

Agrifood Sustainability Programs: Where are we and Where are we heading?

Andrew Arnold, SureHarvest

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Red Deer, Alberta
May 1, 2015



UNIVERSITY OF ALBERTA
DEPARTMENT OF RESOURCE ECONOMICS
AND ENVIRONMENTAL SOCIOLOGY



REESSA
Resource Economics and Environmental
Sociology Graduate Students Association

Agenda

- SureHarvest background
- The “S” word
- What is driving need for sustainability programs?
- Examples of sustainable farming programs
- Trends and final thoughts

Who is SureHarvest?



- Provides sustainability solutions to growers, trade associations, and agrifood companies
- Offers professional services and software tools for farm and sustainability programs

Clients

Growers Wineries Packer/Shippers Food Processors
Distributors Retailers Trade Associations Certifiers

The “S” Word

- Sustainability definition can get in the way of the overall objective – “What do you mean?! We are sustainable!”
- Sustainability can be conflated with organic, local, family farm, non-GMO, etc.
- Many view it as extra work without short-term payback
- BASF ag input group chooses to talk about “eco-efficiency” instead
- So can we find common ground?

Defining Sustainable Agriculture – What Is it?



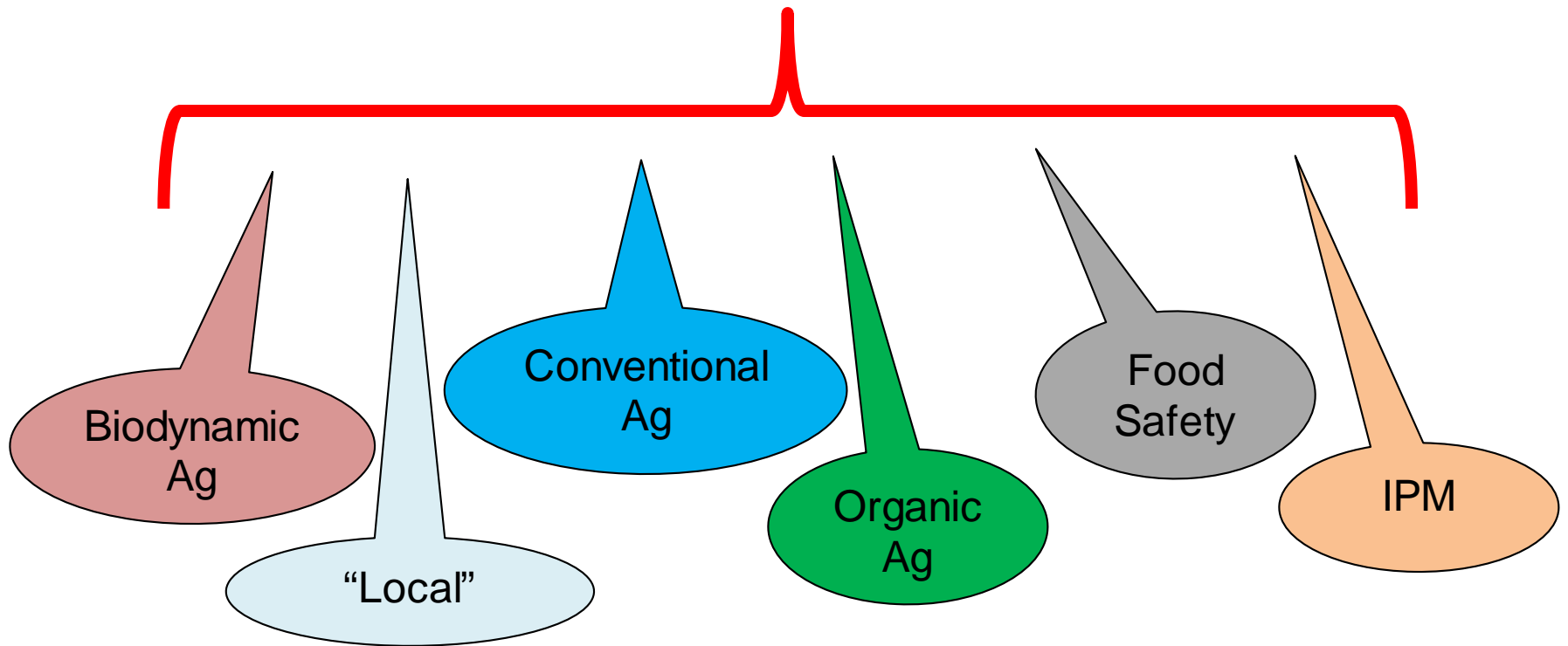
Leaving the farm in as good or better shape for the next generation than when one started farming it.

