

# Reducing Pesticide Risk: A Case Study from Lodi, California

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# Presentation Outline

- What is LWWC and why was it formed?
- The Evolution of LWWC's IPM Program
- The Evolution of LWWC's Sustainable Winegrowing Program
- Marketplace Incentives Program





# What is the Lodi-Woodbridge Winegrape Commission (LWWC)?

- All 750 Growers in Crush District #11
- Voted in by growers in 1991
- Funded by assessment of grape crop
- 90,000 acres of winegrapes - 20% of CA production
- North America's leading producer of Cabernet Sauvignon, Merlot, Zinfandel, Sauvignon Blanc, and Chardonnay (farmgate value \$US250 Million/year)



# Why was LWWC formed?

- Market Lodi as a producer of premium winegrapes and wine
- Fund viticulture research to solve local problems
- To develop an area-wide IPM program



# **Sustainable Winegrowing in Lodi –** *LWWC's Program Stages*

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**Stage I. Grower Outreach – Begun 1992**

*- education*

**Stage II. Field Implementation BIFS - Begun 1996**

*- demonstration in the vineyard*

**Stage III. Area-wide Implementation – Begun 1998**

*- the Lodi Winegrower's Workbook program*

**Stage IV. Lodi's Sustainable Winegrowing  
Program in the Marketplace – Begun 2003**

*- The Lodi Rules for Sustainable Winegrowing*



# Stage I - Grower Outreach

- **Breakfast meetings (~70)**
- **Half-day research seminars (~100)**
- **Field days (>100)**
- **Neighborhood grower meetings (5-15)**
- **Newsletter (6 per year)**
- **Website – [www.lodiwine.com](http://www.lodiwine.com)**



- Directed at entire LWWC membership
- Appeal to the complete range of LWWC growers
- Emphasize farmer to farmer interactions



