WHAT HAPPENED TO IOWA’S GRAPE INDUSTRY?

1. Prohibition of Alcohol in: 1919 - 1933
2. Armistice Blizzard, November 11th, 1940
3. Beginning Use of 2,4-D in 1944
Pioneers of Iowa’s “NEW” Vine/Wine Industry

Ron Mark
Summerset Winery
Indianola, IA

Dr. Bill Brown
Timber Hill Winery
Leon, IA

Dr. Paul Tabor
Tabor Home Winery
Baldwin, IA
IA, MO, NE, IL, IN, MN, WI Wineries

WineAmerica http://www.americanwineries.org/
NATIONAL GRAPE & WINE INDUSTRY

PAST 30 YRS.  1.3 GAL. TO 2.7 GAL. PER ADULT

10% DRINK 86% OF WINE

4/04  RECORD U.S. ANNUAL SALES OF 627 MILLION GAL.
# U.S. Wine Production By State

<table>
<thead>
<tr>
<th>RANK</th>
<th>STATE</th>
<th>NUMBER OF WINERIES</th>
<th>% of U.S. WINERIES</th>
<th>PRODUCTION 1000 GAL.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CA</td>
<td>900</td>
<td>63%</td>
<td>446,000</td>
</tr>
<tr>
<td>2</td>
<td>WA</td>
<td>250</td>
<td>11%</td>
<td>12,000</td>
</tr>
<tr>
<td>3</td>
<td>OR</td>
<td>220</td>
<td>9%</td>
<td>4,000</td>
</tr>
<tr>
<td>4</td>
<td>NY</td>
<td>176</td>
<td>7.2%</td>
<td>40,000</td>
</tr>
<tr>
<td>5</td>
<td>OH</td>
<td>87</td>
<td>3.5%</td>
<td>800</td>
</tr>
<tr>
<td>6</td>
<td>PA</td>
<td>84</td>
<td>3.4%</td>
<td>700</td>
</tr>
<tr>
<td>7</td>
<td>VA</td>
<td>84</td>
<td>3.4%</td>
<td>300</td>
</tr>
<tr>
<td>RANK</td>
<td>STATE</td>
<td>NUMBER OF WINERIES</td>
<td>% of U.S. WINERIES</td>
<td>PRODUCTION 1000 GAL.</td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
<td>--------------------</td>
<td>--------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>8.</td>
<td>CO</td>
<td>48</td>
<td>2%</td>
<td>133</td>
</tr>
<tr>
<td>9.</td>
<td>MO</td>
<td>47</td>
<td>1.9%</td>
<td>775</td>
</tr>
<tr>
<td>10.</td>
<td>MI</td>
<td>40</td>
<td>1.6%</td>
<td>520</td>
</tr>
<tr>
<td>11.</td>
<td>IL</td>
<td>38</td>
<td>1.5%</td>
<td>300</td>
</tr>
<tr>
<td>12.</td>
<td>IN</td>
<td>27</td>
<td>1.1%</td>
<td>358</td>
</tr>
<tr>
<td>13.</td>
<td>NC</td>
<td>26</td>
<td>1.1%</td>
<td>600</td>
</tr>
<tr>
<td>14.</td>
<td>WI</td>
<td>20</td>
<td>0.8%</td>
<td>400</td>
</tr>
<tr>
<td>?</td>
<td>IA</td>
<td>32</td>
<td>1.3%</td>
<td>76</td>
</tr>
</tbody>
</table>

May 2004 - Iowa up to 111,000 gal./yr. production
# WINE CONSUMPTION

<table>
<thead>
<tr>
<th>STATE</th>
<th>GALLONS</th>
<th>GAL. / CAPITA</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>90.6 mm</td>
<td>4.05</td>
</tr>
<tr>
<td>NY</td>
<td>42.8 mm</td>
<td>3.31</td>
</tr>
<tr>
<td>FL</td>
<td>37.2 mm</td>
<td>3.43</td>
</tr>
<tr>
<td>TX</td>
<td>27.4 mm</td>
<td>2.08</td>
</tr>
<tr>
<td>NJ</td>
<td>23.6 mm</td>
<td>4.05</td>
</tr>
<tr>
<td>WA</td>
<td>15.4 mm</td>
<td>2.08</td>
</tr>
</tbody>
</table>