Defining Sustainable Agriculture – What Is It?

A sustainable agriculture is one that, over the long term, enhances environmental quality and the resource base on which agriculture depends; provides for basic human food and fiber needs; is economically viable; and enhances the quality of life for farmers and society as a whole.

American Agronomy Society

Sustainable Agriculture is the Umbrella!



Environmentally

Sound

Planet

Economically

Viable

Profit

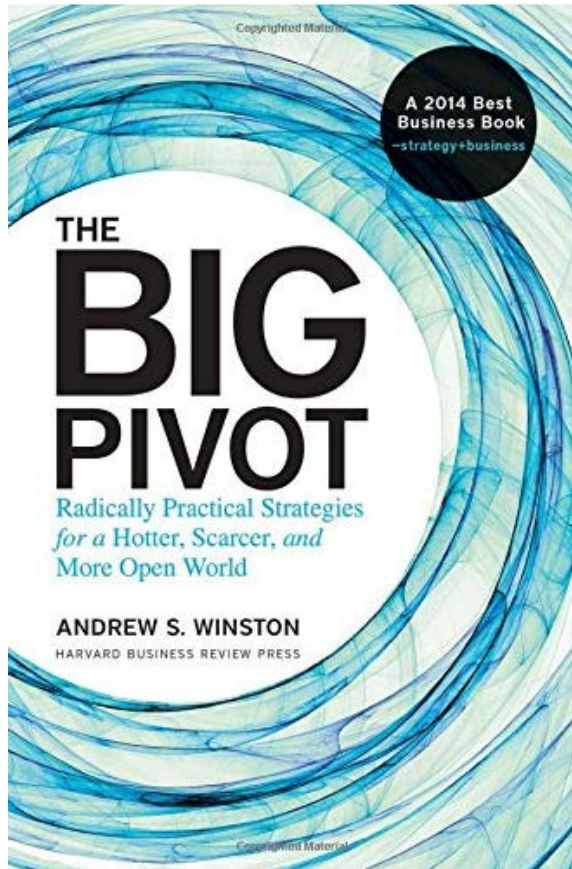
Socially
Equitable

People



The three “E’s” of Sustainability

A Changing World...More With Less



Impact on the agrifood, fiber and fuel industries?

Fish vs. Farms
Urban vs. Rural
Fuel vs. Food



A private-sector voice for productivity growth throughout the agricultural value chain to sustainably meet the demands of a growing world.

Search...



Integrating Sustainability & Business

- Many CFOs are finding that sustainability efforts also benefit the bottom line
- Strong leadership is critical to making it part of the DNA of a business
- Look for low hanging fruit to get all parts of the business engaged in the sustainability journey – it is a team effort
- The economic leg of sustainability is a critical “selling point” to farmers

Sustainable Farming – What's in it for Me?

Sustainability and Value Creation




Greater Emphasis on Value Creation:
Addressing - What's in it for me?

Best Practices

Create and Sustain Value


- Reduce Costs
- Grow Sales
- Manage Risks
- Business Resiliency
- Enhance Brand




Businesses Addressing Sustainability



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Global Responsibility



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.

Related Links

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GREEN

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Taylor
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FRESH HANDCRAFTED SALADS

BBQ RANCH
CHOPPED SALAD

With Real Bacon & BBQ Sauce

100% GROWN IN THE USA

Includes Real Bacon, BBQ Sauce
& Ranch Dressing

Salad & Toppings

NET WT. 16.5 OZ (500g)

PREPARED

NET WT. 2.5 FL OZ (70mL)

New Salad Processing Plant

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salads are made ▶

Follow the Freshness



Salad Sweepstakes

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Sustainability

Eat Well

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Sustainability in Motion.

HOW OUR BUSINESS AND
SUSTAINABILITY MODELS ALIGN



INSIDE THIS REPORT

[2020 Manufacturing Commitments](#)

[Challenges to Personal Mobility](#)

[Waste Reduction Milestones](#)

[Vehicle Quality](#)

[Sustaining Profitability](#)

FROM OUR CHAIRMAN

"Ten months ago we published our inaugural Sustainability Report, which detailed the wide-ranging actions General Motors is taking to improve the impact of our vehicles..."

