Grape Acreage & Variety Trends

What is the future for the Midwest?

Dr. Bruce Bordelon
Purdue University
Wine Production in the Midwest

- Tremendous growth in the past 10 years
  - Number of wineries and acres of grapes
- Over 300 wineries in the Midwest
  (14 states: AR, IL*, IN*, IA, KN, KY, MI*, MN, MO*, NE, OH*, OK, TN, WI) *over 20 wineries each
- 18,000 acres of grapes
- 3 mil gallons of wine
- Good opportunity
  - Alternative “Specialty” crop
  - Value-added product
Indiana Fruit Survey Results: Grapes

USDA, NASS, INDIANA FIELD OFFICE

Greg Preston

January 24, 2006
USDA, NASS, Indiana Field Office
Mission

To provide timely, accurate, and useful statistics of U.S. agriculture.

Data Collection: We conduct weekly, monthly, quarterly, annual, and special surveys in cooperation with Purdue. Data is collected by mail, telephone, electronically and through personal interview. Every 5-years we also administer the official Census of Agriculture.

Basic Principles: Data is published and made available to everyone under strict Confidentiality, and Security regulations.
Fruit Survey Overview

- The last fruit survey was conducted in 1990
- For 2004 we mailed 1017 questionnaires, with telephone follow-up
- Final response rate was almost 80%
- Better coverage than the 1990 survey
2002 = $15,787,000
1997 = $12,837,000
23% increase
Grape Operations

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Operations</td>
<td>93</td>
<td>50</td>
</tr>
<tr>
<td>Number of Acres</td>
<td>418</td>
<td>82</td>
</tr>
<tr>
<td>Acres per Operation</td>
<td>4.5</td>
<td>1.6</td>
</tr>
</tbody>
</table>
Grape Operations – Census Data

2002 Farms = 137
1997 Farms = 174
21% decrease

2002 Acres = 559
1997 Acres = 451
24% increase
Counties With More Than 5 Acres of Grapes

2004 = 418 Acres

1990 = 82 Acres
Grape Operations - Number by Region

2004 = 93

North = 23
Central = 26
South = 44
Land in Grapes -
Number by Region

2004 = 418 Acres
North = 126
Central = 51
South = 241
Age of Vines

1-3 Years: 12%

4+ Years: 88%
Top Grape Varieties

- Concord: 43%
- Chambourcin: 30%
- Traminette: 9%
- Chardonel: 6%
- Seyval Blanc: 6%
- Other Varieties: 6%
## Top Grape Varieties

<table>
<thead>
<tr>
<th>Variety</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concord</td>
<td>126</td>
</tr>
<tr>
<td>Chambourcin</td>
<td>38</td>
</tr>
<tr>
<td>Traminette</td>
<td>26</td>
</tr>
<tr>
<td>Chardonel</td>
<td>24</td>
</tr>
<tr>
<td>Seyval Blanc</td>
<td>23</td>
</tr>
<tr>
<td>Vidal Blanc</td>
<td>20</td>
</tr>
<tr>
<td>Vignoles</td>
<td>19</td>
</tr>
<tr>
<td>Foch</td>
<td>18</td>
</tr>
<tr>
<td>Steuban</td>
<td>15</td>
</tr>
<tr>
<td>Catawba</td>
<td>14</td>
</tr>
<tr>
<td>Cayuga White</td>
<td>14</td>
</tr>
<tr>
<td>Niagara</td>
<td>14</td>
</tr>
<tr>
<td>Other Varieties</td>
<td>67</td>
</tr>
</tbody>
</table>

2004 = 418 Acres
USDA's NASS Indiana Field Office is operated in cooperation with the Purdue University College of Agriculture.

