New York’s revitalized grapevine certification program and New York nurseries
Facts about Viruses

- Viruses can have severe effects on vigor, yield, fruit quality, and productive lifespan of vineyards
Leafroll

V. vinifera cv. Cabernet franc
Pinot noir

Healthy

Leafroll

Dr. P. Gugerli, RAC, Changins, Switzerland
Red blotch

V. vinifera cv. Pinot noir
Tomato ringspot virus on Vidal
Facts about Viruses

• Viruses can have severe effects on vigor, yield, fruit quality, and productive lifespan of vineyards

• No cure in infected vineyards
Facts about Viruses

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• Prophylactic measures - Establish a vineyard with planting material derived from clean, virus-tested stocks
Facts about Viruses

• Viruses can have severe effects on vigor, yield, fruit quality, and productive lifespan of vineyards

• No cure in infected vineyards

• Prophylactic measures - Establish a vineyard with planting material derived from clean, virus-tested stocks

• Certification programs limit the presence and dissemination of viruses in propagation material
Grapevine Certification: Current Model

Imports

Clean Plant Center

Clean Plant

Domestic accessions
Grapevine Certification: Current Model

- Foundation Plant Services, UC-Davis, CA
- Clean Plant Center-grapes Northwest, WSU, Prosser, WA
- Midwest Tissue Culture & Virus Testing Program, Mountain Groves, MO
- Southeast Vine Improvement Program, Florida A&M, Tallahassee, FL
- Eastern Clean Plant Program, Cornell University, Geneva, NY
Grapevine Certification: Current Model

Imports

Clean Plant Center

Clean Plant

Diagnostics & Therapy

Domestic accessions
Grapevine Certification: Current Model

Imports

Clean Plant Center

Clean Plant Foundation block (G1)

Domestic accessions
Grapevine Certification: Current Model

Imports → Clean Plant Center → Clean Plant → Foundation block (G1) → Increase block (G2) → Domestic accessions
Grapevine Certification: Current Model

Imports

Clean Plant Center

Clean Plant → Foundation block (G1) → Increase block (G2) → Nursery

Domestic accessions
Grapevine Certification: Current Model

Imports

Clean Plant Center

Clean Plant -> Foundation block (G1) -> Increase block (G2) -> Nursery -> Vineyard

Domestic accessions
Grapevine Certification: Current Model

- Imports
- Clean Plant Center
- Domestic accessions

1. Clean Plant
2. Foundation block (G1)
3. Increase block (G2)
4. Nursery
5. Vineyard

Audit & Quality Control
Grapevine Certification: Current Model

Imports

Clean Plant Center

Clean Plant

Foundation block (G1)

Increase block (G2)

Nursery

Vineyard

Audits & Quality Control

Monitoring

Domestic accessions
Grapevine Certification: Current Model

Imports

Clean Plant Center

Clean Plant

Foundation block (G1)

Increase block (G2)

Increase block (G3)

Increase block (G4)

Increase block (G5)

Nursery

Vineyard

Monitoring

Audit & Quality Control

Domestic accessions
Grapevine Certification: Current Model

Imports

Clean Plant Center

Clean Plant Center

Clean Plant Foundation block (G1)

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Nursery

Vineyard

Domestic accessions
Grapevine Certification: Current Model

- Imports
- Clean Plant Center
  - Domestic accessions
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  - Increase block (G2)
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  - Vineyard

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Grapevine Certification: Model in NY

Imports

Clean Plant
Center

Domestic accessions

Clean Plant 

Foundation block 
(G1)

Increase block 
(G2)

Nursery

Vineyard
Grapevine Certification: Model in NY

Imports

Clean Plant Center

Clean Plant

Foundation block (G1)

Increase block (G2)

Nursery

Vineyard

Audit & Quality Control

Domestic accessions
Grapevine Certification: Model in NY

Imports

Clean Plant Center

Clean Plant → Foundation block (G1) → Increase block (G2) → Nursery → Vineyard

Domestic accessions

Audit & Quality Control

Monitoring
The planting material is the most valuable and critical input for grape production, juice and wine making.

Provide an opportunity for making available regionally produced planting material derived from virus-tested stocks.

Grassroots efforts - closer to the end users.
Economic Value of Virus-Tested Material

• Subscribing an insurance against risk, giving the economic losses (impact + management)

• Comparative analysis of net revenues if:
  • Virus-tested plant material (no virus introduced)
  • Plant material from commercial vineyards (risk of introducing virus - roguing & removal)

• Risk that the propagation material carries the virus:
  • ~ 60% of vineyard blocks (non certified vines) have leafroll
  • ~ 5% of the vines from vineyard blocks used by nurseries actually have leafroll
Economic Value of Virus-Tested Material

• The break-even price premium is 48%: $3.50/vine base price, the break-even premium would be $1.68 for a total price of $5.18

• The lower the 60% probability/risk that a vineyard block has leafroll, the lower the premium
Economic Value of Virus-Tested Material

• Selecting planting material is one of the most critical decision for a vineyard manager/owner

• Selecting planting material derived from virus-tested stocks will increase vineyard profitability

• The NY certification program will be successful only if end users actively participate
Thank you
Grape Certification in New York
Why Grape Certification?

