Starting a profitable Muscadine Vineyard & Winery
Lessons learned during the start-up of WoodMill Winery (2006)

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What is a Winery?

• It’s a Farm!
  – It’s not romantic
  – It’s not a walk in the clouds
  – It’s not a hobby (hobbies are convenient)
  – It’s hard work and it’s rewarding work
  – It’s a Business !!!

• Definition of a Farmer?
  – Someone that works so hard they don’t know they are broke!
Outline

• Vineyard Design and Site Selection
  – Varieties, Trellis, Layout, Planting, Pruning, etc.

• Winery Design and Event planning
  • Tasting Room, Bottling, Storage, Event Locations, etc.

• Retail Wine Sales On-site and Off-site
  – Tasting Room Sales, Off-Site Sales, Off-Site Locations, etc.

• Wholesale Opportunities
  – Self Distribution, Labor, Equipment

• On-Site Event Center
  – Agritoursium, Weddings, Music Events, etc.

• Marketing Opportunities
  – Current and Future Market Needs
  – The Unexpected
Vineyard Design & Site Selection
Grape Variety Selection

• European Grape (Vinifera)
  – Not suited for this Climate (see spray program)
  – Limited Fruit Production (6-12 lbs/vine)
  – 700 vines/acre (3-4 tons/acre)
  – Limited Wine Market in the Southeastern United States
  – Fresh Fruit Market (None)

• Native Grape (Muscadine)
  – Suited for this Climate (minimal spray program)
  – Strong Fruit Production (40-80 lbs/vine)
  – 250 vines/acre (6 tons/acre)
  – Unlimited Wine Market in the Southeastern United States
  – Fresh Fruit Market (Growing)
Vineyard Sight Selection

• Good Air Drainage
  – Reduces potential freeze damage
• Good Air Movement
  – Improves pollination & fruit health
• Good Water Drainage and/or Run Off
  – Wet feet kills vines, especially in clay soils
• Site Location
  – Vines need sunlight (limit tree interference)
  – Vineyard with slope is desirable
Soil Preparation

• Clay based Soils Require:
  – Sub-soil prep (~30” deep or through hardpan)
  – Auger prep for each vine (through hardpan)
  – Soil prep (augment with creek sand)
  – Vineyard soil testing and management
    • Adjust soil to a ph level of 6 -to- 6-1/2
    • Maintain nitrogen, potash, phosphorous levels
  – Plant ground cover between rows
Vineyard Design

- Vineyard Design (Single Trellis)
  - Establishing row direction
    - limit erosion at all cost
    - north-to-south when possible
  - Determining row spacing (10-14 feet)
    - allow for access (Picking, Lime truck)
  - Determining vine spacing (12-20 feet)
    - verity specific based on fruit volume
    - consider root-to-canopy area ratio
  - Post on 12-20 foot centers with anchors on each end
    - mobile home anchors
    - electric motor driver
Trellis Design

• Advantages of Single Trellis Vineyards
  – Open access to fruit during harvest
  – Makes summer pruning easier
  – Easier to control weeds under vines
  – Allows automated harvest options
  – Maximizes vines per acre
  – Promotes good air movement
  – Maximizes sunlight
  – Increases root-to-canopy area ratio
Maintain Vineyard
Vineyard Irrigation

• Advantages of Drip Irrigation
  – Low start-up cost
  – Low water volume requirements
    • 1” feed line and ¾” overhead line
  – Low water pressure requirements
    • 1 to 1-1/2 hp pump
  – Low cost automated system
    • Lawn system
  – Flexible volume control capabilities
    • Water volume deference based on vineyard slope
Irrigation Control Box
(supported with 2hp - 19gpm pump)
Drip Irrigation
First Year in Ground

Top Wire

Drip Irrigation

(12”)

Irrigation Line

Ground Level

Irrigation Zone
Vineyard Maintenance

• Develop Spray Programs
  – Pesticide – Japanese Beetles, June Bugs, Bees, Butterflies
  – Fungicide - Black Rot, Powdery Mildew, other species dependent
  – Herbicide - Ground Cover Control

• Develop Mowing & Ground Cover Program
  – Mow vineyard - every two weeks
  – Maintain ground cover

• Develop Vine Management Program
  – 1 year old vines – Fertilize every 4 weeks – prune/train every week
  – 2 year and older vines – Fertilize every 6 weeks - prune/train twice/year