2003 U.S. Census Bureau & the Wine Institute
## MIDWEST WINE CONSUMPTION

<table>
<thead>
<tr>
<th>STATE</th>
<th>GALLONS</th>
<th>GAL. / CAPITA</th>
</tr>
</thead>
<tbody>
<tr>
<td>IL</td>
<td>25.6 mm</td>
<td>3.07</td>
</tr>
<tr>
<td>MN</td>
<td>7.99 mm</td>
<td>2.45</td>
</tr>
<tr>
<td>MO</td>
<td>7.81 mm</td>
<td>2.06</td>
</tr>
<tr>
<td>IN</td>
<td>7.06 mm</td>
<td>1.71</td>
</tr>
<tr>
<td>IA</td>
<td>2.23 mm</td>
<td>1.11</td>
</tr>
<tr>
<td>NE</td>
<td>1.92 mm</td>
<td>1.68</td>
</tr>
</tbody>
</table>

2003 U.S. Census Bureau & the Wine Institute
VINEYARD COST OF PRODUCTION
### 9 Year Summary

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor</td>
<td>$5,524.80</td>
<td></td>
</tr>
<tr>
<td>(cash accounting)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machinery</td>
<td>$1,374.27</td>
<td>$1,374.27</td>
</tr>
<tr>
<td>Materials</td>
<td>$9,201.23</td>
<td>$9,201.23</td>
</tr>
<tr>
<td>Land</td>
<td>$1,080.00</td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>$3,068.13</td>
<td></td>
</tr>
<tr>
<td><strong>Total Expenses</strong></td>
<td><strong>$20,248.43</strong></td>
<td><strong>$10,575.50</strong></td>
</tr>
<tr>
<td><strong>9 Year Income</strong></td>
<td><strong>$22,000.00</strong></td>
<td></td>
</tr>
</tbody>
</table>

[http://viticulture.hort.iastate.edu/info/info.html](http://viticulture.hort.iastate.edu/info/info.html)
## 2001 Grape Production Budget
Ohio State Univ.

<table>
<thead>
<tr>
<th>Item</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Income ($950/ton)</td>
<td>0</td>
</tr>
<tr>
<td>Variable Costs $</td>
<td>233</td>
</tr>
<tr>
<td>Fixed Costs $</td>
<td>250</td>
</tr>
<tr>
<td>Total Costs $</td>
<td>483</td>
</tr>
<tr>
<td>Return over variable costs $</td>
<td>(233)</td>
</tr>
<tr>
<td>Return over total costs $</td>
<td>(483)</td>
</tr>
</tbody>
</table>

http://aede.osu.edu/People/Moore.301//grape/index.htm
### 2002 Wine Grape Budget
#### Southern Illinois Univ.

<table>
<thead>
<tr>
<th>Item</th>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield Tons @ $900/T</td>
<td></td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Total Revenue</td>
<td></td>
<td>$0</td>
<td>$0</td>
<td>$1,800</td>
<td>$3,600</td>
</tr>
<tr>
<td>Total Cost</td>
<td></td>
<td>$4,619</td>
<td>$1,786</td>
<td>$2,715</td>
<td>$2,480</td>
</tr>
<tr>
<td>Total Return</td>
<td></td>
<td>($4,619)</td>
<td>($1,786)</td>
<td>($915)</td>
<td>$1,120</td>
</tr>
</tbody>
</table>

*From: The Re-Emergence of Grapegrowing and Winemaking in Illinois*

[http://www.illinoiswine.org/resources.html](http://www.illinoiswine.org/resources.html)
SITE SELECTION
Avoid obstructions

On calm, clear nights cold air settles

To avoid spring frosts and extreme winter freezes, plant at least 50 feet above the valley floor.

From ISU Ext. Pm-672b
Soil Drainage Classification

- **Avoid**
- **Marginal**
- **Suitable**
- **Ideal**

- **Very poorly drained**
- **Poorly drained**
- **Somewhat poorly drained**
- **Moderately well-drained**
- **Well-drained**
- **Excessively drained**

3 ft deep hole full of water should drain:

- 24-48 hrs - Good
- 48-72 hrs – Marginal
- 72+ hrs - Poor Site
Optimum Soil Fertility Level

- pH: 5.5 to 6.5
- P ppm: 30+ ppm
- K ppm: 150+ ppm
- Zn ppm: 4-5 ppm
- OM%: 2 – 3%
Soil Fertility

Not that big of a site concern.

Fertilizer can always be applied to soil or plant.

Soil sample area and test for pH, P, K, Zn, and OM% 
- $14 charge at ISU Soil Test Lab 
- Take 15 to 20 probes 1’ deep into soil 
- Separate 0-6” and 6-12” depths for analysis,
Difficult to get all the roots in with a planting bar.
Planting with an Auger

Soil is too wet for planting. Note it gumming up on the auger.

Proper soil moisture level for planting.

