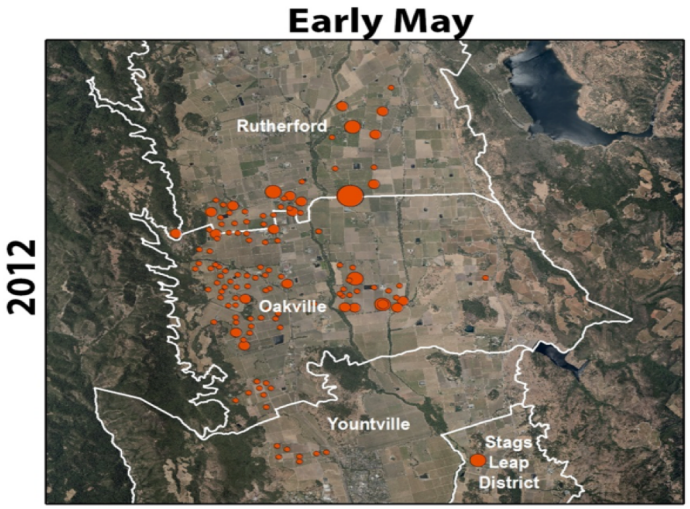
“A rising tide lifts all boats”

Cooperative pest and disease management programs

Monica Cooper
Farm Advisor-Viticulture

UC CE University of California Cooperative Extension



Background:
Cooperative programs in Napa

Napa Valley Vineyard Technical Group
“Napa Vit Tech"

Founded 1976
Growers + UC Farm Advisor
Monthly meetings

Sonoma Vit Tech
Paso Robles Vit Tech
Napa Wine Tech
VitWomen

“A rising tide lifts all boats”

UC CE University of California Cooperative Extension

NVVTG

Napa County
Wine grape Pest & Disease Control District

Grower assessment ($8/planted acre)
Inspect, Detect, Prevent, Educate
PD, GWSS, other wine grape pests

A Tradition of Stewardship
A Commitment to Service

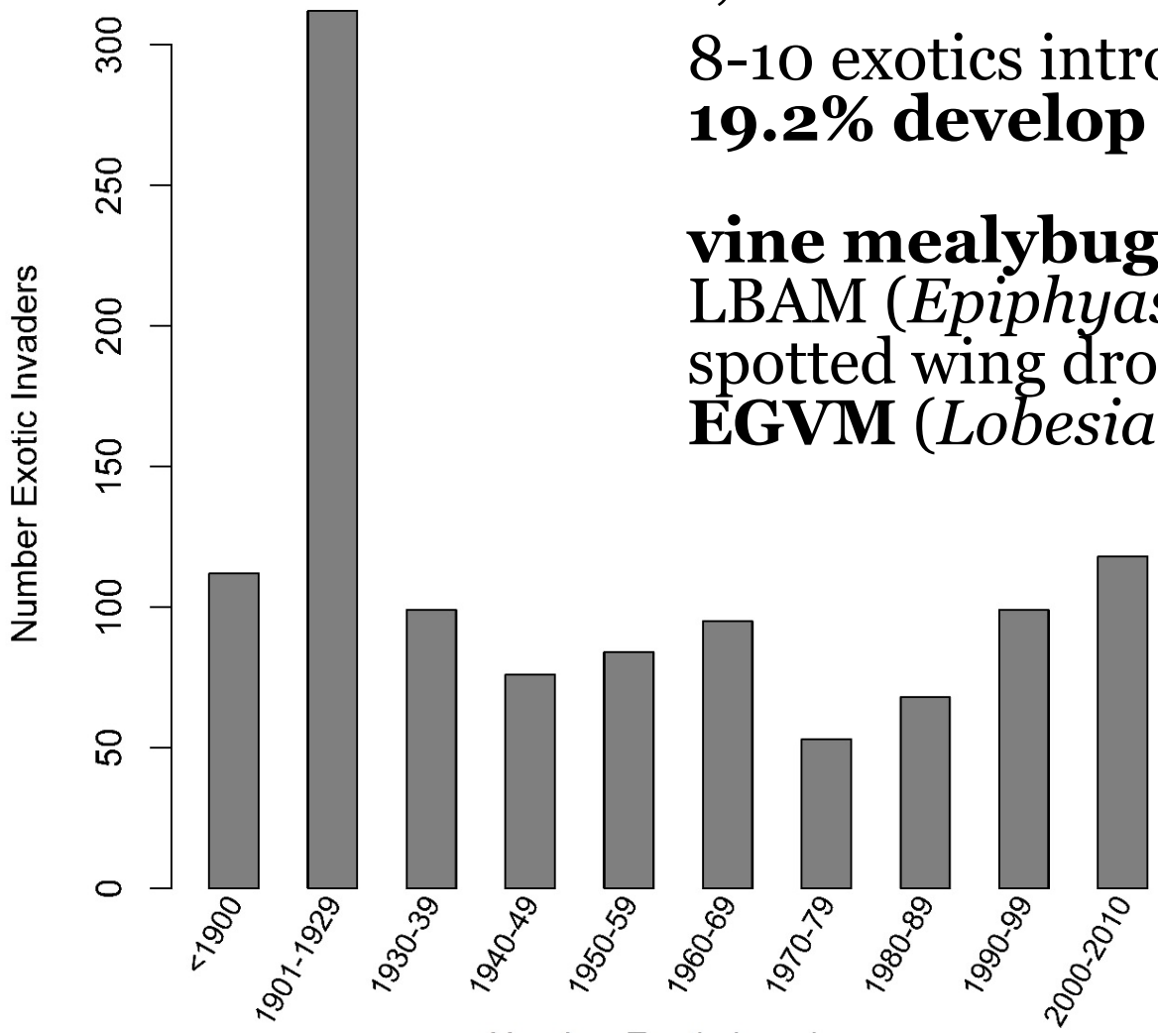
California Dept. Food & Agriculture
PD/GWSS Board