[Read More...](#)



DATA CENTER



REGIONAL REPORTS



url is <http://gmsustainability.com>

HOME PAGE > OUR COMPANY

Our Company

OVERVIEW

MISSION,
VISION &
VALUES

THE
COCA-COLA
SYSTEM

OUR
WORKPLACE

HUMAN &
WORKPLACE
RIGHTS

LEADERSHIP



'The Father of Modern Design'

How Raymond Loewy Gave Coca-Cola a Modern Look in the 1940s



THE COCA-COLA SYSTEM



COMMUNITY REQUESTS



THE YEAR IN REVIEW



SUSTAINABILITY REPORT

Sustainability is the
new normal

[Learn more >](#)



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



THE VOICE OF FOOD RETAIL

Feeding Families  Enriching Lives

Sustainable Sourcing for High-Impact Commodities



Published April, 2015: Developed by FMI's Sustainability Executive Committee, this resource offers top-line information and questions to consider when sourcing products that have sensitive social, environmental or economic impact.

Download the free Sustainable Sourcing report

Making the Business Case for Sustainability: A Guide for Practitioners



This tool was created by FMI's Sustainability Executive Committee to assist sustainability leaders in making the compelling business case for sustainability with senior leadership. It provides a practical approach, links to key resources and dozens of specific company examples.

Download the free business case toolkit



THE VOICE OF FOOD RETAIL

Feeding Families  Enriching Lives

Keystone Alliance for Sustainability's "Fieldprint Calculator"



The Fieldprint Calculator is an online tool giving farmers the information and feedback they need to optimize their practices, using easily obtainable data about their own unique farm and field conditions. This tool, and several accompanying reports, have been developed by the Keystone Alliance, which represents companies and support organizations from every part of the food supply chain, and beyond.

Visit Keystone Alliance for Sustainability's "Fieldprint Calculator"

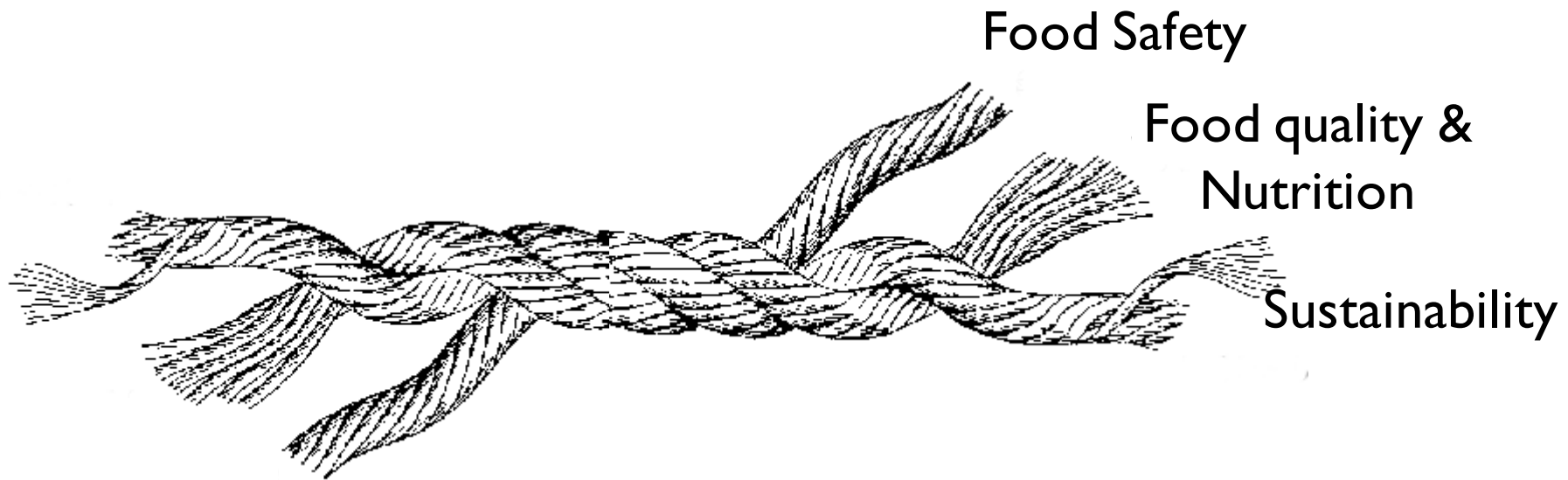
Stewardship Index for Specialty Crops



The Stewardship Index is a single set of metrics that companies and their suppliers can use to talk about sustainability in terms of resources. This will create a "common language" around sustainability, enabling food retailers and their suppliers to share data, look at trends, and define their goals clearly and consistently.

