Developing a strategy to identify a newly-introduced pest:
The case of bacterial heart rot of pineapple in Hawaii

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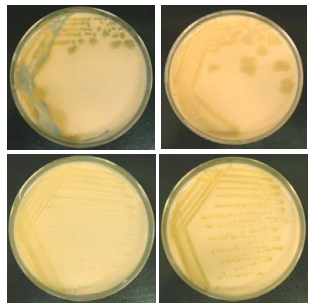
The Scenario:

- The first case in Hawaii of bacterial heart rot of pineapple occurred on a newly introduced pineapple variety
- The pathogen, *Erwinia chrysanthemi*, existed in the state at the time but was not known to infect local pineapple
- To determine an appropriate regulatory response, our goal was to establish whether *E. chrysanthemi* strains infecting the new pineapple plants were:
  - Distinct from local strains and introduced on infected planting stock, or
  - Local populations infecting a susceptible new pineapple variety

Step 1: Pathogen IDENTIFICATION using established tests

A symptomatic plant in the field

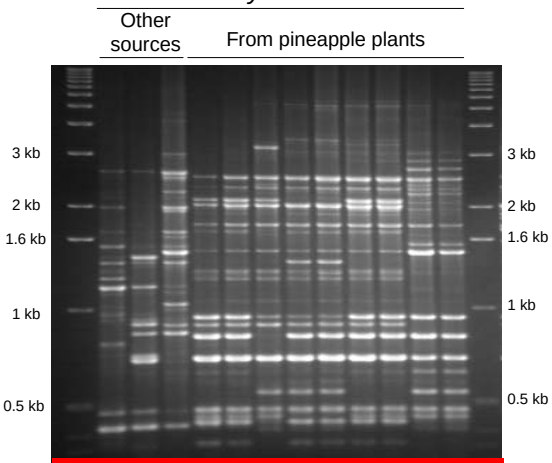


Various bacterial colony types were associated with symptomatic tissues

Strains isolated from diseased plants:

Presumptive ID	# strains	Gram	O/F	Pectolytic	Indole	Indigoidine	Pathogenicity
E. chrysanthemi	**22**	**-**	**Fermentative**	**+**	**+**	**+**	**+**
E. carotovora	6	-	Fermentative	+	-	-	-
Non-*Erwinia* species	15	+ or -	Oxidative or Fermentative	+ or -	+ or -	-	-

Step 2: Pathogen DIFFERENTIATION by rep-PCR



BOX-PCR fingerprint patterns of *E. chrysanthemi* from pineapple were different from previously-reported local populations

Step 3: Generation of antibodies for DETECTION and MONITORING

- Produced monoclonal antibodies that rapidly detect and identify the pineapple pathogen
- Future field surveys to understand the epidemiology of the new population in the field

The Outcomes:

Current: New rapid response capability for pathogen EXCLUSION

Future: Additional UNDERSTANDING of the potential impact of pests introduced to Hawaii agricultural lands