



# Vine Selection and Establishment

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# Vineyard Establishment

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1. Site selection/Evaluation
2. Land preparation
3. Plant material selection
4. Planting
5. Trellising
6. Training and Pruning

# Plant Material Selection

# Planting Stock Options

1. Cuttings
2. Dormant rootings
3. Dormant rootstock rootings
4. Dormant benchgrafts
5. Green growing benchgrafts
6. Tall benchgrafts

# Number 1 Dormant Benchgraft

1. **Length:** 14 inches (12- to 13-inch rootstock and 1- to 2-inch scion).
2. **Caliper of rootstock:** 5/16-inch or more.
3. **Nodes:** Four or more, counting the top and basal nodes; some rootstocks have a genetic tendency to produce cuttings with longer internodes and may produce cuttings with only three nodes.
4. **Top growth:** At least 8 inches of mature growth, prior to trimming and scion caliper should be at least 5/32-inch.
5. **Root growth:** At least three roots with diameter of at least 1/32-inch originating from the basal area of the cutting and distributed radially around the base.
6. **Graft union:** Well healed and able to withstand modest lateral pressure.
7. **Overall appearance:** Rootings should be reasonably straight, relatively round, free from physical damage and obvious diseases









# Disease Prevention and Management

- Use certified virus tested vines
- Plant healthy vines with no sign of root deterioration or discoloration in the vascular tissues
- Site preparation to reduce soil physical issues
- Proper storage and handling
- Avoid planting technique problems
- Irrigation/water management

# Bot Canker on Planting Stock

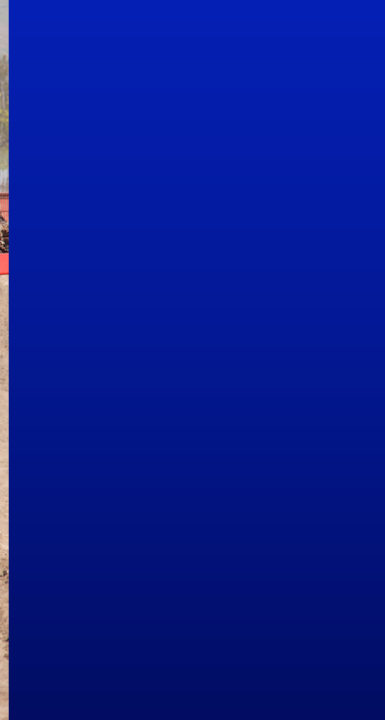




# Planting













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# Planting Problems



# Effect of “J” Rooting on Root Distribution



# Effect of “J” Rooting on Root Distribution





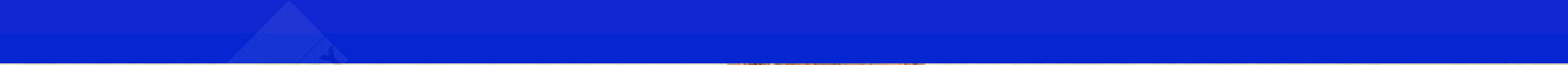












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# **Root Diseases and Vine Declines**

# Black Foot Disease



# Petri Disease





# **Vine stress can play an important component in disease development**

- **Improper planting holes/technique**
- **Poor drainage**
- **Soil compaction**
- **Irrigation management**
- **Poor nutrition**
- **Heavy crop loads on developing plants**

# **Effect of root length and planting method on vine growth and productivity**

## **Root length**

- 1. Untrimmed benchgrafts**
- 2. Trimmed to 1.5 inches**

## **Planting method**

- 1. Hole**
- 2. Spade**

**Pinot noir on SO4 planted 2013, VSP, 6 x 6 ft spacing**

# Root length



# Planting method







# **Conclusions to date**

- 1. Planting technique and root length can influence initial vine growth**
- 2. Trimming of roots and spade planting both were shown to reduce early vine growth**
- 3. Of the two factors tested reducing root length reduced growth in both the first and second year**
- 4. Reductions in vine growth parameters did not result in lower crop yield in year three and four**

# Planting and Training

## Time of planting

1. Spring
2. Late

## Type of training

1. Green
2. Dormant

## Timing of training

1. First year
2. Traditional second year



# **Trial 3 (1999-2005)**

## **Factor 1. Shelter**

- 1. paper carton**
- 2. plastic grow tube**

## **Factor 2: 1st Year Training**

- 1. all shoots**
- 2. single shoot**

## **Factor 3: 2nd Year Training**

- 1. spur**
- 2. trunk**

**Chardonnay on 5BB, 6 x 8 ft spacing, VSP, planted 1999**

# Conclusions

- **Use of a grow tube can result in greater shoot development**
- **The benefits of the promotion of growth are lost if that growth is pruned**
- **When growth is adequate first year training can allow for earlier vine training and fruit production**



