

Potato zebra chip (424)

Summary

- Widespread. Asia (restricted), Africa (restricted), North and Central America, Europe, Oceania. In New Zealand, Norfolk Islands (external territory Australia). Note, psyllid present in Western Australia, but not the bacterium.
- Serious bacterial disease of potato and tomato. Also on capsicum, carrots, celery, eggplant, tamarillo, and weeds. Causes stunted plants, yellowing, purpling and cupping of leaves. Stems with internal browning. Dormant buds grow, and aerial tubers form. Fried potato slides show dark brown streaks.
- Eggs, yellow-orange laid in stalks. Nymphs with bodies surrounded by hairs; adults, 2-3 mm long, white bands across first and last abdominal segments, clear wings, tent-like over the body.
- Spread by tomato-potato psyllid, *Bactericera cockerelli*. Psyllid flies short distances between crops; longer movement of disease by trade in 'seed' potatoes and seedlings. Bacterium passes from female psyllid to eggs.
- Natural enemies: predators and parasitoids identified, but impact not yet well known.
- Biosecurity: important: growers need to monitor for disease and psyllid.
- Cultural control: none.
- Chemical control: neonicotinoid insecticides, e.g., imidacloprid against the psyllid.

Common Name

Zebra chip disease

Scientific Name

Candidatus Liberibacter solanacearum; there are several strains. This bacterium is closely related to *Candidatus Liberibacter asiaticus*, and related strains that cause citrus greening (*Huanglongbing* or greening) disease.



Photo 1. Yellow and purple curled leaves of zebra chip disease in potato.



Photo 2. Appearance of fried potato slices infected with the zebra chip pathogen, *Candidatus Liberibacter solanacearum*.

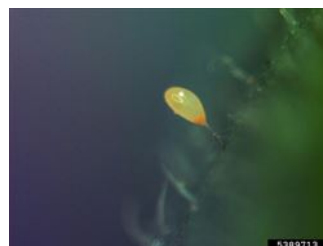


Photo 3. Egg of the psyllid, *Bactericera cockerelli*, yellow-orange and on a stalk.



Photo 4. Nymphs of the psyllid, *Bactericera cockerelli*, showing the fringe of hairs around the edge of the body.



Photo 5. Adult psyllid, *Bactericera cockerelli*, showing the two bands across its body.



Photo 6. Adult psyllid, *Bactericera cockerelli*, with wings held at about 45 degrees over the body.

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Information from Crosslin JM, et al. (2010) Potato zebra chip disease: A phytopathological tale. Plant Management Network. (<https://www.plantmanagementnetwork.org/pub/php/review/2010/zebra/>); and Zebra chip. Wikipedia. (https://en.wikipedia.org/wiki/Zebra_chip); and Zebra chip (*Candidatus Liberibacter solanacearum*). Australian Government Department of Agriculture. (<http://www.agriculture.gov.au/pests-diseases-weeds/plant/zebra-chip>); and from ProMED (2020) Liberibacter solanacearum - south America. First report (Ecuador). (<http://www.promedmail.org>). Photo 1 Pest and Diseases Image Library, Bugwood.org. Adult psyllid. Photos 3&5 No Liberibacter (zebra chip pathogen) found in potato psyllids in Western Australia. PotatoPRO.com. May 8 2018. (<https://www.potatopro.com/news/2018/no-liberibacter-zebra-chip-pathogen-found-potato-psyllids-western-australia>). Photos 4&6 Whitney Cranshaw, Colorado State University, Bugwood.org.

Produced with support from the Australian Centre for International Agricultural Research under project HORT/2016/185: *Responding to emerging pest and disease threats to horticulture in the Pacific islands*, implemented by the University of Queensland and the Secretariat of the Pacific Community.

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