

Yellow Decline

Caused by *Candidatus Liberibacter solanacearum* (CLso)

What does it look like?

Yellow Decline is a bacterial disease caused by *Candidatus Liberibacter solanacearum* (CLso). The bacterium lives in the phloem and is spread by psyllid insects. Different CLso haplotypes infect different crop groups, with Apiaceae-associated haplotypes causing Yellow Decline in carrots, celery, parsley and parsnip.



Carrots showing CLso symptoms: leaf curling and purpling (a), leaf curling (b), and healthy carrot (c). Infected carrots are noticeably smaller than healthy plants.



Severe CLso symptoms in celery including shoot proliferation and stem curling compared with healthy plants.

Which crops are affected?

Apiaceous crops including carrot, celery, parsley, parsnip, fennel and chervil.

What does damage look like?

In carrots: Leaf curling, yellow, bronze or purple foliage, stunted growth, hairy secondary roots and poor root quality.

In celery: Shoot proliferation, stem curling and yellow foliage.

In parsley and parsnip: Yellowing, reddening and abnormal foliage.



Advanced yellow decline symptoms in carrot caused by CLso.

Where do they currently occur?

Yellow decline occurs in Europe and North Africa. It is not known to occur in Australia.

Lifecycle

Psyllids acquire CLso while feeding on infected plants. The bacteria multiply inside the psyllid and are transmitted to healthy plants during feeding.

How do they spread?

CLso is spread mainly by psyllids, including *Bactericera trigonica*, the main vector in the Mediterranean region, and the carrot psyllid (*Trioza apicalis*), the main vector in northern and central Europe. Long-distance spread can occur through infected planting material, including carrot seed, seed potatoes and tissue cultures.

How can they be managed?

- Prevent introduction through strong biosecurity practices.
- Use certified planting material and seed from reputable suppliers.
- Monitor crops regularly using yellow sticky traps and inspect for psyllid activity.
- Manage psyllid vectors where present.
- Submit suspect plants for laboratory PCR testing.
- There is currently no cure for infected plants. Early detection is critical.

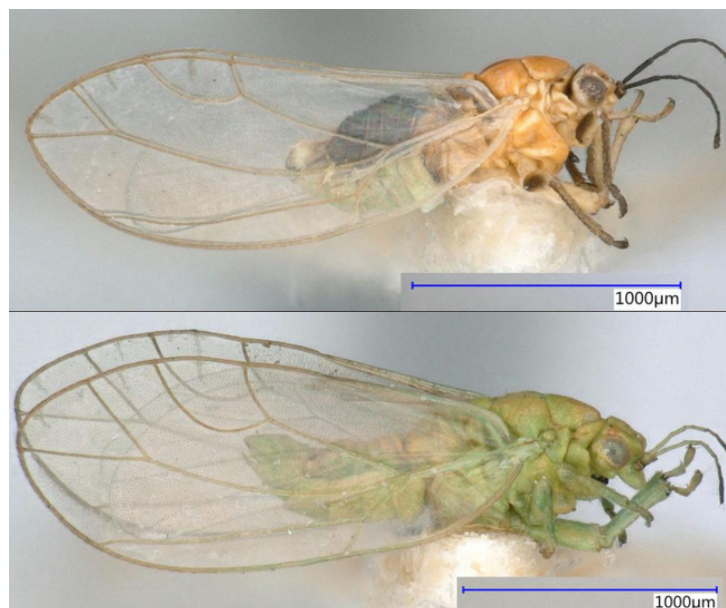
What should I look for?

Look for yellow, bronze or purple foliage, leaf curling, stunting, hairy secondary roots and poor root development. Inspect plants for psyllid eggs, nymphs and adults. Laboratory PCR testing is required to confirm CLso.



A. Adult carrot psyllid

B. Carrot psyllid eggs and nymphs



Bactericera trigonica, the main vector in the Mediterranean region

Trioza apicalis, the main vector in northern and central Europe

Image credits: A&B- Entomological Society of America, 2010, Munyaneza. Eppo.int.

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