


Grape Camp 2011
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 Texas A&M System

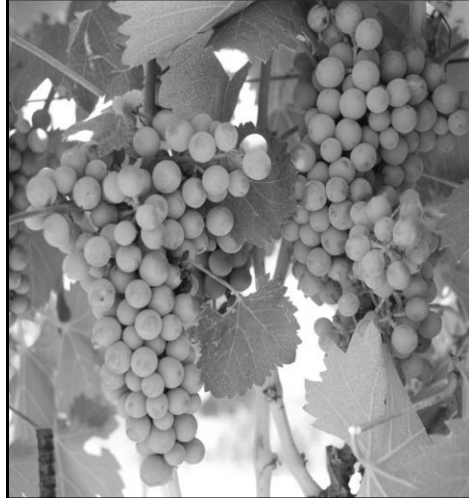
Crop Estimate Revisited

Crop Estimation

- **2010 Grape Camp we learned:** Tons/Acre \neq
 $\# \text{ Bearing Vines} \times \# \text{ Clusters/Vine} \times \text{Cluster Weight} \div 2000 \text{ Lbs}$
- **2011:**
 - Definition
 - Vineyard Perspective
 - Winery Perspective
 - Procedure
 - Variables
 - Improvement
 - Application to Contracts
 - Take Home Messages

Crop Estimation Defined

- Appraisal **tool** to determine potential yield prior to harvest
- Management **tool** to help balance vine fruit load and vegetation
- **Tool** to help grower produce contracted target yield
- Harvest planning **tool**



Estimation Method Most used

Tons/Acre=

Bearing Vines X # Clusters/Vine X Cluster Weight ÷ 2000 Lbs

- Total vines planted vs. bearing vines used
- Clusters manually counted on few vines
- Cluster weights are guessed at
- Proclaim that “It looks like the crop of ‘08”

Labor intensive

Expensive

NOT Precise-no scale to large vineyard variation

Perspective- New Planting



- On planting day you are “short” of vines.



- Desire to make up for loss of crop prev. year
- Fear of late spring frost, hail & crop loss
- Labor



Perspective- Bearing Vineyard

Under and over estimates

➤ Underestimate:

- Thinning just prior to harvest ↑ farming cost
- Grapes go un-harvested

➤ Overestimate:

- Unnecessary thinning= good fruit on ground



Winery Perspective- Financial

- ↑ Increased Freight Cost
- ↑ Increased Equipment/Supplies



Winery Perspective- Financial

- Winery receives late call from grower that he is “short” of grapes, & combined w/drought year

Cost of “Goods” ↑

- \$1,800/Ton @ ~160 gal/ton = \$11.25/gal cost
- In 2011 ± 120 gal/ton = \$15.00/gal cost
- @ 100 gal/ton = \$18.00/gal cost

Winery Perspective- Logistical

- Production Space
- Labor
- Marketing & 2nd Labels

\$17.50/ Bottle

vs. \$12.50/ Bottle



Procedure-Determining Yields

- **Tons/ Acre =**
- $\# \text{ Bearing Vines} \times \# \text{ Clusters/Vine} \times \text{Cluster Weight} \div 2000 \text{ Lbs}$

Example: Cabernet Sauvignon : No drought vs. drought

2010> 1089 vines X 30 clusters/vine X .24 lb ÷ 2000 = 3.92 Tons

2011> 1089 vines X 30 clusters/vine X .09 lb ÷ 2000 = 1.47 Tons

- **Other Methods:**
- Lag Phase Method
- Berry Weight Method
- Holographic Radar Imaging
- Trellis-Tension Technology

Variables- # Bearing Vines

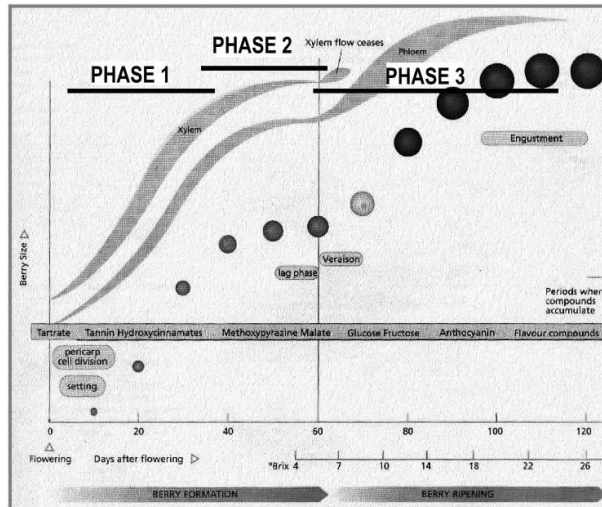
- Winter Injury and/or Late Spring Frost
- Disease- Cotton Root Rot, PD, LRV, Crown Gall, Etc.
- Insects- Mites, Steely Beetles, GJB



Changes Year-to-Year

More Vineyard Variation Requires More Samples

Improved Crop estimates



Understand phases of berry growth & improve management practices

Variables- # of Clusters/ Vine

- Different Age of Vines within Block
- Shading of Buds in Prior Year
- Fruit Set- influenced by weather & nutrition
- Spring Frost- fruitfulness of secondary bud
- Although least “variable” of components, # clusters/ vine can vary widely>
- **Examples:** 2010 Semillon 5-45 clusters/vine
- 2010 Viognier 18-78 clusters/vine

Variables- Cluster Wts

- Fruit Set- Influenced by weather & nutrition
- Drought- Decrease size and weight
- Heat- Dehydration post-veraison
- Clonal Variation
- Disease- Cluster Rot

