Recommended and “Trial” Winegrape Varieties for Diverse Regions of Michigan

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University of Maryland Extension
UME R&D Vineyard Locations

- WMREC - Keedysville
- CMREC – Upper Marlboro
- WyeREC - Queenstown
- LESREC - Salisbury
- "Golden Run Vineyard" – Sudlersville
- "Summerseat" – Lusby

Hardy Russian Varieties

European Varieties
Enology (Winemaking) R&D

George Barber – wine technician
The Wine is Made in the Vineyard!
General considerations

• Climate/Variety interaction critical
• Consistent production at your site
  – Adequate cold hardiness
  – Resist disease and pest pressure
• Consistently high quality at your site
  – Desirable ripening temperatures (cool nights)
  – Ripe all or majority years!!
• Demand by existing wineries
• Demand by consuming public (own winery)

• Crop value consistently exceeds cost of production!
“Pest” Resistant
• Disease
• Insect
• Cold!

Disease tolerant
Cold tolerant
Hybrids
“Preferred” conditions for producing high quality grapes:

- Moderate winters and
  - Preferably minimums $>0^\circ F (> -4 F)$
  - Adequate snow insulation
- Limited frosts
  - late spring
  - early fall
“Preferred” conditions for producing high quality grapes:

- Warm sunny days during ripening
  - Preferably maximums <90°F
- Cool nights during ripening
  - Preferably minimums <60°F
- Long ripening season
- Well drained, low fertility soil
- Limited precipitation
  - manage vigor
  - final ripening
The Great Lakes moderate the climate to allow Michigan to grow 140,000 acres of fruit crops.
Wine Grape Varieties

Vinifera, Hybrid, Native, Super Hardy

Pinot blanc 
*Vitis vinifera*

Vignoles
Hybrid

Concord
*Vitis labrusca*

Frontenac
*Vitis riparia* based
General consideration of *vinifera* relative to other species/hybrids

- *V. vinifera* must be grafted to pest-tolerant rootstock
- As a group, *V. vinifera* are more susceptible to fungal and certain other pathogens
- *V. vinifera* are more susceptible to cold injury
  - SHH > Native American spp > hybrids > *V. vinifera*
- *V. vinifera* grape prices are roughly twice that of hybrids or Americans
Vinifera/Hybrids vs. Species

- Must be grafted to pest tolerant rootstock
  - C3309
  - 101-14
  - Riparia Gloire

Phylloxera

Not grafted

Grafted ‘Chardonel’
Average Number of Days with Temperatures Below -4F

Know your site!
- Minimum temperatures

Data and maps prepared by Aaron Pollyea, Peter Kurtz, and Tracy Aichele, Michigan Climatological Resources Program, Michigan State University Department of Geography, based on data from the NOAA, 1952-2001.

www.grapes.msu.edu/climate.htm
Variety choices:

Match Variety to your site!

- Cold!
- Growing season
Mean Length of Growing Season

Variety choices:

Know your site!
- Length of Growing season
- Especially reds
Top 10 wine grape varieties in Michigan

- **ACRES**
  - 0
  - 200
  - 400
  - 600

- **PERCENTAGE (%)**
  - 0
  - 5
  - 10
  - 15
  - 20
  - 25
  - 30

<table>
<thead>
<tr>
<th>Grape</th>
<th>Acres</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Other</td>
<td></td>
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<tr>
<td>Riesling</td>
<td>620</td>
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<tr>
<td>Pinot noir</td>
<td>260</td>
<td>100</td>
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<tr>
<td>Chardonnay</td>
<td>220</td>
<td>65</td>
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<tr>
<td>Pinot gris</td>
<td>200</td>
<td>50</td>
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<tr>
<td>Cabernet franc</td>
<td>100</td>
<td>20</td>
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<tr>
<td>Vidal blanc</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Merlot</td>
<td>50</td>
<td>100</td>
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<tr>
<td>Vignoles</td>
<td>30</td>
<td>75</td>
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<tr>
<td>Seyval</td>
<td>20</td>
<td>40</td>
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</tbody>
</table>

**Bar Graph**
- Y-axis: ACRES
- X-axis: PERCENTAGE (%)
- Legend: Acres, Percentage

**Images**
- Riesling
- Pinot noir
‘Vignoles’
(hybrid – ‘Ravat 51’)

- **Strengths:**
  - Moderately hardy
  - Late bud break
  - Early-mid harvest
  - Excellent wine
    - Aromatic
    - Late harvest wines

- **Weaknesses:**
  - Mod PM DM
  - Susceptible to Botrytis
    - Tight clusters
    - Trace bloom leaf pull
‘Seyval Blanc’
(hybrid)