• Develop Varmint Prevention
  – Deer, Raccoons, Opossum, Birds, People
Single Trellis Vine Training

Bamboo Trainer

Top Wire

Irrigation Line

Growth Tube
Training Vines

• Bamboo Trainer
  – Promotes straight vine growth:
    • Provides support for heavy fruit weight
    • Reduces risk of snatching vine during vineyard maintenance
    • Shortens distance between fruit and roots
  – Round smooth surface ideal for tying vines
    • Max Tappner tape and staple system

• Growth Tubes
  – Promotes vigorous vine growth
  – Protects young vines from Herbicides
  – Provides good environment for wasp & nest!!
Training First Year Vines

One year growth

Cordon

Top Wine

Spurs

Vine

Ground Level
Summer Pruning
Summer Re-planting
(Shade Tent with Drip Irrigation)
Weather Concerns
Vineyard Freeze Protection

• Young Vines
  • Use growth tubes
  • Hill dirt/sand around base of growth tube

• Mature Vines
  • Apply white latex paint on trunk to help prevent vine splitting
  • Hill sand around base of vine after paint

• Entire Vineyard
  • Mow Grass close - allow soil to gather warmth
  • Remove undergrowth from under vines
  • Create air drainage path for vineyard at low point
Sand Heaped Around Vine
Latex Paint on Vines
Creating Air Drainage
Harvest Options

• Manual Labor
  – Advantages
    • High Fruit Quality
    • High crop usability – 90% usable
  – Disadvantages
    • Slow Harvest (five weeks)
    • High Labor Cost

• Automated Harvest
  – Advantages
    • Fast Harvest (single day)
  – Disadvantages
    • Limited Fruit Quality
    • Decreased crop usability – 70% usable
Current and Future Market Needs

• Current Markets
  – Fresh Fruit Market
  – Wine Grape Market
  – Value Added Products

• Future Markets
  – Pharmaceutical Market (Resveratrol)
  – Health Products Market (Resveratrol)
Total Investment in Vineyard

- Tractor, Mower, Rake & other equipment
- Pesticide / Fungicide Sprayer & Herbicide Sprayer
- Land, Soil Prep, Fertilize, Chemicals & Cover Crop
- Vines, Trellis, Irrigation, Training Vines, Maintaining Vines
- Initial and ongoing Labor

- As much as $20K/acre for 5 acres ????
Winery Overview

• Winery Structure
  – Wine Production, On-Site Events, Rentals, Support Wholesale

• Cost Saving Ideas
  – Bottling – Labels, Bottles, Bottling Line
  – Retail Area – Flexible Wine Tasting & Events Area
  – Wine Vats & Tanks - Storage and Blending Containers
  – Production Equipment – Crusher, Press, Must Pump, etc.…
  – Production Equipment - Filters, Pumps, Bottling Line, etc.…
  – Promotion - Web-site, Facebook, Flyers, Business Cards, etc.…
  – Wholesale – Distributer or Self-Distribution
Winery with Events Structures
(Weddings & On-Site Events)
Tasting / Reception Room
(Removable Tasting Bar & Furniture)
Bottling

- Use Bottling to Retain Employees
  - Bottling provides indoor work during bad weather

- Controlling Storage Cost
  - Storing Wine in Vats is cheaper than in bottles

- Use volume buying to reduce bottle cost
  - Use the same bottle for all verities of wine

- Use volume buying to reduce label cost
  - Use single sided label with cut design
Single-sided Label Design
(all labels same size & shape)
One Standard Bottle for all Wines
(all bottles same size & color)
Wine Storage

• Stainless Steel Vats vs Food Grade Plastic
  – High acid levels in Muscadine wine tend to wear down stainless steel grain structure causing a steely finish to wines.
  – Plastic provides 10 times the storage capacity for the same investment cost as stainless.
  – Plastic provides a rare win – win scenario
    • Better product for less money!
Blending & Storage Tanks
Pressure Washer
2000 psi (250 degree)
Operator Operated!
Simple Crusher & Bladder Press
(to date – equipment produced over 900,000 bottles of wine)
Variable Speed Wine Pump
(110v reversible)
40 Plate Filter with Divider
(two stage filter)
Simple Bottling Line
Point of Sale Wine Rack
Wholesale / Retail Delivery Van
(E-3500 12 passenger)
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• Ervin Lineberger
  • Kildeer Farms, Kings Mtn, NC

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