Wine Making and Iowa Wines

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The Cultivars

We have experience with 4 red wine grape cultivars

- **Marechal Foch**: French hybrid (FH), Cold hardy (CH), early bud break, vigorous, trailing growth habit, early ripening, moderately disease resistant.

- **Leon Millot**: (FH and sister seedling of Foch) crown gall susceptible.

- **St. Croix**: (Swenson Cv.) CH, late bud break, over crops, super vigor, trailing growth habit (?), later ripening - brix plateau.

- **Catawba**: (American), CH enough, late bud break, vigorous, long cane pruning, trailing growth habit, later ripening, fair disease resistance.
The Cultivars

We have experience with 2 white grape cultivars:

- **Seyval Blanc**: (FH), not hardy enough (considering the fan training system), buds break later than Foch, over crops, vigorous, moderately disease resistant, early ripening, semi-upright growth habit.

- **La Crosse**: (Swenson Cv.), CH, late bud break, super vigorous, semi-upright growth habit (trained on low cordon with VSP), good disease resistance, early ripening (pre-Foch).
The Cultivars — harvest characters

- **Marechal Foch**: 3-4 tons/A, high °Brix (24.5), controllable titratable acidity (TA) and pH, hints “blackberry”, low tannins, sun exposure to avoid “vegetable” character.

- **St. Croix**: 4+ tons/A, <21° Brix, risk high pH, hints “dark cherry”, better tannins and complexity, sun exposure necessary, over-ripening develops “musky” flavors.

- **Catawba**: 5+ tons/A, high TA, <17° Brix, “grapey”, occasionally an excellent “late harvest” wine.
The Cultivars –harvest characters

Foch ripening

- % Brix
- TA (g/l)

12-Aug  17-Aug  22-Aug  27-Aug  1-Sep  6-Sep
The Cultivars – harvest characters

St. Croix ripening

- % Brix
- TA (g/l)
- Brix plateau

12-Aug 17-Aug 22-Aug 27-Aug 1-Sep 6-Sep
The Cultivars – harvest characters

- **Seyval Blanc**: 4 tons/A, high °Brix controllable TA and pH, hints “pears” and “pineapple”, low solids, low phenolics, oak aging, reduced fresh fruit. 21.5° Brix, 3.02 pH, 9.5 g/l TA

- **La Crosse**: 5+ tons/A, controllable TA and pH, high phenolics and risk of enzymatic browning - requires a pressing aid, hints “peaches” and “apricots”, maintains fresh fruit, poor aging potential. 19.5° Brix, 3.32 pH, 11.85 g/l TA
Where is the Wine Made?

- **Grape production in the vineyard**
  - Degree of ripeness and uniform ripening, soundness, varietal and quality flavors.

- **Crush and pre-fermentation**
  - Temperature, leaves and stems, Asian lady bugs, SO$_2$ and enzymes.

- **Fermentation**
  - Yeast selection, temperature, _sur lie_, skin contact time, malolactic (ML), alcohol content.

- **Clarification, stabilization and aging**
  - Fining, oak exposure, residual sweetness, adjustments.
Marechal Foch Winemaking

- Marechal Foch winemaking tips:
  - Stems produce bitter tannins.
  - Four wines - four yeasts plus ML fermentation required (BM45 eg.).
  - Oak trials are important.

- Marechal Foch can be successful in several styles.
  - Light body using carbonic maceration.
  - Moderate body using acid-metabolizing yeast strains that also produce mouth feel components.
  - Extended contact, acid-metabolizing yeast and short lees, certain types of oak enhance Foch wines.
Foch Winemaking Research

- NY State wineries have had success, but NY Foch grapes can have much higher acids and “herbaceousness” at harvest than Iowa Foch grapes.
St. Croix Winemaking

- **St. Croix winemaking tips:**
  - ‘D254’ yeast
  - Extended skin contact
  - Super ML fermentation strain
  - Oak trials are important

- **St. Croix can produce full-bodied ("inky"), complex wines.**
ML fermentation of Foch and St. Croix

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<th>Initial</th>
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<th>Finished</th>
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<tr>
<td></td>
<td>pH</td>
<td>TA</td>
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<td><strong>Foch for Barn Dance</strong></td>
<td>2.88</td>
<td>10.8</td>
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<td><strong>St. Croix</strong></td>
<td>3.15</td>
<td>11</td>
<td>3.46</td>
<td>6.9</td>
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La Crosse Winemaking

- La Crosse winemaking tips:
  - Ripeness dramatically changes fruit character.
  - Yeast selection is critical to maintain fruit – ‘GRE’
  - Polyvinyl-polypyrrolidone (PVPP) treatments at crush, after pressing and at first racking to control enzymatic browning; watch color.

- La Crosse can produce a semi-sweet, moderate bodied cold fermented wine using yeast that enhances varietal characters.

- A *sur lie* table wine with slight oak contact is possible, but La Crosse aging is a problem.

- Award winning La Crosse wines are semi-dry.
Observations on Frontenanc

- Galena Cellars is producing Frontenac with character from grapes left on the vines two weeks after they were fully ripe.
- Galena port wine produced from these grapes was excellent.
Progress towards Making Iowa Wines with Regional Identity

- There is very little background information on performance of cultivars and evaluation of their wines in Iowa.
- It will take a 15 to 20 years of work to develop a wine that truly has regional identity.
- Iowa Foch and La Crosse wines have good character and are recognized as distinctive.
- St. Croix and Frontenac may require the heat units Iowa has to make wines with character –heat units that Minnesota does not have.