

Zebra Chip Disease of Potato

Zebra chip (ZC) is a disease of potato that was observed in Mexico in 1994 and in Texas in 2000.

Symptoms

Foliar symptoms can be similar to what is normally associated with *Phytoplasmas* or *Fusarium*. Symptoms of ZC include: wilt, yellowing, leaf curling, scorching, swollen nodes, proliferation of axillary buds, and aerial tubers (Fig. 1).



Figure 1. Aerial tubers. Photo: Ronald French.

Below ground, cut tubers exhibit a discoloration in the medullary rays where the entire area has scattered streaks. Upon cooking, stripes are clearly visible. This is what gives this disease its name (Fig. 2).

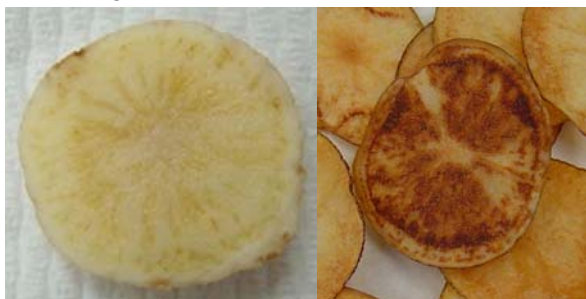


Figure 2. Raw (left) and fried potato tuber slice (right) showing discoloration. Photo: Ronald French.

Underground stems can exhibit vascular browning. Tubers may have enlarged lenticels.

Causal Agent

Candidatus Liberibacter solanacearum (CLs), a phloem-limited, non-culturable bacterium, is currently accepted as the causal agent of ZC. This pathogen is transmitted by the potato (tomato) psyllid, *Bactericera* (formerly *Paratrioza*) *cockerelli*.



Figure 3. A nymph of the potato psyllid on the underside of a potato leaf (left). Close-up of an adult and nymph (right). Photo (left): Ronald French. Photo (right): Don Henne

Other Plant Hosts

Besides potato, CLs has been confirmed on tomato, pepper (*Capsicum*), silver and black nightshade, tamarillo, *Datura*, Cape gooseberry, and carrots.

Management

Currently, the only effective approach to managing ZC is to target the insect vector by using insecticides both at planting (seed treatment), by soil drenching, and by foliar applications during the cropping season. It is important to rotate chemistries and make sure that the right growth stage of the insect is targeted at the time of insecticide application

For updated information on Zebra Chip and management of Zebra Chip, visit:

<http://zebrachipscri.tamu.edu>