# Stage II - Field Implementation-BIFS

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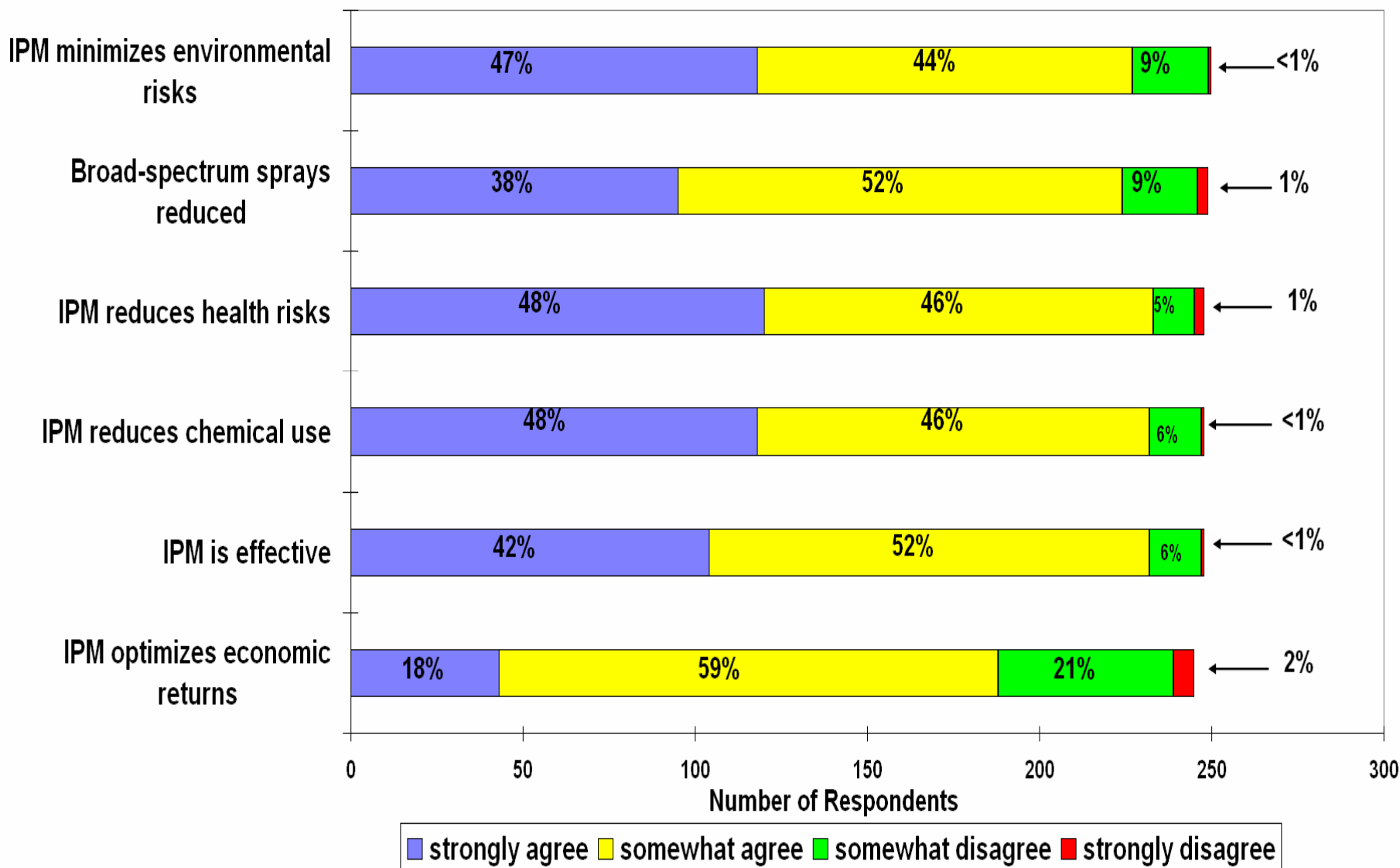
- **Core group of 45 growers** (40% of acres)
- **Involves 14 PCAs** (> 50% of district)
- **63 BIFS vineyards** (2,600 acres)
  - **work one on one with growers & PCAs**
  - **implement specific sustainable practices**
  - **weekly pest monitoring**
  - **track everything that happens in vineyard**
  - **share information among growers & PCAs**

**\*Biologically Integrated Farming Systems**



# Results from District-wide Grower Survey 1998

## LWWC Growers' Impressions of IPM





# Stage III. Lodi Winegrower's Workbook: A self-assessment of integrated farming practices

## What does a grower self-assessment accomplish?

- *identifies good farming practices being done*
- *identifies farming practices that are of concern from an environmental and/or wine quality perspective*
- *development of action plans to address these concerns*
- *set time table to carry out action plans*

It is a tool for Defining,  
Implementing, and Measuring  
IPM & Sustainable Viticulture



# *Lodi Winegrower's Workbook Content*

- Introduction
- Viticulture
- Soil Management
- Water Management
- Pest Management
- Habitat
- Human Resources
- Wine Quality
- Action Plans

= whole farming  
system approach



**Defined 105 Critical Issues**



# Example Issue sheet from the pest management section

PEST MANAGEMENT - INSECT AND MITE MONITORING AND MANAGEMENT				
Issue	Category 4	Category 3	Category 2	Category 1
1. Vineyard Monitoring for insect and mite pests	Grower or PCA monitors vineyard at least weekly and grower keeps a written record.	Grower or PCA monitors the vineyard at least weekly.	Grower or PCA monitors periodically.	Vineyard is rarely if ever monitored.
Notes:				





# Example Evaluation Sheet from Pest Management Section

Issue	Category					
Insect and Mite Monitoring and Management	Page No.	4	3	2	1	N/A
1. Vineyard monitoring for insect and mite pests	39				✓	
2. Economic thresholds and pest-natural enemy ratios	40	✓				
3. Use of broad spectrum insecticides and miticides	41			✓		
4. Use of reduced-risk materials for OLR	41		✓			
5. Cultural practices for insect and mite management	41			✓		
6. Dust abatement in and around vineyards for mite management	61				✓	