• **Strengths:**
  – Good cold hardiness
  – Good yields
  – Versatile
    • Style
    • Blending

• **Weaknesses:**
  – Over cropping
  – Establishment
  – Sour rot
‘Chardonel’
(Cornell - ‘Seyval Blanc’ x ‘Chardonnay hybrid’)

• **Strengths:**
  – Good cold hardiness
  – Good heat tolerance
  – Good disease resistance
  – Versatile

• **Weaknesses:**
  – Over cropping?
  – Ripe rots?
  – Limited local testing
  – Phylloxera susceptible
‘Vidal Blanc’
(hybrid)

• **Strengths:**
  – Good cold hardiness
  – High yields
  – Late bud break
  – Versatile – work horse
    • BF to Ice!

• **Weaknesses:**
  – Over cropping
  – Susceptible to DM (leaf)
  – Susceptible to tomato & tobacco ringspot viruses
    • Must graft to rootstock
‘Traminette’
(Cornell - JS 23-416 x ‘Gewürztraminer’ hybrid - 1996)

• **Strengths:**
  – Good productivity
  – Moderately hardy
  – Mid season harvest
  – Good disease resistance
  – Excellent fruit quality
    • Spicy, aromatic

• **Weaknesses:**
  – limited DM?
  – Vigor
  – Late ripening?
  – Vertebrate pests!
‘Pinot Gris’/‘Pinot Grigio’
(vinifera)

• **Strengths:**
  – Widely adapted
  – Fair cold hardiness
  – Early harvest
  – Consumer recognition
  – Good cool climate quality

• **Weaknesses:**
  – Susceptible to botrytis
    • Tight clusters
    • Trace bloom leaf pull
‘Pinot Blanc’
(vinifera)

- **Strengths:**
  - Similar to Pinot Gris (sport)
  - Fair cold hardiness
  - Early-mid harvest
  - High quality wine

- **Weaknesses:**
  - Consumer recognition
  - Susceptible to botrytis?
    - Tight clusters
‘Riesling’
(vinifera)

• Strengths:
  – Regional recognition
  – Consumer recognition
    • Quality wine
  – Regional Adaptation
  – Fair cold hardiness
  – Mid harvest

• Weaknesses:
  – Susceptible to botrytis
    • Tight clusters
‘Chardonnay’
(vinifera)

• **Strengths:**
  – Adaptable cultivar
  – High fruit quality - recognition
  – Good Yields (4 t/a)
  – Fair cold hardiness
  – Clones available

• **Weaknesses:**
  – Early bud break - frost
  – Susceptible to botrytis, PM, DM, and GY
‘Grüner Veltliner’
(vinifera – Austria, Italy, Germany, Slovenia, Czech R)

- **Strengths:**
  - Cool climate
  - Hardiness?
  - Medium ripening
  - Name recognition

- **Weaknesses:**
  - Hardiness?
  - Typical diseases
  - Heat tolerance/acid?
  - Limited testing;

- **Wine**
  - Green apple, white pepper, lentil; to citrus
  - Structure, minerality, full bodied; age like Burgundy
  - Food friendly
‘Pinot Noir’
*(vinifera)*

- **Strengths:**
  - Regional recognition
  - Consumer recognition
  - Early ripening
  - High quality fruit cool climate

- **Weaknesses:**
  - Susceptible to fruit rot
    - tight cluster
  - Narrow window of ripening
‘Lemberger’
(red *vinifera*)

**Strengths:**
- Good cold hardiness (=CabFranc?)
- Early harvest
  - < CabFranc at WMREC
- Good color – manage crop
- Good cluster disease resistance

**Weaknesses:**
- Name!
- High yields – needs management!
  - color
- Inconsistent – crop management?
‘Merlot’
(red vinifera)

• **Strengths:**
  – High demand
  – Excellent fruit quality
  – Ripens early

• **Weaknesses:**
  – Cold tender
  – Susceptible to bunch rot
  – Sideways!

*Only best sites!*
‘Cabernet Franc’
(vinifera)

**Strengths:**
- Good demand and value
- Good rot resistance
- Cold hardiness > Cab Sauvignon
- Ripens earlier than CS
- Clone choices (#1 and #214)
- Quality wine

**Weaknesses:**
- Occasionally poor fruit set
- Leaf roll virus
- Herbaceous when under ripe
American Varieties

- 'Niagara'
- 'Catawba'
- 'Delaware'
- 'Concord'

Wine and Juice
“Super Hardy Hybrids”
‘Frontenac Blanc’
(MSHH sport - 2012)

