Zinfandel Heritage Vineyard

Jim Wolpert and Mike Anderson

Department of Viticulture and Enology, UC Davis
Clonal Variation

• Amount of clonal variation is dependent on:
  – Rate of favorable mutations
  – Length of time a cultivar has been cultivated
  – How much effort you spend looking for variability
**FPMS Zinfandel Selections Tested**

<table>
<thead>
<tr>
<th>FPMS #</th>
<th>Source</th>
<th>Heat</th>
</tr>
</thead>
<tbody>
<tr>
<td>01A</td>
<td>Handel 1V4</td>
<td>None</td>
</tr>
<tr>
<td>02</td>
<td>Handel 1V6</td>
<td>None</td>
</tr>
<tr>
<td>03</td>
<td>Ruetz #1</td>
<td>None</td>
</tr>
<tr>
<td>06</td>
<td>Zin 01A</td>
<td>117 days</td>
</tr>
</tbody>
</table>
Winemakers’ Complaints About Certified Zinfandel Clones

- Clusters are large, tight and rot-prone
- Berries are large
- Wines tend to have poor color and varietal character
- Conclusion: Good for “white” but not for “red”
How to improve Zinfandel

• Return to the place of origin for diversity
  – Burgundy, Bordeaux, Chianti
• Other countries where history is significant
  – Argentina, Chile, Australia
• Old plantings locally
Zinfandel Safari Scouts and Trailblazers

Amand Kasimatis    Rhonda Smith
Ed Weber           Janet Caprile
Paul Verdegaal     Jack Foott
Donna Hirschfelt   Glenn McGourty
Criteria for Inclusion in Heritage Vineyard

- Vineyard age of more than 60 years
- Loose clusters and small berries
- No “red leaf” in the fall
- Often more than one selection was made from the same vineyard
Additional Criteria

• Geographic diversity

• The “story”
Represented Counties

Sonoma  Contra Costa
Napa    San Luis Obispo
Mendocino San Joaquin
Amador  Cucamonga

Lake
Alameda
Calaveras

El Dorado
Santa Clara
Oakville Experimental Vineyard
Zinfandel Heritage Vineyard

- 90 Selections
  Phase I – 63 selections budded 1995-96
  Phase II – 27 selections budded 1999

- 9’ x 8’ spacing

- Saint George Rootstock

- Head-Trained – Spur Pruned

- Gravelly Bale Loam
Additional Protocol

• Numbers only – no identity
  – Donor vineyards requested anonymity
  – Location bias
  – Oakville is Oakville
Oakville Experimental Vineyard
Heritage Zinfandel - 1999 - 01

Zinfandel Selection
0 20 40 60
Yield (kg vine$^{-1}$)

mean data ± se

- virus positive
- virus negative
Zinfandel Heritage Vineyard (Phase I) 1998 - 2003 harvest data (except as noted)

<table>
<thead>
<tr>
<th></th>
<th>99-03</th>
<th>99-03</th>
<th>Cluster</th>
<th>Cluster</th>
<th>Berry</th>
<th>Berry</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yield (kg vine(^{-1}))</td>
<td>Per Vine (g)</td>
<td>Weight (g)</td>
<td>per Cluster</td>
<td>Weight (g berry(^{-1}))</td>
<td></td>
</tr>
<tr>
<td>ALL mean</td>
<td>4.8</td>
<td>21</td>
<td>244</td>
<td>136</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>ALL std</td>
<td>0.9</td>
<td>2</td>
<td>34</td>
<td>15</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>ALL high</td>
<td>7.5</td>
<td>25</td>
<td>331</td>
<td>176</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>ALL low</td>
<td>3.3</td>
<td>18</td>
<td>157</td>
<td>98</td>
<td>1.4</td>
<td></td>
</tr>
</tbody>
</table>

Primitivo

<table>
<thead>
<tr>
<th></th>
<th>99-03</th>
<th>99-03</th>
<th>Cluster</th>
<th>Cluster</th>
<th>Berry</th>
<th>Berry</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yield (kg vine(^{-1}))</td>
<td>Per Vine (g)</td>
<td>Weight (g)</td>
<td>per Cluster</td>
<td>Weight (g berry(^{-1}))</td>
<td></td>
</tr>
<tr>
<td>FPMS 03</td>
<td>4.2</td>
<td>24</td>
<td>185</td>
<td>107</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>FPMS 05</td>
<td>3.5</td>
<td>23</td>
<td>157</td>
<td>112</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>FPMS 06</td>
<td>3.8</td>
<td>24</td>
<td>170</td>
<td>98</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>FPMS 1a</td>
<td>4.7</td>
<td>19</td>
<td>257</td>
<td>141</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>FPMS 2</td>
<td>3.9</td>
<td>20</td>
<td>208</td>
<td>118</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>FPMS 3</td>
<td>3.9</td>
<td>19</td>
<td>219</td>
<td>122</td>
<td>1.8</td>
<td></td>
</tr>
</tbody>
</table>
Conclusions – Phase 1

• Zinfandel selections show variability in yield components (cluster wt and berry wt)
• FPS selections do not appear to be distinctly different from field selections
• The greatest differences are between Zinfandel selections and Primitivo clones
New Phase 2 Vineyard

- 22 Selections, 4 FPS and 18 Heritage
- Rootstock: St. George
- Spacing: 1.8 m x 2.4 m (6 x 8 ft, v x r)
- Head-trained, spur-pruned
- 5 replicates, 18 vines/rep
Analyses and Calculations

- Growth components: pruning wt, shoot number (shoot wt)
- Yield components: fruit wt, cluster number, berry wt (cluster wt, berries per cluster)
- Juice composition: Brix, TA and pH
- Wine lots: unreplicated, half-ton bin lots
Conclusions – Phase 2

- Zinfandel selections show less variability in the yield component of berry wt
- FPS selections do not appear to be distinctly different from field selections
- The greatest differences are between the Zinfandel selections and the Primitivo clones
Phase 3

• 3 sites
  – Sonoma Valley – full trial, data + wine
  – Sonoma Dry Creek – full trial, data + wine
  – Paso Robles – abbreviated trial, data
Support for this Project by:

ZAP
Zinfandel Advocates and Producers

AVF
American Vineyard Foundation

IAB
Fruit Tree, Nut Tree, Grapevine Improvement Advisory Board
Additional Acknowledgements

• Deborah A. Golino, Adib Rowhani, Susan T. Sim
  – Foundation Plant Services, UC Davis