

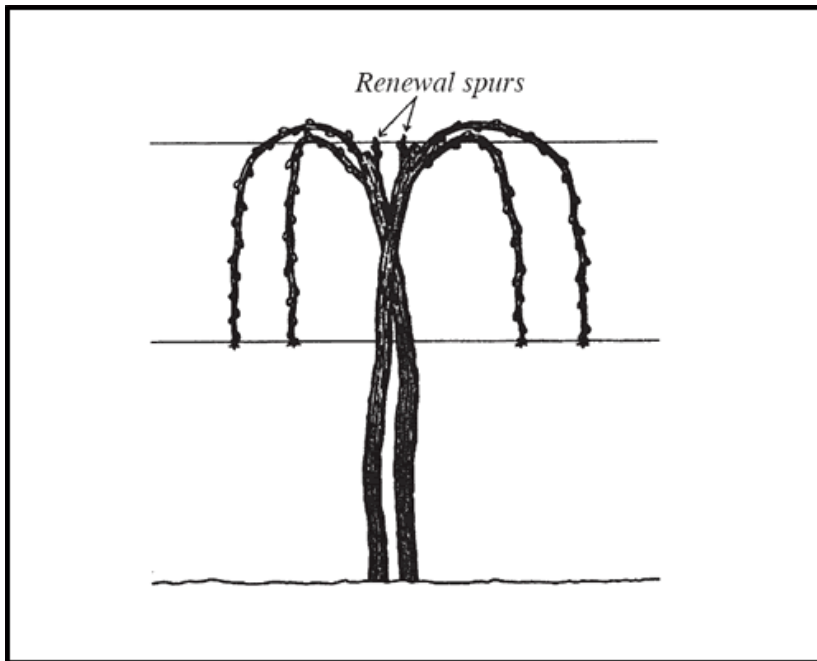
Vineyard Trellis Systems

- **High Head systems**
- **Single Curtain systems**
- **Double Curtain systems**

High Head Systems

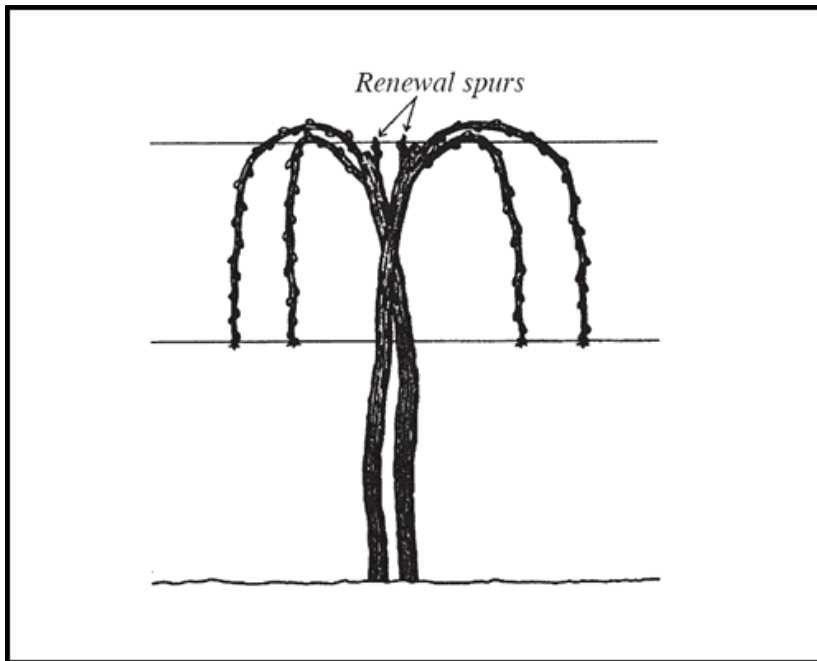
- **Umbrella Kniffin**
- **Four-Arm Kniffin**
- **Keuka High Renewal**

