

Evaluation of Winegrape Varieties for Warm Climate Regions

**San Joaquin Valley
Viticulture Technical Group
Jan 11, 2012**

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Factors affecting selection of varieties

■ Your location

- Cool vs. warm vs. hot
- Highly regarded vs. less well known appellation

■ The Marketplace

- Supply and demand
- Mainstream vs. niche markets



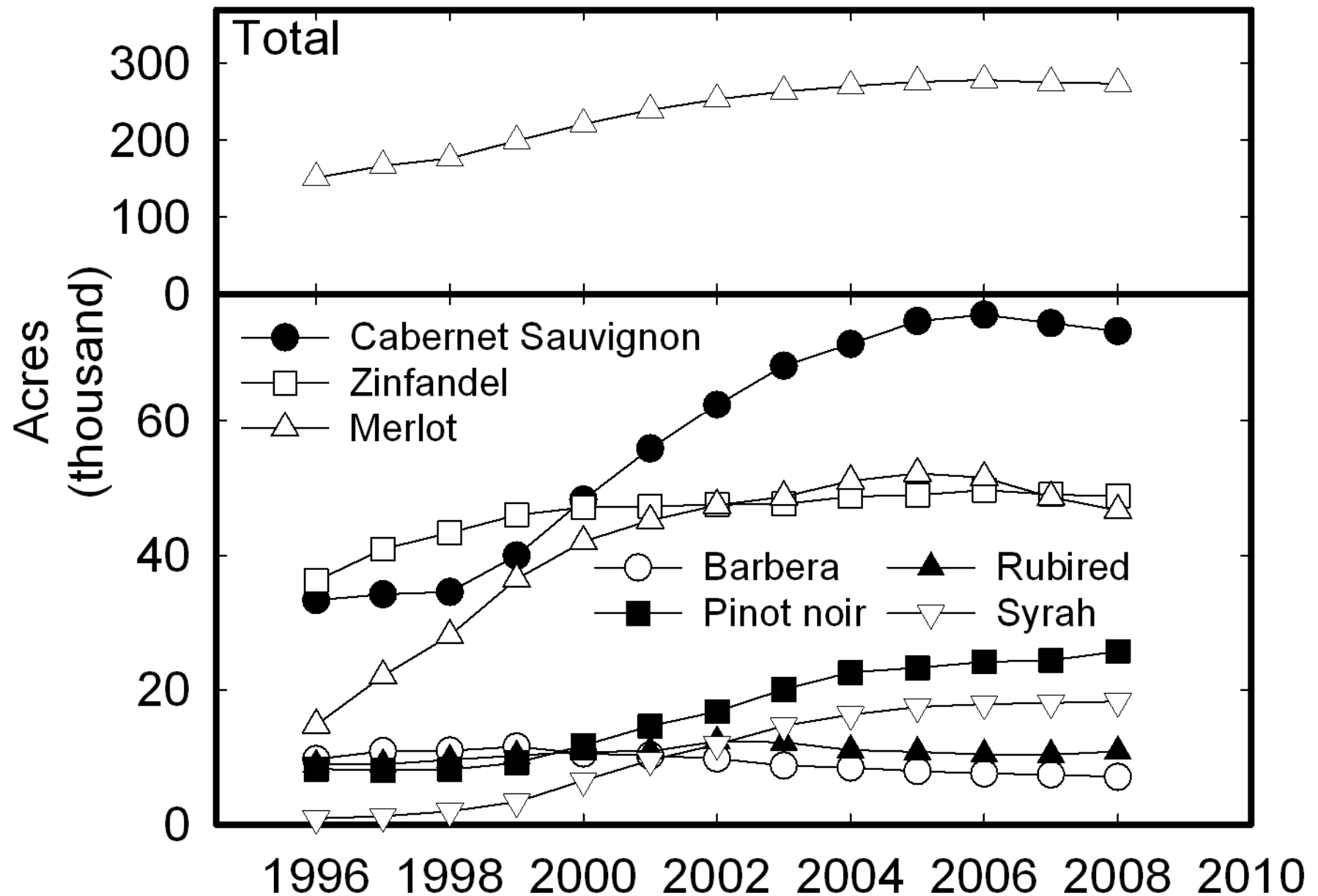
Talk Outline

- California Variety Status
- Variety Trial Data From Warm Region
- World Winegrape Variety Opportunities