Viruses cause significant loss to grapes

- Reduce sugar
- Uneven ripening
- Reduce yield
- Lower price
What is Grape Certification?

Grapevines screened for viruses

Resurrecting

PART 150. VOLUNTARY PROGRAM FOR THE PRODUCTION OF VIRUS-TESTED PLANT MATERIALS
What is Grape Certification?

Screen for Viruses that cause $$ loss

- Tomato Ringspot Virus $^N$
- Tobacco Ringspot Virus $^N$
- Grapevine Fan Leaf Virus $^N$
- Grapevine Leaf Roll Associated Viruses x5
- Grapevine Red Blotch Associated Virus

$^N$ = Nematode vectored
How do we certify grapes?

- **Testing** – 1 in 4 of mother block EVERY year
  - ELISA and PCR tests
  - Indexing – herbaceous and woody
  - Testing by NYS Ag Experiment Station-Geneva NY
- **Inspection by 3rd party** – NYS Horticultural Inspectors
- **Chain of Custody** – sampling by NYS Horticultural Inspectors
How does a nursery do it?

Apply to NYS Department of Agriculture – Division of Plant Industry

Site selection – meets NYS requirements

- Isolation
  - Mother Blocks = 100 feet
  - Nursery Blocks = 30 feet

- Nematode levels
  - Dagger nematodes below 50 nematodes /250cc
How does a nursery do it?

Plant Source
- Foundation Plant Services (CA)
- Prosser in Washington
- Clean via tissue culture

Both Rootstock and Scion must be from a foundation
Start Clean and . . .

Monitor
State Verifies
Protect Investment
Eric Amberg
Operations Manager
Grafted Grapevine Nursery, LLC
Since 1957
Update at

Double A Vineyards
2010 Protocol

- Extensive testing for over 40 viruses including Red Blotch.
- Micro shoot tip culture to help eliminate crown gall but no certification.
- The highest level of certification available.
Certified Blocks
Site Selection and Preparation

- 80 Acres Chenango Gravelly loam
- Irrigation System
- Extensive nematode testing
- Brown Mustard Cover crops
- Fallow periods
- Fertility and Ph Adjustments
- Clean up of perennial weeds
- No grapes in over 20 Years
Rootstocks

- 3309
- 101-14
- Riparia
- 1103P
Scion Selections

- 150 total selections
- 62 Vinifera Selections
  - 3 Cab Franc Clones
  - 4 Cab Sauvignon Clones
  - 5 Chardonnay Clones
  - 2 Gewurtztraminer Clones
  - 2 Gruner Veltliner Clones
  - 2 Pinot Gris Clones
  - 4 Pinot Noir Clones
  - 4 Riesling Clones
  - More to Come
Scion Selections

- Cornell Selections
- University of Minnesota Selections
- Swenson Varieties
- Traditional Hybrid Varieties
- More selections as they become available.
Vineyard Design

- 8FT Row Spacing X 4 FT Vine Spacing
- VSP Training
- 150 Vine Rows
- One variety per row
- Multiple rows for high volume varieties
- Drip Irrigation Insect control and chemigation
J Training System
Timeline

- 2015 2000 vines planted
- 2016 18,000 vines
- 2017 6000 vines
- 2018 Some plants available for sale
- 2019 and beyond vines will be available in increasing numbers
60 Selections Ready to plant
Key Practices

- Aggressive Mealybug control
- Virus testing
- Nematode testing
- Cover crops
- Winter protection
Cost

- Yes
- 80 Acres of premium quality land
- Vineyard Establishment costs
- Extra care and monitoring costs
- Profit
- Capital Costs + Operating + Testing costs + profit/vines produced / time = Added cost per vine
Certified Nursery Stock
NURSERY

Since 1979, Hermann J. Wiemer Nursery has been a leading supplier of quality grafted grape vines for the Finger Lakes, California and other major wine regions. Our practices of selecting budwood and rootstock material have helped us guarantee the highest quality grafted plants available.

Hermann's family has been in the grafting business since the early 1900's when his father headed up the agricultural experiment station in Mosel, Germany. Since vinifera plant material was not available on a commercial basis when Hermann started experimenting with Riesling in New York, Hermann decided to establish a grape vine nursery to prepare the stock using his grafting technique and technical knowledge from his early years in Germany. He obtained his initial bud stock from Cornell University's Geneva Experiment Station and grafted it onto American rootstock.

Hermann J. Wiemer Vineyard continues to seek out new ideas and practices to improve the quality of our grafted vines and vineyards. Through careful selection of material and bud wood from our own vineyards, we produce the highest-quality, disease-free grafted grapevines available in the market.