

LITTLE CHERRY DISEASE

KNOW YOUR ENEMY!

- Know what to look for
- Know how to collect a sample
- Know where to send samples
- Know how to manage the disease

Background

Little cherry disease (LChD) was first noticed affecting sweet cherry in an orchard near Willow Point, on the west arm of Kootenay Lake in 1933. It then quickly spread from one orchard to another and to every tree in most orchards. By 1946, it had spread about 32 km north, at least 24 km west, and had crossed the lake and reached Creston 72 km south-east of the site discovery. Creston was such a hotbed of the disease that it was felt that cherries could no longer be grown there. Removal of infected trees and control of mealybug saved the industry from complete devastation.

Little cherry disease was first detected in the Okanagan Valley in 1969 when 49 trees with fruit symptoms characteristic for LChD were found in one orchard near Penticton. Little cherry disease was probably introduced latently with ornamental flowering cherries from Japan into many countries.

X Phytoplasma symptoms in Rainier cherries (left) versus healthy cherries (right).



Causal Organism and Transmission

- There are three causes of little cherry disease, but Little Cherry Virus-2 and X-disease phytoplasma are the major causes of little cherry symptoms

Little Cherry Virus 1 (LCHV1)	Little Cherry Virus 2 (LCHV2)	Western Phytoplasma X (WX)
Vector: None known	Vector: Apple and grape mealybug	Vector: Leafhopper
All three causes are transmitted by all types of grafting, including top-working and root-grafting between neighboring trees		



Adult apple mealybugs. Photo credit E. Beers

Did you know that WX is not a virus?! It is a type of wall-less bacteria known as phytoplasma. The X-disease phytoplasma lives and replicates in the vascular phloem of infected trees, interfering with growth and development.

Symptoms

- Diseased trees produce cherries of **small size**, **poor colour**, and **poor flavour**, reducing quality and making the fruit unmarketable. LCHV2 fruit is tasteless due to the reduced sugar content, whereas WX fruit has a bitter taste.
- The disease symptoms are only clearly visible starting the **week prior** to harvest.

Occurrence

- In North Central Washington, little cherry virus 2 appears to be the driver; while in the Columbia Basin and the Yakima Valley, Western X phytoplasma is predominant in the suspected cases.



Photo credit: Tianna Dupont, WSU Extension

Controls

Pathogen-Free Planting Sources	The best way to ensure you maintain a healthy orchard is to start with virus-free budwood. We are fortunate to have Summerland Varieties Corporation (SVC) located here in our valley as they (SVC) play a pivotal role in supplying Canadian and international producers with virus-free propagative tree fruit materials. In addition, SVC works closely with the Canadian Food Inspection Agency to ensure this virus-free status. Manage your risks – if in doubt, have the material tested before you buy or plant.
Remove Infected Trees	If trees are tested positive for little cherry virus, remove trees immediately. Little cherry virus survives in living plant tissue; therefore, it is critical to kill or remove cherry roots to stop re-infection from occurring when new young trees root graft with infected plant roots. Treat stumps with herbicide immediately after cutting or inject into trees before cutting trees to ensure roots are dead.
Control Vectors	Control apple mealybug. All cherry growers with orchards where little cherry virus 2 has been found should contact their horticultural advisor or Susanna Acheampong, Ministry of Agriculture for spray recommendations.

Sampling and Testing

Material to sample: Submit four five-inch cuttings from the diseased limb(s) including leaves, and FRUIT STEMS.	Where to sample: <i>Trees with symptoms:</i> Sample from symptomatic limbs <i>Trees with no symptoms:</i> Sample from each leader
When to sample: The week before harvest to end of August	Sample condition: Keep tissue moist and cool (e.g. package with a cold pack). Old or dried tissue is more likely to have false negatives

Example of a sample for submission including four 5-inch cuttings with leaves and fruit stems.

Photo credit Tianna Dupont, WSU Extension



Watch this YouTube video for a demonstration of how to collect a sample for Little Cherry Virus:
<https://youtu.be/x546YgU7xCl>

Where to send samples:

The BC Ministry of Agriculture Plant Health Laboratory

1767 Angus Campbell Rd Abbotsford BC, V3G 2M3 Tel: (604) 556-3003.

<https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/animals-and-crops/plant-health/plant-health-laboratory>

The sample submission form can be found here: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/animal-and-crops/plant-health/plant_health_laboratory_sample_submission_form.pdf

Please note that proper sampling and keeping the sample cool followed by prompt delivery to the lab is very important.

A good read on the history of Little Cherry Disease:

[http://phytopath.ca/wp-content/uploads/2014/10/cpds-archive/vol60/CPDS_Vol_60_No_4_\(37-42\)1980.pdf](http://phytopath.ca/wp-content/uploads/2014/10/cpds-archive/vol60/CPDS_Vol_60_No_4_(37-42)1980.pdf)