History of Water Conservation Practices & Outreach: Winegrape Industry Initiatives
Presentation to the Paso Robles Groundwater Steering Committee

Kris Beal, M.S.
Executive Director, Central Coast Vineyard Team

Tel: 805.369.2288

kris@vineyardteam.org
www.vineyardteam.org
Overview

- Background of CCVT Programs
- Factors for Efficient Water Use In Vineyards
  - Seasonality of Water Usage
  - Water Quality
  - Best Practices for Water Conservation and Sustainability
  - Economics of Water Usage
- Looking Forward
Background

○ Central Coast Vineyard Team
  ● Local Non-Profit Grassroots Grower Group
  ● Dedicated to Sustainability since 1994
  ● Field Research & Education, Self-Assessment, Certification

○ Soil, Plant, Water Specialist
  ● Irrigation Training & Research Center
  ● 1998 Master Water Plan (Ag Water Analysis)
Central Coast Vineyard Team History & Mission

- Non-Profit Grower Group (1994)
- Broad and Diverse Growers
- Engaged People with Different Perspectives
- Mission: Educate and Guide Towards Sustainable Practices
- 80K Acres – 300 Members
- Awards & Recognition
Programs

- 1996 Positive Points System – 1st Self Assessment for Wine Grapes
- Modeled by Other Regions & Crops
- Used Data for Grower to Grower Outreach
- Tailgates, Newsletters, Website, Trade Articles
- Field Demonstration
From Assessment to Education to Demonstration

- Outreach and Education
  - Tailgate Meetings – On Farm Demonstrations
  - Newsletters
  - On-Line Resource Library
  - Sustainable Ag Expo
  - Trade Publications
  - Presentations

- On Farm Demo Projects
  - Implementation of New Practices
  - Data Collection
  - Tracking Pesticide Use
  - Tracking Impacts on Erosion
Water Related Meetings (2005 – Present)

- San Luis Obispo County (Primarily North County)
- 23 Tailgates, Meetings, Workshops, Expo
- 1,633 People Total (71 Average)
- Average 12,500 Acres per meeting
CCVT Model for Changing Behavior

- Self Assessment
- BMP Adoption
- Outreach
- Field Demo
Sustainability in Practice (SIP) Vineyard Certification Program

- Evolved from the PPS
- Standards Development = 4 year process
- Standard development with grower, university, and consultant advisors
- Peer reviewed by over 30 state, federal, agricultural, environmental, social and university representatives
- Anticipates 25K SIP Certified Acres (2011)
Water Conservation Overview

- Factors Affecting Irrigation Practices
- Best Management Practices
- Economic Incentives to Efficiently Apply Irrigation
- Industry Initiatives
Factors Affecting Irrigation Practices
How Much Does the Plant Need?

- Canopy (leaf area)
- Weather
- Together They Determine the Evapotranspiration of the Plant
- Seasonality of Vine Water Use
- Central Coast Winegrapes are Under Irrigated to Promote Fruit Quality
Factors Affecting Irrigation Practices
How Much & When to Apply Water?

- Effective Rainfall
- Soil Storage (Soil Moisture Reservoir)
- Irrigation System Performance
- Timing – To Match Application with Need
Best Management Practices
When & How Much to Irrigate

- **Weather Information (regional & onsite)**
  - Data available electronically

- **Soil Moisture Sensors**
  - Indicates the status of the soil reservoir
  - Placed throughout vineyard at various depths
  - Data uploaded to computers

- **Plant Moisture Status**
  - Pressure Bombs

- **Observations – Leaf Tip & Soil Samples**
## PRWCA Weather Station Data

<table>
<thead>
<tr>
<th>31 May 2009</th>
<th>Max/Min</th>
<th>24hr</th>
<th>Precipitation season</th>
<th>% normal</th>
<th>Today's normals</th>
<th>Today's Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paso Robles</td>
<td>84/50</td>
<td>-</td>
<td><strong>5.80</strong></td>
<td>44%</td>
<td>84/48</td>
<td>107 (1970), 37 (1)</td>
</tr>
</tbody>
</table>