July 2001; Assessment:
grapes grown in CA & crushed for wine, vinegar, juice concentrate or brandy

UC University of California Cooperative Extension

CALIFORNIA PD/GWSS BOARD
Partnership for Winegrape Pest Solutions

Arthropod invasions in California



1700 – 2015:
1,686 exotic macro-invertebrates

8-10 exotics introduced annually
19.2% develop into pests

vine mealybug (*Planococcus ficus)*
LBAM (*Epiphyas postvittana)*
spotted wing drosophila (*D. suzukii)*
EGVM (*Lobesia botrana)*

Dowell et al. 2016

Vine mealybug *(Planococcus ficus):*

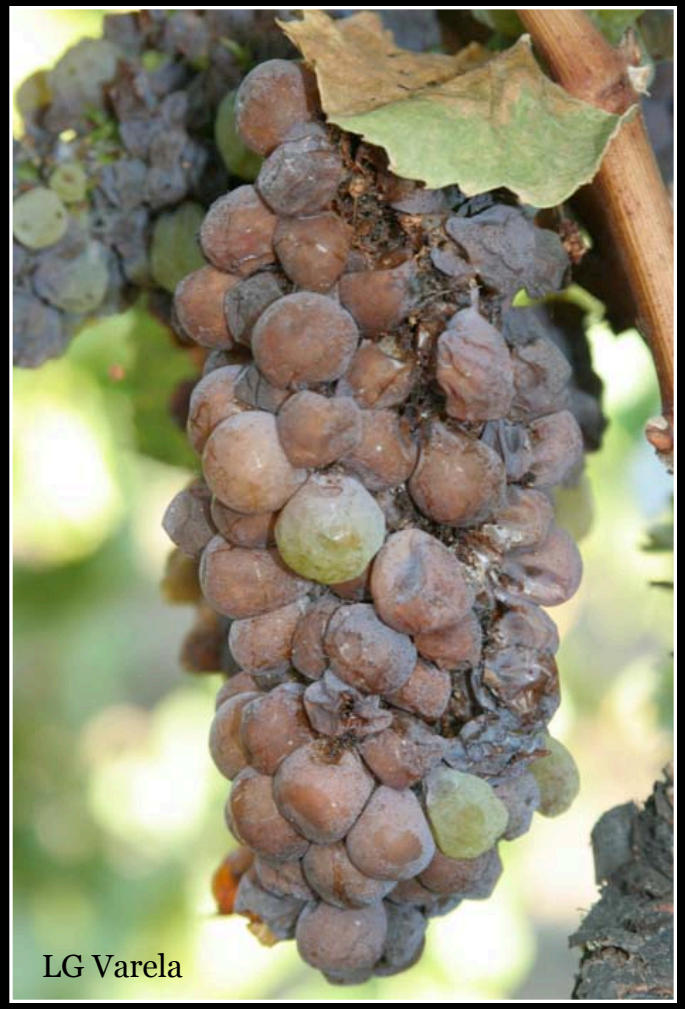
California's most challenging vineyard pest

1994: found in Coachella Valley (table grape)
2002: found in Napa
$200-500 per acre per year

Early years: Vine mealybug

Monitoring spread
Compliance agreements
Nursery stock cleanliness
Technical info developing
Neighborhood groups

European grapevine moth, *Lobesia botrana* Sep 2009- Aug 2016



European grapevine moth

Federal, state, local regulators
University scientists
growers & community

Detection Program
statewide network of traps

Quarantine Program
regulated the movement of equipment, fruit, trellis posts, etc.