Stewardship Index for Specialty Crops

What is Driving the Need for Sustainable Agriculture: *Demand for on-farm information for the supply chain*



On-farm Information Being Asked for:

- Practices
- Performance Metrics

Supply Chain Sustainability Initiatives



And others...

Sustainability Program Involvement

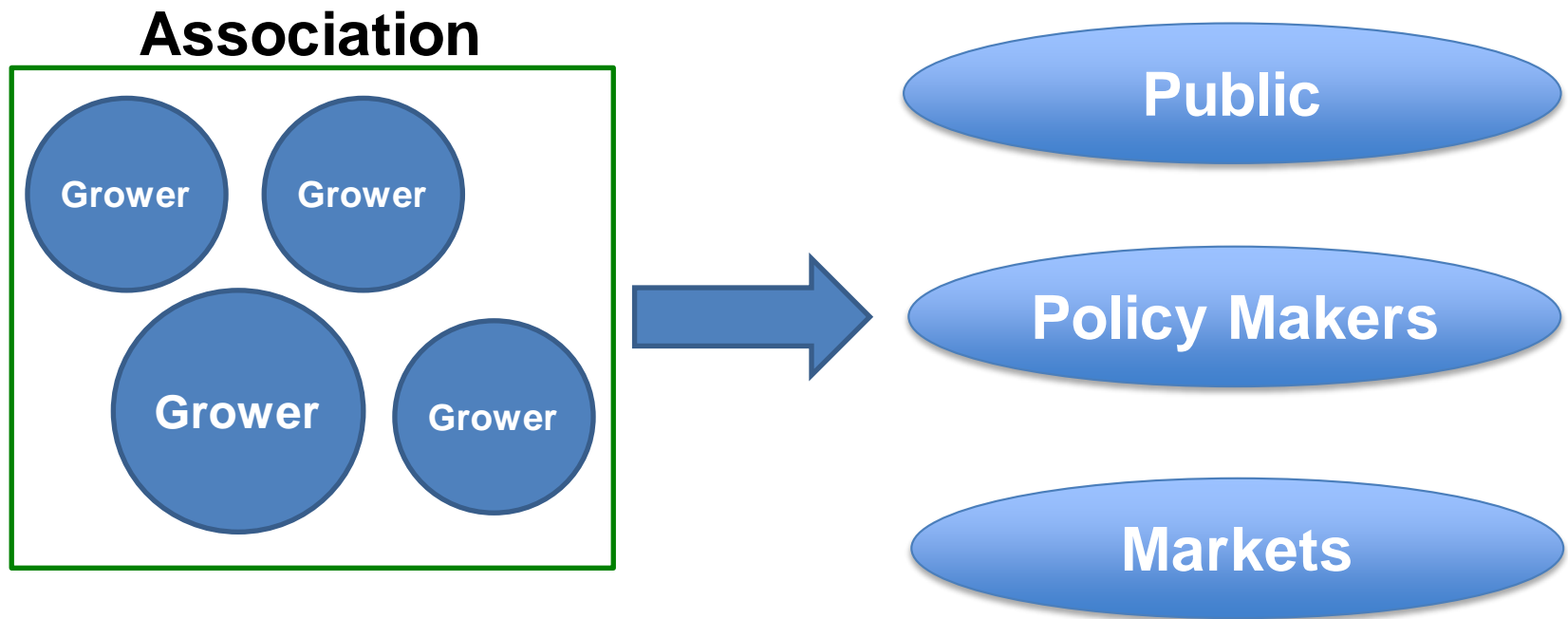
How to engage farmers in applying the sustainability lens to their farming operations?



Farmers concerns about sustainability:

- Voluntary sustainability programs will become regulatory compliance – I will create my own nightmare
- Voluntary sustainability programs will become supply chain compliance – I will create my own nightmare
- Paperwork connected to programs is overwhelming
- Perception that I can't afford to implement many of the sustainability practices
- Buyers will not pay for the extra work/effort/practices – i.e., “show me the money”

Sustainability Program Involvement



“What’s in it for me?”