# Example Action Plan

ACTION PLAN				
WORKBOOK SECTION	ISSUE NO.	ISSUE & AREA OF CONCERN	PLAN OF ACTION	TIMETABLE
<i>Pest Management: Insect &amp; Mite Management</i>	<i>1 on Pg 56</i>	<i><u>Vineyard monitoring for insect &amp; mite pests</u> Category 1. I rarely if ever monitor my vineyard for insect &amp; mite pests.</i>	<i>Monitor every two weeks.</i>	<i>Next growing season.</i>

# How is the workbook program being implemented?

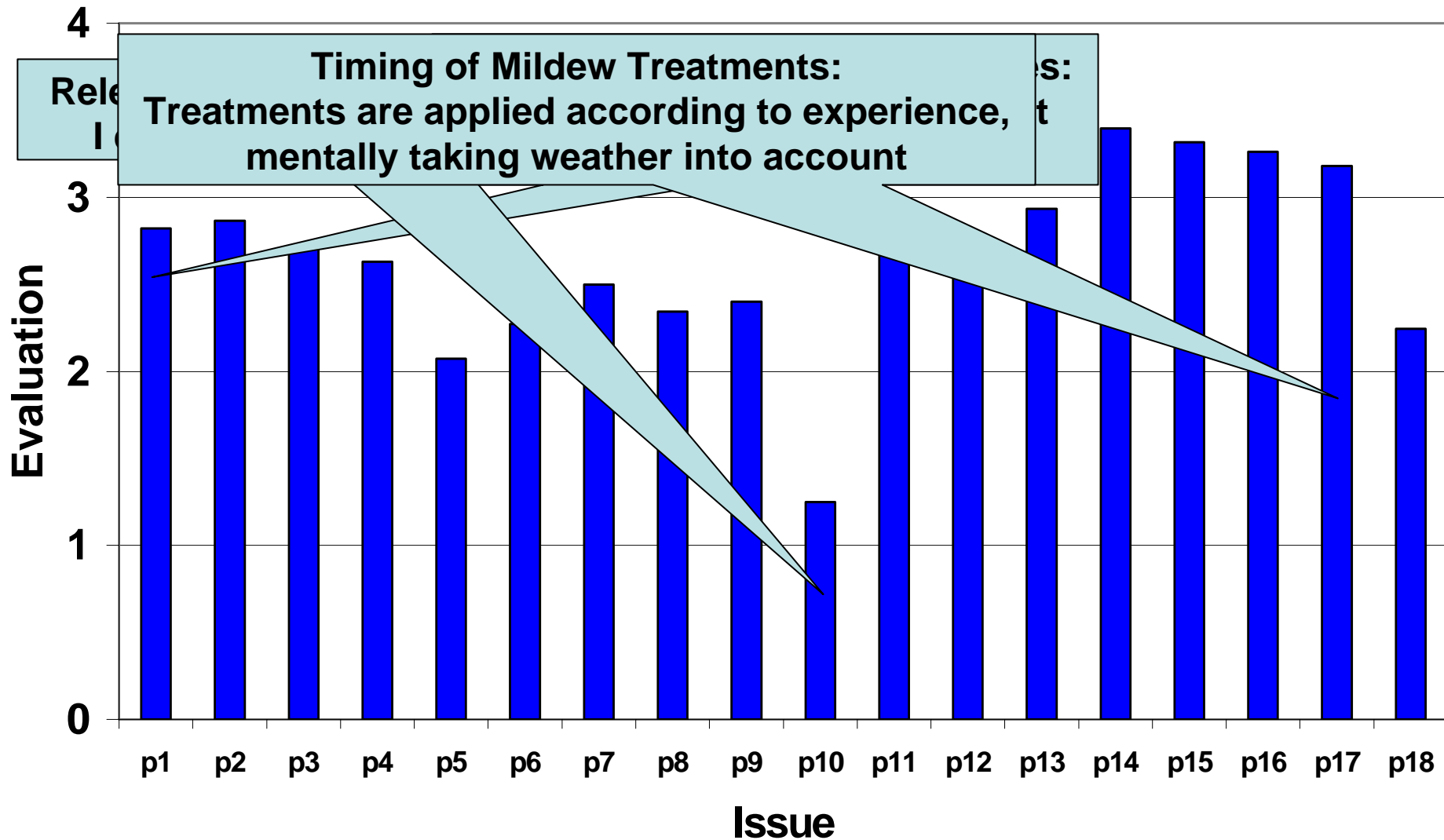
**Hold workbook workshops at growers' homes throughout the district since 2000:**

