

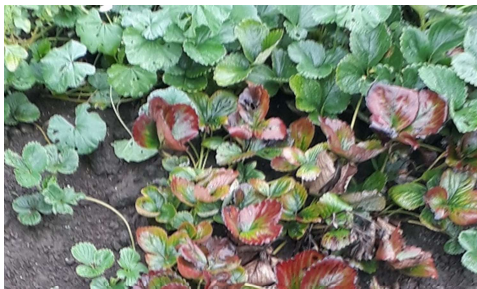
Insect-vectored diseases

Strawberry Lethal Yellows, Liberibacter, Viruses

Damage:

Stunting, distortion, and discoloration of leaves. Symptoms affect an entire plant. Virus symptoms can be quite variable, and tend to show up when vegetative growth slows down. Most commercial cultivars do not show symptoms of virus infection until two or more viruses are present. Much is unknown about the alternate hosts and vectors of Liberibacter and Strawberry Lethal Yellows. Both inhabit the phloem, and are likely transmitted by leafhoppers as they feed. Both cause virus-like symptoms.

Identification:



Liberibacter is a type of bacteria that lives in the phloem tissue of a plant. Infected plants are stunted and have reddened leaves.



Strawberry Lethal Yellows is a phytoplasma, an organism that is similar to a bacteria without a cell wall. Infected plants are stunted and yellowed, with leaf margins curling upwards.



Strawberries can become infected by many different viruses, and once a plant is infected it cannot be cured. Symptoms range from mottling to leaf distortion, crinkling, and odd-patterns of discoloration. Symptoms could be confused with herbicide damage or nutritional stress; the pattern presented in the field is important to distinguish these causes. Examples include Strawberry latent ringspot virus and Arabis mosaic virus.

Spread:

Once a plant is infected, it cannot be cured. Viruses are generally transmitted by aphids and whiteflies, while Liberibacters and Phytoplasmas are usually transmitted by leafhoppers.

Control: (second page)

Control:	
Plant production	Start with high health strawberry transplants. In strawberries, these diseases are managed by propagators who control insect feeding and regularly rogue out symptomatic plants and their daughters. Viruses have not been a commercial problem since the High Health plant production scheme was introduced in NZ.
Pre-flower	Viruses, Liberibacters and Phytoplasmas are generally very minor in annual production systems if the planting has been started with disease-free plants. Rogue out symptomatic plants and prevent feeding by sucking insects.
Flowering and fruiting	Rogue out symptomatic plants.