Defining and Implementing a Sustainable Agriculture Program

Strategy & Needs Assessment

Why, who, what, when, how
Certification?

Design

Scope, approach, content, technology

Development

Build it

Implementation

Roll out, program management, reporting
Education and outreach

Improvement

Additional process areas
Program-level reporting

Examples of Sustainable Farming Programs Based on SureHarvest's *5Ps of Sustainability* Framework



CALIFORNIA
PEARS



Lodi Winegrape
Commission



CALIFORNIA
SUSTAINABLE WINEGROWING
ALLIANCE



California Sustainable Winegrowing Program




- Industrywide sustainability program for winegrape growers and wineries started in 2002
- Voluntary self-assessment program for practices and metrics (~60+% of CA winegrape acreage)
- Associated certification program
- Promote industry to stakeholders
- Drives continuous improvement



California Sustainable Winegrowing Program



Criteria
9-4. Motors, Drives, & Pumps
Category 4
An energy audit focusing on motors, drives, and pumps is part of an overall energy monitoring and conservation plan

BMPs &	
Calculated Metrics	
	Energy Intensity Take Action
	GHG Intensity Take Action
	Water Use Efficiency Take Action



Principles

Processes

Practices

Performance

Progress

- Nutrient Mgmt
- Pest Mgmt
- Irrigation Mgmt
- Energy Mgmt
- Human Resources
- Financial Mgmt
- Neighbors/Community

California Sustainable Winegrowing Program

The screenshot shows the California Sustainable Winegrowing Program web application. At the top is a banner with the program's logo and a landscape image. Below the banner is a navigation bar with links: Home, Events, Assessments, Reports, Web Resources, and Admin. The text "3rd EDITION CODE OF SUSTAINABLE WINEGROWING" is on the left, and a welcome message "Welcome back Andrew! (v1.5.6)" with "Need Help?" and "Logout" links is on the right. A red arrow points to the "Metrics" tab in the "Self-Assessment" section.

Chapter

Year: 2014

Organizations

- ABC Estate Wines Inc.
 - ABC Vineyards
 - ABC Winery (360,000.00)
 - Home Ranch (650.00)
 - Block 1 (0)
 - Oak Tree Ranch (24.00)

Self-Assessment **Metrics**

Ch 2 Ch 3 Ch 4 Ch 5 Ch 6 Ch 7 Ch 8 Ch 9 Ch 11 Ch 13 Ch 14 Ch 15 Ch 16

4. Soil Management

Original Chapter Authors: Clifford P. Ohmart and Stephen K. Matthiasson, formerly with Lodi Winegrape Commission; Modified by the Sustainable Winegrowing Joint Committee

Chapter Information

Open	Criteria	Name	Score	Prereq?	Notes
	4-1	Plant Tissue Analysis	3		

California Sustainable Winegrowing Program

Self-Assessment

Metrics

Name: Oak Tree Ranch

Enterprise: ABC Vineyards

Type: Vineyard

Year: 2014

Size: 24.00 Acres
0.00 Tons

Display in: ☒ Pounds ☐ Tons



Collect Data
Required Vineyard Data ?
Required Winery Data ?



Create Yearly Profile
Create or edit a profile
for your operations

Go to Metrics Center

- Enter data
- Calculate Metrics
- View Results
- Save Summary Sheet

Calculated Metrics			Totals
	Energy Intensity Take Action	0.00 kWh per acre 0.00 kWh per ton	0.00 kWh
	GHG Intensity Take Action	Direct Emissions 0.0 lbs CO ₂ e per acre 0.0 lbs CO ₂ e per ton Embedded Emissions 0.0 lbs CO ₂ e per acre 0.0 lbs CO ₂ e per ton Total Emissions 0.0 lbs CO ₂ e per acre 0.0 lbs CO ₂ e per ton	0.0 lbs CO ₂ e
	Water Use Efficiency Take Action	0.00 Acre-Inches per acre applied 0.00 Acre-Inches per ton	0.00 Acre-Inches
	Nitrogen Applied Take Action	0.00 lbs N per acre 0.00 lbs N per ton	0.00 lbs N