Umbrella Kniffin Advantages



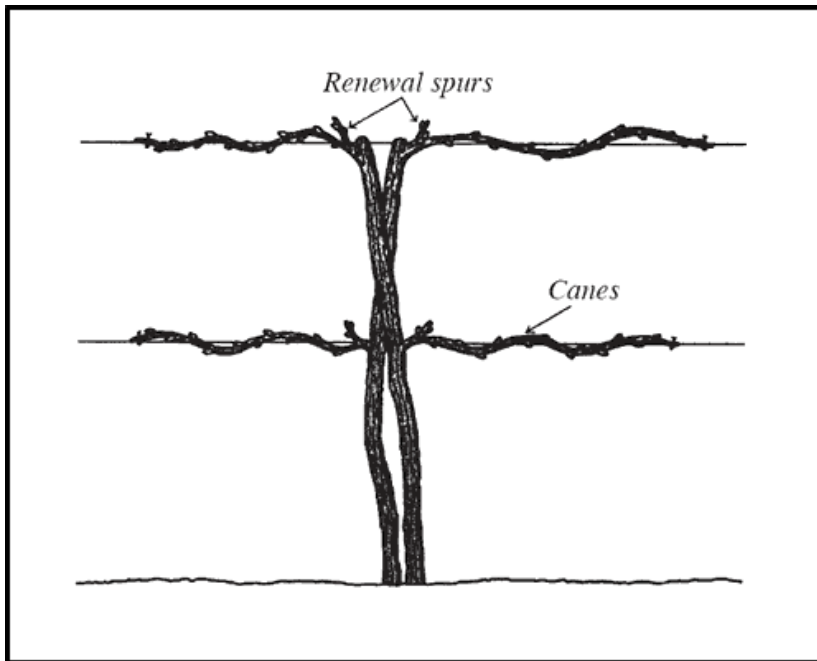
- Easily learned by hand pruners
- Fruit high, distributed and well exposed
- Utilizes long canes for fruitful nodes
- Simple trellis construction

Umbrella Kniffin Disadvantages



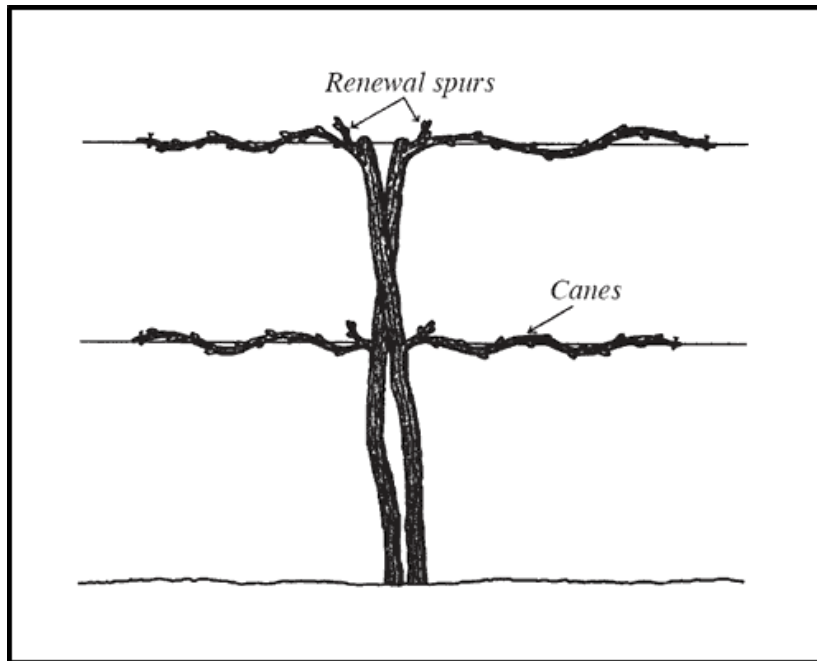
- Plenty of annual tying: spring & summer tying
- Not adaptable to mechanical pruning
- Less adaptable to shoot positioning

Four Arm Kniffin Advantages



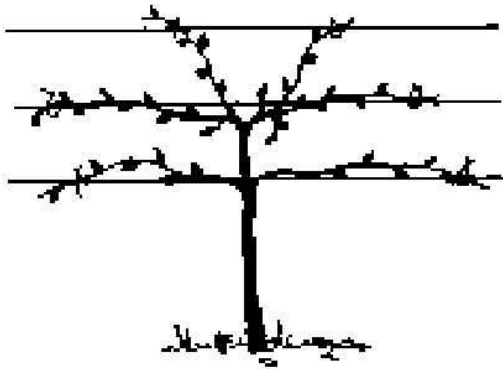
- **Ease of pruning**
- **Use of long canes**
- **Vertical distribution of fruit**
- **More tolerant to winter injury**

