Developing a Sustainable Farming Program From the Ground Up and the Role of Crop Consultants

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Presentation Outline

• Challenges of Sustainable Farming
• Defining Sustainable Farming
• Developing a Sustainable Farming Program from the Ground Up – A Case Study: Lodi Winegrape Commission’s Sustainable Winegrowing Program
• Concluding Remarks
Why is Discussing Sustainable Farming so Challenging (and interesting!)?

Because it is often infused with a mixture of the following (not in order of importance):

- Science
- Dogma
- Passion
- History
- Ideology
- Philosophy
- Economics
- Marketing
- Human Behavior
- Personal Agendas
- Etc.
Reactions of Many Growers to Sustainable Farming
Three Challenges Presented by Sustainable Farming

1) Defining it:
   - How can I do it if I can’t define it?
   - What is the scope of the definition?
   - There are no universally accepted standards – not been codified

2) Implementing it:
   - What can I do on my farm?
   - How do we extend this to an entire sector/region?

3) Measuring it:
   - Tracking practices & performance – where am I at?
   - How is it impacting my farming operation?
Defining Sustainable Farming

Leaving the earth in as good or better shape for the next generation meaning the sustainability of future generations to meet their own needs.

- 1987 United Nation’s Brundtland Commission

New Term: Regenerative Farming
So what is Sustainable Farming?

The three “E’s” of Sustainability “P’s”

Environmentally E

Socially Equitable

Economically Viable

Sound Planet

Profit

People
Viewing Sustainable Farming as a Continuum

Where does one draw the line?

Goal is to move along continuum over time

It is a journey, not a destination

Less Sustainable

More Sustainable
What is Sustainable Farming?

• It focuses on all aspects of farming
  - Soil management
  - Water management
  - Nutrient management
  - The crop, yield & quality
  - Air quality
  - Energy use
  - Packing & shipping
  - Areas not farmed
  - Family, employees and community
Some of My Thoughts on Sustainable Farming:

• Sustainable farming is paying attention to detail
• Knowledge management – how information is used to drive actions
• Measure to Manage – If you can’t measure it you can’t manage it
• Perception of what we are doing may be different from what we are actually doing
• What practices can be implemented are dependent on price of crop
• Sustainable agriculture exists in a world where the horizon is always receding – new challenges continue to appear (e.g., climate change)
• Sustainable farming is a journey, not a destination
What about Organic and Farming?

- Organic and Biodynamic farming evolved and were codified in the 1920’s – 40’s and focused on important farming issues of the time (e.g., soil health, synthetic fertilizers & pesticides)

- Present day farming concerns are use of water, energy, impacts on biodiversity, pollinators, social equity and GHG production – organic and Biodynamic standards do not address these issues

- Therefore, growers implementing sustainable farming are not necessarily in transition to organic or Biodynamic farming
Is Sustainability a Fad? - Not according to this graph!

That is why buyers are leaning on suppliers (growers) to provide information on farming practices.
Businesses Addressing Sustainability

Walmart’s “Live Better” initiatives are making a difference

Save money. Live better. These are the words we live by at Walmart. Our “Every Day Low Cost” strategy helps people save money, stretch their paychecks, and provide a better life for their families. But the work we do to help people live better goes far beyond our store walls. It extends into our communities and around the world and affects the lives of people we will never meet.

We believe we have an opportunity and a responsibility to make a difference on the big issues that matter to us all. Issues like preserving the environment, fighting hunger, empowering women and providing access to healthy, affordable food. Walmart is driving meaningful change in a way that no other company can. And we’re committed to using our size and scale to help the world live better.
'The Father of Modern Design'
How Raymond Loewy Gave Coca-Cola a Modern Look in the 1940s

SUSTAINABILITY REPORT
SUSTAINABLY-FARmed, ESTATE VINEYARDS IN PASO ROBLES, MONTEREY AND NAPA VALLEY
Cargill’s CEO Dave MacLennan...

“There is no getting around it. This is tough, challenging work. It’s also our new normal.”