**Indiana Statistics**

**Quick Stats** (ag statistics by state and county)
Provides the most up-to-date statistics including all revisions.

**Indiana Publications**

- County Estimates
- Indiana Agricultural Overview
- Census of Agriculture for Indiana
- Interactive Statistical Map of Indiana

**More State Features**

- Historical Data
- Indiana Equine Summary
- Satellite Imagery & Photos
- Indiana charts or maps
- Rankings
Economics and Marketing

- Establishment costs
- Production costs
- Grape prices
- Profit potential
Crop Budgets

Crop budgets

- Asparagus
- Berries
- Blueberry Production Budgets: Wholesale/Retail Marketing
- Blueberry Production Budgets - Pick Your Own Marketing
- Strawberry Profitability Estimated Costs and Returns

Field crops
- Enterprise Budgets
- Flower crops
- Ornamental Greenhouse Cost of Production Budgets
- Ornamental Greenhouse Production in Kentucky
- Grapes
- Grape Cost and Return Estimates: Summaries and Assumptions
- Grapes - Vitis Vinifera Wine Grape Varieties
- French-American Hybrid and American Wine Grape Varieties
- Table Grape Varieties

For more information, visit: https://www.uky.edu/Ag/NewCrops/budgets.html
Cost of Vineyard Establishment

Varies due to site preparation expense, land value, etc.

- $7,000-9,000 / acre over 3 years w/o land costs
- $10,000-12,000 / acre including land & equipment
  - 40% labor, 60% materials
Annual Production Cost

During establishment cost recovery
$2000-2500 per acre per year
• Includes interest on accrued expense

After establishment cost recovery
$1500-2000 per acre per year
• Labor (58%)
• Materials (fertilizer, pesticides) (23%)
• Equipment operation expenses (17%)
• Interest on operating expenses (2%)
Vineyard Profitability

Profit ($/acre) = (income - expenses)
[Yield (tons/acre) x Price ($/ton)] - Production Costs

Problem: High establishment costs and 3-4 year wait
• Gross returns are not large enough to quickly overcome production costs and recover establishment costs (and interest)
• Possible yield (or quality) losses in some years

Possible Options:
• Reduce establishment costs
• Get into production quickly
• Increase price of grapes - maximize quality
• Increase yields
Effects of Yield and Price on Establishment Cost Recovery

<table>
<thead>
<tr>
<th>Yield/Price Configuration</th>
<th>Establishment Costs Recovery Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 tons/acre @ $500/ton</td>
<td>23 years</td>
</tr>
<tr>
<td>5 tons/acre @ $700/ton</td>
<td>9 years</td>
</tr>
<tr>
<td>5 tons/acre @ $900/ton</td>
<td>7 years</td>
</tr>
<tr>
<td>6 tons/acre @ $500/ton</td>
<td>13 years</td>
</tr>
<tr>
<td>7 tons/acre @ $500/ton</td>
<td>10 years</td>
</tr>
<tr>
<td>8 tons/acre @ $500/ton</td>
<td>8 years</td>
</tr>
</tbody>
</table>
Marketing

Marketing has a direct impact on profitability

Get/pay the highest price for grapes

- Grow high quality fruit
- Written contract - negotiated price
- Profit share with winery
- Partnership with winery
Value of Grapes in Wine

<table>
<thead>
<tr>
<th>Price per ton</th>
<th>$500/ton</th>
<th>$600/ton</th>
<th>$700/ton</th>
<th>$800/ton</th>
</tr>
</thead>
<tbody>
<tr>
<td>$/bottle</td>
<td>0.67&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.80</td>
<td>0.93</td>
<td>1.07</td>
</tr>
<tr>
<td>$/gallon</td>
<td>3.33</td>
<td>4.00</td>
<td>4.66</td>
<td>5.33</td>
</tr>
<tr>
<td>$/case</td>
<td>7.99</td>
<td>9.60</td>
<td>11.18</td>
<td>12.79</td>
</tr>
</tbody>
</table>

$0.13/bottle for each $100/ton  ($1.00/bottle=$750/ton)
At $500/ton ($8/case) grapes = 18% of total cost<sup>b</sup>
At $1,000/ton ($16/case) grapes = 31% of total cost<sup>b</sup>

<sup>a</sup> Based on 150 gallons of finished wine per ton
<sup>b</sup> Based on $35/case to produce (not counting grape cost)
Impact of Fruit/Wine Quality of Value

