Canopy Management for Promising Hybrid Grapes

Paul E Read

Stephen Gamet

University Of Nebraska Viticulture Program
http://agronomy.unl.edu/viticulture
Concept

“Canopy management is the practice which results in the modification of position or amount of leaves, shoot, and fruit in space to achieve a desired arrangement.”

Dr. Richard Smart, co-author of *Sunlight into Wine*
Principles Are The Same As For Vinifera Except

- Trellis selection
- Vigor of hybrids
- Soil fertility
Trellis Types

- Selection is dependent on
  - Soil fertility
  - Plant vigor
  - A plant’s growth tendencies
Trellis Type

- Upright plant growth
  - Low wire system
    - Vertical shoot positioning (VSP)
      - Scott Henry
      - Smart Dyson
- Trailing plant growth
  - High wire system
    - High cordon
      - Geneva Double Curtain (GDC)
Vine Canopy

- Shoot System
  - Stems
  - Leaves
  - Fruit clusters
Canopy

- Described as
  - Length
  - Height
  - Width
  - Leaf area
  - Number of leaf layers
  - Shoot density
Shoot Density

- Is referred to by
  - The number of shoots per foot of row or foot of canopy
Benefits of Canopy Management

- Maximizing sunlight interception
- Increased air movement
- Improved spray penetration
- Improved fruit composition and varietal character
- Increased bud fruitfulness
- Improved winter hardiness
Five Major Steps in Canopy Management

1. Shoot thinning
2. Shoot positioning
3. Cluster thinning
4. Leaf removal
5. Shoot hedging and skirting
Shoot Thinning

- Removal of excess shoots
  - On the trunk
    - One or two maybe left on the trunk for replacement
  - On the cordon
    - Unfruitful shoots are removed unless needed for spur renewal
Shoot Thinning

- Four to six shoots per foot along the cordon
  - 8 ft spacing, 32 to 48 shoots per vine single curtain/high cordon
  - 64 to 96 for divided canopy (GDC)
Shoot Thinning

- Best done when shoots are 1 to 3 inches for the ones on the trunk and 6 to 12 inches for those on the cordon.
- Done after the last chance of a spring frost
Shoot Positioning

- Ideal world - shoots are parallel to the trunk
- Real world - they grow parallel to the cordon with tendrils attached to the cordon wire
- Shoot positioning discourages lateral and horizontal growth
Shoot Positioning

- **Tucking**
  - Generic term for positioning shoots upward
  - Used on
    - Low wire systems such as vertical shoot positioning (VSP)

- **Combing**
  - Generic term for positioning shoots downward
  - Used on
    - High cordon
    - Geneva double curtain (GDC)
Shoot Positioning

- Combing/tucking
  - Used on
    - Vertically divided canopies
      - Scott Henry
      - Smart Dyson
Shoot Positioning

- **When**
  - As soon as possible after bloom
  - And when shoots develop enough to avoid snapping or breakage
Cluster thinning helps promote long term benefit to the well-being and life span of the vineyard.
Cluster Thinning

- Some Cultivars may require cluster thinning
  - Seyval
  - Chancellor
  - Vidal
  - Chambourcin
  - Frontenac
Cluster Thinning

- **When**
  - Two times
    - Pre Bloom
      - Removal of flower clusters
    - Post Fruit Set
      - Berry set will be less per cluster than Pre Bloom thinning
      - More time consuming
      - Yield, sugars, vine size and hardiness may be improved
Cluster Thinning

- Post Fruit Set Thinning
  (75% canopy development)
  - Remove all clusters from shoots less than 12 inches long
  - Leave one cluster per shoot for shoots 12 inches to 24 inches long
  - Leave two clusters per shoot for shoots more than 24 inches long
Leaf Removal

- Two goals to be accomplished
  1. Improved air movement and spray penetration
  2. Improve sunlight exposure to the fruit and basal buds
Leaf Removal

- On the sunny side of the canopy: is completely avoided or very minimal.
- On the shady side of the canopy: Two or three leaves are removed around the base of each shoot or cluster.
Leaf Removal

- Should be performed after fruit set.
- Should be avoided after véraison as this may lead to fruit sunburn.
Shoot Hedging and Skirting

- Removal of shoots that grow beyond their allocated space.
  - Hedging
    - Used on upward trained shoots (VSP, Smart Dyson or Scott Henry)
  - Skirting
    - Used on downward trained shoots (High Cordon or Geneva Double Curtain)
Shoot Hedging and Skirting

- When
  - Shoots grow beyond their allotted space
  - They impede daily vineyard practices
  - Should not be done after véraison
Cheers!!!