Joseph A. Fiola, Ph.D.
Professor and Specialist in Viticulture and Small Fruit
Western Maryland REC
Keedysville, MD
Premium Quality
“Specialty”
Value Added
Apple Products

Joseph A. Fiola, Ph.D.
Professor and Specialist in Viticulture and Small Fruit
Maryland Cooperative Extension
Marketing Strategy

• Grow raw product
• Process into “value added” product
  – high quality
  – niche market
• Sell direct retail
• Exploit agri-tourism market
Specialty Value Added Processed Products

Ice Wines
Specialty Apple Wines

Commercial Products

Pinnacle Apple Ice Wine
From $24.99

Niege Apple Ice Wine
Frimas
Niege eternelle
2003
Degel
Bulle #1
From $40.0
Specialty Apple Wines

Commercial Products

The Wine - Made exclusively from rare and exotic Asian Pears grown in Washington and Oregon. A.P. retains the crisp, subtle flavors of the fruit itself with hints of citrus and oak. Served chilled, it is outstanding alone, with appetizers, or paired with seafood, poultry or Asian cuisine.

Windfall Winery
P.O., Box 1736
Friday Harbor, WA 98250
Specialty Apple Wines

- Surplus fruit
- Inferior quality:
  - size
  - blemishes
  - ripeness
  - “drops”
Specialty Apple Wines

Blending Apple “Types”

“Sweet” varieties – sweet balance

“Acid” varieties

“Bitter” varieties – tannin, phenols, bitterness
‘Gravenstein’, ‘Bulmer’s Norman’, ‘Roxbury Russet’

Asian Pears
• Organic and conventional
Specialty Apple Wines

Cider Varieties

Robin & Mike Miller
Distillery Lane Ciderworks
Burkittsville, MD
8A cider apples

Bulmer’s Norman
Themlett’s Bitter
Redfield
Roxbury Russet
Cox’s Orange Pippin

Ellis Bitter
Kingston Black
Gravenstein
Jeffries
Specialty Apple Wines

Top-Work Trees

Cleft grafts

Cross-section of a stock or scion or limb showing the location of the important cambium layer.

Cross-sections, looking down on cleft grafts. On left, scions are wrongly placed since the cambiums of scion and stock are not in contact, although the outside surfaces are flush or even. The stock bark is thicker. On right, note the scions are in far enough that the cambium layer contacts the cambium of the stock.
Specialty Apple Wines

Top-Work Trees - *Cleft grafts*
Specialty Apple Wines

Cryo-Concentration

- Freeze apples - blend
- Press while still partially frozen
  - clear pressed juice
- Re-freeze pressed juice
  - container with spigot/valve
- Drip off while defrosting
  - collect juice concentrate
  - eliminate water
Specialty Apple Wines

Experimental Products

Blending Apple “Types”

• “Sweet” varieties – sweet balance
• “Acid” varieties
• Cider or “bitter” varieties
  – ‘Bulmer’s Norman’, ‘Roxbury Russet’
Specialty Apple Wines

Cryo-Concentration
Specialty Apple Wines

Cryo-Concentration Press
Specialty Apple Wines

Cryo-Concentration
Specialty Apple Wines

Cryo-Concentration

Ice (water)

Concentrate

Drip Concentrate
Specialty Apple Wines - Cryo-Conc Products

Jacketed Tanks
Specialty Apple Wines

Cryo-Concentration

• Advantages
  – Increased sugar
    • “natural” sugars
  – Concentrate flavors
    • volatile components
  – Concentrate nutrients
  – Clarity
  – All natural
  – Use more apple juice!
Yeast Choices

Dry and Semi-Sweet Wines
D254, CY3079  Mouth feel, bouquet

Semi-Sweet and “Ice” Wines
R2, D80,  Cold ferms, sugar tolerance,
DV10, BA11  alcohol tolerance

• Donated by Scott Labs and Lallemand
Specialty Apple Wines

Cryo-Concentration

Barrel Fermented

Glass Fermented
Specialty Apple Wines

Cryo-Concentration

Balance is Critical

Stop fermentation at correct sugar/acid balance
Specialty Apple Wines

Experimental Products

- Hard cider
  - flavored
- Dry white-Burgundy style wine
  - barrel fermented
  - French or American oak (chips)
- Semi-sweet “fruity” style – “Blush”
- “Ice wine” or Dessert styles
  - cryo-concentrated
    - White Port
    - Madeira or Sherry
      - Controlled maderized
Value Added Apple Products

Experimental Products

- **Dry white-Burgundy style wine**
  - Fresh press from frozen/defrosted apples
    - Blend of Gala, Macs, Gold Delicious
    - Capitalized from 15° to 21° Brix
  - Barrel fermented to dryness (>1% RS)
    - 3 year old “neutral” American
    - White-Burgundy yeast strain
  - French or American oak “chips”
  - No ML fermentation

AWS Bronze Medal Winner – 2003
Specialty Apple Wines

Experimental Products

• Off-dry “fruity” style
  – True apple varietal character
  – Blend of 3 types of apples
  – Cryo-concentrated from 15° to 21° Brix
  – Glass fermented
  – BA11 yeast strain
  – No ML fermentation
  – Blend for “Blush wine”

AWS Silver Medal Winner – 2004, 07
New Experiments

- Asian Pear
  - multiple genotypes
  - Organic and conventional
  - R2, DV10 and BA11 yeast
  - Blending experiments
    - post fermentation
Specialty Apple Wines

Experimental Products

• “Ice wine”
  – Cryo-concentrated from 14° to 28° Brix
  – Ferment with R2 “ice wine” yeast
  – Stop fermentation at 12-13° Brix RS
    • 8-9% final alcohol
    • optimal sugar/acid balance

AWS Silver or Gold Medal Winner – 2003-2007
Specialty Apple Wines

Experimental Products

• “Ice Madeira”
  – Cryo-concentrated from 14° to 28° Brix
  – Ferment with R2 “ice wine” yeast
  – Stop fermentation at 12-13° Brix RS
    • 8-9% final alcohol
    • optimal sugar/acid balance
  – Maderized
    • 2 weeks at 138F
  – Fortify
    • Or start with higher sugars and ferment to high alcohol

Specialty Apple Wines

Experimental Products

• “Ice Port”
  – Cryo-concentrated from 14° to 32° Brix
  – Ferment with R2 “ice wine” yeast
  – Stop fermentation at 12-13° Brix RS WITH ETOH
    • 16-17% final alcohol
    • optimal sugar/acid balance

Specialty Apple Wines

Experimental Products

Calculations/Economics$

- 5 bu. = 220 lb. ($0.10/lb in 2011)
- 225 lb = 18 gal @ 15° Brix
- cryo-conc 18 to 8 gal fermented @ 28 Brix
- 7 gal final “ice wine”
- 7 gal = 35 x 750ml
  or 70 x 375 ml bottles
- price? If sold for $15 for 375
- = $1050 gross (from $22 worth of apples!)
Specialty Apple Wines

Commercial Ventures in MD

• Great Shoals Winery -
  26431 Mason Webster Road, Princess Anne, MD 21853
Specialty Apple Wines

Commercial Ventures in MD

• Distillery Lane Ciderworks - Burkittsville, MD

http://ciderapples.com/
Funding Sources

- Maryland Horticultural Society
- Apple Promotion Board
- UMD Agricultural Experiment Station
- University of Maryland Extension
- Scott Labs and Lallemand Inc.

The researchers thank you for your continued support!
“Wine Makes daily living easier, less hurried, with fewer tensions, and more tolerance.”

Benjamin Franklin
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