*Financial Times Commodities Global Summit, April 21, 2015*
United Nations Sustainable Development Knowledge Platform

https://sustainabledevelopment.un.org/sdgs
### Sampling of Sustainable Agriculture Initiatives

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>California Almond Sustainability Program - Self-Assessment</td>
<td>20% Private</td>
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<tr>
<td>Cool Farm Alliance - Cool Farm Tool (GHG calculator)</td>
<td>30% Trade Associations</td>
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<tr>
<td>California Sustainable Winegrowing Alliance Sustainable Winegrowing Program</td>
<td>36% Certifier</td>
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<tr>
<td>Equitable Food Initiative</td>
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<tr>
<td>Fair Trade</td>
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<td>Field to Market - Field Print Calculator</td>
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<td>Food Alliance</td>
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<td>Food Safety Modernization Act</td>
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<td>Global GAP</td>
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<td>Leonardo Academy National Sustainable Ag Standard</td>
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<td>Pollinator Partnership Bee Friendly Farming</td>
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<td>Protected Harvest - Lodi Rules</td>
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<td>Rainforest Alliance - Sustainable Agriculture Network (SAN)</td>
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<td>SAI - SAP (Sustainable Ag Initiative Sustainable Agriculture Platform)</td>
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<tr>
<td>Scientific Certification System’s Certified Sustainably Grown</td>
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<td>SIP (Sustainability in Practice)</td>
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<td>Stewardship Index for Specialty Crops</td>
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<td>Starbucks C.A.F.E.</td>
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<td>Sysco Sustainable/IPM v06.05 Audit</td>
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<tr>
<td>Walmart/The Sustainability Consortium Sustainability Index</td>
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<tr>
<td>Unilever Sustainable Agriculture Code</td>
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<tr>
<td>US Soybeans Sustainable Assurance Protocol</td>
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<tr>
<td>Whole Foods Responsibly Grown</td>
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**Program Owner:**

- 20% Private
- 30% Trade Associations
- 36% Certifier

72% of initiatives the Program Practices/Metrics were developed with input from growers.
## Sustainability Areas Covered by Initiatives

