Wine from New Cold-Hardy Cultivars: Challenges and Techniques

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Frontenac

- Introduced 1996
- V. riparia 89 X Landot 4511
- Harvest*:
  - 25.5 °Brix
  - 3.06 pH
  - 15.7 TA
- Red, Rosé, Port

*5 years, n=17
Frontenac: Sensory

• Garnet; bluish tint
• Dominant cherry palate
  – blackberry
  – black currant
  – plum
  – herbaceous note if underripe
• Light-bodied
Frontenac: Issues

- High acid
- High soluble solids
- High color
- Low tannins
Frontenac: Red Wine

- Acid
- HRC Strategy
  - Malolactic fermentation
  - Cold Stabilization
  - Chemical deacidification
    - Potassium bicarbonate
- Other options:
  - Chemical deacidification: calcium carbonate
  - Amelioration
  - Blending
  - RS
Frontenac: Red Wine

- Soluble solids
  - Amelioration as necessary
  - RS

- Tannins
  - Oak – medium to heavy toast
    - Barrel aging
    - Chips, spirals, beans
  - Enological Tannins
    - Addition prior to fermentation
Frontenac: Red Wine

• Color
  – Short skin contact time
    • 3-5 days
  – Fining
    • Gelatin
    • Activated carbon
  – Filtration
    • Tight depth filtration
Frontenac: Rosé

- No skin-contact time
- Aromatic yeast
  - EC 1118
- Cool fermentation
- Residual sugar
  - 3%
- Carbonic maceration
Frontenac: Port style

- Traditional production
  - Stop fermentation at 10% RS with high-proof addition
- High-alcohol yeasts
  - 18-19%
Frontenac gris

• Introduced 2003
• Sport of Frontenac
• Harvest*:
  – 25.6 °Brix
  – 3.06 pH
  – 13.4 TA
• Off-dry table; dessert

*5 years, n= 12
Frontenac gris: Sensory

- Amber to golden color
- Aroma/flavor:
  - Peach
  - Apricot
  - Citrus
  - Tropical Fruit
Frontenac gris: Issues

• High acid
• High soluble solids
• Volatile retention
• Color?
Frontenac gris: table wine

- Aromatic yeast
  - Epernay, EC 1119, X5 *(Laffort)*
- Cool fermentation
  - 55°F
- Color?
  - Skin contact (cold soak?)
  - Fining
  - Rosé (?)
Frontenac gris: table wine

- **Acid**
  - Cold Stabilization
  - Deacidification as needed
    - Potassium bicarbonate
- **Residual sugar**
  - 2.5 – 3.5 g/L
- **Amelioration**
- **Acid-reducing yeasts**
  - ProMalic (*Lallemand*)
  - ML01
- **MLF**
Frontenac gris: Dessert wine

- Juice pressed and frozen
- Thawed to 34°Brix
- High-sugar yeast
  - L2226 (*Lallemand*)
- Sensory profile:
  - Rich, heavy mouthfeel
  - Honey, intense tropical fruit (pineapple, passion fruit, mango)
La Crescent

- Introduced 2002
- Swenson hybrid parent; Muscat Hamburg grandparent
- Harvest*: 
  - 24.3 °Brix
  - 3.02 pH
  - 12.6 TA
- Off-dry table wine; dessert

*5 years, n=13
La Crescent: Sensory

- Pale straw
- Germanic sensory profile
  - Lychee
  - Apricot
  - Peach
  - Citrus
- Acid-sugar synergy
La Crescent: Issues

- High acid
- High soluble solids
- Volatile retention
La Crescent: Table wine

- **Aromatic yeast**
  - Epernay, EC 1119, Fermiarom
- **Cool fermentation**
  - 55°F
- **Acid**
  - Residual sugar
    - 0.75 - 3 g/L
  - Amelioration
    - Sensory profile changes- culinary herbs, apple, pear
  - Schizosaccharomyces pombe
    - ProMalic (*Lallemand*)
La Crescent: Dessert wine

- Juice pressed and frozen
- Thawed to 34°Brix
- High-sugar yeast
  - EC 1118
- Sensory profile:
  - Similar to Riesling icewine
  - Apricot, honey, lychee
Marquette

- Introduced 2006
- Ravat 262 parent; Pinot noir grandparent
- Harvest*: 
  - 25.7 °Brix
  - 3.0 pH
  - 11.7 TA
- Red wine

*5 years, n=9
Marquette: Sensory

- Ruby
  - similar to *V. vinifera*
- Complex, well-balanced palate
  - cherry
  - black currant
  - black pepper
  - berry
  - spice
- Moderate tannins
Marquette: Issues

- Moderate acid
  - Potential pH/acid discrepancy
Marquette: Red wine

- Skin contact: 5-7 days
- Ambient fermentation (70°F)
- Yeast: Pasteur red, BM 45
- MLF
- Cold stabilization
- Oak aging
  - moderate or heavy toast
On the horizon...

- **White table wine selection**
  - non-aromatic
  - pear, apple palate
  - lower acid, mod. soluble solids
  - rich mouthfeel

- **Red table wine selection**
  - moderate tannins; lower acid
  - earthy, stewed fruit, black pepper, cedar
  - dark color; ages well
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