**Strengths:**
- Earlier harvest
- Disease resistant
- High quality
  - versatile
- White wine
  - Peach

**Weaknesses:**
- Vigorous
- High acidity
‘LaCrosse’
(Swenson hybrid – MxS X Seyval -1983)

- **Strengths:**
  - Very cold hardy
  - Mod-late bud break
  - Mid-late maturity
  - Productive
  - Tolerant to 2,4-D
  - Excellent wine

- **Weaknesses:**
  - Vigorous but upright
  - Susceptible to BR, Botrytis, DM
    - Not sensitive to S and Cu
  - Subject to sunburn
  - Suscept to Phylloxera
‘LaCrescent’
(MSH hybrid - MN1166 - 2002)

**Strengths:**
- Very cold hardy
- Early bud break
- Sprawling habit
- Moderate disease resistance – BBR, CG, PCB
- White wine
  - Apricot, citrus, tropical

**Weaknesses:**
- High vigor
- Mod susceptibility BR, A
- PM; High acidity
‘Brianna’
(Swenson hybrid – “Kay Gray X ES2-12-13 -2001)

- **Strengths:**
  - Very cold hardy
  - Easy management
  - Early-mid maturity
  - Productive – no thinning
  - Aromatic wine

- **Weaknesses:**
  - Vigorous but semi-procumbent
  - Mod Susceptible to BR, Botrytis
  - Slight DM PM
    - Not sensitive to S (Cu?)
  - Highly susceptible to CG
  - Slight susceptible to 2,4-D
‘St Croix’
(SH hybrid – Swenson 2-3-21 - 1981)

**Strengths:**
- Hardy
- Mid-late bud break
- Small-med clusters
- Productive – thin?
- Resistant BR

**Weaknesses:**
- Very vigorous; shoot thin
- Moderate DM, Botrytis, PM
  - Not S and Cu sensitive
- Mod acid/Neutral
‘Marquette’
(MSH hybrid – MN1211 - 2006)

• **Strengths:**
  – Very hardy
  – Early bud break
  – Early-mid season ripening
  – Mod-resistant BR, DM, BBR, PM
  – High quality/fruity
    • Acidity is manageable
    • Cherry and black currant
    • Pepper, tobacco, leather
    • Medium bodied

• **Weaknesses:**
  – Sensitive to 2,4-D/Dicamba
  – Crown Gall/Phylloxera?
  – Sugar/acidity?
SCRI Grant
“Improved grape and wine quality in a challenging environment”

NE1020 Variety Trial
“National” Variety Trial
Dr. Paolo Sabatini
Varieties planted
50% white and 50% red
40% hybrids and 60% vinifera

<table>
<thead>
<tr>
<th>Southwest</th>
<th>Northwest</th>
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<tbody>
<tr>
<td><strong>Mandatory Core</strong></td>
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</tr>
<tr>
<td>Merlot, Cabernet Sauv</td>
<td>Pinot noir, Cabernet Franc</td>
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<tr>
<td><strong>Hybrid</strong></td>
<td><strong>Hybrid</strong></td>
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<tr>
<td>Brianna, Chardonel, GR7, Marquette, Noiret, NY760844.24, Phoenix, Regent, Traminette, Valvin Muscat, Valvin Muscat</td>
<td>Brianna, Chambourcin, Corot Noir, Frontenac, La Crescent, Noiret, NY76.0844.24, NY81.0315.17, St. Croix, Vidal</td>
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<tr>
<td><strong>Vinifera</strong></td>
<td><strong>Vinifera</strong></td>
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### Preliminary recommendations

#### Cool-cold climate vinifera cultivars

<table>
<thead>
<tr>
<th>Core</th>
<th>Emerging from private and MSU evaluation in the NW and SW</th>
<th>Evaluated and not suggested</th>
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</thead>
</table>
| Cabernet franc  
Chardonnay  
Gamey noir  
Gewürztraminer  
Merlot  
Pinot gris  
Pinot noir  
Riesling  
Pinot blanc | Dornfelder  
Gruner Veltliner  
Lagrein  
Rkatsiteli  
Teroldego  
Tocai Friulano  
Zweigelt  
Sauvignon Gris  
Sauvignon Blanc Musque | Albariño  
Cinsaut  
Feher Szagos  
Madeline Angevine  
Moscato Canelli  
Moscato Giallo  
Muscadella du Bordelais  
Muscadelle du Bordelais  
Muscato Ottonel  
Fiano  
Orange Muscat  
Semillon  
Siegerrebe  
Touriga National |
“Wine was given by God, not that we might be drunken, but that we might be sober. It is the best medicine when it has moderation to direct it. Wine was given to restore the body’s weakness, not to overturn the soul’s strength.”

St. John Chrysostom
(4th Century preacher)
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