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MARYLAND

EXTENSION

Solutions in your community

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.

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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





Visit Us



Products



Rec



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Cidery

La FACE
CACHÉE
de la
POMME



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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.

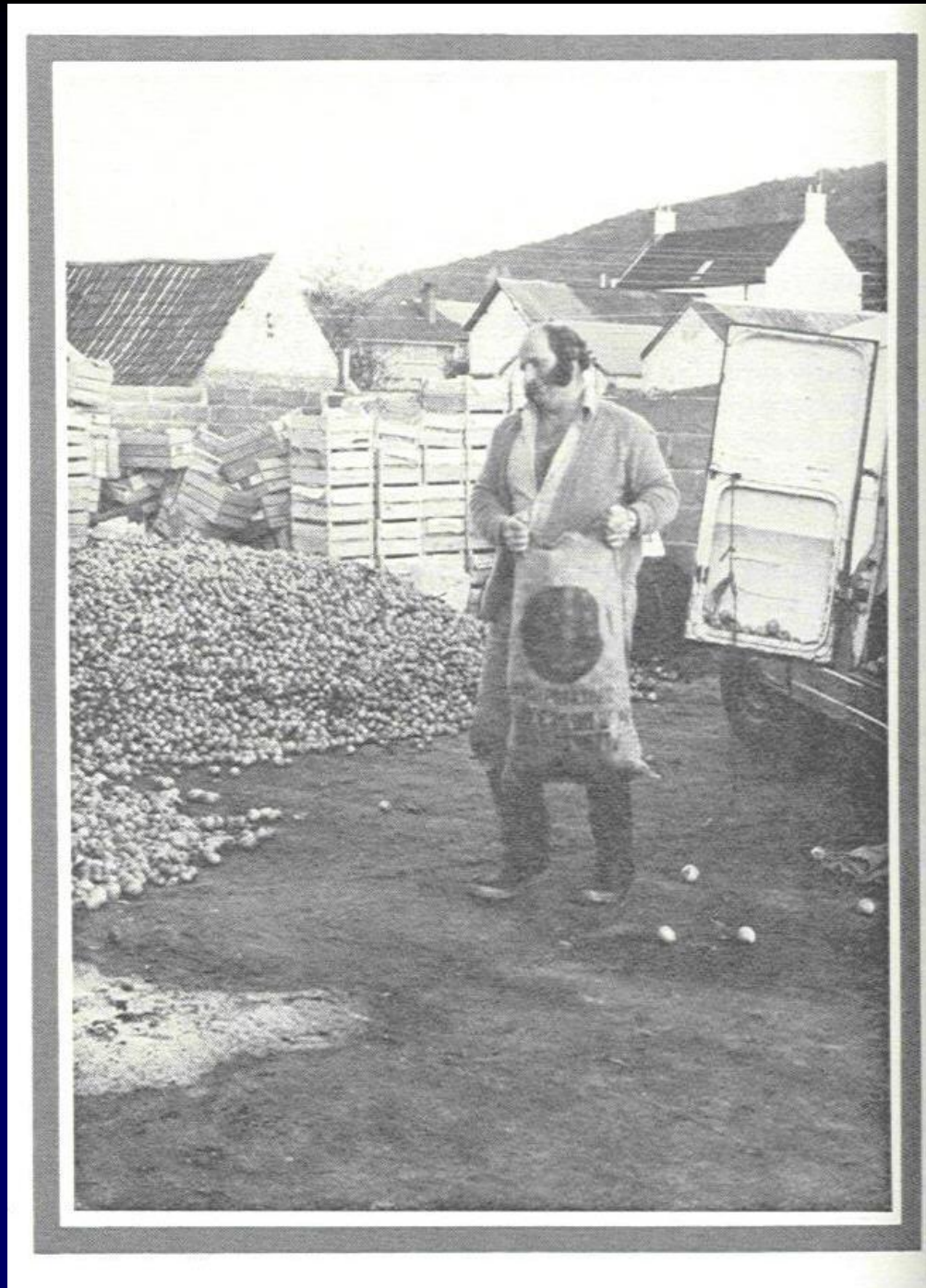
Windfall Winery
P.O., Box 1736
Friday Harbor, WA 98250



