


WASHINGTON STATE UNIVERSITY
EXTENSION

Lecture 13 – Winery Establishment

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Growing a Winery

Assumptions

- Oriented toward development of smaller wineries
- Grow from the ground up to production
- Decisions are needed before you start
- Equipment considerations
- How to maintain the winery

Who,What,Why,Where,How

- Small winery = 5,000 cases
- Why are you investing in this industry?
- What kind of wine do you want to make?
- What is the source for your grapes?
- What kind of wine will sell?
- How much will you charge?

Site Considerations

- Winery Location City vs. County
- Electric Service Voltage, Phase, kW
- Water Supply Municipal vs. Well
- Waste Stream Municipal vs. Private

Conversions

- 70 cases per ton of grapes¹
- 175 gallon wine per ton of grapes (73cases)
- 1 ton refrigeration per 20 ton grapes²
- 4 BTU per gallon-hr of wine²
- 1 ton refrigeration per 600ft² of cellar²
- 1 hp = 1 ton refrigeration (air conditioning) ²
- 1 hp = 0.7 ton refrigeration (glycol) ²
- 1 hp = 746 Watts³

¹Follwell, RJ, TA Bales and T. Ball. 2002. Investment and operating costs of a winery. Dept of Ag Economics, WSU.
²RTI Inc
³Storm, DR. Winery Utilities, Planning, Design and Operation. 2000. Aspen, MD.

Equipment Inventory

- Receiving
- Cellar
- Refrigeration
- Cooperage
- Bottling
- Material Handling
- Office and Labs
- Tasting Room



Follwell, RJ, TA Bales and C Edwards. 2000. Cost of Investment and Operation In Various Sizes of Premium Table Wine Wineries in Washington. WSU XB1038.

Receiving Equipment



- Hopper
- Stemmer Crusher
- Press
- Must Pump
- Must Lines

Cellar and Tank Equipment



- Fermentation Tanks
- Storage Tanks
- Tank Mixer
- Transfer Pump
- Transfer Hose
- Barrel Washer
- High Pressure Washer
- Filters
- Laboratory Equipment





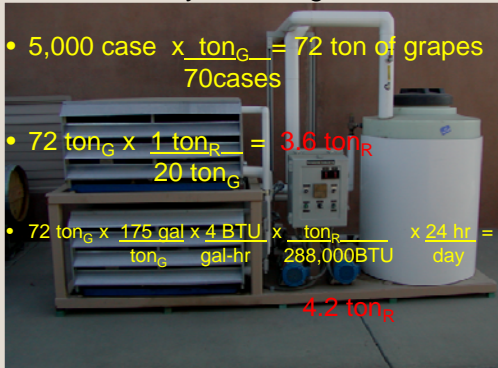


Refrigeration

● Receiving	● Freon/Glycol System
● Cellar	● Tanks:
● Refrigeration	<u>1 ton_R</u> x <u>1 ton_G</u>
● Cooperage	20ton _G 70cases
● Bottling	● Cellar
● Material Handling	1 ton _R per 600ft ²
● Office and Labs	● Match the System
● Tasting Room	20% oversize maximum

Refrigeration Technology Inc. Middletown, CA.

Freon - Glycol Refrigeration Skid



- $5,000 \text{ case} \times \frac{\text{ton}_G}{70 \text{ cases}} = 72 \text{ ton}_G$ of grapes
- $72 \text{ ton}_G \times \frac{1 \text{ ton}_R}{20 \text{ ton}_G} = 3.6 \text{ ton}_R$
- $72 \text{ ton}_G \times \frac{175 \text{ gal}}{\text{ton}_G} \times \frac{4 \text{ BTU}}{\text{gal-hr}} \times \frac{\text{ton}_R}{288,000 \text{ BTU}} \times \frac{24 \text{ hr}}{\text{day}} = 4.2 \text{ ton}_R$

Cooperage



- Barrels (60.4 gal)
1 or 2 vintages?
25.4 cases per barrel
- Racks
2 Barrels per Rack
- 1 Bung per Barrel
Aging vs Fermentation
- Refrigeration

Filtering and Bottling



- Custom/
Mobile
- Semi-auto
- Automatic
- Sterile Filters
- Case Storage



Handling Equipment



- Pallet Jack
- Hand Cart
- Fork Lift
- Bin Dumper
- Truck

Offices, Labs, Utilities

• Receiving	• Office
• Cellar	• Furnishings
• Refrigeration	• Land
• Cooperage	• Building Insulation
• Bottling	• Communications
• Material Handling	• Electric Service
• Office, Lab, Utility	• Natural Gas Service
• Tasting Room	• Water and Waste

Follwell, RJ, TA Bales and C Edwards. 2000. Cost of Investment and Operation In Various Sizes of Premium Table Wine Wineries in Washington. WSU XB1038.

Tasting Room



- Site
- Furnishings
- Cold Storage
- Stemware
- Catering
- Dishwasher

Details

- Functionality
- Waste Water Management
- Grading Floors and Drains
- Corrosive Resistant Fixtures
- Safety: Railings, Stairs, CO₂ Monitors
- Services for Future Expansion
- Study Other Wineries

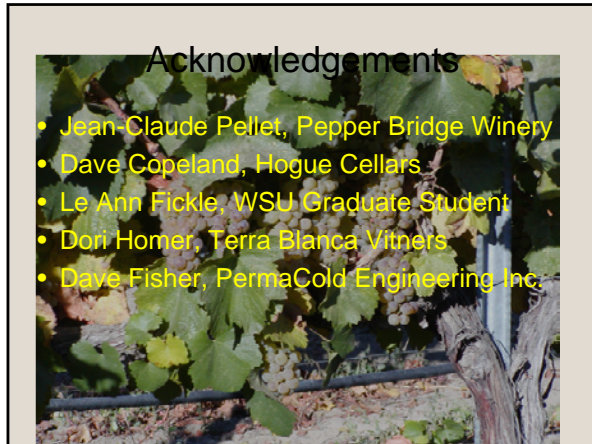


Courtesy of Jean Francois Pellet, Pepper Bridge Winery

What to Watch For



- Portable Applications
- Seasonal
- Outdoor Equipment
- Motors
- Pumps
- Hoses
- Tanks
- Fork Lifts
- Equipment Selection
- Preventative Maintenance
- Follow Protocols
- Standard Operating Procedures
- Safety Training
- MSDS



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