| Sustainability Areas Covered by Practices and/or Metrics | CASP Self-Assessment Program | Cool Farm Alliance | Cool Farm Tool | CSWA SWP | Field to Market - Field Print Calculator | Food Alliance | Food Safety Modernization Act | Global GAP | Leo National Sustainable Agriculture Standard | Pollinator Partnership Bee Friendly Farming | Protect ed Harvest Lodl Rules | Rainforest Alliance - SAN | SCS Certified Sustainably Grown | SIP | SISC | Unilever Sustainable Agriculture Code | US Soybean Sustainability Certification | Whole Foods Responsibly Grown |
|----------------------------------------------------------|------------------------------|-------------------|---------------|---------|-------------------------------|--------------|-------------------------------|-----------|--------------------------------|--------------------------------|------------------|-----------------|--------------------------|-----------------|-----------------------|
| Land: Soil Management                                   | Yes                          | Yes               | Yes           | Yes     | Yes                           | Yes          | Yes                           | Yes       | Yes                           | Yes                           | Yes              | Yes              | Yes                      | Yes              | Yes                    |
| Land: Nutrient Management                               | Yes                          | Yes               | Yes           | Yes     | Yes                           | Yes          | Yes                           | Yes       | Yes                           | Yes                           | Yes              | Yes              | Yes                      | Yes              | Yes                    |
| Land: Conversion/Degradation                            | Yes                          | Yes               | Yes           | Yes     | Yes                           | Yes          | Yes                           | Yes       | Yes                           | Yes                           | Yes              | Yes              | Yes                      | Yes              | Yes                    |
| Atmosphere: GHGs                                       | Yes                          | Yes               | Yes           | Yes     | Yes                           | Yes          | Yes                           | Yes       | Yes                           | Yes                           | Yes              | Yes              | Yes                      | Yes              | Yes                    |
| Atmosphere: Air Quality                                | Yes                          | Yes               | Yes           | Yes     | Yes                           | Yes          | Yes                           | Yes       | Yes                           | Yes                           | Yes              | Yes              | Yes                      | Yes              | Yes                    |
| Water: Use                                              | Yes                          | Yes               | Yes           | Yes     | Yes                           | Yes          | Yes                           | Yes       | Yes                           | Yes                           | Yes              | Yes              | Yes                      | Yes              | Yes                    |
| Water: Quality                                          | Yes                          | Yes               | Yes           | Yes     | Yes                           | Yes          | Yes                           | Yes       | Yes                           | Yes                           | Yes              | Yes              | Yes                      | Yes              | Yes                    |
| Integrated Pest Management                              | Yes                          | Yes               | Yes           | Yes     | Yes                           | Yes          | Yes                           | Yes       | Yes                           | Yes                           | Yes              | Yes              | Yes                      | Yes              | Yes                    |
| Biodiversity                                            | Yes                          | Yes               | Yes           | Yes     | Yes                           | Yes          | Yes                           | Yes       | Yes                           | Yes                           | Yes              | Yes              | Yes                      | Yes              | Yes                    |
| Energy Use                                              | Yes                          | Yes               | Yes           | Yes     | Yes                           | Yes          | Yes                           | Yes       | Yes                           | Yes                           | Yes              | Yes              | Yes                      | Yes              | Yes                    |
| Packaging                                                | Yes                          | Yes               | Yes           | Yes     | Yes                           | Yes          | Yes                           | Yes       | Yes                           | Yes                           | Yes              | Yes              | Yes                      | Yes              | Yes                    |
| Waste Reduction & Disposal                              | Yes                          | Yes               | Yes           | Yes     | Yes                           | Yes          | Yes                           | Yes       | Yes                           | Yes                           | Yes              | Yes              | Yes                      | Yes              | Yes                    |
| People: Human Resources                                 | Yes                          | Yes               | Yes           | Yes     | Yes                           | Yes          | Yes                           | Yes       | Yes                           | Yes                           | Yes              | Yes              | Yes                      | Yes              | Yes                    |
| People: Communities                                     | Yes                          | Yes               | Yes           | Yes     | Yes                           | Yes          | Yes                           | Yes       | Yes                           | Yes                           | Yes              | Yes              | Yes                      | Yes              | Yes                    |
| Increase Revenue                                        | Yes                          | Yes               | Yes           | Yes     | Yes                           | Yes          | Yes                           | Yes       | Yes                           | Yes                           | Yes              | Yes              | Yes                      | Yes              | Yes                    |
| Food Safety                                             | Yes                          | Yes               | Yes           | Yes     | Yes                           | Yes          | Yes                           | Yes       | Yes                           | Yes                           | Yes              | Yes              | Yes                      | Yes              | Yes                    |

There is a great range among initiatives how well they cover a topic area.
Growers Concerns about sustainability:

• Can I afford it?
• Seeing the value proposition – What’s in it for me?
• Voluntary programs will become regulatory compliance
• Voluntary sustainability programs will become supply chain compliance
• My family has been farming this ground for three generations – isn’t that sustainable?
• My farm is profitable – why should I do anything differently?
• Today is Tuesday and I grow winegrapes, what do I do differently today that is considered to be sustainable?
Supply chain pressures on growers in relation to sustainability:

- Some buyers want to know what growers are doing on the farm (e.g. Walmart, CostCo, Unilever, Sysco, Whole Foods Market etc.)
- Some buyers are encouraging growers participate in certification – e.g. Whole Foods Market & CostCo - Equitable Food Initiative
- GlobalGAP is talking about encompassing sustainability in their standards
- Overseas groups like MPS are making inroads into the US – certification is becoming a big business globally
- Food Safety e.g. Leafy Greens Initiative & Food Safety Modernization Act
The Lodi Winegrape Commission’s Sustainable Winegrowing Program
– A Case Study in Building a Sustainable Farming Program from the Ground Up
About the Lodi Winegrape Commission?