Specialty

Apple Wines

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



Blending Apple “Types”

“Sweet” varieties – sweet balance

‘Gala’, ‘Mac’ types, ‘Liberty’, ‘Freedom’

“Acid” varieties

‘Gold Rush’, ‘Granny’, ‘Fuji’, ‘Stayman’

“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

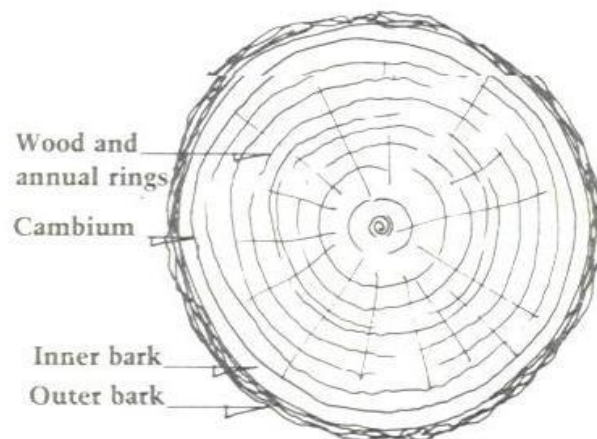
Gravenstein

Jeffries

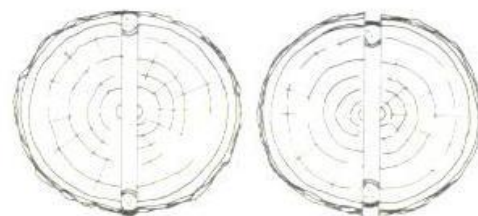


Specialty Apple Wines

Top-Work Trees Cleft grafts



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

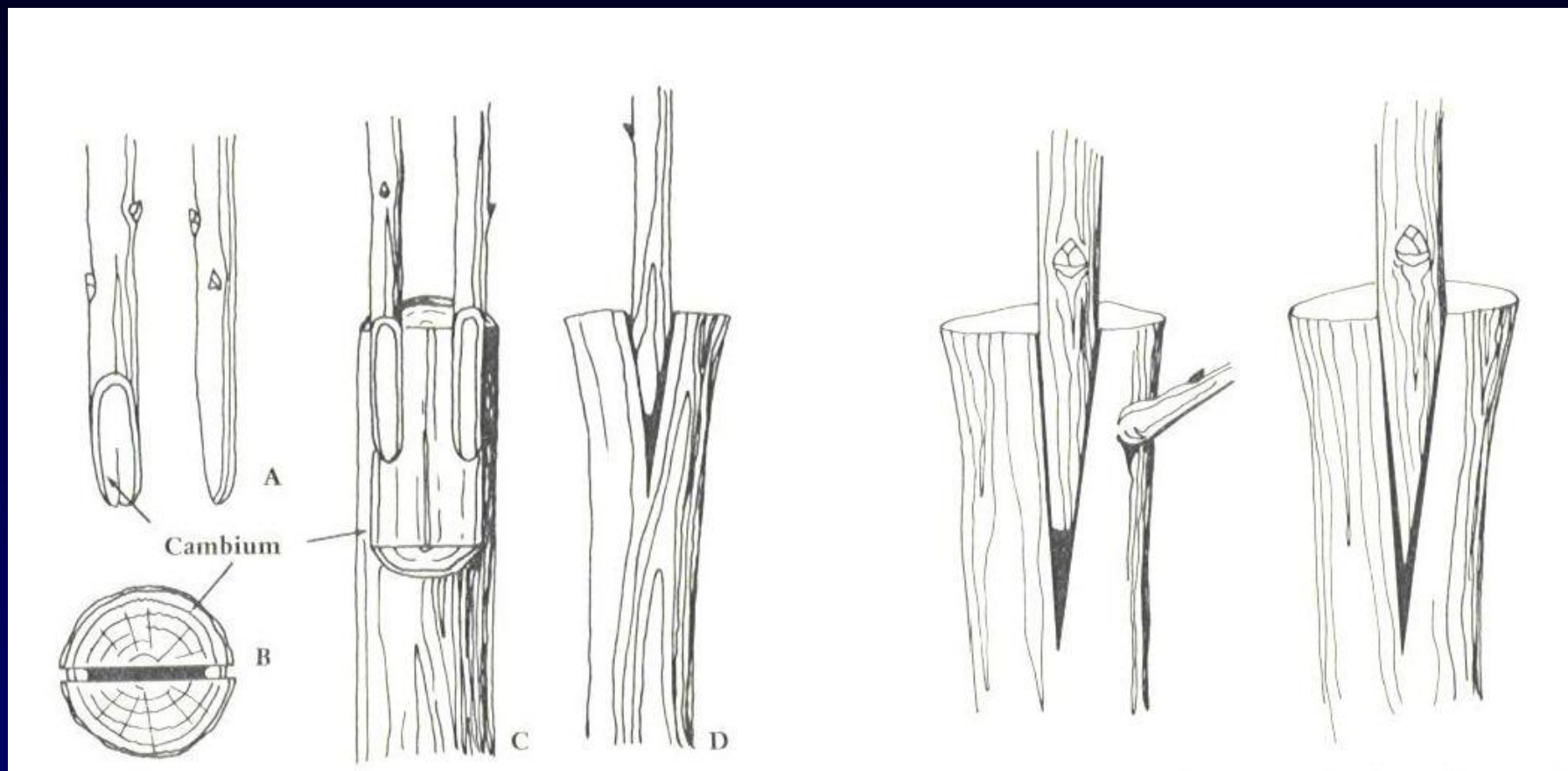


Cross-sections, looking down on cleft grafts. On left, scions are wrongly placed since the cambiums of scion and stock are not in contact, although the outside surfaces are flush or even. The stock bark is thicker. On right, note the scions are in far enough that the cambium layer contacts the cambium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



Specialty Apple Wines

Top-Work Trees - Cleft grafts



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



Experimental Products

Blending Apple “Types”

- “Sweet” varieties – sweet balance
 - ‘Gala’, ‘Liberty’, ‘Freedom’
- “Acid” varieties
 - ‘Gold Rush’, ‘Granny’, ‘Fuji’
- 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