Cluster Weights: Lenoir-GC

2008	0.47#
2009	0.44#
2010	0.52#
2011	0.39#



2010 Viognier: 0.21- 0.47 #

Components of Yield

- # Bearing Vines/Acre
- # Clusters/ Vine
- Cluster Weight



All Can Vary Year-to-Year

Improvements

✘ Use of Sentinel Vines

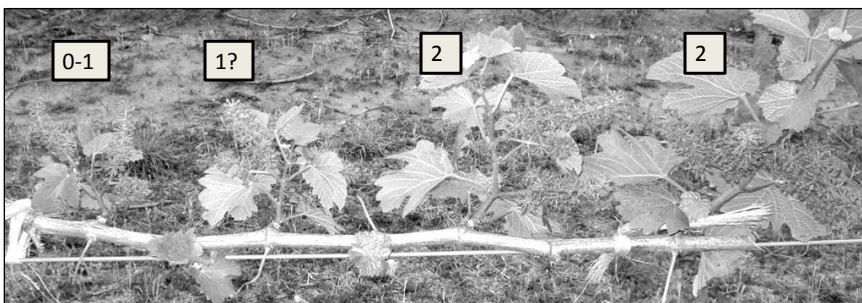
- **Develop Target Yield & Adjust Crop Level if Needed**

Cluster Thinning:

- # lbs/Vine Targeted= Target Yield ÷ # Bearing Vines/Block
- Timing: Earlier is Easier & Less Expensive



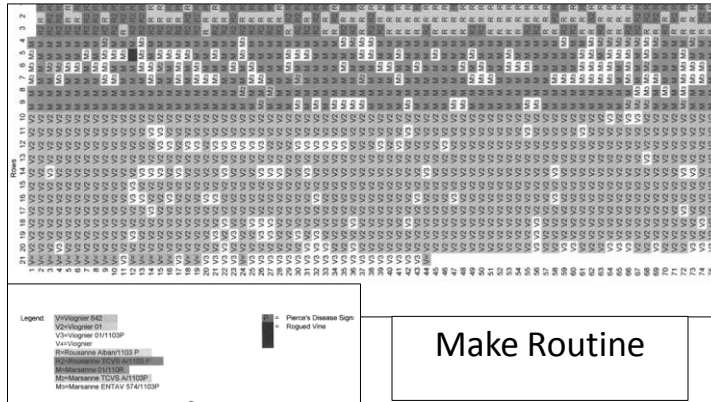
Cluster Thinning



➤ In this example this is the # of clusters that should be retained by grower.

Improved Crop estimates

Accurate Mapping of Your Vineyard



Make Routine

Improved Crop Estimates

- Better Record-Keeping:
 - Map vineyard and adjust yearly
 - Develop historical:
 - Average # clusters/vine
 - Average cluster weights
- See Handout: Crop Estimation Data Sheet

Application to Grape Contracts

- Develop Target Yields/ Variety Block
- Create More Detailed Contracts:

Wine Grape Contract 2012

Pre-set base price/ton with adjustments:

↓\$ M.O.G., bird/insect damage, mold/rot, etc.

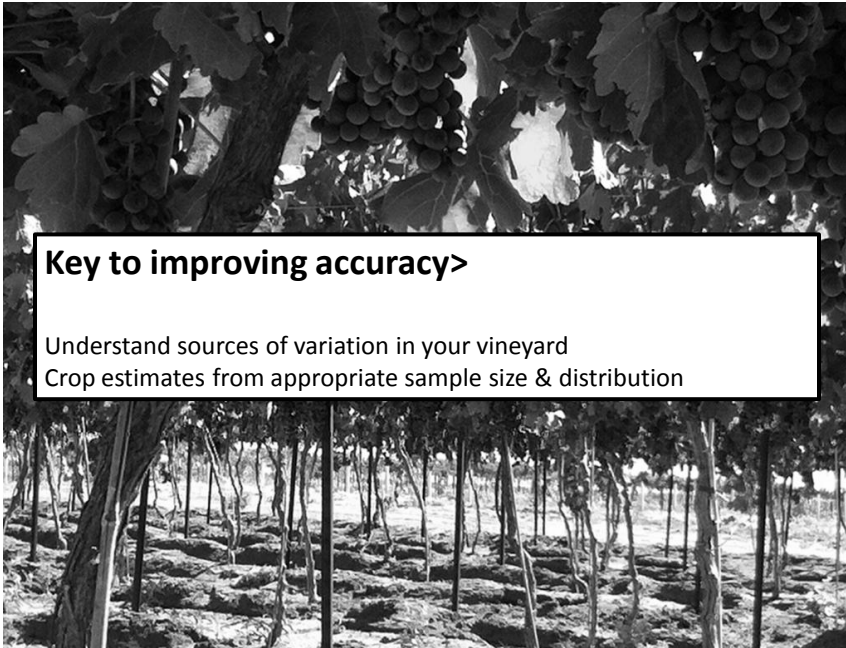
Grower agrees to inform Vintner of crop estimation by June1

↑ \$ Crop estimate within 5% of actual yield

↑\$ Quality parameters within ...

Take Home Messages

- If you can't measure it, you can't manage it:
- Map your vineyard > Total # bearing vines
- Use crop estimates as a tool
- Improve contracts> Add incentives
- Develop target yield per block w/ winery
- Don't "go with your gut" on estimates, but do the calculations>Feet in the vineyard!
- Develop historical records!



Key to improving accuracy>

- Understand sources of variation in your vineyard
- Crop estimates from appropriate sample size & distribution

Crop Estimation Data Sheet

Grape Variety:

Clone:

Rootstock:

Date:

Historical Average Cluster Weight (of site)

Published Average Cluster Weight

Row ID	Vine ID	Total Cluster #
1		
2		
3		
4		
5		
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