

Aphis chloris (Koch)

INVASIVE SPECIES ATTACKED: St. John's wort (*Hypericum perforatum* L.)

TYPE OF AGENT: Sap sucking aphid

COLLECTABILITY: Not available for general distribution

ORIGIN: Austria, Germany, Hungary and Switzerland

DESCRIPTION AND LIFE CYCLE

Adult:

Aphis chloris typically appear similar to common aphids, lime green (olive green in cooler climates), and measure 1-2 mm. Self-fertile females hatch from overwintered eggs in June and go on to produce live young. It takes the live young six days at 25^o C or 10-11 days at 17-18^o C to reach the reproductive adult stage. Multiple live young births continue until lower temperatures in the early fall. In warm conditions, self-fertile females continue to be produced. In northern climates the onset of cool, short days during September initiates the production of males and egg producing females. With these lower temperatures the females begin to lay eggs. Each female will produce an average of only four eggs, depositing them onto basal winter foliage. From summer until fall, winged females will disperse in crowded conditions to develop new colonies.

Egg:

Initially, eggs are yellow, turning shiny black over time.

Nymph:

Aphids do not have a larvae stage, they develop from egg, to nymph to adult. Nymphs are immature versions of the adult.

Pupa:

There is no pupal stage.

Overwintering stage:

Eggs laid in September and October overwinter and hatch the following season.

EFFECTIVENESS ON HOST PLANT

Adults and nymphs congregate on stems, root collars, leaf axils, flowers and leaves. Both stages feed on plant fluids, avoiding the photosensitizing toxins by feeding on phloem sap. Stems and leaves are attacked and in high populations can cause plants to wither and die. Often they can be located on stem bases, near the basal leaves and root crown. In field studies, healthy potted plants were killed in one month when attacked by *A. chloris*.

HABITAT AND DISTRIBUTION

Native:

In Europe, *Aphis chloris* is common in a wide geographic range.

North America:

A. chloris' predicted Canadian climate is similar to maritime conditions, where summers are humid and temperatures are moderate, 20-25^o C. It does not do well in hot, dry locations where plants wither and burn from heat. Sufficient low winter temperatures are required for egg development. Climate variations determine the life cycle pattern.



Fig. 1. *A. chloris* adults and nymphs



Fig. 2. *A. chloris* eggs (credit Powell et al. 1994)

British Columbia:

Releases have been made in the Coastal western hemlock, Interior cedar hemlock, Interior Douglas-fir and Ponderosa pine biogeoclimatic zones. To date, establishment and self-dispersal have been found in the Interior cedar hemlock, Interior Douglas-fir and Ponderosa pine zones.



Fig. 3. Established *A. chloris* release site at Christina Lake (Interior cedar hemlock zone)



Fig. 4. Established *A. chloris* release site at Clearwater (Interior Douglas-fir zone)

BRITISH COLUMBIA RECORD

Origin:

The *A. chloris* released in B.C. originated from populations collected in Austria, Germany, Hungary and Switzerland.

History:

In 1979, *A. chloris* was first released into the east Kootenays near Elko. Infrequent field releases were made between 1979 and 1997 from Canadian populations reared in Sask. and Alta. These were released within the B.C. southern interior near Trail, Sandon, Christina Lake, and Grand Forks. In 2008, the first field collection was made and released into the Fraser Valley near Agassiz. In 2013, several thousand *A. chloris* were collected from the southern interior area and moved into the lower North Thompson area north of McLure.

Field results:

Establishment has been found at most the release locations at this time. In 2005, aphids were located at several release and dispersal sites locations by late spring. The next year, at these same sites, no aphids could be located by mid-August.

It is not known if the prolonged heat-wave was the reason for their absence. In 2008, the first field collection was taken from the Southern Interior Forest Region and moved to the Coastal Forest Region. Since this release was made the Fraser Valley site is slowly becoming overtaken by invasive blackberry. It is too early to determine the status of the 2013 release north of McLure. Future efforts will focus on collecting and redistributing this agent and monitoring its establishment.

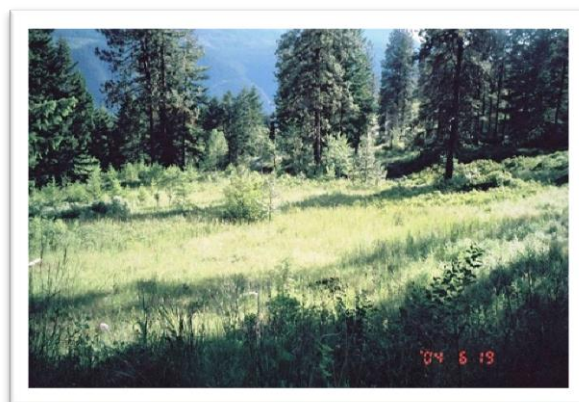


Fig. 5. *A. chloris* dispersal area near Grand Forks (Ponderosa pine zone)

NOTES

- *A. chloris* is the only common aphid found on St. John's wort.
- In eastern Canadian maritime habitat, *A. chloris* was recorded to have dispersed 60 km in eight years. Rapid dispersal can result in low density populations.

REFERENCES

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