Treatment Program
pesticide (organic or conventional), mating disruption, fruit removal (urban + natural areas)

Key aspects of the program

Biology

a. Pest history in native range

b. Absence of alternate host(s) of consequence

c. Pheromone for monitoring & MD

d. Effective management tools:
   i. lower risk & organic insecticides (ovicide/larvicide)
   ii. mating disruption

International Technical Expertise

Key aspects of the program: communication

Consistent, coordinated messaging

Transparency

Federal, state, local regulators
University scientists
growers & community

Key aspects of the program

Engaged a diverse community in dialogue

Responded to needs of local community

Considered impact on environment

Adopted data-driven program

Implemented appropriate regulatory requirements

Invested in relationships & networks

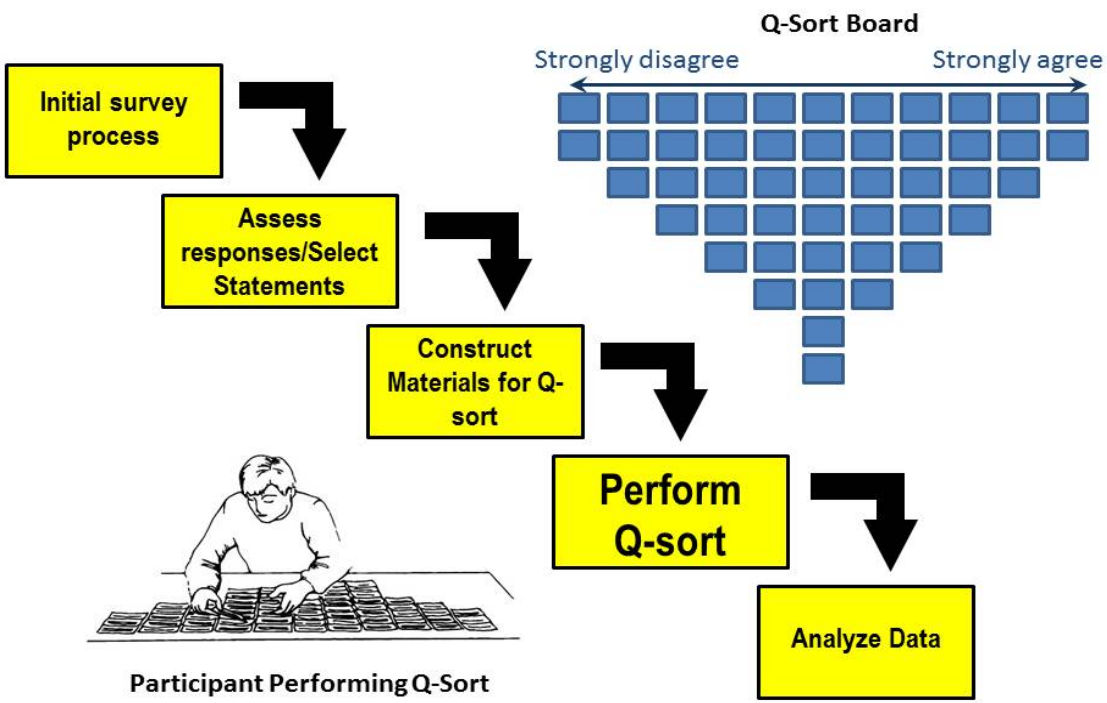
Built credibility & gained trust

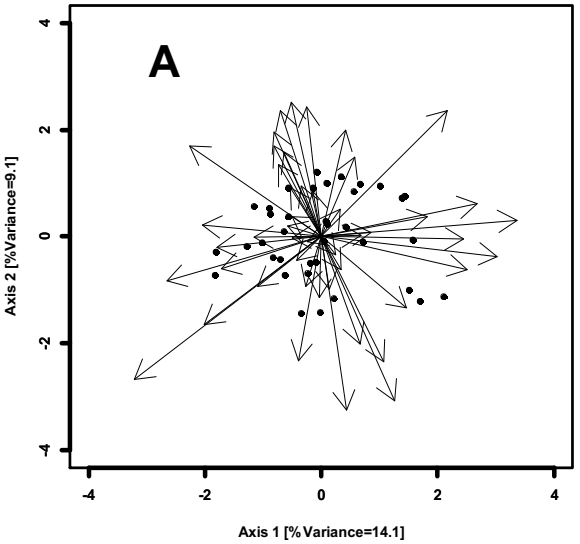
Zalom et al. 2013

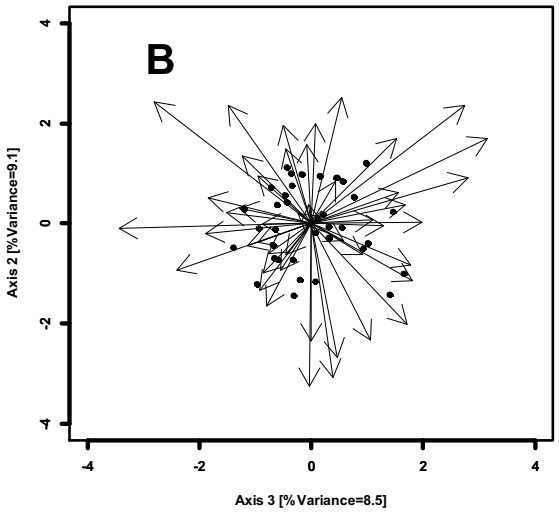
Leafroll disease spread in Napa Valley

Golino et al. 2008. *Calif. Agric.* 62: 156-160
photo courtesy D. Golino

Initial concerns about leafroll: Q-sort



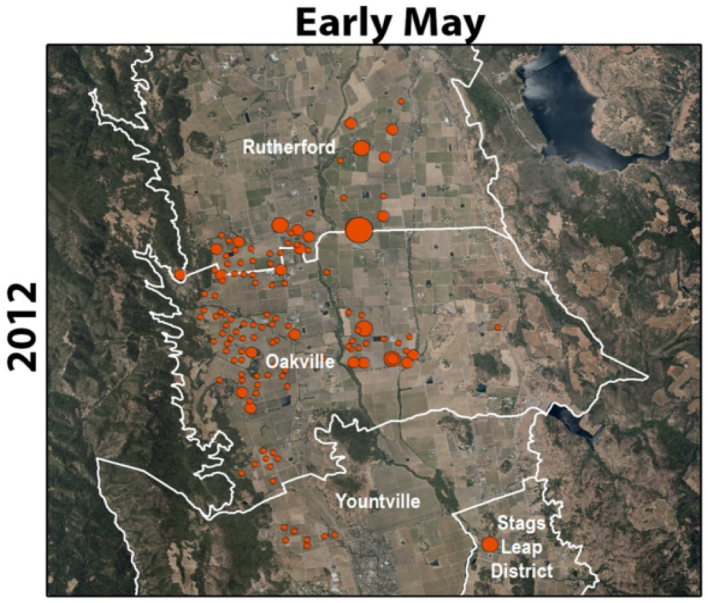




Regional groups: cooperative pest and disease management

What brought growers together?

Experiences with VMB, EGVM
Uncertainty & challenges of leafroll
Emerging problem of red blotch



Regional groups (Napa): who are they?

Leafroll and Mealybug Alliance (LAMBA)
