



Starting a profitable Muscadine Vineyard & Winery

Lessons learned during the start-up of WoodMill Winery (2006)

2019 Southeast Regional Fruit & Vegetable Conference

Savannah Muscadine Session

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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)
 - variety 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 $\frac{3}{4}$ " 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

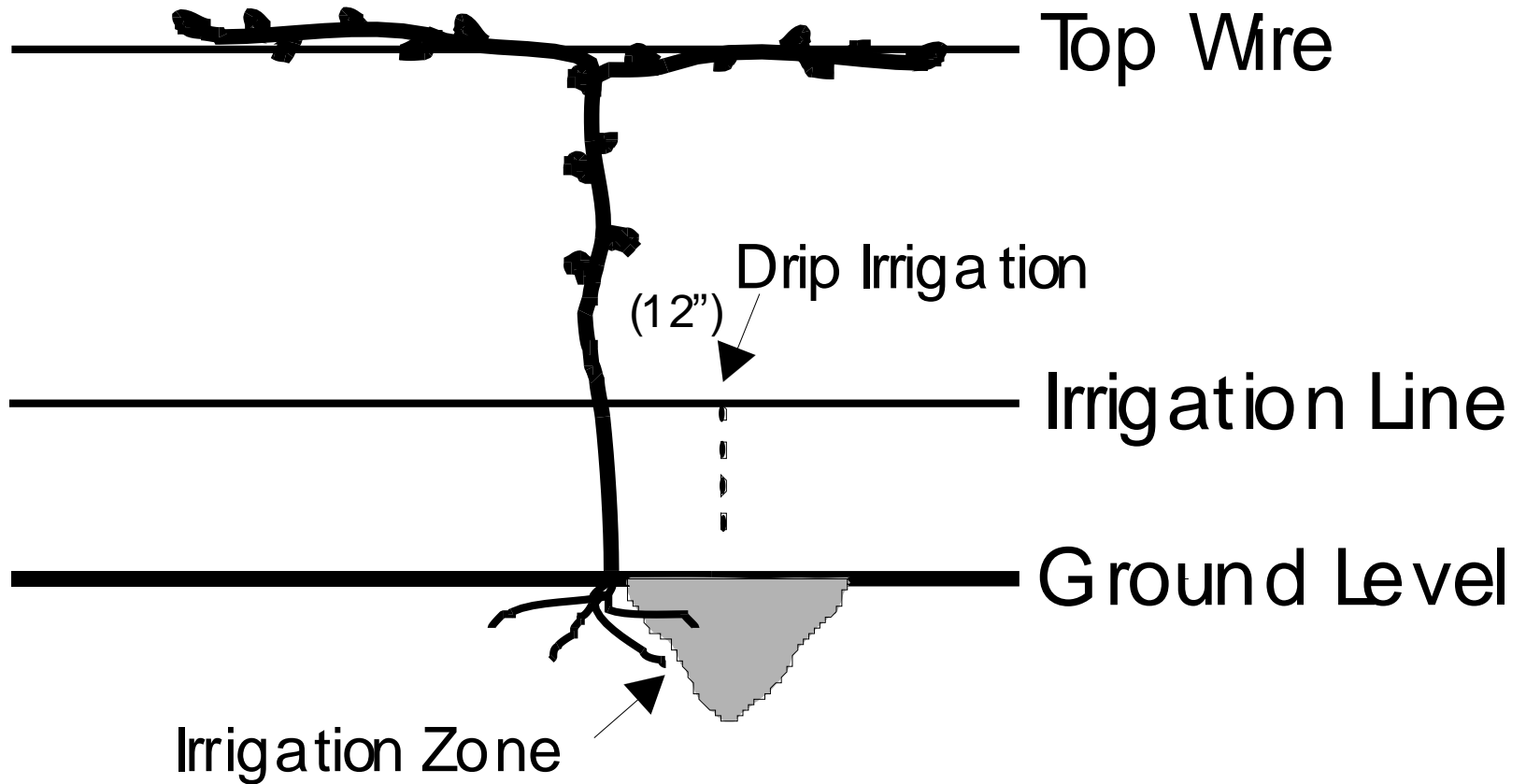
(supported with 2hp - 19gpm pump)