The hole has to be wide enough to distribute and retain as much of the root system as possible.
Tree Planter

Planting though sod is risky. Especially if the sod is not killed round the vines before they leaf out. Planting on bare soil or strips is easier.
Larry’s Berries & Vi’s Vines

Tubes are good for herbicide spray protection & protection from critters. They must be removed by mid-August. Root systems do not develop as well with grow tubes compared to allowing multiple shoots to grow in the first year.
Primary Wine Grapes Being Planted in Iowa

White Grapes

Chardonel, Edelweiss, Frontenac Gris, La Crescent, La Crosse, Louise Swenson, Niagara, Prairie Star, St. Pepin, Seyval, Blanc, Swenson White, Vignoles, Brianna

Red/Blue Grapes

Catawba, Concord, Norton/Cynthiana, Frontenac, Leon Millot, Marechal Foch, St. Croix, Steuben, Swenson Red, Valiant, St. Vincent, Rubiana

This is not a recommendation for cultivars to plant.
Cold Injury Insurance
Grapes have 3 buds.

Primary
Secondary
Tertiary
Due to elevation of the recording sites in respect to the topography of the surrounding area.
Trellis Installation

On ISU Viticulture Home Page, refer to:
“Constructing a Vineyard Trellis” (2002 Grape Growing Conference)
“Installing the Vineyard Trellis” (ISU Research)
There Are Many Systems
Geneva Double Curtain (GDC)
Vertical Shoot Position (VSP)
Growth Habit

Trailing / Drooping

Characteristic of American species

Semi-Upright

Characteristic of *V. vinifera* & some French-Amer. hybrids

See: “Grape Cultivars for Considerations in Iowa” 2002 Grape Growing Conference
Alternating Wood & Metal Posts
Anchor System

Cunningham Vineyard, Rippey Ia.
Signs are a good idea!
### A Typical Year in the Vineyard

**Approximately 200 hrs/ac/yr**

<table>
<thead>
<tr>
<th>Month</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb/March</td>
<td>- Prune</td>
</tr>
<tr>
<td>April</td>
<td>- Lime Sulfur application</td>
</tr>
<tr>
<td></td>
<td>- 1x mow</td>
</tr>
<tr>
<td>May</td>
<td>- 1x spray insecticide</td>
</tr>
<tr>
<td></td>
<td>- 2x spray fungicide</td>
</tr>
<tr>
<td></td>
<td>- 2x mow</td>
</tr>
<tr>
<td></td>
<td>- 1x spray herbicide</td>
</tr>
<tr>
<td></td>
<td>- 1x foliar fertilizer</td>
</tr>
<tr>
<td>June</td>
<td>- canopy management</td>
</tr>
<tr>
<td></td>
<td>- 1x foliar fertilizer</td>
</tr>
<tr>
<td></td>
<td>- 2x mow</td>
</tr>
<tr>
<td></td>
<td>- 2x spray fungicide</td>
</tr>
<tr>
<td>July</td>
<td>- 1x spray fungicide</td>
</tr>
<tr>
<td></td>
<td>- 1x spray post herbicide</td>
</tr>
<tr>
<td></td>
<td>- 1x mow</td>
</tr>
<tr>
<td></td>
<td>- foliar leaf thinning around grapes</td>
</tr>
<tr>
<td>Aug</td>
<td>- 1x spray fungicide</td>
</tr>
<tr>
<td></td>
<td>- 1x mow</td>
</tr>
<tr>
<td></td>
<td>- petiole testing for fertilizer</td>
</tr>
<tr>
<td></td>
<td>- begin harvest</td>
</tr>
<tr>
<td>Sept</td>
<td>- continue harvest</td>
</tr>
<tr>
<td></td>
<td>- continue Brix/TA/pH tests</td>
</tr>
<tr>
<td>Oct.</td>
<td>- finish up harvest</td>
</tr>
<tr>
<td></td>
<td>- continue Brix/TA/pH testing of grapes</td>
</tr>
</tbody>
</table>

*Approximately 200 hrs/ac/yr*

See “Annual Care for Bearing Vineyards”
Weed Control

On the ISU Viticulture Home Page, refer to:
“Weed Control in New and Established Vineyard” (2002 Grape Growing Conference)
Herbicides for Bearing Grapes

Herbicides for Non-Bearing Grapes

Pm-1375 “Midwest Commercial Small Fruit and Grape Spray Guide”

On the ISU Viticulture Home Page, refer to:
“Weed Control Strategies with Herbicides” (2003 Grape Growing Conference)
Cultural Weed Control
In The Vineyard