Oakville/Yountville
Initially 12-15 members farming 1900 contiguous acres
founded March 6, 2012
Focus on leafroll disease + mealybug monitoring
Model for groups in Monterey & Lodi

Neighbor Alliance for Vineyard Protection (NAViP)
Currently 70 members (~20-25 per meeting)
Leafroll, red blotch, vine mealybug, powdery mildew

Rutherford MB/LR group
9 members
founded April 11, 2013

Oak Knoll Pierce's Disease Task Force

Regional vine mealybug groups (x 3)

Regional (focus) groups: how do they work?

Led by growers
Subject-matter experts participate

Flexible meeting schedule (3-6 per year)
Informal agenda
Avoid presentations (seminars)
Encourage participation

Action-based with limited focus

Regional groups: what do they do?

Project based: Share monitoring data

- mealybugs (pheromone-baited traps)
- sharpshooters (yellow-sticky traps)
- leafroll disease
- red blotch disease
- Pierce's Disease
- powdery mildew spores

Build informal trusted network

- project/action-based
- develop technical expertise
- share experiences (successes & failures)
- shared commitment to problem-solving
- support regional monitoring & reporting efforts
- develop & implement regional management programs

Regional groups: activities & results

Regional groups:

Grower monitoring efforts:

Blue-green sharpshooter (yellow sticky trap)
Grape mealybug (pheromone-baited delta traps)
Vine mealybug (pheromone-baited delta traps)
Pierce's Disease incidence
Leafroll disease incidence

