Iowa Vine & Wine 101

2-10-07

Michael L. White
Field Crops/Viticulture Specialist
ISU Extension
Ph: 515-961-6237
E-mail: mlwhite@iastate.edu
5645 wineries in 2006

4,383 Bonded
1,587 Virtual

U.S. Wineries
IA, IL, IN, MI, MN, MO, NE, ND, SD, WI Wineries

Wineries

385 Midwest Wineries vs. 1867+ California wineries

WineAmerica 7-5-00, State Assn’s for 05/06
Iowa Wineries

Wineries

1999 2000 2001 2002 2003 2004 2005 2006

68 Iowa Licensed Wineries

70 Wineries Now!
## Cost of Establishing a Vineyard

Funding for this Project was provided by the following:

<p>| | | | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Leopold Center for Sustainable Agriculture</td>
<td><a href="http://www.leopold.iastate.edu">www.leopold.iastate.edu</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agricultural Marketing Resource Center</td>
<td><a href="http://www.agmrc.org">www.agmrc.org</a></td>
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<td></td>
<td>Iowa State University Extension</td>
<td><a href="http://www.extension.iastate.edu">www.extension.iastate.edu</a></td>
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</tbody>
</table>

The Cost of Establishing a Vineyard Workbook has been created to aid in the development of a business plan. The worksheet assumes the user has a good understanding of grape production, marketing, management and cash flow accounting principals. Any results developed by the worksheet should be reviewed by a Certified Public Account for any errors in calculation or assumptions of the user.

Iowa State University assumes no liabilities or guarantees of the success or failure of any business that uses the Cost of Establishing a Vineyard Worksheet as a decision tool in the start of the business.

The workbook is built using Microsoft Office Excel 2003. The workbook is made up of 23 worksheets. Data entered in one worksheet may be linked to other worksheets. Calculations flow through the worksheets automatically. Save often to protect the information entered.

Created by: Dr. Paul Domoto, Professor of Fruits, Nuts, & Fruit Trees, Iowa State University

Email: domoto@iastate.edu

Office: 245 Horticulture Hall, Ames, IA 50011

Phone: (515) 294-0035
## Interactive Excel Worksheets

You put in your own numbers and figure your own costs and income.

<table>
<thead>
<tr>
<th>System Name</th>
<th>VSP-version 1</th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-Plant (Fall prior to planting)</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Year</td>
<td>Hours</td>
<td>Cost per Hour</td>
<td>Subtotal</td>
<td>Hours</td>
<td>Cost per Hour</td>
<td>Subtotal</td>
<td>Units</td>
<td>Cost per Unit</td>
<td>Subtotal</td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Part Time General Labor</td>
<td>$6.52</td>
<td>Small Tractor Heavy Tasks</td>
<td>$10.68</td>
<td>545</td>
<td>$10.68</td>
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<td>$10.68</td>
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<td>$10.68</td>
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<tr>
<td>Part Time Trained Labor</td>
<td>$8.69</td>
<td>Small Tractor Light Tasks</td>
<td>$3.23</td>
<td>8</td>
<td>$3.23</td>
<td>8</td>
<td>$3.23</td>
<td>8</td>
<td>$3.23</td>
<td>8</td>
</tr>
<tr>
<td>General Labor-Full Time</td>
<td>$9.81</td>
<td>Large Tractor Heavy Tasks</td>
<td>$15.25</td>
<td>24</td>
<td>$15.25</td>
<td>24</td>
<td>$15.25</td>
<td>24</td>
<td>$15.25</td>
<td>24</td>
</tr>
<tr>
<td>Trained Labor-full time</td>
<td>$14.72</td>
<td>Large Tractor Light Tasks</td>
<td>$11.75</td>
<td>172</td>
<td>$11.75</td>
<td>172</td>
<td>$11.75</td>
<td>172</td>
<td>$11.75</td>
<td>172</td>
</tr>
<tr>
<td>Management</td>
<td>$25.56</td>
<td>Vineyard Layout</td>
<td>H Breeze</td>
<td>End Posts per Acre</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piece Work Labor</td>
<td>$1.36</td>
<td>Wire Rolls per Acre</td>
<td>7.95</td>
<td>7</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soil Test land (where vineyard be located. Two Samples per 2.5 acres at a cost of $114 per sample or $5.60/acre. Sample at 0-6&quot; and 6-12&quot;)</td>
<td>0.4</td>
<td>$3.69</td>
<td>$3.69</td>
<td>2.0</td>
<td>$5.60</td>
<td>$11.20</td>
<td>0.0</td>
<td>$0.00</td>
<td>$0.00</td>
<td>($14.56)</td>
</tr>
<tr>
<td>CRP or pasture land (Spray the land to kill all vegetation. Apply glyphosate at 50 EA, plus ammonium sulfate acid diluent to kill perennial grasses and weeds. Glyphosate cost $1.39/b (50 lb tractor, light tasks) (Labor Hr=1.0, Machine Hr=0.4))</td>
<td></td>
<td>$0.00</td>
<td>$0.00</td>
<td>5.0</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
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</table>

