

Currant lettuce aphid

Sandra McDougall, Industry Leader (Field Vegetables), Yanco Agricultural Institute
Andrew Creek, District Horticulturist, Griffith

Currant Lettuce Aphid

Currant lettuce aphid, *Nasonovia ribis-nigri* (Mosey) [CLA] is primarily a contamination pest of lettuce, chicory, endive and radicchio. The aphids colonise lettuce hearts and rosettes, making them unsaleable. CLA can also vector cucumber and lettuce mosaic virus although this has not been observed in infested crops.

Currant lettuce aphids prefer to feed on new leaves. They can be found inside the wrapper leaves and hearts of iceberg lettuce varieties. In an open lettuce variety, they are found deep within the leaf rosette. CLA are often scattered, and do not tend to form dense colonies.



Currant lettuce aphid contamination



Wingless currant lettuce aphid



Winged currant lettuce aphid

Description

Immature aphids are yellow-green and wingless. Adults can be winged or wingless and are 2.5 mm in length, greenish to yellow-green, with irregular narrow dark bands on the abdomen.

Distribution

Currant lettuce aphid is found in Europe, North America, South America (Argentina), New Zealand (2002) and all lettuce production areas of Australia (2004).

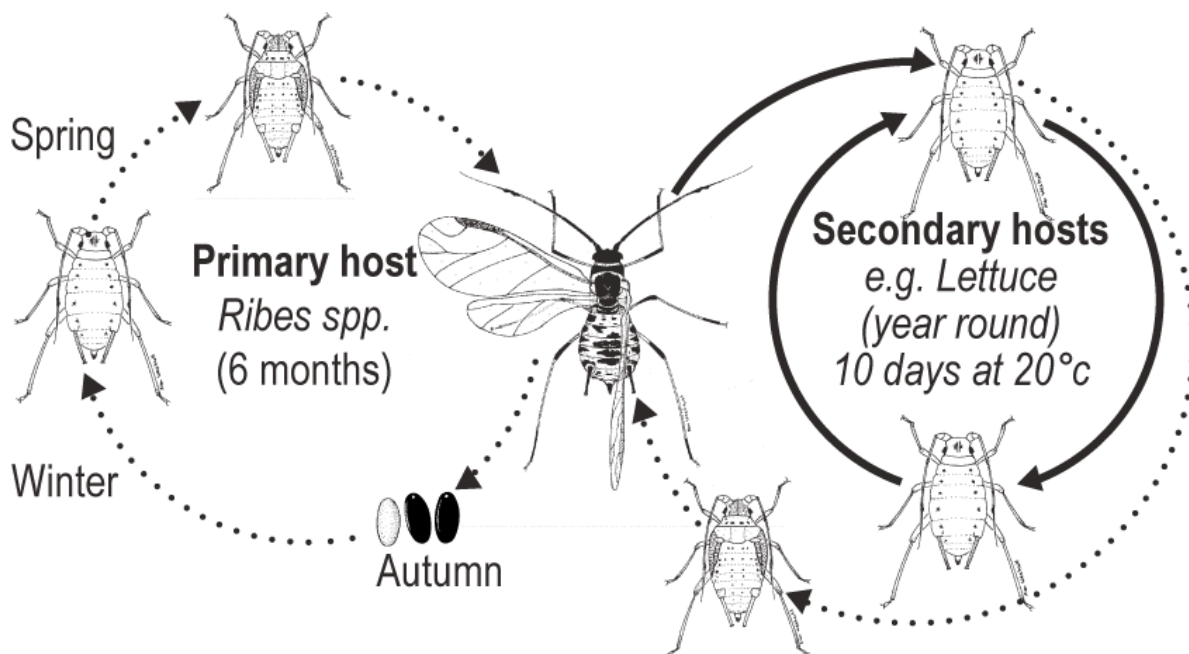


Figure 1. The currant lettuce aphid life cycle

Hosts

Currant lettuce aphid has both wingless and winged forms. The primary host plants for this aphid species are gooseberry and red, black and white currants (*Ribes* spp.). To survive winter in cold temperate climates, the aphids lay eggs on gooseberries and currants (Figure 1).

Chicory and endive (*Cichorium* spp.), nipplewort (*Lampsana* spp.), hawksbeard (*Crepis capillaris*), hawksweed (*Hieracium* spp.), speedwell (*Veronica* spp.), artichoke, tobacco and petunia are also secondary hosts.



Chicory



Hawksbeard

How do aphids spread?

Dispersal of aphids is mainly as winged adults. These winged adult aphids can be dispersed widely by wind currents. The potential for aphid spread is considered high, particularly when the proportion of winged adults increases within a colony. Currant lettuce aphids are small, and colonize the inner lettuce leaves. This means they can be spread unnoticed by the movement of infested produce or lettuce seedlings.

Management Options

After the first wave of CLA into lettuce production areas, CLA populations have not remained high. In all production areas the aphids have been hard to find for periods of the year.

