

Zebra Chip Disease Profiles I

Foliar Symptoms

Robert M. Harveson, Jeffrey D. Bradshaw, and Sean D. Whipple

UNIVERSITY OF
Nebraska
Lincoln



1. Yellowing and leaf distortion of infected plants



2. Stunted plant; 3. Scorching and death of infected plant



4. Infected silver leaf nightshade on the right



5. Aerial tubers with axillary leaf buds



6. Swollen nodes on infected plant



7. Chlorosis in a field due to psyllid yellows

Introduction

A new disease of potato exhibiting the foliar symptoms of yellowing, purpling, and distortion was first observed around Saltillo, Mexico in 1994, before being reported in the U.S. in 2000 in south Texas, where it caused substantial losses to both producers and processors in 2004-2005. The most distinguishing characteristic is a discoloration of sliced tubers after frying, resulting in the name “Zebra Chip.” The disease is now known to be present throughout Latin America and has been reported from at least eight states in the U.S., including Nebraska.

The pathogen causing Zebra Chip is transmitted to plants by the potato-tomato psyllid, *Bactericera cockerelli*. The most recent research to date strongly suggests the pathogen to be the fastidious bacterium ‘*Candidatus Liberibacter solanacearum*’. It is limited to the phloem of plants, thus resulting in numerous symptoms associated with a disease of the vascular system.

Foliar Symptoms Associated with Zebra Chip

Figure	Description
1.	Infected plants show yellowing, distortion, and upward curling of leaves.
2.	Stunting of infected plant on the left compared with the unaffected one on the right.
3.	Infected plant exhibiting scorching and death of leaves.
4.	Another potential host for the Zebra Chip pathogen. Infected silver leaf nightshade exhibiting severe stunting of plant on right compared to the unaffected one on left.
5.	Infected plants also may produce aerial tubers with a proliferation of newly formed axillary leaf buds.
6.	Stem of an infected plants showing swollen nodes, resulting in an abnormal “zigzag” pattern of stems.
7.	Chlorosis in a field late in the season due to psyllid yellows. These symptoms also can be confused with the Zebra Chip disease; however, it is currently thought to be due to a toxin injected into plants during psyllid feeding.

Management

- There are currently no known disease-resistant potato cultivars, but this should be an effective tool after new resistant cultivars are available.
- Vigorous scouting and targeting of psyllid populations with aggressive chemical applications.
- Quarantine of tubers from infected fields.