## PRWCA Weather Summary

<table>
<thead>
<tr>
<th>31 May 2009</th>
<th>Las Tablas</th>
<th>Templeton Gap</th>
<th>Paso Robles</th>
<th>Creston</th>
<th>Shandon</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tablas Creek</td>
<td>Summerwood</td>
<td>J. Lohr</td>
<td>Red Hills</td>
<td>Shandon Hills</td>
</tr>
<tr>
<td>Max Temperature Yesterday:</td>
<td>83.7</td>
<td>75.4</td>
<td>86.0</td>
<td>84.6</td>
<td>88.5</td>
</tr>
<tr>
<td>Min Temperature Yesterday:</td>
<td>49.1</td>
<td>50.2</td>
<td>49.4</td>
<td>46.6</td>
<td>46.5</td>
</tr>
<tr>
<td>Min Temperature this morning:</td>
<td>49.1</td>
<td>50.8</td>
<td>51.3</td>
<td>47.7</td>
<td>49.3</td>
</tr>
<tr>
<td>Rainfall Yesterday:</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Rainfall since July 1st:</td>
<td><strong>14.85</strong></td>
<td><strong>9.10</strong></td>
<td><strong>6.84</strong></td>
<td><strong>5.89</strong></td>
<td><strong>5.37</strong></td>
</tr>
<tr>
<td>ETo Yesterday:</td>
<td>0.19</td>
<td>0.16</td>
<td>0.21</td>
<td>0.21</td>
<td>0.23</td>
</tr>
<tr>
<td>ETo Last 7 Days:</td>
<td>1.40</td>
<td>1.19</td>
<td>1.55</td>
<td>1.54</td>
<td>1.63</td>
</tr>
</tbody>
</table>
Sample Soil Moisture Information
Best Management Practices
System Performance

- **Design**
  - Drip Irrigation
  - Pressure Regulation
  - Filtration

- **Maintenance**
  - Pressure Regulation Adjustments
  - Hose & Filter Flushing
  - Water Quality Considerations

- **Irrigation Evaluations (Feedback)**
  - Mobile Labs
BMP Self Assessment Results

- 27,450 acres evaluated in SLO County
- Average Water Scores increased by 10% (2008 – 2010)

Example Self Assessment Water Content Results

<table>
<thead>
<tr>
<th>Water BMP</th>
<th>Percent Responding Yes (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deficit Irrigation</td>
<td>83%</td>
</tr>
<tr>
<td>Soil Monitoring</td>
<td>88%</td>
</tr>
<tr>
<td>Measure &amp; Record Rainfall</td>
<td>95%</td>
</tr>
<tr>
<td>Filtration Maintenance</td>
<td>97%</td>
</tr>
</tbody>
</table>

Average Percent of Acres With YES For Water BMP’s: 87%
Economic Incentives for Proper Irrigation Management

- **Fruit Quality**
  - Deficit Irrigation Strategies Improve Fruit Quality

- **Pumping & Energy Costs**
  - Farm energy is typically the second highest production cost behind labor
  - Efficient irrigation will prolong the life of expensive pumps
Industry Initiatives

- Weather Stations (PRWCA)
- Outreach & Education
- Research
- Self-Assessment (Since 1996)
- Statewide Code of Sustainable Practices
- Sustainability in Practice (SIP) Certification
Water Specific Programs

- Sustainable Ag Expo (Nov 14, 15)
  - 2 Day Educational Meeting
  - Significant Focus on Water

- Water Self Assessment
  - Refined water content in existing document
  - Workshops to aid in completion

- Tailgates & Workshops
  - Based on self-assessment, develop 2012 education and workshops

- Water Conservation Specific Web Page

- Print & Digital Materials

- All Represent Industry Dollars ($75K-$100K Annually
Contact

Kris Beal, M.S.

Central Coast Vineyard Team
835 12th Street Suite 204 | Paso Robles, CA 93446
805-369-2288

www.vineyardteam.org | kris@vineyardteam.org