What about “VSP”?  

Vertical Shoot Positioning is a canopy management action, not a training system.
Guyot training

- Requires a single “bearing” wire
- Requires 2-3 pairs of “catch” wires
- Typically 6 foot posts
Guyot Growth, Training & Pruning

- 1st bearing year, after pruning (3-4 years old)
- All 1 year old canes
Guyot Growth, Training & Pruning

• 1st bearing year – early shoot growth
Guyot Growth, Training & Pruning

• 1st bearing year – after suckering & defruiting
Guyot Growth, Training & Pruning

• Vertical Shoot Positioning – tucking shoots
Shoot positioning

Before

After
Hedging

Before

After
Leaf removal

- None
- East side only
- East and West
Guyot Growth, Training & Pruning

• 1st bearing year, at harvest
Guyot Growth, Training & Pruning

- 1st bearing year – mature canes after leaf drop
Guyot Growth, Training & Pruning

- 2\textsuperscript{nd} bearing year, long cane pruning to renew
Guyot becomes... Mid-wire cordon (typically VSP)

• 2nd bearing year – spur pruning on cordons
Guyot / Mid-Wire Cordon Training

**Advantages**

- Ease of establishment
- Adaptable to mechanical pruning
- Little tying required
- Aesthetic

**Disadvantages**

- Crowded and shaded
- Fruiting on large vines
- Nodes on fruiting spurs may be of lower quality
Low Cordon Training

Fig. 13. A Low-Cordon training system.
<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Utilizes radiant heat to promote ripening</td>
<td>• Difficult labor close to ground</td>
</tr>
<tr>
<td>• Adaptable to mechanical pruning</td>
<td>• Increased weed management inputs</td>
</tr>
<tr>
<td>• Low renewal zones benefit from snow cover or mulch to avoid winter injury</td>
<td>• Soil residues on fruit</td>
</tr>
<tr>
<td></td>
<td>• Spring frost susceptible</td>
</tr>
<tr>
<td></td>
<td>• Increased pest predation</td>
</tr>
</tbody>
</table>
Pendlebogen Training

“arched cane”
Pendlebogen Training

Advantages

• All of the advantages of Guyot, plus....

• Arching of canes gives better vertical distribution of the fruit

• Combats apical dominance

• Relatively fewer ties / vine than Guyot

• Allows spur pruning for next 1-2 years

Disadvantages

• More challenging if fruiting wires are low to the ground

• Arched canes are less adaptable to mechanical pruning
Fan Training

Fig. 6. The Fan training system which provides maximum flexibility in response to frequent winter injury.

- twine ties
- loose twist 'em ties
- multiple trunks will be a combination of older trunks and trunk renewal canes
- remove shoots from nodes low on the trellis at the time of suckering if they are not needed for fruiting
- retain renewal spurs near the ground for new trunks
Fan Training
# Fan Training

## Advantages
- Highly adaptable
  - Adjust to nearly any other system
- Easily learned
  - Minimal jargon
- Facilitates “spare parts”
  - Risk of cold injury among more structures

## Disadvantages
- Tying requirements
  - Annual
- Not adaptable to mechanization
  - Pruning
  - Shoot positioning
  - Leaf removal
  - Harvest
- Fruit is difficult to find during manual harvest
Divided canopy systems

Systems for upright growth habit cultivars
(Vitis vinifera) – dealing with vigor & large vines

• Scott Henry
• Smart Dyson
• Lyre
### Scott Henry Training

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Promotes a large canopy and exposure of fruit to sunlight</td>
<td>• Non uniform fruit and wood ripening</td>
</tr>
<tr>
<td>• Partially mechanized pruning</td>
<td>• Lower &lt; upper cordon</td>
</tr>
<tr>
<td>• upper cordon</td>
<td>• Complicated shoot positioning</td>
</tr>
<tr>
<td>• Well organized fruit zones</td>
<td>• High wire input</td>
</tr>
</tbody>
</table>
Smart-Dyson Training
## Smart-Dyson Training

### Advantages

- Adaptable to mechanical pruning
- Good fruit exposure for ripening
- Upper and lower fruit zones are more uniform
  - Compared to Scott Henry

### Disadvantages

- Lack of experience with this system
- Many uncertainties
Lyre Training

After shoot growth

Before shoot growth

No catch wires shown on this side of trellis
Lyre Training

Before shoot growth

After shoot growth

No catch wires shown on this side of trellis
## Lyre Training

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Excellent canopy distribution</td>
<td>• Complex and expensive</td>
</tr>
<tr>
<td>• Good exposure of fruit for ripening</td>
<td>• Extensive shoot positioning required</td>
</tr>
<tr>
<td>• Adaptable to mechanical pruning</td>
<td>• Difficult to mechanically harvest</td>
</tr>
</tbody>
</table>
How to decide which trellis and training system?

• Grape Producer decision

• Consider employee opinion

• Avoid decisions based entirely on neatness

• Recognize deficiencies...
# Recognize deficiencies

<table>
<thead>
<tr>
<th>Management (Vegetative)</th>
<th>Amount and Quality (Fruit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty in maintaining vine form</td>
<td>Poor fruit quality from shading</td>
</tr>
<tr>
<td>Dense canopies</td>
<td>Pest &amp; disease problems</td>
</tr>
<tr>
<td>Pruning &amp; training confusion</td>
<td>Poor fruiting capacity over time</td>
</tr>
<tr>
<td>Inability to efficiently employ canopy management practices</td>
<td>Must &amp; wine quality problems</td>
</tr>
</tbody>
</table>
Seek out publications!!!
Thank you for your time