Four Arm Kniffin Disadvantages



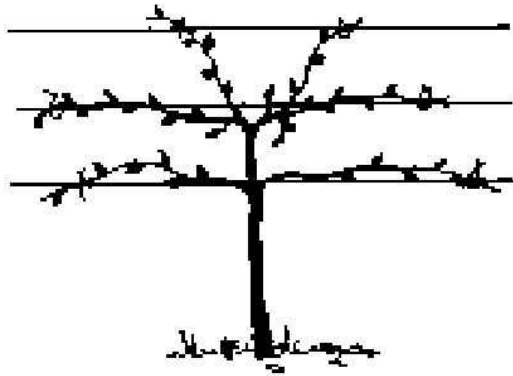
- Plenty of annual tying of canes
- Not adaptable to mechanized pruning
- Difficult to maintain quality of lower nodes
- Not compatible with systematic leaf removal and shoot positioning

Keuka High Renewal Advantages



- Utilizes long canes
- Canes originate from a central region
- Very compatible with frequent replacement of vine parts in response to frequent winter injury

Keuka High Renewal Disadvantages

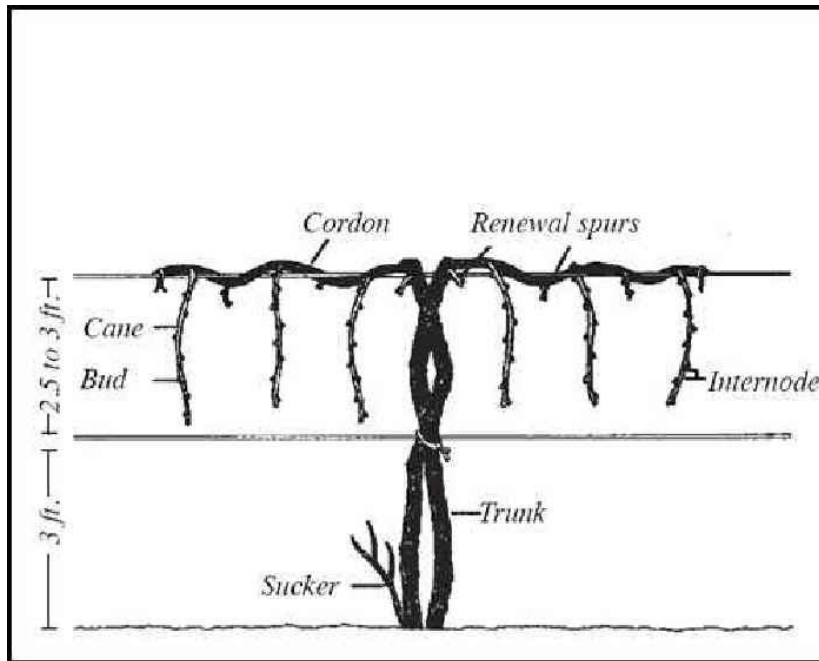


- Plenty of annual tying, more summer tying
- Difficult for inexperienced pruners
- **Not** adaptable to mechanized pruning
- **Not** adaptable to systematic leaf removal and shoot positioning

Single Curtain systems

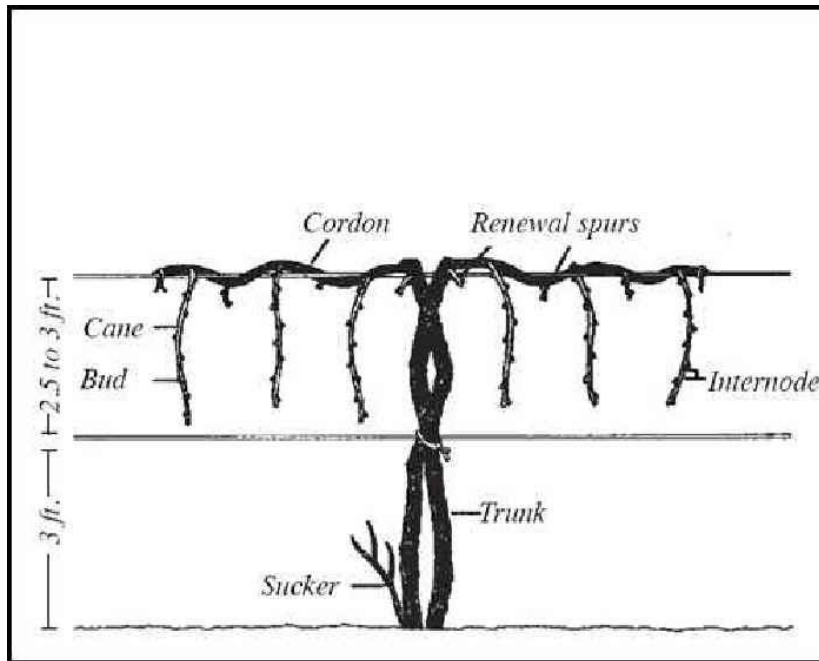
- **Hudson River Umbrella**
- **High Cordon**

