

Fundamentals of Viticulture



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Economic Considerations

■ Market

- Sold to a winery or other processor
- Contract
- What cultivars will they accept
- Price



Economic Considerations

- Other possible outlets
 - Farmers market or roadside stand
 - Area stores, markets, restaurants
 - Pick-your-own
 - Near a population center
 - Good public access
 - Near a local attraction
 - Is the vineyard/production site attractive



Economic Considerations

- How long can you wait to recover your investment cost?
 - 5 years
 - 7 years
 - 10 years
- Can cost be reduced without sacrificing QUALITY ?
- How much time can you commit



Economic Considerations

- Do Your Homework
 - Read books, trade and scientific journals
 - Visit successful vineyards and wineries
 - Attend workshops, seminars, classes
 - Talk to other growers
 - Internet (pros/cons)
 - Develop a business plan



Economic Considerations

■ Assumptions

- No land costs are included
- Have the necessary equipment
- Planting proven cultivars
- All labor is paid at skilled laborer rates
- Trellis will be a standard 2-wire system
 - Additional cost for GDC/VSP or other system



Economic Considerations

■ Assumptions

- Machinery costs are operating cost only
- Planting space, 8 feet apart in row, rows 10 feet apart (= 545 vines/acre)
- Treated wooden post, 12.5 gauge high tensile wire & appropriate hardware
- Grass alleys, herbicide treatment under vine
- No interest is included



Economic Considerations

Adapted from
“Costs of Establishing a
Wine Grape Vineyard”
by Bruce Bordelon
Purdue University
Figures are adjusted for
inflation and location



Cost

■ YEAR ONE	Cost/Acre
■ Site preparation	\$ 166
■ Plants and planting	2,398
■ Trellis materials & installation	1,670
■ Weed, disease and insect control (includes mowing row middles)	473
■ Fertilizer, canopy management and machinery operating costs	1,010
■ TOTAL YEAR ONE	\$ 5,717



Cost

<u>■ Year two</u>	<u>Cost/Acre</u>
■ Pruning, replanting and canopy management	\$ 447
■ Weed, disease & insect control	339
■ Fertilizer and machinery operating costs	294
Total Year Two	\$ 1,080



Cost

■ YEAR THREE	<u>Costs/Acre</u>	
■ Pruning and canopy mgt	\$	542
■ Weed, disease & insect control		442
■ Fertilizer & machinery operating costs		347
■ Harvest cost estimated per ton \$150		150
Total Year Three	\$	1,828
THREE YEAR TOTAL	\$	8,625



Return

Based on one acre and market value
of 50 cents per pound.

Year 1	\$ 0.00
Year 2	\$ 0.00
Year 3	\$1000.00
Year 4	\$3000.00
Year 5	\$4000.00
Year 6	\$5000.00
Year 7	\$5000.00



Return

	Expenses	Income
Year 3	\$ 8625.00	\$ 1000.00
Year 4	\$ 10753.00	\$ 4000.00
Year 5	\$ 12681.00	\$ 8000.00
Year 6	\$ 14709.00	\$ 13000.00
Year 7	\$ 16537.00	\$ 18000.00



Conclusions

- Commitment, time and money
- Self gratification or accomplishment
- Do your own business plan