Instructions to add Historical Metrics Data

Example Self-Assessment: California Sustainable Almond Program

B	Irrigation Scheduling				
B.i.	For my orchard, I am using the following practices and/or technologies for determining when to irrigate:	Not Familiar With	Familiar, Not Tried	Have Tried It	Currently Use
1	I irrigate on a regular schedule/interval of my choice.				<input type="checkbox"/>
2	I irrigate based on my water district's delivery schedule.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	I irrigate following historical ET.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	I irrigate following real time evapotranspiration (ETc) data at least weekly and calculating the water volume leaving the plant and soil.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	I decide when to irrigate based on visual plant stress.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	I decide when to irrigate based on measured plant stress:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.a.	Monitoring plant water stress with other methods (remote sensing, canopy temperature, etc).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



California Almond Sustainability Program



pest monitoring

Self-Assess

California Almond Sustainability Program Report			2019
Practice to Monitor	Year achieved	Monitors using this practice	
1. Fertilizer application (e.g., nitrogen, phosphorus) used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
2. Soil tests for the previous crop season or similar crop were used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
3. A 10% crop of soil (fertilizer) using sampling techniques to a 10% sample in 2019 was taken and used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
4. Fertilizer application was used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
5. Fertilizer application was used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
6. Fertilizer application was used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
7. Fertilizer application was used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
8. Fertilizer application was used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
9. Fertilizer application was used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
10. Fertilizer application was used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
11. Fertilizer application was used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
12. Fertilizer application was used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
13. Fertilizer application was used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
14. Fertilizer application was used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
15. Fertilizer application was used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
16. Fertilizer application was used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
17. Fertilizer application was used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
18. Fertilizer application was used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
19. Fertilizer application was used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%
20. Fertilizer application was used to identify potential variations in soil fertility, timing, or other factors.	Yes	100%	100%

custom report

Implement Change

Interpret + Compare Performance



Develop Action Plan

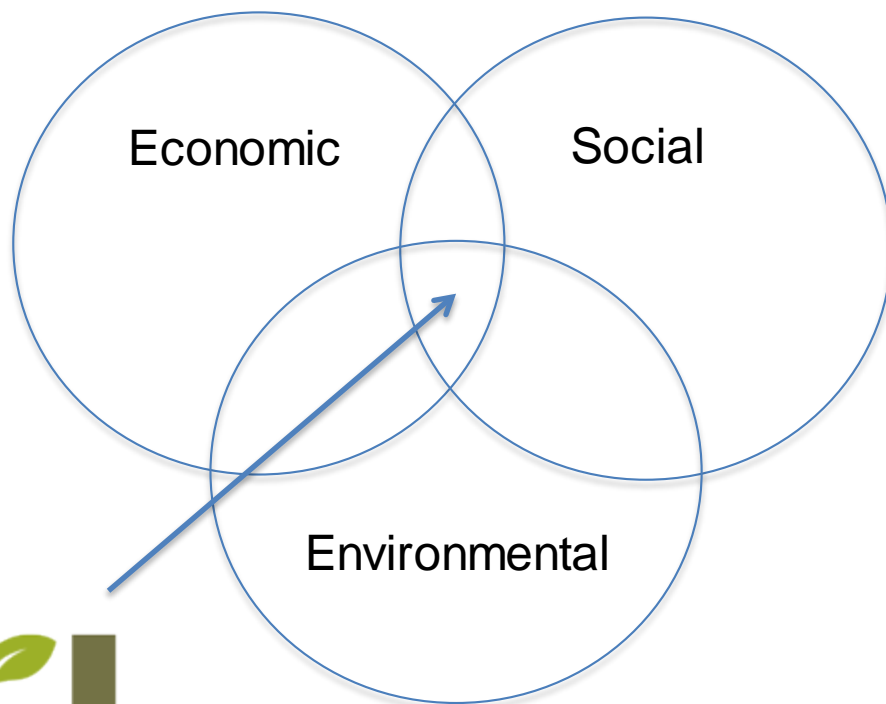
action plan

ACTION PLAN				
Workbook Chapter	Criteria Number	Criteria and Area of Concern	Plan of Action	Timeline for Action
Pest Management	Criteria 6-1	Vineyard Monitoring for Insect and Mite Pests	Monitor every two weeks.	Next growing season
	Page 6-17	Category 1: My vineyard is mostly if ever monitored.	3. Determine an appropriate plan of action.	
			2. Specify the time and your area of concern.	
			4. Create a realistic timetable for carrying out the action.	
Pest Management	Criteria 6-17	Produce Emergency Response Plan	Contact Ag Commissioner's office for a typical emergency response plan looking how to make it work on my orchard, then both tractor drivers, pest plan by the sprayer till up.	Immediately
	Page 6-48	Category 1: I maintain minimum legal requirements or less for a produce emergency response plan.		

