

Cannabis Aphid

Cannabis aphid (*Phorodon cannabis*) is found on the leaves and stems of *Cannabis*. It is a light colored species and forms found indoors and forms found outdoors early in the season are cream-colored to pale yellow. Late in the season, as shortened day length triggers changes in the insect, forms that range from light green, to pale pink, to light brown predominate. This insect, only newly recognized from North America, is widespread in Colorado and known to occur in several other states and parts of Canada.

Both wingless and winged forms occur. Some dark spotting occurs on winged forms. Wingless forms lack this patterning but may have pale striping running along the top of the body.

Cannabis aphid feeds on fluids of the plant phloem, which it extracts through its "piercing-sucking" mouthparts. Very little, if any, injury occurs to cells from this feeding, so there are no symptoms on leaves of white flecking or surface scarring, such as is produced by spider mites or thrips.

Damage is caused by the loss of plant fluids. When high numbers of aphids are present and sustained this can cause reductions in plant vigor that can result in slowed growth, wilting, and leaf yellowing.

As cannabis aphids feed, they also continuously excrete a sticky fluid, known as **honeydew**. This is produced in the form of tiny droplets which drop onto leaf surfaces below where it can be noticed as small shiny spots. This excreted honeydew can be an excellent diagnostic sign for detecting cannabis aphid infestations.



Wingless forms of cannabis aphid.

As cannabis aphids grow they must periodically shed their external "skin" (exoskeleton) and as they produce a new and larger exoskeleton for the next, larger life stage. These "**cast skins**" will collect around colonies of aphids and often drop onto leaves below an aphid colony. Along with honeydew, the cast skins can be an excellent diagnostic sign for detecting cannabis aphid infestations.

Cannabis aphid normally reproduces asexually - only females are present and they hatch their eggs internally giving live birth to genetically identical daughter aphids. As aphids feed and develop, they will periodically molt, discarding their old exoskeleton (cast skin) while growing into a new, larger one. The ultimate adult form is normally wingless, but some are winged and winged stages may be particularly common to see in late summer.

Biology of cannabis aphid is very little studied. Presumably it is fairly typical of most other aphids, which can become mature adults within a couple of weeks or so after birth. (Development is always strongly related to temperature.) Adult females may give birth to perhaps 1-5 young per day for their remaining life, which likely will normally be short, perhaps a 3-4 week maximum. Where natural enemies are present, aphid survival will average a much shorter period.

Outdoors a change in the life cycle occurs in late summer/early autumn, triggered by declining day length. At this time of year different forms of the aphid are produced, including winged males and a different female form (oviparae). Mating occurs at this time and the female then lays eggs on leaves, flowers and stems. This is the only time of the year externally laid eggs are present, which are placed on the plant. At all other times of the year all-female aphids are present that hatch their eggs inside their body and give live birth to genetically identical daughters.



A mixture of winged and wingless forms of cannabis aphid. Most of the wingless aphids are in an immature stage.



The white objects are "cast skins" of cannabis aphid. These are shed when the aphid molts to a new, larger stage and often collect on the leaves below the colony.

Outdoors, the egg is the surviving stage of the insect. It remains dormant for months and hatches in spring of the following year. (Eggs of most aphids produced in this manner require a chill period to hatch, and hatching is also triggered by increasing day length.) If there is a live hemp plant, normally volunteer seedling, which is growing very near to the hatching egg, the aphid may be able to make it onto this host plant and begin the first generation.



In the right corner is a mating pair of cannabis aphids. Only late in the season are males produced, along with a special egg producing female form. Normally only females are present which give live birth to genetically identical daughters.



Eggs of cannabis aphid laid in late September on the leaves surround the bud. These eggs can remain dormant through winter and hatch in spring. If there are live plants/volunteers present in the field during egg hatch some aphids may colonize these plants.

Outdoors in Colorado survival through winter occurs in the above manner, as a dormant egg that requires a nearby Cannabis seedling at egg hatch. Since such conditions rarely occur, as fields are normally rotated and tilled to eliminate seedlings, survival of cannabis aphid more often occurs indoors, maintained through winter on live plants and moving outdoors on infested transplants.

Indoors the life cycle of cannabis aphid will normally just involve asexual reproduction, involving females only that give live birth. However, if lighting signals a shortening day, with less than 12 hours of daylight, sexual forms (males, egg producing females) and eggs may be produced. It is not known how cannabis aphid eggs may survive indoors where temperatures remain high (no chill period) and lighting sustains a long day light cycle.

Very high populations of cannabis aphid have been observed in outdoor plantings during late August and early September. However, numerous natural enemies of cannabis aphid are normally present in hemp fields (e.g., lady beetles, flower flies, green lacewings, parasitoid wasps) and these can effectively curb outbreaks. In indoor planting these natural enemies are normally not present, unless introduced.

Cannabis aphid is very similar in appearance to **hop aphid**, *Phorodon humuli*, and can only be distinguished by closely examining, under a microscope the area at the front of the head. Hop aphid is a common species found on hops in North America. There are some reports that it is

also able to develop on *Cannabis* but these may have been in error and the use of Cannabis by

hop aphid needs confirmation; hop aphid has not yet been found on hemp in Colorado. **Green peach aphid** (*Myzus persicae*), **cotton/melon aphid** (*Aphis gossypii*) and **bean aphid** (*Aphis fabae*) are among the other aphids that have been reported as feeding on hemp; of these only bean aphid has been found on hemp in Colorado. However, a species recently confirmed from Cannabis in California is *Abstrusomyzus phloxae* (no common name).

Rice root aphid (*Rhopalosiphum abdominale*), which develops on roots of *Cannabis* and many other plants, is sometimes a common aphid in *Cannabis* grown as indoor production. This is an unusual species in that it develops on roots, and can thrive in very moist conditions, including hydroponic culture. Rice root aphid is discussed in a separate section on this website.

Hemiptera: Aphididae



Two of the more common natural enemies of cannabis aphid. (Top) Lady beetle larva feeding on aphids. (Bottom) An "aphid mummy" (left). This is produced when a cannabis aphid is parasitized by a tiny wasp (*Aphidius* sp.) that develops within the aphid body. A healthy, young stage cannabis aphid is on the right.