- From Jan 2000 to Jan. 2002 40 workshops were attended by 255 growers farming 63,000 acres
- From May 2002 to the present 100 growers farming 40,000 acres have been through the workbook a second time
- Database was created to summarize vineyard evaluations for growers willing to share them

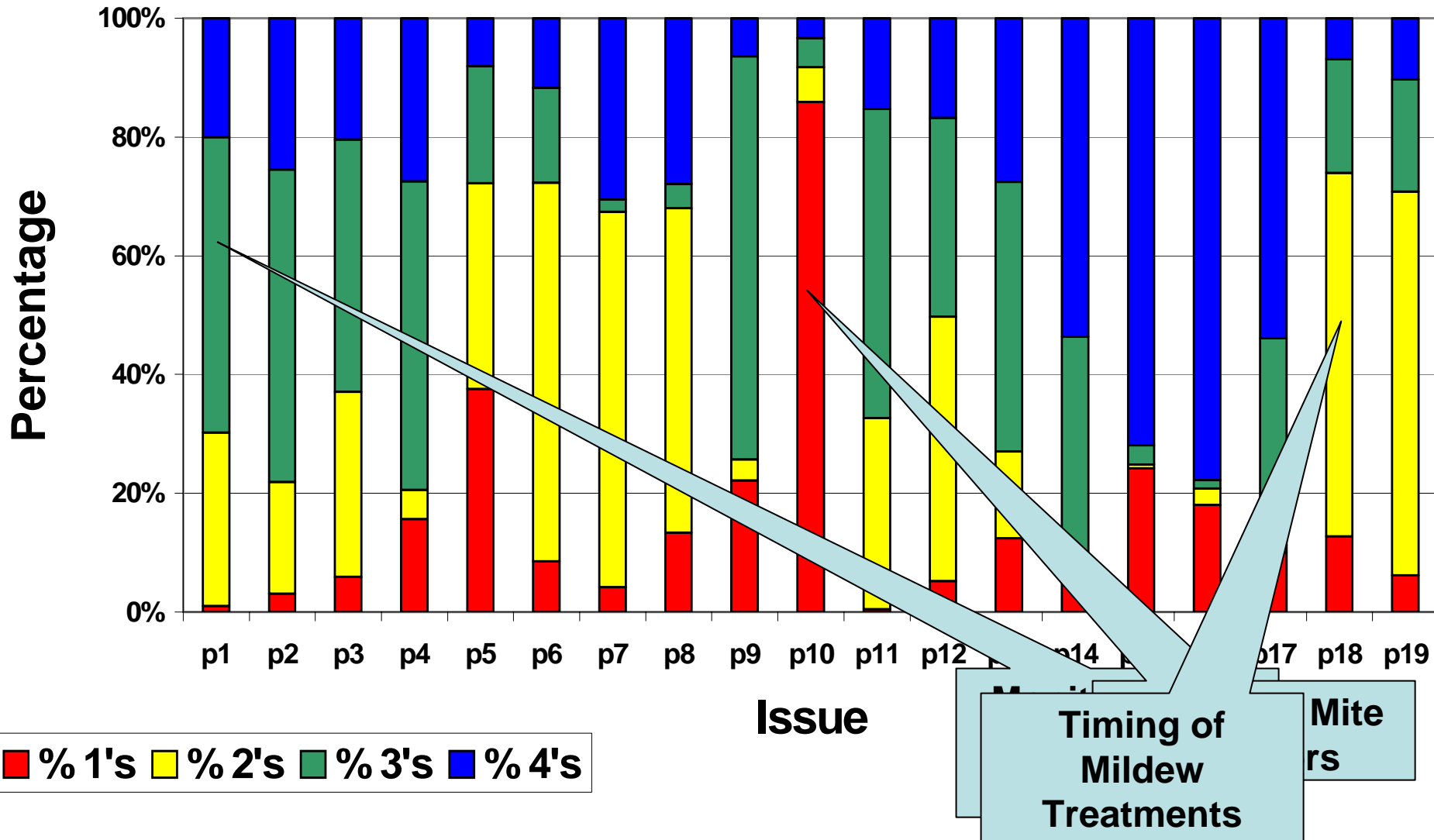




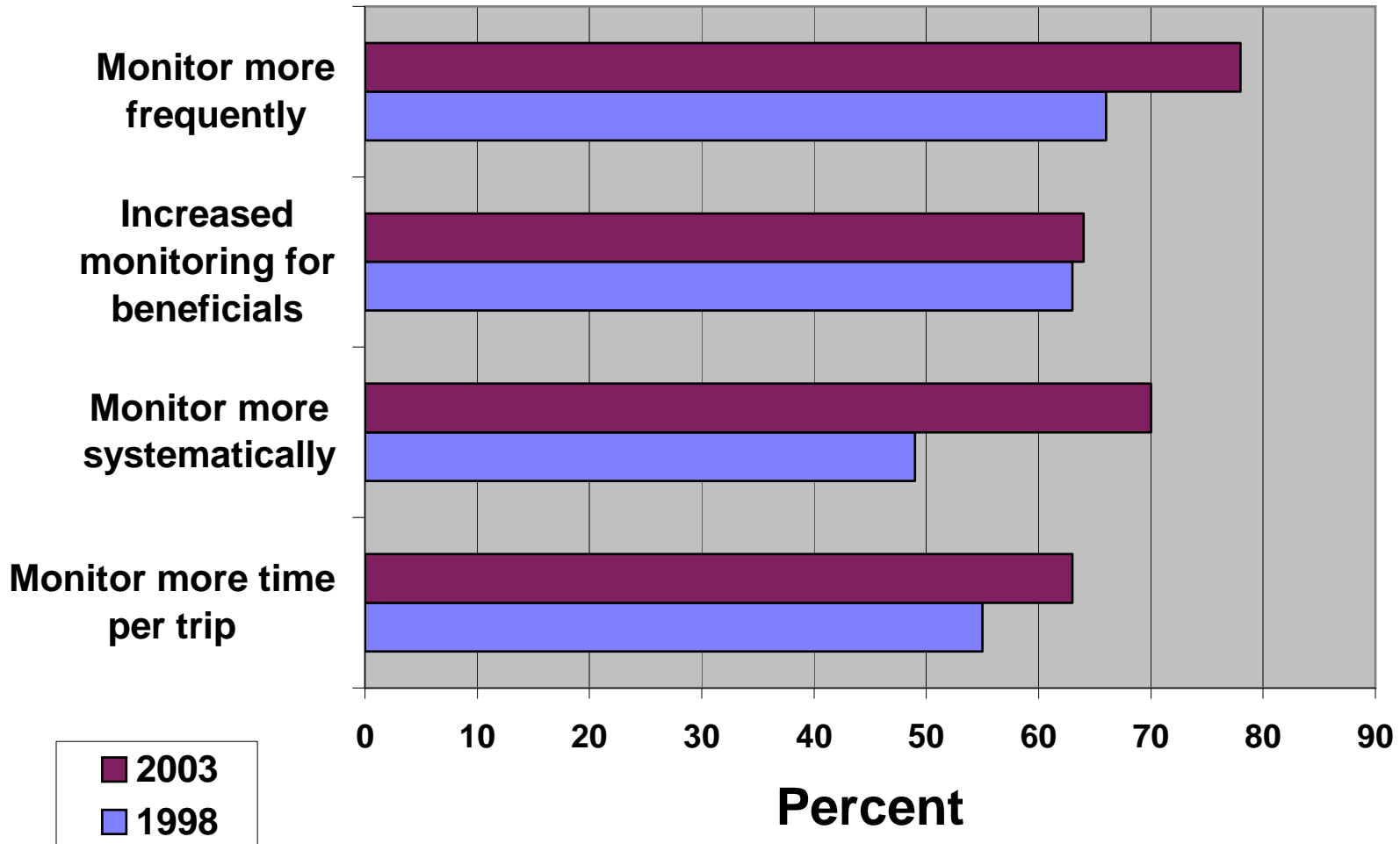
# Average Evaluation Score for Each Issue in Pest Management Chapter (200 Vineyards)