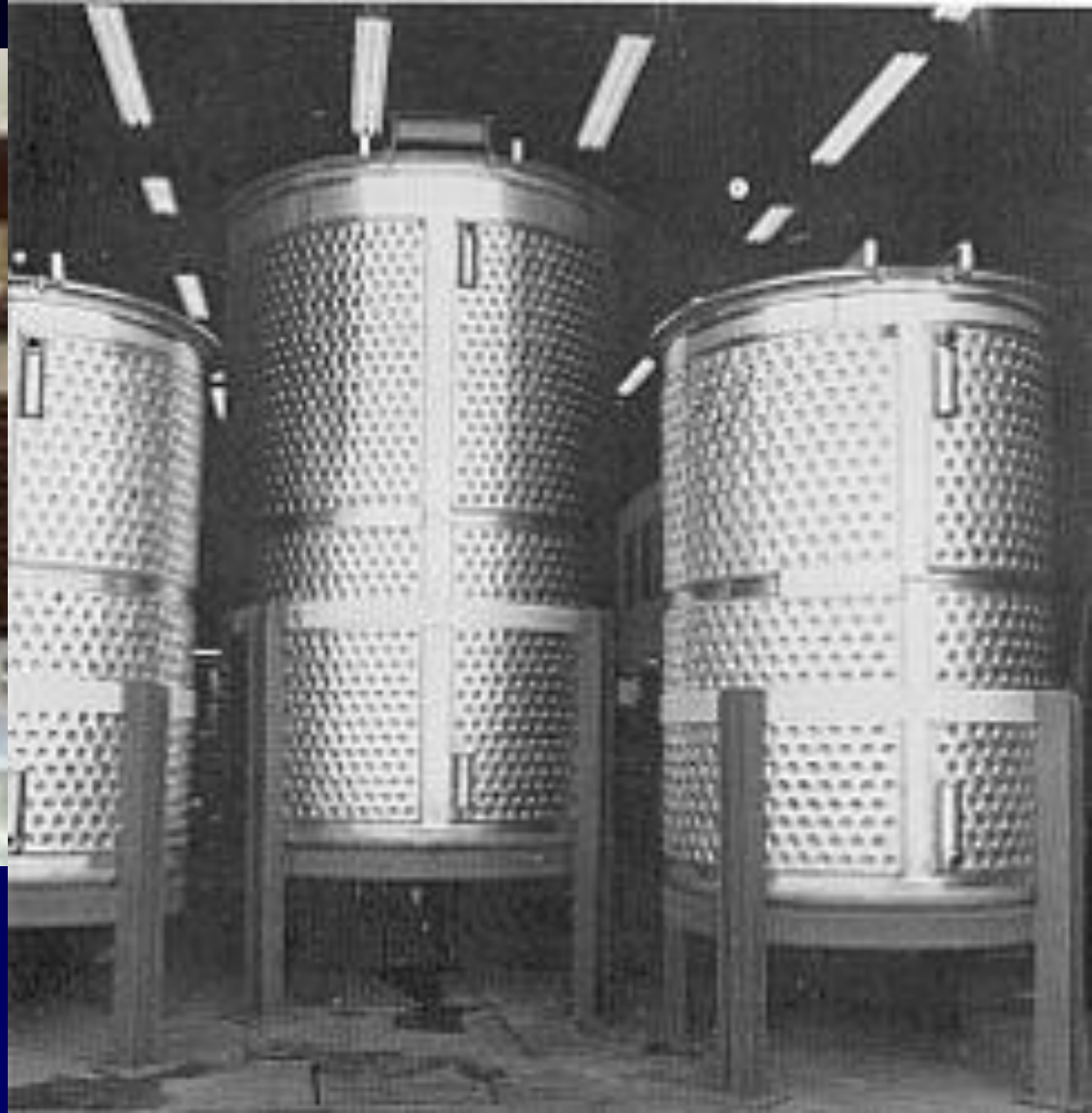
Ice (water)

Concentrate

Drip Concentrate



Specialty Apple Wines - Cryo-Conc Products



Jacketed
Tanks



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 Lallemmand



Specialty Apple Wines

Cryo-Concentration



Barrel Fermented



Glass Fermented



Specialty Apple Wines

Cryo-Concentration

Balance

is Critical

Stop fermentation at
correct sugar/acid balance



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



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



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



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



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



AWS Silver Medal Winner – 2006 - 2007

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



AWS Silver Medal Winner – 2006 - 2007

Experimental Products

Calculations\Economics\$\$\$

- 5 bu. = 220lb. (\$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

Heyser Farms'
SPENCERVILLE RED
HARD APPLE
Crisp & Refreshing

GREAT SHOALS
Apple Sparkling
Traditional Method
GREAT SHOALS

Heyser Farms'
SPENCERVILLE RED
HARD APPLE
Crisp & Refreshing
Apple Wine

GREAT SHOALS
Pomme Grenade
Dry Champagne - an Apple Sparkling Wine
Traditional Method

T.S. Smith's
BLACK TWIG
HARD APPLE
DELAWARE
Alc. 8.0% by Volume
Crisp & Refreshing
Apple Wine

BOSC & BARTLETT
HARD PEAR
Pear Wine



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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