**July 2, 2012**

# Trial 4 (2011-2014)

Treatments (applied in second year)

## 1. “UberVine” dormant potted benchgraft

- a) 0 crop
- b) 1/2 crop
- c) full crop

## 2. Standard dormant potted benchgraft

- a) 2-node spur pruned
- b) trained to a trunk

**Chardonnay on 101-14, 5 x 6.33 ft spacing,  
VSP, planted March 2011**



**May 3, 2011**





**Second year March 26, 2012**



**2-bud spur**

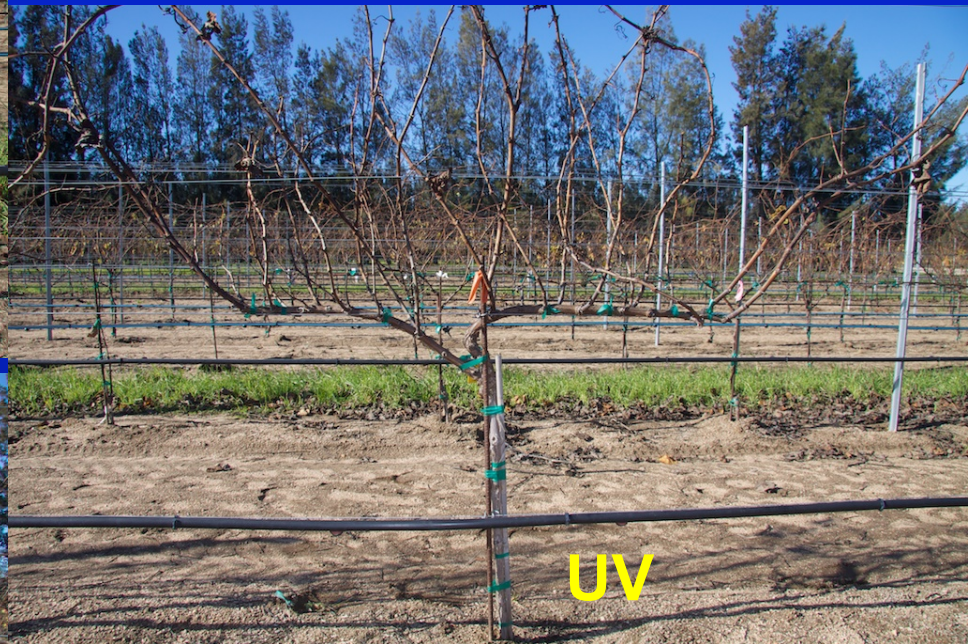


**trunk**

**Second year  
March 26, 2012**



spur



UV



trunk

End of second year (2012)

(12-18-12)