Smother Crops
Cover Crops
Drip Irrigation vs. Broadcast Irrigation
Night Tillage
Mechanical Weed Control

- Pulling
- Tillage
- Hoeing
- Propane Burner
- Boiling Water
- Mowing
Primary Insect Pests

Grape Berry Moth
Grape Flea Beetle
Grape Phylloxera
Japanese Beetles
Climbing Cutworms

Asian Lady Beetle

B 861 “Midwest Small Fruit Pest Management Handbook”
Pm-1375 “Midwest Commercial Small Fruit and Grape Spray Guide”
“A Pocket Guide for Grape IPM Scouting in the North Central and Eastern U.S.”
Multicolored Asian Lady Beetle (MALB) *Harmonica axyridis*
Multicolored Asian Lady Beetle (MALB) *Harmonica axyridis*

One beetle per 3.67 lbs. to 7.35 lbs. can taint the wine.

*Methoxypyrazines*
Pruning Grapes

Grapes are like weeds. No matter how much you hack away at them, they will come back.

Typical grape pruning often involves cutting 90%+ of the plant growth off.
Pruning Weight?
“Typical” Balanced Pruning  
“30 + 10”  
High-vigor cultivars

<table>
<thead>
<tr>
<th>Lbs. Canes</th>
<th># Buds kept</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td>2 (30 + 10)</td>
<td>40</td>
</tr>
<tr>
<td>3 (30 + 10 + 10)</td>
<td>50</td>
</tr>
<tr>
<td>4 (30 + 10 + 10 + 10)</td>
<td>60*  * Max of 60</td>
</tr>
</tbody>
</table>

ie. Concord, Niagara, Foch, Leon Millot, Rubiana (GR-7)
“Conservative” Balanced Pruning

1. Retain 50% to 100% more buds than Balanced pruning technique requires.

2. Late May – prune excess canes and/or buds.

A hedge against winter bud injury or spring frosts, but adds to the pruning expense.
Invigorate vs. Devigorate

Over pruning will *invigorate* vine growth, increase water sprouts and create less yield.

Proper pruning will *devigorate* vine growth and increase yields.
Single Curtain - Pruning cuts

Includes “renewal” canes
Single Curtain - “cordon” & canes
In-season Canopy Management

Shoot Thinning & Shoot Pruning

Remove Suckers

Leaf removal in fruiting zone.

Approximate 60-75% canopy density.

Shoot Positioning
Cluster Thinning

Some grapes tend to overproduce.

Normally cluster thin after bloom for smaller vines and at veraison for larger vines.

Take out distal and sucker clusters first.

Promotes uniformity & early ripening.

Catawba  Chambourcin
Chancellor  DeChaunac  Foch
Frontenac  LaCrosse  Seyval
Steuben

See: “Grape Cultivars for Considerations in Iowa” 2002 Grape Growing Conference
Overall Goal in the Vineyard

Plant to Plant Uniformity Among Each Grape Variety in Vineyard
Deer Control

Electric Fence
Deer Fence
Bird Control
Harvesting
PHENOXY Drift

2,4-D & dicamba
Vineyard Owner is also Responsible

- Post a “GRAPE” Sign
- FSA Map with Contact Info
- Plant a Buffer around grapes
- Avoid planting grapes in hazardous areas
- Plant “Phenoxy” tolerant grapes

COMMUNICATION IS KEY
PHENOXY DRIFT MANAGEMENT

May/June Highest Damage Potential.

Keep dicamba 1 mile away from grapes.

Keep 2,4-D ½ mile away from grapes.
   (suggest using 2,4-D amine instead of Low Vol Ester)

Dicamba and/or 2,4-D not a problem from dormancy
to bud break (Oct. 15th to May 1st)
ISU Viticulture Homepage:
http://viticulture.hort.iastate.edu
Iowa Wine Growers Association

Iowa Grape Expectations

Are You Looking For Information or Assistance
Iowa State University Extension Service Contact Information
Click here for details on our information page

Survey Results
If you are interested in our Iowa Wine Growers Survey Results, click here to see how vineyards are growing.

Iowa Wine Growers Survey
Please take a minute to fill out our Iowa Wine Growers Survey.

News Letter Spring 2003

This website is used to exchange valuable information for all Iowa grape growers. Use their maps and ideas but please provide your own by e-mail to IWG or use the guest book below to share your ideas. Everyone will benefit from your input. Don't be afraid of the data. You might find something you need to add or subtract.
Iowa Department of Economic Development
Iowa Wine and Beer Promotion Homepage:

http://www.iowawineandbeer.com
THE END