- Source control (contaminated product or seedlings)
- Nasonovia*-resistant lettuce varieties

- Monitoring lettuce
- Biologically based Integrated Pest Management
- Confidor® or Durivo® seedling treatments
- Durivo® furrow pre-plant plant hole drench
- Foliar insecticides sprays in open lettuce or prior to hearting
 - Pirimor® 2 Day WHP
 - Chess® 2 sprays per crop, 7 Day WHP
 - Movento® 2 sprays per crop, 3 Day WHP
 - Dimethoate® 7 Day WHP
- Sanitation (control weed hosts, bury infested lettuce)
- Post-harvest washing

Source control

Care should be taken that currant lettuce aphid is not introduced to your property via transplants or movement of other plant material. Ensure your nursery supplier has a management plan for aphids. Currant lettuce aphids are small, and can be easily spread in harvested produce and seedlings. The use of second-hand boxes for produce can spread aphids and other insects.

Nasonovia-resistant lettuce varieties

Seed companies are incorporating the 'Nas resistance' gene into most of their lettuce lines which prevents CLA from successfully feeding. Note other species of aphids can feed on Nas resistant varieties. In Europe in 2008 a new CLA biotype was found that overcame the Nas resistance gene and has subsequently spread over Europe. We do not have this CLA biotype but do need to monitor for it.

Varietal performance and yields differ between lettuce growing areas, so it is recommended that varieties be trialled and compared to your standard variety before doing commercial scale plantings.

Monitoring lettuce

Regular crop monitoring for insects is recommended, as it enables informed pest management decisions and if necessary timely insecticide applications. In lettuce seedlings and pre-heart lettuce, attention needs to be paid to the innermost leaves and in leaf folds, where the aphid prefers to live. Once the lettuce has hearted some destructive sampling is needed. Since CLA may occur non-uniformly across paddocks, a number of widely dispersed sites need to be sampled.

Biologically based Integrated Pest Management (IPM)

In all states biologically based IPM has been demonstrated as an effective management strategy. Beneficial insects, such as brown lacewings, ladybird beetles and hoverfly larvae (syrphids), are effective aphid predators. The use of broad-spectrum insecticides is likely to kill many beneficial insects. Growers using an IPM strategy with good beneficial populations are best placed to manage currant lettuce aphid for the long term. In the Sydney basin CLA was found difficult to manage over the winter period when beneficials were absent from late autumn. However in some years CLA populations have been virtually absent in unsprayed and susceptible lettuce varieties highlighting the need to monitor.



Brown lacewing adult and larvae eat aphids



Transverse ladybeetle feeding on an aphid



Syrphid larva feeding on an aphid



Ladybeetle larvae feeding on an aphid

Seedling drenches

Imidacloprid (Confidor®) or thiomethoxam (aphid active component of Durivo®) have systemic activity and can be applied either as a seedling drench or as a furrow pre-plant spray. These treatments at label rates will prevent aphid infestations from occurring for at minimum 4 weeks and more typically for 6-10 weeks depending on rainfall. In very wet conditions activity decreases more quickly.

Imidacloprid and thiomethoxam (aphid active component of Durivo®) seedling drenches are not compatible with biological IPM, as the chemical treatment can indirectly kill beneficial insects, or interrupt their natural population growth.

Foliar insecticides

Foliar applied insecticides are only effective against CLA prior to hearting, or in open lettuce varieties. Pirimicarb (Pirimor®), Spirotetramat (Movento®) and Pymetrozine (Chess®) are IPM-compatible insecticides registered for use on aphids in lettuce. Pirimicarb resistance has been reported in Europe. New Zealand tests have shown that the strain of CLA in Australia is not resistant. Pymetrozine appears to work best when it can stay wet for as long as possible; hence, it is best applied after irrigation, in the evening or very early morning.

Broad spectrum insecticides with active ingredients such as dimethoate and maldison are registered in some states of Australia for controlling aphids in lettuce. Broad spectrum insecticides are undesirable in a biological IPM management strategy.

Sanitation

Controlling secondary host weeds on and around the farm is an important management strategy to

reduce potential CLA pressure. Secondary host weeds worth controlling include prickly lettuce (*Lactuca serriola*), hawksbeard (*Crepis capillaris*), speedwell (*Veronica*), nipplewort (*Lamproloma* spp.) and globe artichokes.

Heavily infested lettuce crops, where aphids cannot be controlled with insecticides, should be incorporated into the soil as soon as possible. Lettuce consignments that have been recalled due to CLA infestation should be buried rather than dumped.

Post-harvest washing

Washing lettuce will not disinfest lettuce hearts of aphids. Loose leaf lettuce washing processes with fine water filtration systems can reduce the number of aphids in packaged or processed lettuce products.

More information

Lettuce Leaf newsletter - <http://www.agric.nsw.gov.au/reader/lettuce-leaf>

AUSVEG website – <http://ausveg.com.au/>

Key to aphids on lettuce - <http://www1.dpi.nsw.gov.au/keys/index.html>

Table of *Nasonovia*-resistant lettuce <http://www.dpi.nsw.gov.au/agriculture/horticulture/vegetables/diseases/currant-lettuce-aphid/resistant>

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Pesticides listed here were registered at August 2011 (Source: APMVA Pubcris data base).

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (August 2011). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of the Department of Primary Industries or the user's independent adviser.

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