**2015**



**Standard**



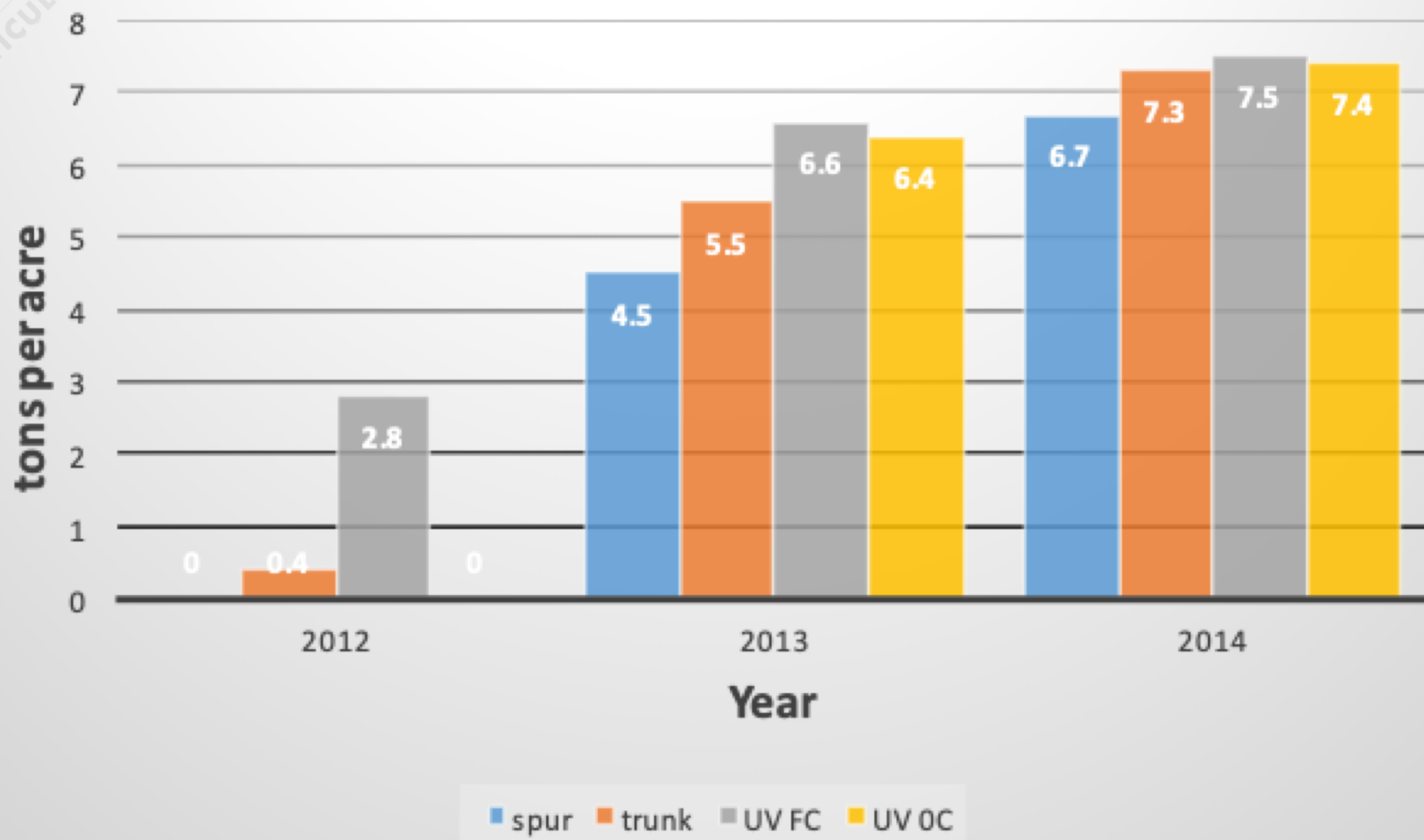
**Ubervine**



**Trunk**

**(2-25-15)**

# Yield



# 2014 (Year 4)

Table 5. Effect of plant material and training on vine growth of Chardonnay grapevines, 2014.

Treatment	Shoots per vine	Shoot weight, g	Pruning weight, kg	Fruit: pruning wt ratio	Trunk Diameter, mm	Cordon diameter, mm	
						First internode	Last internode
12 in BG pruned to 2 buds	30 b	32 a	0.98 b	4.6 b	26 a	19 c	13 b
12 in BG Pruned to a trunk	32 b	33 a	1.03 b	4.7 b	26 a	21 b	15 a
36 in BG with cordons, 0 crop	39 a	33 a	1.30 a	3.9 a	26 a	25 a	14 b
36 in BG with cordons, 1/2 crop	39 a	35 a	1.36 a	3.7 a	26 a	26 a	14 b
36 in BG with cordons, full crop	39 a	34 a	1.35 a	3.7 a	25 a	25 a	14 b

# Summary

## Cost of plants

Ubervines – \$5.50

Standard – \$3.00

**Additional cost for plants = + \$3028**

## **Additional production**

2012 - + 2.4 tons

2013 - + 1.7 tons

2014 - 0 tons (+0.8)

**+ 4.1 tons @ \$1200/ton = + \$ 4920**

# **Trial 5 (2015- ?)**

## **Treatments**

- 1. Dormant standard benchgraft – March 13, 2015 planting**
- 2. Dormant ubervine – March 13 planting**
- 3. Green ubervine – August 6 planting**

**Pinot noir on 140R, 5 x 6 ft spacing, VSP**



**Standard**

**August 6, 2015**



**Dormant UV**



**Green UV (late)**



**Standard**

**November 3, 2015**



**Dormant UV**



**Green UV late**



**2-24-16**







**1-26-17**



# 2015 Planting 2016 Yield Parameters

	<b>Yield, tons/acre</b>	<b>Cluster number</b>	<b>Cluster weight, g</b>	<b>Fruit: pruning wt ratio</b>
<b>STD BG</b>	<b>0.22 b</b>	<b>3 b</b>	<b>92 a</b>	<b>3.2 b</b>
<b>DUV</b>	<b>1.11 a</b>	<b>16 a</b>	<b>105 a</b>	<b>8.4 a</b>
<b>GUV</b>	<b>0.01 b</b>	<b>0.6 b</b>	<b>42 b</b>	<b>0.6 b</b>

# 2016 Trials

- **Comparing field grown tall vines to potted tall vines and standard benchgrafts**
- **For field grown tall vines comparing untrimmed and trimmed roots**



# Field Grafting Options

# Types of Grafting

- Cleft
- Side
- Whip

**Grafts made in late February to April**



## Side whip graft



# Budding

- A small section of bark with one bud from a desired variety is inserted on a rootstock or trunk
- Late spring to early summer





**Bark should “slip”  
by Late April to May**





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