targeted education



Nitrogen Management Sustainability: Practices + Performance



Economic = save \$

Social = water & air quality
(license to operate)

Environmental = water &
GHGs

Metric = X kgs nitrogen per bushel

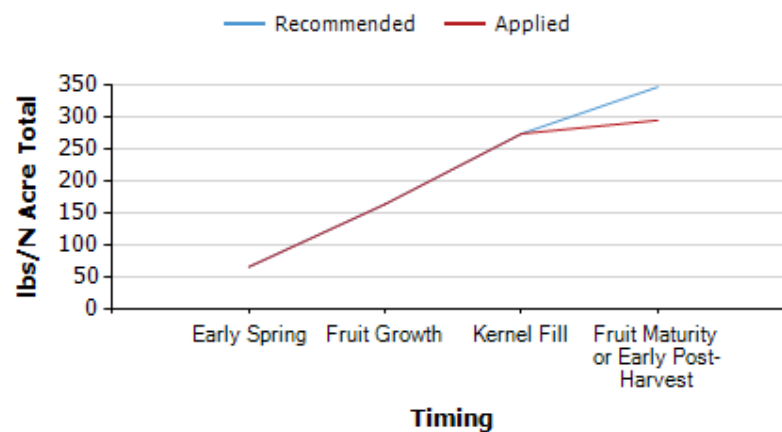
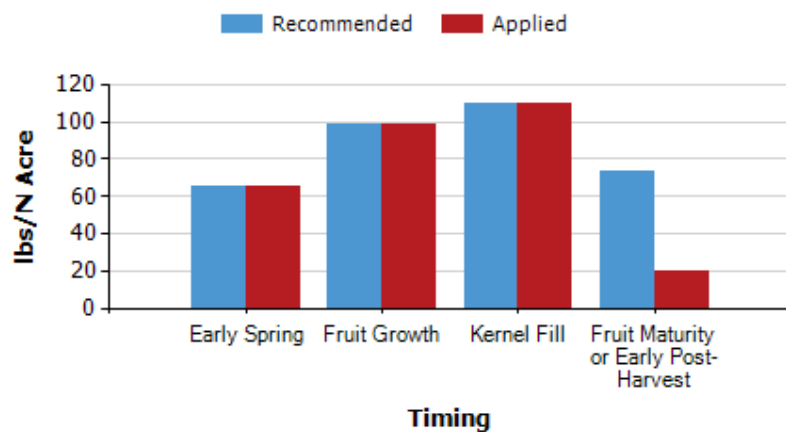


Nitrogen Management Decision Support Tool within CASP online self-assessment system

Edit N-Model

[N Modeling Help](#)

Year: 2014 Name: Gratton Ranch Organization: ABC Orchards Enterprise: ABC Orchards



Kernel
Yield

Irrigation
N-Credit

Manure
N-Credit

Compost
N-Credit

Cover Crop
N-Credit

Other
N-Credits

Leaf
Factor

Fertilizer
Application

PRO*ACT's Greener Fields Together Program: Telling the Story



Greener Fields Together Case Study Summary

Rainier Fruit Company: Energy – Prosser Organic Facility



Greener Fields Together Case Study Summary

Naturipe: Water Management of California Blueberry Operations



Sustainability Program Trends

- Broader interest in on-farm activities in a supply chain context
- Becoming more quantitative – footprinting, metrics
- More buyer-driven sustainability surveys
- Canadian Roundtable for Sustainable Crops and the Roundtable for Sustainable Beef – build them around a program(s) to engage farmers/producers
- Farm-level offset programs and ecosystem services...future but gaining momentum

Final Thoughts

- Integrate sustainability thinking into business strategy and management planning
- Be ready for more supply chain transparency
- Sustainability programs are good approach to get local buy-in from farmers
 - Multi-stakeholder approach is critical
 - Address the “What’s in it for me?” question up front
 - Good to see what others are doing
 - Pre-competitive is good for farmer acceptance
- There are successful programs out there to model your program after and accomplish your goals!



Thank You!

Questions??