Drip Irrigation



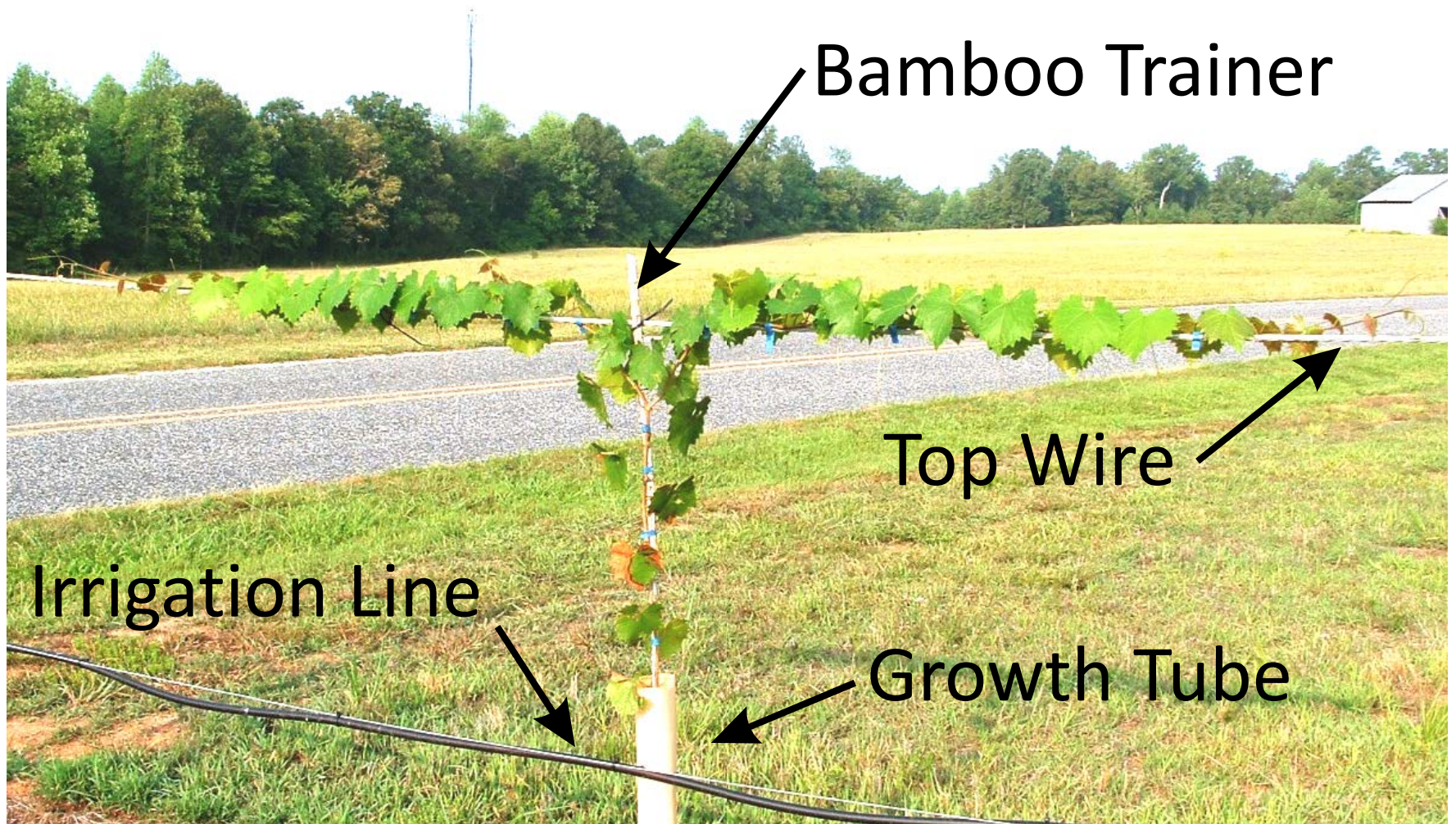
First Year in Ground



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



Training Vines

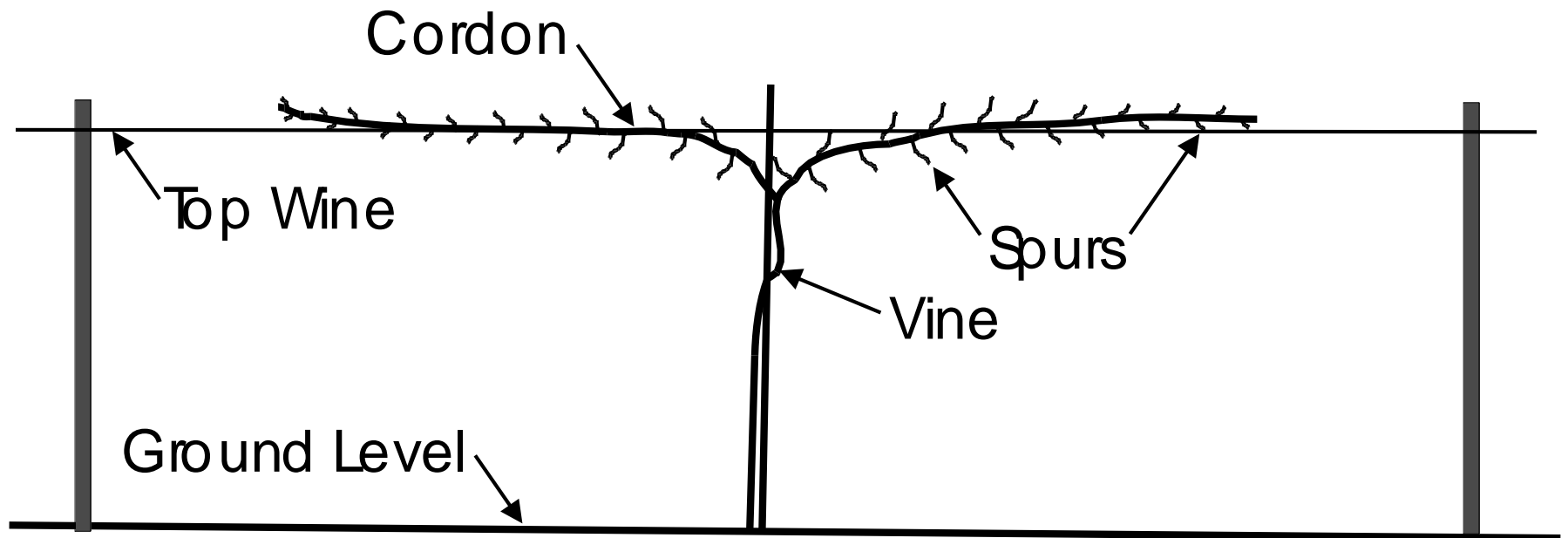
- **Bamboo Trainer**

- 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

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 varieties 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)



Acknowledgments

- Greg Ison
 - Ison's Nursery, Brooks, Georgia
 - Book – “All About Muscadines”
 - Phone - 800-733-0324
 - Web-site – www.isons.com
- Ervin Lineberger
 - Kildeer Farms, Kings Mtn, NC
- WoodMill Winery
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