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“The Wine is made in the Vineyard”
Parameters which influence fruit development and ripening

- No Control
  - Climate
  - Soil
  - Precipitation
  - Irrigation

- Management of:
  - Nutrition
  - Canopy
  - Crop Level
  - Pests
  - Harvest Timing
Canopy Management

Sunlight into Wine!
Shaded fruit …
2 weeks later maturity

Increased light and temperature helps fruit to mature
Canopy Management Basics

Benefits of Proper Canopy Management

- Fruit Exposure
  - Uniform Ripening
  - Decreased Disease
  - Increased Color
  - Decreased Acidity
  - Increased Volatiles

- Vine Balance
  - Vigor management
- Bud Fruitfulness
- Uniform Bud Break
- Uniform Shoot Vigor
- Ease of harvest
Parameter: Nutrition

- High N
  - high vegetative vigor (-)
  - increase K in fruit
  - delay harvest (-)
Canopy Management and Potassium (K)

- High vigor (increase in K uptake)
  - Increased shading in canopy
    - Decreased photosynthesis
      - No sugar but (increased) K moves from leaf to fruit (K loading)
        - increases K in fruit
          (higher the shading higher the K)
Canopy Management and Potassium (K)

K in leaf moves to fruit

→ increases K in fruit

→ increased pH ( + malate)

+ decreased TA ( - tartrate)

→ decreased wine quality and stability
Botrytis Rot

- Destroys anthocyanins
- Oxidative spoilage
  - Lacase enzyme
    - SO2 insensitive
- Destroys varietal character and volatiles
- Communicates off flavors
Canopy Management Basics

“Sunlight into Wine”
Good Fruit Exposure
Canopy Management Basics

High Cordon Training
Canopy Management Basics

Open Lyre;
Geneva Double Curtain
Head Train and Cane Pruned

Pros:
• Improved bud fruitfulness
• Larger crop
• Renew fruiting wood each year
• Less old wood
• SH and high wire roll-over

Cons:
• Fruitfulness and yields
• Mid-cane weak/blind buds
• Requires more skill and judgment
• Slower and more expensive
• Cannot mechanical pre-prune
Cordon Trained and Spur Pruned

Pros:
- Smaller berries/clusters
- Fewer clusters
- Looser clusters?
- More even shoot/fruit distribution
- Easier and faster to prune
- Less skilled labor req.
- Mechanical pre-prune
- Increased carb storage

Cons:
- Smaller berries, cluster, smaller crop
- Climbing spur positions
- More old wood that may harbor trunk/foliage/fruit diseases
- Replacing cordons
- Big pruning cuts
- Added vine vigor due to increased carbohydrate storage?
Reactive – Leaf pulling
Reactive - Shearing
How much of a good thing?
Canopy Management Basics

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It takes more than grapes to make a vintage wine.

Maryland Quality Wine Alliance
No Nation is drunken where wine is cheap, and none sober, where the dearness of wine substitutes ardent spirits as the common beverage...

Thomas Jefferson