Hudson River Umbrella Advantages



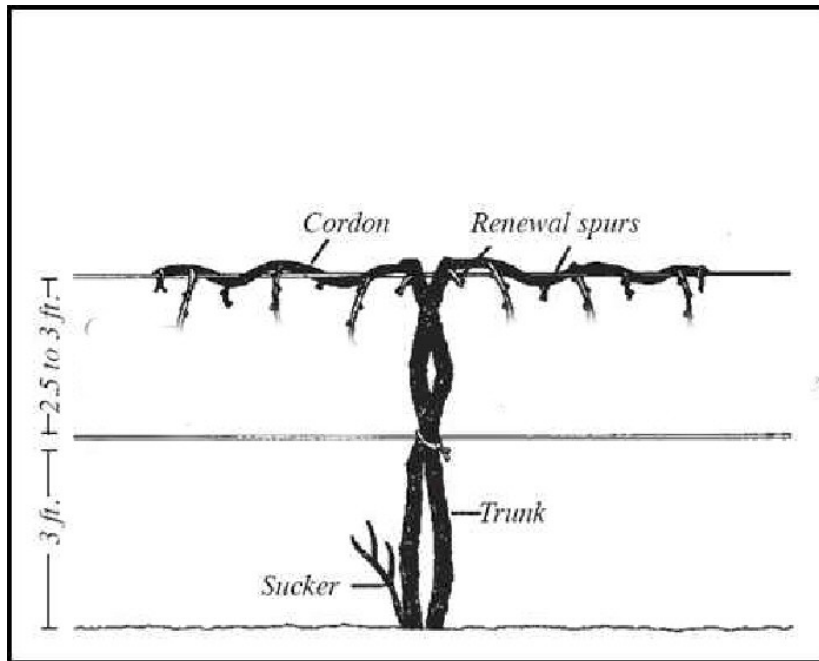
- Low cost trellis
- Suited to trailing growth (downward)
- Pruning is rapid and tying is minimized
- Well adapted to mechanical harvesting and pruning
- Fruit high for good sun exposure

Hudson River Umbrella Disadvantages



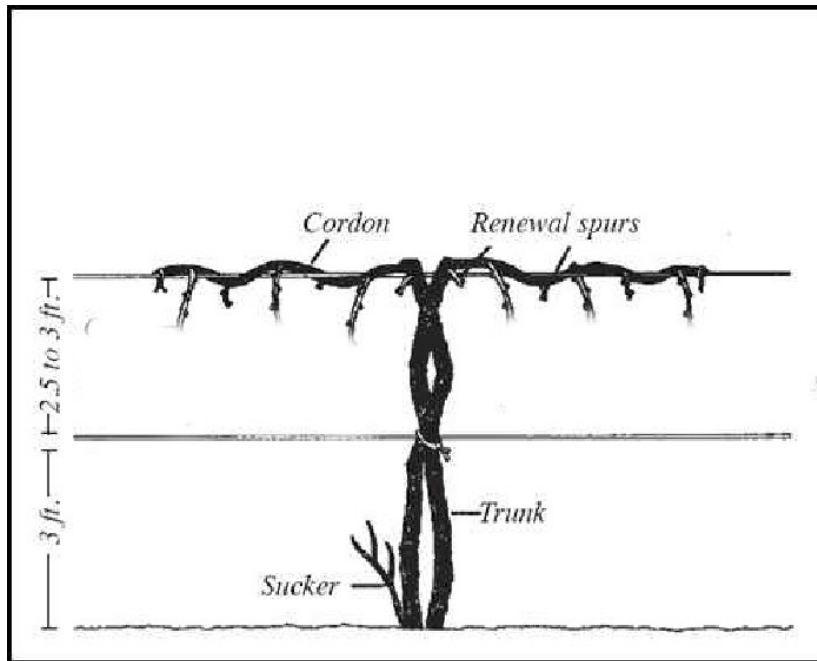
- Large area of perennial wood retained exposed to possible winter injury
- Not suited for upward growth habits or must provide trellis and positioning for upward growth

High Cordon Advantages



- Adaptable to mechanical pruning, unskilled manual pruning, and mechanical shoot positioning
- Fruit high for good sun exposure
- Little or no summer tying

