Training Systems for Grapes: High vs. Low Cordon

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The culture of grapes dates back to early civilization:
- 5500 B.C. grape precipitates
- Archaeological evidence from early Bronze Age (3,500 B.C.).
- The oldest pictorial record of grape growing exists in Egyptian mosaics (2440 B.C.)

circa 1500
Training System “Names”

Single Curtain or Bi-lateral Cordon
High Cordon
Low Cordon
Training Systems

- Many “named” systems
- All contain several basic principles

- Train canopy growth for
  - Optimal light interception (photosynthesis)
  - Optimal air movement (prevent diseases)
  - Optimal management (rows for equipment)
Training Systems

• *Labrusca* types = downward growth

‘Concord’ - Umbrella Kniffin
Training Systems

- *V. vinifera* types = upward growth
The Grapevine is a true vine
Grapevine Fruiting Characteristic

- Dormant buds on 1-yr-old canes (last year’s canes)
- Give rise to new (current season) canes on which the grape clusters are produced.
Grapevines can be trained with a single or double trunk.

Illustrations from: Ohio State Univ. Bulletin 815, Agdex 231
Pruning & Training Young Vines

From planting through the 3rd growing season:

Pruning and training practices are essentially the same for the various training systems used.

Illustrations from:
Ohio State Univ. Bulletin 815, Agdex 231
Pruning Practices at Planting

After planting, cut last season’s (1-yr-old) canes back to:

2 to 3 buds.

- Training to a single trunk:
  - Retain one cane.
- Training to a double trunk:
  - Retain two canes.

From: Ohio State Univ. Bulletin 815, Agdex 231
During the First Growing Season

The objective is to train the vine up to the desired wire.
- Top wire for a high cordon.
- Mid-level wire for a low cordon.
First season’s growth
First Dormant Pruning
(Spring of the 2nd Year)

Establishing the trunk:
• Select 1 or 2 of the best canes and remove the others.
• Remove any lateral canes.

Illustrations from:
Ohio State Univ.
Bulletin 815, Agdex 231
First Dormant Pruning
(Spring of the 2nd Year)

Establishing the trunk:

• If the canes did not reach the desired wire, prune back to healthy wood that is at least 3/8” in diameter, or back to 2 - 3 buds and start the process over.

• The selected canes should be tied to a temporary stake or string, and to any lower wires to promote a straight trunk.

Illustrations from: Ohio State Univ. Bulletin 815, Agdex 231

Single Trunk

Double Trunk
During the 2nd Growing Season

The objective is to train the new canes out onto the desire wire to develop the cordon.

• Train any canes in close proximity on to the wire.

From: Ohio State Univ. Bulletin 815, Agdex 231
During the 2nd Growing Season

- Any canes developing low on the trunk should be rubbed off when they are young.

- NEED to decide by this time, ----
  high or low cordon ???

[From: Ohio State Univ. Bulletin 815, Agdex 231]
During the 2nd Growing Season

- Suckers arising from the ground should be removed.
- Any grape clusters developing on the canes should be removed at bloom.

From: Ohio State Univ. Bulletin 815, Agdex 231
3rd Growing Season

- If the vines are developing on schedule, and exhibit good vigor, they can be allowed to carry a partial crop.

From: Ohio State Univ. Bulletin 815, Agdex 231
Growth Habit

Trailing / Drooping

Characteristic of American species and many French-Amer. hybrids.

Upright

Characteristic of *V. vinifera* & some French-Amer. hybrids
Single Curtain Training Systems
Bi-lateral Cordon

High Cordon

Low Cordon w/ catch wires

For cultivars with a trailing / drooping growth habit.

For cultivars with an upright to semi-upright growth habit.

From: Oregon St. Univ. Ext. Publ. EC 1305
From: Ohio State Univ. Bulletin 815, Agdex 231
First season’s growth

‘Vignoles’

Upright growth habit
French - American Hybrid Cultivars
Suited for a Low Cordon & Vertical Shoot Positioning

<table>
<thead>
<tr>
<th>Semi-upright:</th>
<th>Upright:</th>
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<tbody>
<tr>
<td>Chambourcin</td>
<td>Chelois</td>
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<td>Chardonel</td>
<td>St. Vincent</td>
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<td>De Chaunac</td>
<td>Vignoles</td>
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<td>La Crosse</td>
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<td>Prairie Star</td>
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<td>Seyval Blanc</td>
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<td>Traminette</td>
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Suitable for moderate to vigorous cultivars with a trailing / drooping growth habit.
Single Curtain - Bilateral Cordon
High Cordon

Uses 2 wires:

- Mid-level wire is set 3 to 4 ft above the ground.
- Top wire is set at 6 ft.
- At maturity, 1 wire is adequate.

From: Ohio State Univ. Bulletin 815, Agdex 231
Single Curtain
High Cordon

- Central trunk with cordon (horizontal trunk) is trained to the top wire.
- Cordon contains “spurs” (5-bud canes), and 1- to 2-bud renewal spurs.
Single Curtain
Beginning the “Cordon”, 2\textsuperscript{nd} Growing Season

From: Ohio State Univ.
Bulletin 815, Agdex 231
Single Curtain
- Pruning cuts – 3rd Spring

From: Ohio State Univ.
Bulletin 815, Agdex 231
Single Curtain - Pruning cuts – 4th Spring

Before

After

Bud count includes “renewal” spurs

Illustrations from:
Ohio State Univ.
Bulletin 815, Agdex 231
cordon
Single Curtain
Low Cordon

Suitable for cultivars with an upright to semi-upright growth habit.
• Cordon is trained on to a mid-level wire set at 3 to 3.5 ft above the ground.

• Additional sets of catch wires are required.
Low Cordon with “catch wires”

Trellis needs:

- Cordon wire (@ 42 “)
- plus three sets of catch wires (@ 52, 62, 72”)

For cultivars with an upright to semi-upright growth habit

From: Oregon St. Univ. Ext. Publ. EC 1305
Pruning is the same as with the high cordon, except upright growing canes are selected.
Paul Tabor
Baldwin, IA

‘La Crosse’ vines trained to a low cordon
Cordon "Spur" (fruiting cane)
Renewal spur
“Spur” (fruiting cane)
Summary

Single Curtain or Bi-lateral Cordon

High Cordon = trailing cultivars
Low Cordon = upright cultivars