http://www.agmrc.org
Assuming General Accepted Accounting Practices, the profit in the 11th year after planting is $1,483.44.

Acreage Math Method where the owner provides free land and half of labor and machinery results in a profit of $1,560.18 in the 4th year after planting.

High Wire System

Total Costs vs Income

Revised Costs vs Income 1/2 Labor, Machinery, i% and No Land Cost
PLANTING OPTIONS

AUGER

TREE PLANTING BAR

TRACTOR MOUNTED TREE PLANTER
Avoid obstructions

On calm, clear nights cold air settles

SITE SELECTION IS KEY!

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

From ISU Ext. Pm-672b
3 ft deep hole full of water should drain:

- 24-48 hrs - Good
- 48-72 hrs - Marginal
- 72+ hrs - Poor Site
Options for Tight Soils?

• Planting Vines on a Ridge of Soil
• Drip Irrigation
• Ripping 24-36” deep under vine row prior to planting
• Surface & Subsurface Tile Drainage
• Fill Augered holes with good soil prior to planting grapes
• Run a Ditch Witch Type Trencher down each row and fill back in.
Optimum Soil Fertility Level

- pH: 5.5 to 6.5 (7.0)*
- P ppm: 20+ ppm
- K ppm: 125+ ppm
- Zn ppm: 2+ ppm
- OM%: 2 – 3%

* Vitis vinifera and vinifera dominant hybrids
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,

Forms and Instructions
http://www.agron.iastate.edu/soiltesting/
Grow tubes are good for herbicide spray & critter protection.
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, Kay Gray, Esprit

Red/Blue Grapes
Catawba, Concord, Norton/Cynthiana, Frontenac, Leon Millot, Marechal Foch, St. Croix, Steuben, Swenson Red, Valiant, St. Vincent, GR-7, Marquette
Due to elevation of the recording sites in respect to the topography of the surrounding area.
Cold Injury Insurance
Grapes have 3 buds.

Primary
Secondary
Tertiary
Trellis Installation

Wheatheart Post Pounder

Milk Case = Cheap Spinning Jenny
Iowa Law requires all farmers to notify Iowa One Call at least 48 hours prior to all excavations (excluding Saturdays, Sundays and legal holidays).

Excavations Deeper Than 15” Must be Reported!

http://www.iowaonecall.com
Build Them Strong
Alternating Wood & Metal Posts
Anchor System

Cunningham Vineyard, Rippey Ia.
Remove Vineyard Acres out of USDA Farm Program Acres Prior to Planting Grapes!

Contact Your County FSA Office

http://www.fsa.usda.gov/
Many Systems

Arbor

4 cane kniffin

Geneva Double Curtain

Vertical Shoot Positioned

Munson Trellis

Single curtain, bilateral cordon or high cordon
Growth Habit

Trailing / Drooping

- Characteristic of American species *V. Labrusca*

Semi-Upright

- Seyval
- Vignoles
- DeChaunac
- Prairie Star
- La Crosse
- St. Vincent
- Chardonel
- Traminette
- Chambourcin
- Marquette
- LaCrescent ?

- Characteristic of French (*V. vinifera*) & some French-Amer. hybrids
High Wire Bilateral

De Chaunac – semi upright

Vignoles - semi upright
Vertical Shoot Position (VSP)
Vertical Shoot Positioned (VSP)

Seyval - Jasper Winery, Newton

LaCrosse – Gary Harman, Indianola
Geneva Double Curtain (GDC)
Geneva Double Curtain
Six Cane Kniffin

Primarily used for Table Grapes
4 or 6 Cane Kniffen

Primarily used for Table Grapes

4-Cane Kniffen
MSU Horticulture Farm, Mtn Grove, MO

6-Cane Kniffen
ISU Horticulture Farm, Gilbert, IA
Major Grape Diseases That “MUST” Be Controlled

Black Rot

Black rot lesion on grape leaf.

