

Plant Pathology Progress Report

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Progress report on two root diseases of mature sugarbeets.

I. Root rot caused by soft-rot Erwinia sp.

Serological and physiological tests showed that there are at least two distinct biotypes of the bacterium which is associated with root rot of mature sugarbeets. The bacterium associated with root rot in Willcox, Arizona is physiologically and serologically different from the bacterium associated with the disease in Chandler, Arizona, California and Washington.

Studies on the survival and possible origin of the bacterium showed that the bacterium can persist in the root zone of wheat, corn, pigweed, and London rocket. These results indicate that the bacterium can survive indefinitely in agricultural areas. Recently, the bacterium was recovered from the root zone of a native plant, Lupine. This native plant is of common occurrence at elevations above 6,000 feet. These results indicate that the sugarbeet pathogen is indigenous in Arizona on native flora.

II. Chemical control of root rot caused by Pythium aphanidermatum.

Field plots were established in Lone Butte, Arizona, in cooperation with Al Jenkins, and in Safford, Arizona. A new granular systemic fungicide was shank injected as an in furrow treatment at 1 or 2 lbs a.i. per acre one month prior to harvest. All treatments, each replicated 3 times, were repeated 3 times. Plots were treated on June 10 and harvested on July 6.

Results: Lone Butte plots:

<u>Treatment</u>	No. of beets	Wt. (lbs) of beets	<u>Beets</u>		
			% rotted completely	% infected	Total % diseased
Fungicide (1 lb. a.i./A)	158 ^a	543	8.4	18.8	27.2
Fungicide (2 lbs. a.i./A)	183	547	5.5	14.5	20.0
Check	173	567	8.6	29.0	37.6

a) Average value from single row plots, each 200 feet long, replicated 6 times.

These preliminary results look promising for chemical control of root rot caused by P. aphanidermatum. Additional trials with earlier dates of application may provide excellent, economic disease control.