Site Selection

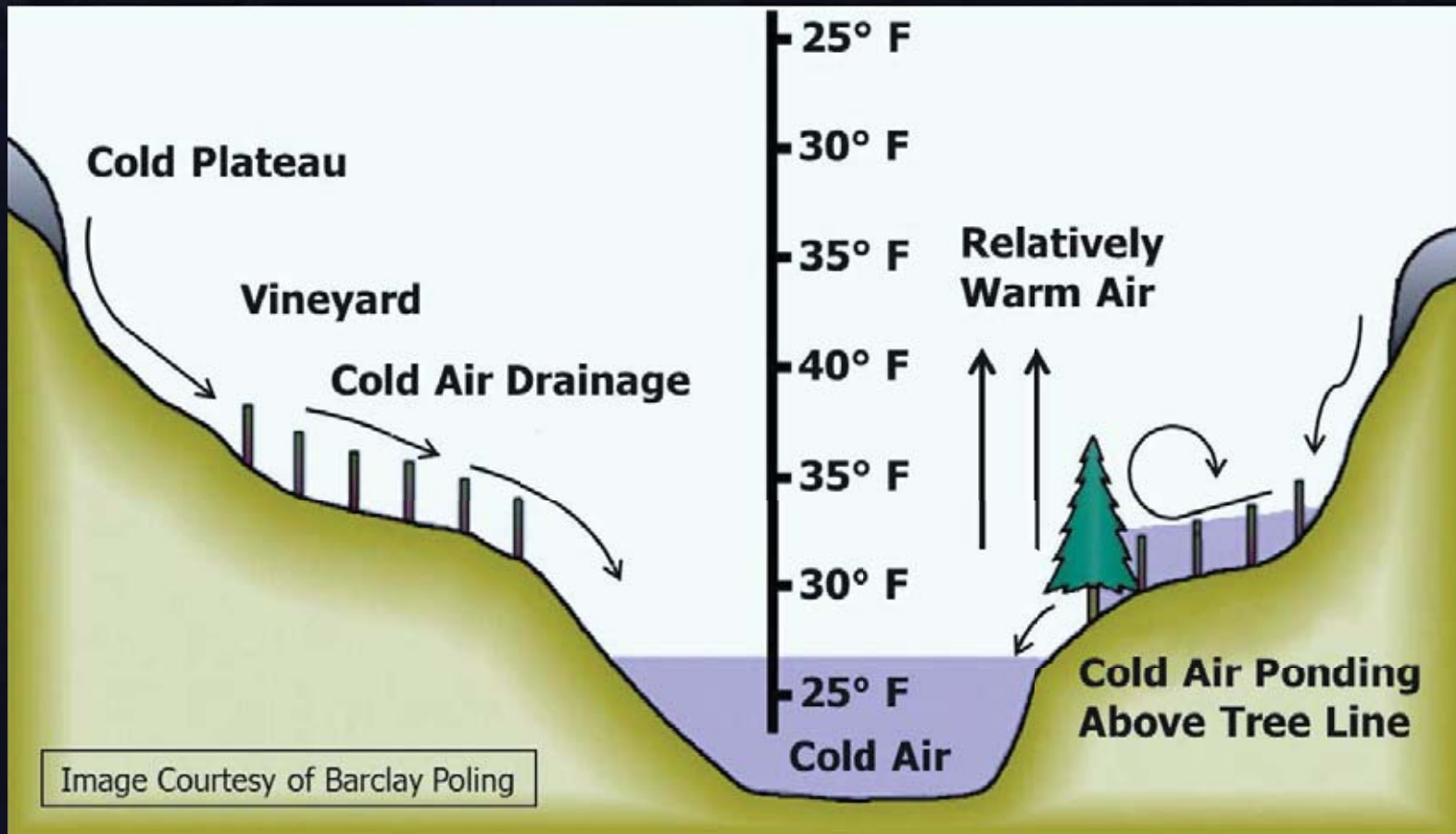
Site Selection

Select a site with good **AIR DRAINAGE**

- Cold air is heavier than warm air
- Cold air flows downward and settles in low areas
- A 3-5 degree difference may save your crop
- Gradually sloping site higher than the surrounding terrain
- A tree or brush line will form a frost pocket



Site Selection



Site Selection

- Surface Water Drainage
 - Water shouldn't stand for more than a day
 - 2-5 percent slope
 - Internal Water Drainage
 - Check for Impervious layers
 - Hole drainage
 - 8 hours very good
 - Over 48 hours poor



Site Selection

■ Soil Fertility

- Reasonably fertile (Do soil sampling)
- Has not had excessive erosion of top soil
- Has favorable pH, organic content, texture
- No impervious layers near surface
- Soil depth of at least 3 feet



Site Selection

■ Fertility

– More isn't better

- Organic matter 1 to 3%
- pH 5.5 – 7
- Phosphorous (P) 20 – 50 ppm
- Potassium (K) 125 – 150 ppm



OPTIMAL SOIL CHARACTERISTICS

Soil Characteristic	Desired Values ^(a)
pH _w	5.5-6.5 *
Organic Matter	2-3%
Phosphorous (extractable)	40-50 lbs./A
Potassium (exchangeable)	250-300 lbs./A
Magnesium (exchangeable)	200-250 lbs./A
Boron (extractable)	1-2 lbs./A
Zinc (extractable)	8-10 lbs./A

^a Source: Dami, et al., 2005

- Commonly preferred soil pH_w values are 5.5 to 6.0 for *Vitis labrusca* cultivars, 6.0-6.5 for hybrid cultivars, and 6.0-7.0 for *vinifera* cultivars.



Site Selection

- Exposure
 - Orientation
 - Wind direction
 - Tree lines
 - Isolation
 - Access
 - Herbicide drift
 - Water source