# Portion of Growers Checking 4's, 3's, 2's or 1's for Each Criteria in the Pest Management Workbook Chapter (200 vineyards)

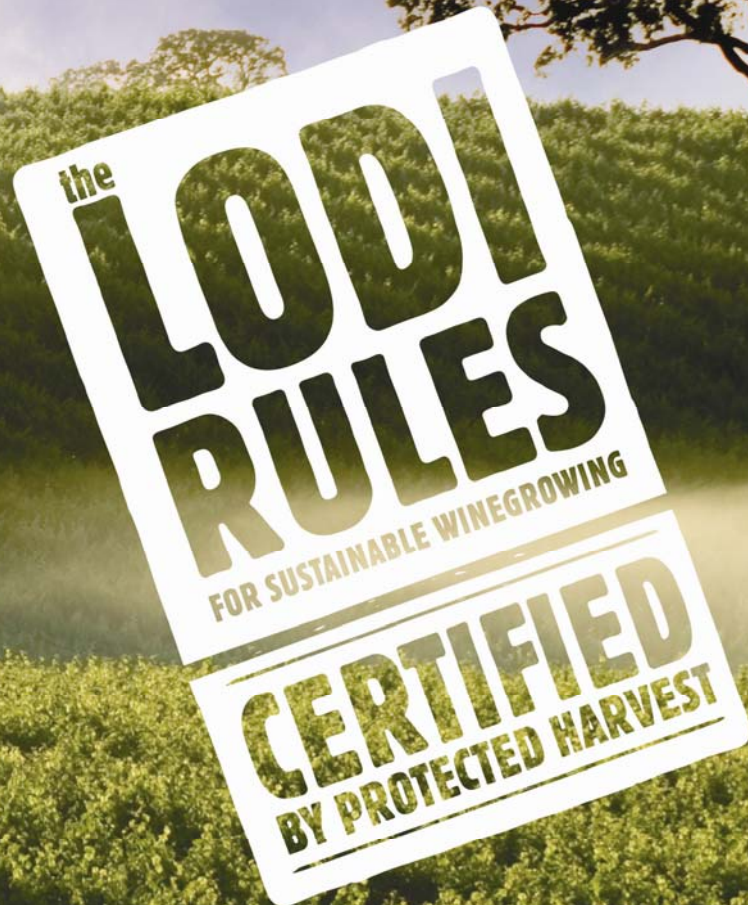


## How Has LWWC's Program Affected Your Pest Monitoring?





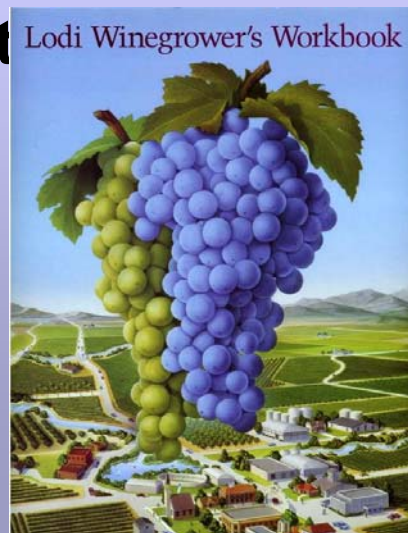
*Lodi Wine Country*



# Origins of The Lodi Rules

**Grower committee was formed in April 2001 to review value added programs in US & elsewhere and concluded:**

- Third party certification program provides most credibility
- Base program farming standards on the *Lodi Winegrower's Workbook*
- Healthy Grown® certified by Protected Harvest was best certification model



# What is the Healthy Grown Model?

To be Certified a Vineyard Must:

- Exceed a minimum number of sustainable farming practices points
- Not exceed a maximum number of environmental impact units from pesticides (synthetic and organic) used in the vineyard