Documented variation across:
Sites
Seasons
Management

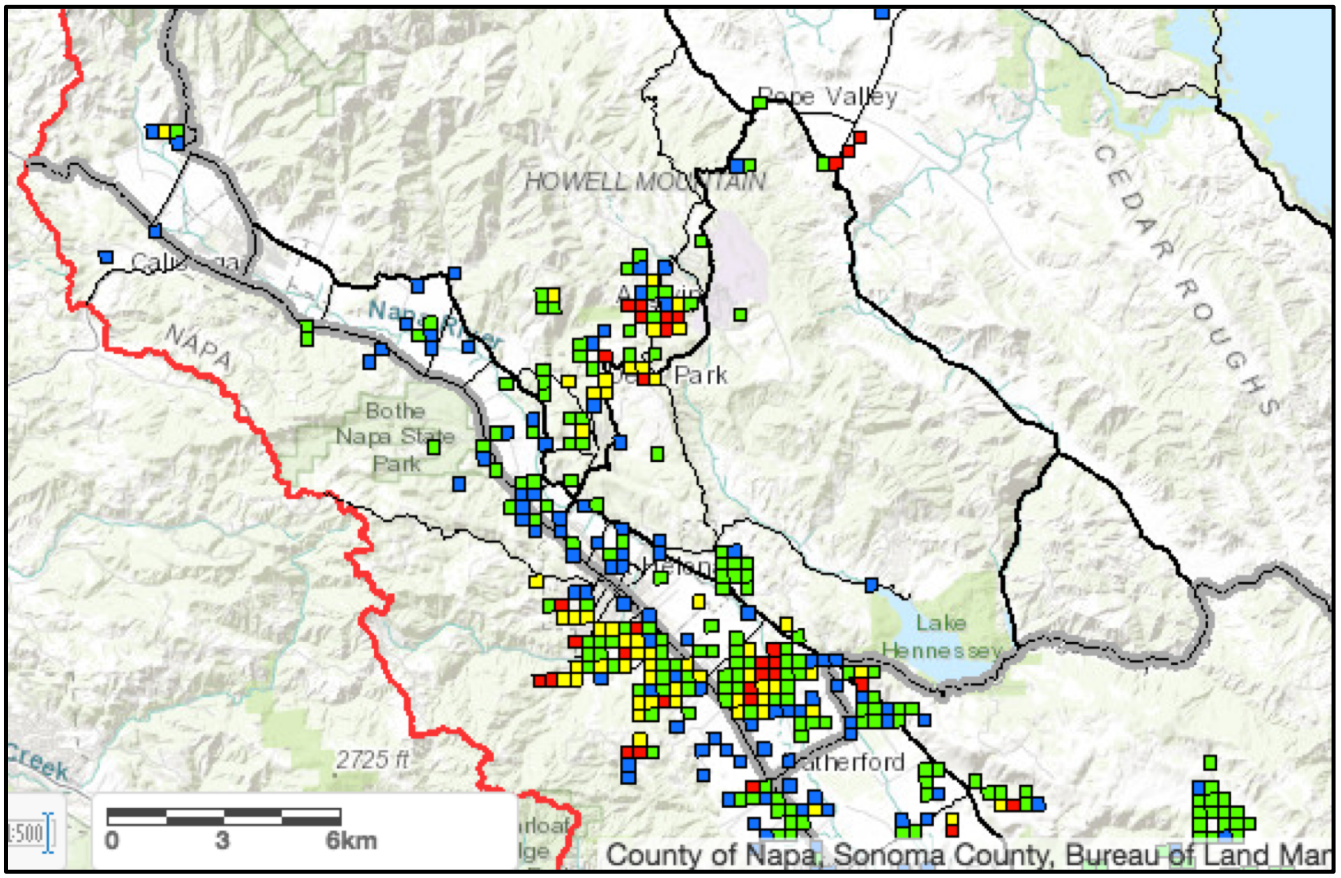
Discussions around:
Timing & selection of management practices

County-wide monitoring: VMB males

https://www.countyofnapa.org/1516/Vine-Mealybug-Maps

Napa County Wine grape Pest & Disease Control District

25 traps/mi^2
Aug-Oct
2012 -



Beyond pests and diseases: Technology transfer

Evapotranspiration and Irrigation Management

Learn what evapotranspiration (ET) is, why it changes, and how it can be used to inform irrigation decisions.

Logistical challenge: data sharing

Regional groups: how effective are they?

Value of regional groups & cooperative programs

"A rising tide lifts all boats"

Project-focused: regional monitoring & management

Trusted networks of growers

Shared commitment to problem-solving

Positive learning environment (small groups)

Turn research into practice

Support adoption of management practices

Implement change at the regional level

"Shifted the conversation"

UC CE University of California Cooperative Extension