• Local trade association formed in 1990 (Crush District #11)
  ➢ Compulsory membership if producing more than 25 tons of winegrapes
  ➢ Growers levied a % of value of annual grape sales
  ➢ Every 5 years growers vote to continue or not

• 750 growers farming about 100,000 acres of winegrapes (20+% of California production)

• Initial LWC goals:
  ➢ Market Lodi as a producer of premium winegrapes
  ➢ Carry out research on quality winegrape growing
  ➢ Develop an IPM program for grower members
Location of California Crush District #11:
Location of Lodi AVA:
Evolution of Lodi’s Sustainable Winegrowing Program

Stage I
Grower Outreach (IPM)
1992

Stage II
In-Field Program (BIFS)
1996

Stage III
Area-wide Program
Lodi Winegrower’s Workbook
1999

Stage IV
Sustainable Certification Program
2002

Present
Groups & Individuals Involved in program development:

- Lodi Winegrape Commission member growers
- Licensed Pest Control Advisors & Viticulture Consultants
- Lodi Winegrape Commission staff
- University of California Davis
  - Cooperative Extension Farm Advisor
  - Specialists
  - Researchers
- East Bay Municipal Utility District Scientist
- Regulatory Agencies:
  - County Agricultural Commissioner’s Office staff
  - US EPA Regional Office (San Francisco)
  - US EPA National Office
Role of Crop Consultants in LWC’s Program Evolution:

- PCAs and Viticulture Consultants are a key element – gateway to growers
  - Pest management advice
  - Nutrient management advice
  - Water management advice
  - Canopy management and crop load advice

- Willingness to participate in program development and implementation
  - It is a value proposition for their clients
  - Need to believe a rising tide raises all ships
Program Development Stage I - Grower Outreach

- Breakfast meetings
- Half-day research seminars
- Field days
- Neighborhood grower meetings
- Newsletter (6 per year)
- Website – www.lodiwine.com

- Directed at entire LWC membership
- Appeal to the complete range of LWC growers
- Emphasize farmer to farmer interactions
Program Development Stage II – Demonstration – BIFS*

- Core group of 45 growers (manage 40% of acres in Lodi)
- Involved 14 PCAs (> 50% of district PCAs)
- 70 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
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** Sustainable Winegrowing
Workbook Technical Advisory Committee:

Markus Bokisch, LWC Grower & Winemaker
Joe Dexter, LWC Grower & Winemaker
Dr. Nick Dokoozlian, E & J Gallo Winery Chief Scientist
Aaron Lange, LWC Grower & Winemaker
Brad Goehring, LWC Grower
Stan Grant, Viticulture Consultant
Dr. Doug Gubler, UC Davis Plant Pathologist
Dr. Will Horwath, UC Davis Soil Scientist
Robert Pirie, LWC Grower
Terry Prichard, UC Davis Irrigation Specialist
Gary Patterson, LWC Grower
Steve Quashnick, LWC Grower & PCA
Kent Reeves, Wildlife Biologist, EBMUD
Dr. Liz Thach, CSU Sonoma Human Resources
Bill Thomas, Mid Valley Ag PCA
Paul Verdegaal, Farm Advisor UCCE
### 6.9 Managing omnivorous leafroller (OLR)

<table>
<thead>
<tr>
<th>Category 4</th>
<th>Category 3</th>
<th>Category 2</th>
<th>Category 1</th>
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<tbody>
<tr>
<td>I do not have to treat for OLR because parasites keep the population below the economic threshold <strong>Or</strong> If control is necessary due to problems in the previous season, I use pheromone confusion for control.</td>
<td>I check 10 flower clusters on 20 vines at bloom time for treatment decision-making <strong>And</strong> I obtain a biofix for OLR using a pheromone trap, and degree-days are tracked using weather station data <strong>And</strong> Treatment is timed for 700-900 degree-days from biofix (the most susceptible stage) <strong>And</strong> I use LWWC’s PEAS model in selecting the pesticide to use for OLR taking into account the environmental impact units (EIUs) and efficacy.</td>
<td>My treatment for OLR is based on the time of year or stage of grapevine development (e.g. bloom) <strong>And</strong> I use LWWC’s PEAS model in selecting the pesticide to use for OLR taking into account the environmental impact units (EIUs) and efficacy.</td>
<td>My treatment for OLR is based on the time of year or stage of grapevine development (e.g. bloom) <strong>And</strong> Environmental impact is not considered when I choose a pesticide to use for OLR.</td>
</tr>
</tbody>
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**Ultimate IPM**

**Increasing Sustainability**

**No IPM**
Workbook model is cycle of continuous improvement
Workbook Program Implementation

- Held workbook workshops in grower’s homes from Jan 2000 to Jan. 2002 - 40 workshops were attended by 255 growers farming 63,000 acres
- May 2002 to 2004 held a second round of workbook workshops attended by 100 growers farming 40,000 acres
- Database was created to summarize vineyard evaluations for growers willing to share them
- Second edition of Lodi Winegrower’s Workbook was published in 2008
Program Development Stage IV.
Voluntary Certification

• 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 Protected Harvest Model?