# Sustainable Winegrowing Practices Standards

- Ecosystem management - 12
- Education, Training & Technical Assistance - 14
- Soil Management - 13
- Water Management - 11
- Vineyard Establishment - 15
- Pest Management - 18





# Pesticide Environmental Assessment System or PEAS

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- Model Developed by Dr. Chuck Benbrook
- Calculates environmental impact index for each pesticide Active Ingredient used in Lodi
- Index is a direct measure of environmental risk
- Environmental Impact units can be added up to calculate total impact of all pesticides used on each vineyard acre



# PEAS is a Multi-attribute Model

*PEAS Index is made of the following indices:*

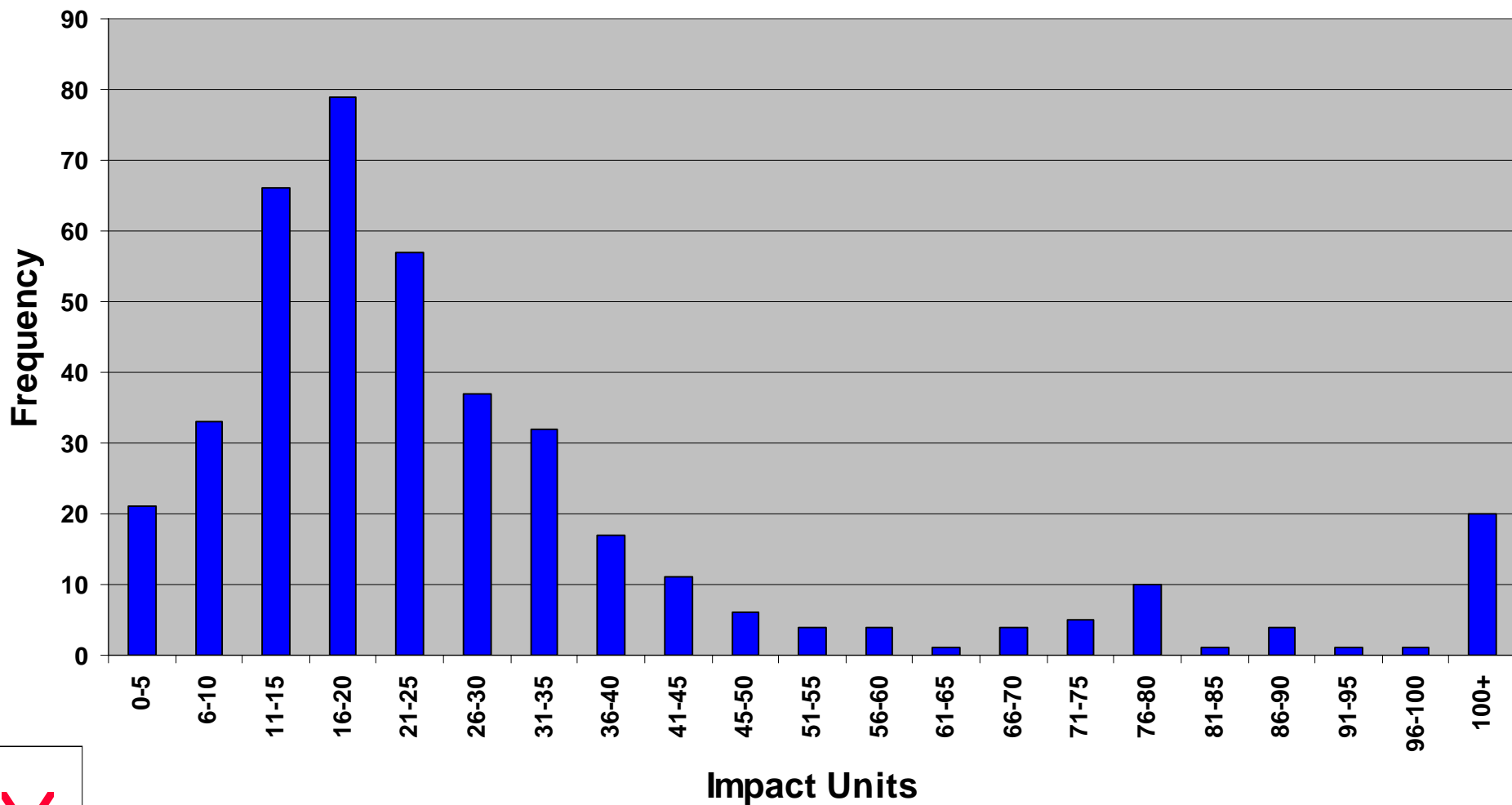
- Worker exposure
- Avian risk
- Daphnia risk (measure of water quality)
- Bees (measure of natural enemy impacts)
- Dietary risk e.g. residue ingestion
- Ground water impacts added in 2005



