feeding can cause wilt like symptoms in the cones and browning. When feeding, aphids secrete sugary honey dew that can support the growth of secondary fungi and bacteria, most notably sooty mold. Sooty mold reduces photosynthesis and can make cones unsaleable. Aphids can also transmit viruses.

Damson hop aphids overwinter as eggs on *Prunus* species (genus of trees and shrubs, which includes plum, cherry, peach, nectarine, apricot and almond) which are prevalent in agricultural settings and the landscape in Michigan. In early spring, eggs hatch into stem mothers which give birth to wingless females that feed on the *Prunus* host. In May winged females are produced and travel to hop plants where additional generations of wingless females are produced. As many as 10 generations may occur in a season with each female producing 30-50 offspring in her lifetime. Aphids do not reproduce as quickly in hot and dry weather, preferring more moderate temperatures and moisture levels. As cold weather approaches, winged females and males are produced, move back onto a *Prunus* host, where they mate and lay eggs before winter. We expect that this migration off of hops and onto plants in the *Prunus* genus will occur sometime in September in Michigan.

Monitoring for aphids should begin when daytime temperatures exceed 58-60°F and continue through harvest.



Figure A. Unwinged aphid, photo credit Erin Lizotte, Michigan State University. Figure B. Winged hop aphid. Figure C. Hop with sooty mold caused by aphids. Photo credit David Bent, USDA.

Aphids are not tolerated after flowering because cone infestations are very difficult to treat. Growers experiencing aphid infestations should consider that excessive nitrogen application and large flushes of new growth favor outbreaks. Ideally, growers would apply early season controls to limit population growth over the season. Pymetrozine is commonly recommended in the Pacific Northwest because it is effective and helps preserve beneficial insects. Additionally, products containing imidacloprid, spirotetramat, and thiamethoxam are all labeled against aphids. Products containing synthetic pyrethroids (beta-cyfluthrin, bifenthrin, or cyfluthrin) and organophosphates (Malathion) are also labeled on hop for aphid management in Michigan, but are generally avoided due to the negative effect on beneficial mites. Organic options are also available. For more information, visit [www.hops.msu.edu](http://www.hops.msu.edu) and download the latest version of the *Pesticides registered for use on hop* publication.

References: Gent, David H. 2010. *Field Guide for IPM in Hops*. USDA and Washington State University. Web accessed March 2016 at <http://www.ars.usda.gov/SP2UserFiles/person/37109/HopHandbook2010.pdf>