To be Certified a Field (e.g., vineyard) Must:

- Exceed a minimum number of sustainable farming practices points (70%)
- Not exceed a maximum number of environmental impact units from pesticides (synthetic and organic) used in the vineyard

Crop-specific locally focused standards
The Lodi Rules Committee:

Growers
- Bryan Anthony, E. & J. Gallo Winery
- Joe Cotta, Cotta Ranches
- Steve Felten, Felten-Melhoff Ranch
- Jerry Fry, Mohr-Fry Ranches
- Bruce Fry, Mohr-Fry Ranches

PCAs
- Chuck Ingels, UCCE Farm Advisor, Sacramento Co.

Winemakers
- Randall Lange, LangeTwins Farms
- John Ledbetter, Vino Farms

UC
- Kim Ledbetter-Bronsen, Vino Farms

NGO
- Larry Mettler, Arbor Vineyards
- Robert Pirie, President Colligere Ranches

LWC
- Terry Prichard, UC Irrigation Specialist
- Steve Quashnick, Western Farm Service
- Kent Reeves, EBMUD Wildlife Biologist
- Craig Rous, Bear Creek Winery
- Bob Schulenburg
- Mark Shimozaki, Viticultural Services
- Paul Verdegaal, UCCE Farm Advisor San Joaquin Co.
- Chris Storm, LWC Viticulturist
- Cliff Ohmart, LWC Research/IPM Director
- Mark Chandler, LWC Executive Director
- Stuart Spencer, LWC Project Manager
Standards Development & Review

- Over 14 month period drafted & edited
- Protected Harvest arranged for peer review
- Protected Harvest Board review
- Standards endorsed by Protected Harvest 2005
Growth of the Lodi Rules for Sustainable Winegrowing Certification Program

$2 million in bonuses to participating growers per year
Esteemed California Sustainable Winegrowing Program LODI RULESTM Goes International

Israel's Golan Heights and Galil Mountain Wineries Achieve Historic Certification

January 17, 2018, LODI, CA – The LODI RULESTM Sustainable Winegrowing Program, created by the Lodi Winegrape Commission and third-party certified by Protected Harvest, is making its first foray into the international market. Golan Heights Winery and subsidiary Galil Mountain Winery of Israel have the first international vineyards certified sustainable under the rigorous and respected LODI RULES program. The
Influence of the Lodi Sustainable Winegrowing Program:

- Winegrape self-assessment workbooks developed by:
  - California – statewide
  - Washington
  - New York
  - Michigan for juice grapes

- Sustainable farming programs based on self-assessment developed by:
  - California wine industry – both viticulture & wine making
  - California almond industry

- Certification programs developed by:
  - California – statewide
  - The Vineyard Team – Central Coast of California
  - Long Island Sustainable Winegrape Growers
California Sustainable Winegrowing Alliance:
- California Association of Winegrowers
- Wine Institute

www.sustainablewinegrowing.org

Self-assessment Participation stats:
- 41% of total vineyard acres (255,000 acres)
- 79% of total winery cases (190 million cases)
California Almond Sustainability Program: Almond Board of California

http://www.almonds.com/growers/sustainability

Self-assessment participation stats:
• 1996 growers
• 201,000 acres assessed
Concluding Remarks

• Sustainable farming paradigm is here to stay
• Sustainable farming is good business
• Supply chain demand for knowing what is happening on the farm will increase
• Regulatory compliance will continue to increase
• Pro-active trade associations will have the most success in addressing sustainable farming issues for their members
• Crop consultants can play a key role in sustainable farming program development and implementation
• There is a lot happening in sustainability arena; the challenge is figuring what to do about it
• Your goals for the future will determine how you address sustainable farming with your clients and what type of program will achieve them

*If you don’t know where you are going, you may end up some place else – Yogi Berra*
Thank You

Questions?