<b>Pesticide</b>	<b>Index</b>
<b>Lorsban</b>	<b>173.00</b>
<b>Nexter</b>	<b>50.00</b>
<b>Copper Hydroxide</b>	<b>7.00</b>
<b>Neem Oil</b>	<b>5.00</b>
<b>Provado</b>	<b>3.00</b>
<b>Cryolite</b>	<b>2.94</b>
<b>Sulfur Dust</b>	<b>2.37</b>
<b>Omite</b>	<b>2.05</b>
<b>Surround</b>	<b>1.45</b>
<b>Roundup</b>	<b>0.39</b>
<b>Kaligreen</b>	<b>0.39</b>
<b>Rally</b>	<b>0.32</b>



# Frequency Distribution of Total Impact Units for the Year for BIFS Vineyards from 1996 to 2003







Lodi Wine & Visitor Center



# Twelve Years of Sustainable Viticulture in Lodi – *Grant's Awarded to Program*

**LWWC has received over \$1.4 Million in grants for  
its Sustainable Viticulture Program**

## Funding Sources:

W. K. Kellogg Foundation

University of California SAREP

US EPA Region IX

National Resource Conservation Service

US EPA PESP Grant Program

CalFed Bay Delta Authority

Great Valley Center

National IPM Education Foundation

USDA Value Added Grant Program

State Water Quality Control Board



# LWWC's Success in the Marketplace

- In 1990 total tons 286,441 (Tokay, Zinfandel, French Columbard, Carignane, Chenin Blanc, Burger)
- In 2004 total tons 565,828 (Zinfandel, Chardonnay, Cabernet Sauvignon, Merlot, Sauv. Blanc, Syrah)
- In 1990 Lodi grew 9% of California's winegrapes
- In 2004 Lodi grew 20% of California's winegrapes (and 23% of California's premium wine production)
- In 1990 there were 8 wineries in Lodi appellation and 4 'Lodi' labeled wines
- In 2004 there are over 50 wineries and over 200 'Lodi' labeled wines

