VINEYARD LAYOUT FOR MECHANIZATION

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MECHANIZATION VERSES HAND LABOR

Hand versus Mechanization
Land – Site Selection
Design
  Row Length
  Type of Trellis
  Cordon Height
  Trellis Materials
  Size of the Vineyard
SITE SELECTION

As with any vineyard site selection you will want

Good water drainage
Good air drainage
Slope 5 to 10 Degrees
Uniformed soil type
Cover crop
SITE SELECTION

If you are working with a slope the training system needs to be higher.

Mechanization requires less slope than hand labor.
SITE SELECTION
DESIGN

Rows

Length

Longer is better for mechanization

Broken Row

Straight

Help minimize vine injury

Row spacing uniformity

Maximize efficiency by allowing use of
dual-row implements

Adequate room for equipment
DESIGN
DESIGN
DESIGN
DESIGN

Vine Spacing

Uniform vine spacing

Mechanized operations be sensitive to irregular vine spacing

Lead to fluctuations in leaf-area-to-crop-weight ratios and variable maturation at harvest
DESIGN

Headlands

Adequate area

Need enough area to turn around equipment

Minimize time spent turning equipment and aligning implements at the start of each row

Low grade

Don’t want to be tipping over equipment
DESIGN

Vineyard Size

- Uniformed row length
- Uniform row spacing
- Break the row
- Work in blocks
- One cultivar per block
TRELLISING

The simpler the system the better and more efficient

The most conducive to full mechanization

- Single cordon
- Cordon-trained
  - High Bilateral cordon
  - Midwire cordon with vertical shoot positioning (VSP)
  - Smart-Dyson
  - Ballerina
  - Geneva Double Curtain (GDC)?

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TRELLISING

Cultivar

Growth
Bearing habit
Anticipated vine size
Crop load
Soil type
TRELLISING

Limit the number of trellis systems as much as possible

Cost effective

Fewer implement adjustments or changes

Reduce the amount of equipment maintenance
TRELLISING

Materials

- Line-Post
  - Wooden verses Metal

Spacing

- Longer rows closer spacing

Wire

- Larger-diameter high-tensile wire
- Tensioned adequately
TRELLISING

End Post Construction
H-Brace System
Single Diagonal Post
Post diameter
Post height
Deadman or screw in anchor
TRELLISING

End post height
Wire attachment
TRELLISING

Trellis 6’ tall
VSP at least 36” from the ground
IRRIGATION

Position drip irrigation tubes and supporting wires at heights where they will not interfere with harvester “catch plates” or working components of other implements.

Position irrigation riser tubes directly in line with the vine row and in locations where implement impact is improbable to minimize damage by harvesters, pruners and other implements.

Use flexible tubing for irrigation risers to avoid damage or simplify repairs from accidental equipment impact.

Position sprinkler heads where injury from equipment impact is unlikely.
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