High Cordon Disadvantages



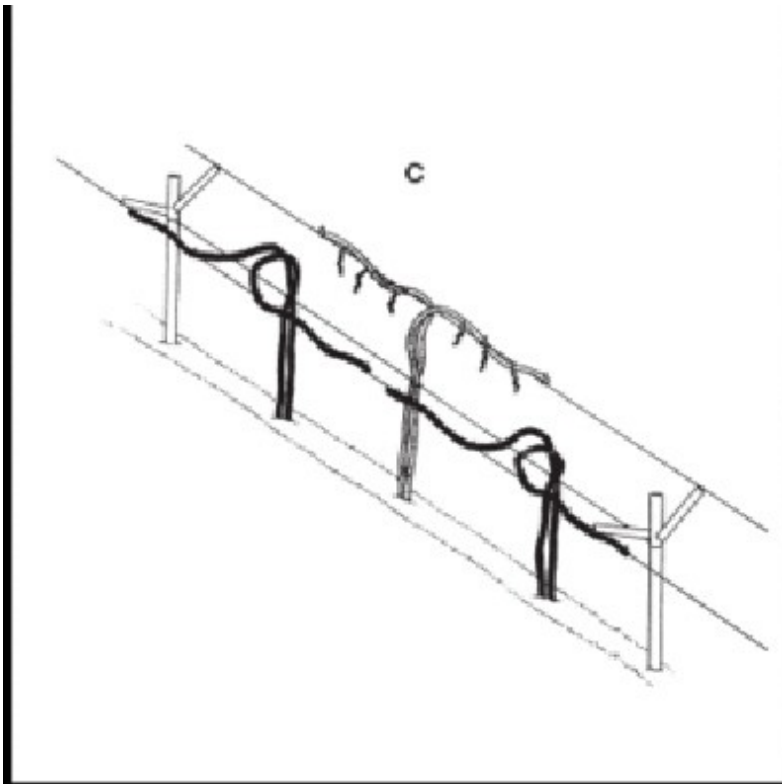
- Tends to reduce vine vigor, especially if shoots are positioned
- Difficult to establish cordons where there is frequent winter injury
- Old cordons are hard to remove from wires (in case of cordon replacement) and old cordons may become a reservoir for diseases

Double Curtain Systems

Geneva Double Curtain:
First divided canopy training system

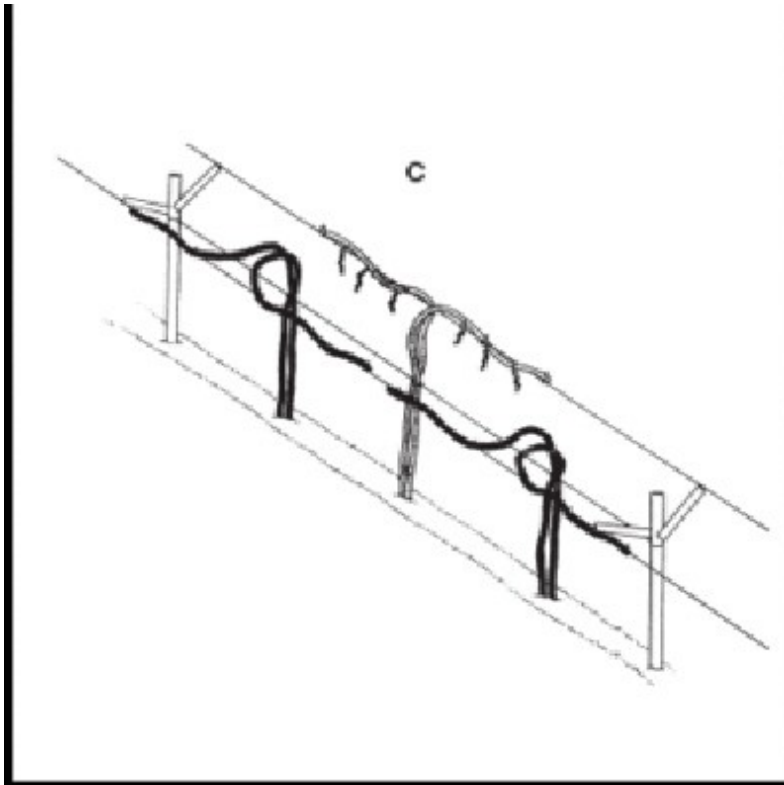
Designed by Dr. Nelson Shaulis, Geneva
Experiment Station, Geneva, NY

Geneva Double Curtain Advantages



- **Doubles cordon length per acre cane pruned**
- **Increased exposure to sunlight**
- **Better fruit and vine maturation**
- **Increased fruit yield 50%**

Geneva Double Curtain Disadvantages



- Requires a vigorous variety and site
- **TALL** trellis. Way to go, Dad!