- An increase in sales price of $1.00 per bottle is equivalent to $750 per ton.
- Premium quality fruit is more difficult to achieve, more expensive to produce.
- Negotiate a premium for “vintage” years to help through the “non-vintage” years that are sure to come.
## 2004 Regional Grape Price Survey
### University of Kentucky

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Ave Price/ton</th>
<th>Price Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concord</td>
<td>504</td>
<td>300-600</td>
</tr>
<tr>
<td>Niagara</td>
<td>548</td>
<td>300-800</td>
</tr>
<tr>
<td>Norton</td>
<td>945</td>
<td>800-1000</td>
</tr>
<tr>
<td>Cayuga White</td>
<td>654</td>
<td>450-800</td>
</tr>
<tr>
<td>Chardonel</td>
<td>889</td>
<td>700-1000</td>
</tr>
<tr>
<td>Traminette</td>
<td>955</td>
<td>700-1000</td>
</tr>
<tr>
<td>Vidal</td>
<td>761</td>
<td>600-900</td>
</tr>
<tr>
<td>Vignoles</td>
<td>931</td>
<td>900-1000</td>
</tr>
<tr>
<td>Seyval</td>
<td>755</td>
<td>600-900</td>
</tr>
<tr>
<td>Foch</td>
<td>799</td>
<td>700-1000</td>
</tr>
<tr>
<td>Chambourcin</td>
<td>876</td>
<td>800-1000</td>
</tr>
<tr>
<td>Cab Sauvignon</td>
<td>1250</td>
<td>1200-1500</td>
</tr>
<tr>
<td>Cab Franc</td>
<td>1350</td>
<td>1200-1500</td>
</tr>
<tr>
<td>Chardonnay</td>
<td>1293</td>
<td>1300-1500</td>
</tr>
</tbody>
</table>
# Yield and Price Combinations

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Yield (tons/acre)</th>
<th>Price/ton ($)</th>
<th>Income (gross $/a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norton</td>
<td>4.0</td>
<td>945</td>
<td>3780</td>
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<tr>
<td>Cayuga White</td>
<td>7.7</td>
<td>654</td>
<td>5036</td>
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<tr>
<td>Chardonel</td>
<td>3.6</td>
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<td>Traminette</td>
<td>3.9</td>
<td>955</td>
<td>3724</td>
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<tr>
<td>Vidal</td>
<td>4.8</td>
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<td>3352</td>
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<td>Seyval</td>
<td>5.0</td>
<td>755</td>
<td>3775</td>
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<tr>
<td>Foch</td>
<td>5.7</td>
<td>799</td>
<td>4554</td>
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<tr>
<td>Chambourcin</td>
<td>4.3</td>
<td>876</td>
<td>3767</td>
</tr>
</tbody>
</table>

Average yields (11 yr) from SWPAC (20% lower plant density \( \times 1.25 \))
Factors that Affect Grape Prices

• Supply and Demand
  – Regional production and demand
  – Restriction on importation
    • higher value for in-state grown grapes
  – AVA (American Viticulture Area, Appellation of Origin)

• Quality
  – Variety (vinifera/hybrid/American)
  – Flavor, sugar, acid, pH
  – Freedom from rots, defects

• Marketing Skill
Economics Summary

- Vineyard establishment costs $7,000-9,000 per acre over 3 years
- Overhead costs (land and equipment) vary depending on situation
  - Add $500 to $2,000+ per acre per year
- Major expenses:
  - materials and labor during establishment
  - labor during production
- Profitability depends on price & yield
  - Quality is key to high price
  - Partnership with winery
Summary

• We need more grapes grown in Indiana!!
  – Grapes require lots of labor
  – Grapes are high risk
    • Cold damage from winter cold and spring frosts
    • Diseases, birds, deer, raccoons

• Wineries need to pay a fair price for grapes
  – Bottle price multiplier (10x bottle price/ton)
  – Profit/cost share
  – Bonus for award winning wines, etc