Grape berries infected with black rot. Note the shriveled mummies.
Anthracnose
Downy Mildew

Grape berries infected with downy mildew.

Pale yellow spots on upper surface of grape leaf caused by downy mildew.
Powdery Mildew

Grape berry cluster infected with powdery mildew.
Disease Control Methods

Sunny Site with Good Air Movement

Disease Tolerant Cultivars

Proper Soil & Fertility

Pruning & Canopy Management

Preventative Timing of Fungicides

Vineyard Sanitation
Air Blast Sprayer Will be Needed by the 3rd Season
# A Typical Year in the Vineyard

Approximately 200 hrs/ac/yr

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

- Brix/TA/pH testing of grapes
- petiole testing for fertilizer
- begin harvest
- continue harvest
- continue Brix/TA/pH tests
- finish up harvest
Weed Control

Mulch
Cultural Weed Control
In The Vineyard

Smother Crops

Cover Crops

Drip Irrigation vs. Broadcast Irrigation

Weeder Geese/Sheep/Chickens/Pheasants

Mulch
Mechanical Weed Control

- Pulling
- Tillage
- Hoeing
- Propane Burner
- Boiling Water
- Mowing
- Night Tillage
Herbicides for Bearing Grapes

Herbicides for Non-Bearing Grapes
Primary Insect Pests

- Grape Berry Moth
- Grape Flea Beetle
- Grape Phyloxera
- Japanese Beetles
- Climbing Cutworms

Insects Normally Not a Problem!

Asian Lady Beetle
Multicolored Asian Lady Beetle (MALB) *Harmonica axyridis*
Multicolored Asian Lady Beetle (MALB) *Harmonica axyridis*

1 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*</td>
</tr>
</tbody>
</table>

* Max of 60

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

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

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

Also called “Long Pruning”
“Double Pruning”
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.
Training System

Grapevine Through Year 2

A

At Planting

B

1st Season’s Growth

C

Spring 2nd Season
Single Curtain - “cordon” & canes

3rd Year Cane & Spur Pruning
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  Corot Noir  DeChaunac, Frontenac  LaCrosse  Seyval
St Croix  Steuben  Vidal Blanc
Overall Goal in the Vineyard

Plant to Plant Uniformity Among Each Grape Variety in Vineyard
ANIMAL CONTROL

Deer
Rabbits
Gopher
Turkey
Raccoon
Birds

Internet Center For Wildlife Mgt: http://icwdm.org/
Harvesting

Higher Quality & Less MOG
PHENOXY Drift

2,4-D & dicamba (Banvel)
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 April 15th)
#1 Place to go for Iowa Grape/Wine Information

http://www.viticulture.hort.iastate.edu
Dr. Murli Dharmadhikari ISU
Extension Enologist

Dr. Murli Dharmadhikari
2312 Food Science Dept
Ames, IA 50011-1061
Ph: 515-294-7211
E-mail: murli@iastate.edu

Commercial Wineries ONLY!
This is your chance to tell ISU Extension what you think and what our priorities should be over the next 5 years.

Your answers will be held confidential.

Take a moment and fill out the ISU Extension "Needs Assessment Survey" here: http://www.extension.iastate.edu

Your Comments are VERY important to us.

Michael L. White  CMIQ, CCA
Plant Crop/Insect Specialist
2226 SW State Hwy. 157
Iowa City, IA 52246-1309
ph: 319-335-1814  fax: 319-335-5912
michaelwhite@iastate.edu

IMAGES IN WINE PRODUCTION SHORT COURSE
When: Fri. & Sat., January 6 & 7, 2006
We have posted several new upcoming events.
Visit the Iowa Wine Growers Events page for details.

This map outlines the 234 commercial vineyards and 30 wineries located in the state of Iowa which Iowa Wine Growers Association is aware of. Full size map image.

Iowa Wine Growers Information Exchange Forum

Are You Looking For Information or Assistance
Iowa State University
Extension Service Contact Information

http://www.iowawinegrowers.com
FREE:
Interactive Excel Business Plan Worksheets for wineries and vineyards
“Total Wine Package” DVD Video Series

July – Sept. 2006
7.8 mm Hits
2,631 visits/day
40,291 downloads

ISU Ag Marketing Resource Center
http://www.AgMRC.org
The Iowa Department of Economic Development list of Wineries, Wine Trails & Breweries in Iowa
THE END
QUESTIONS