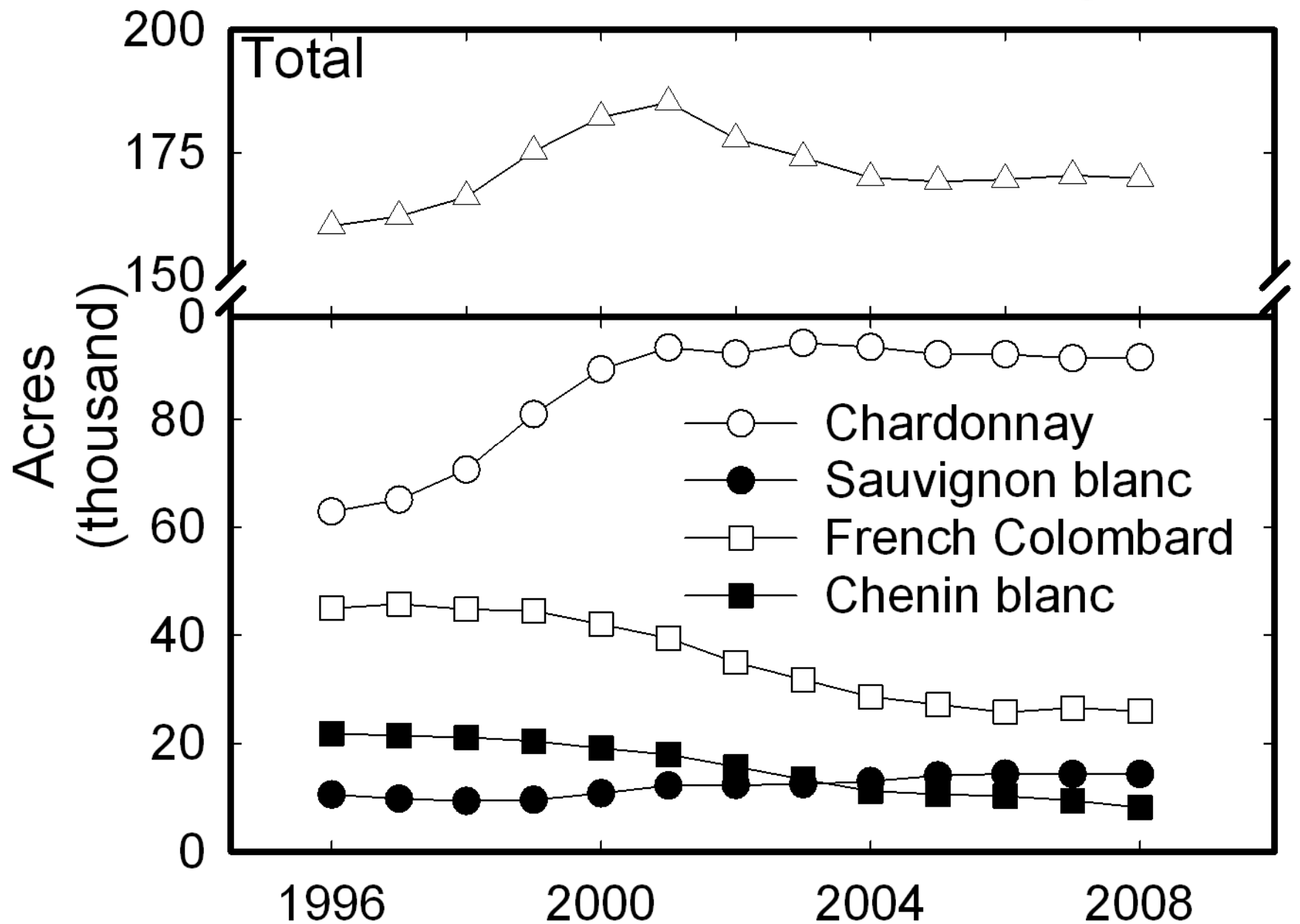
Sources of Variety Information in California

- **California Grape Acreage**
 - <http://www.nass.usda.gov/ca/>
- **Grape Crush Report**
 - <http://www.nass.usda.gov/ca/>
- **Gomberg-Fredrikson Report**
 - <http://www.gfawine.com/>
- **Market Update Newsletter (Turrentine Wine Brokerage)**
 - <http://www.turrentinebrokerage.com/>
- **Unified Symposium (late January annually)**
 - <http://www.unifiedsymposium.org/>

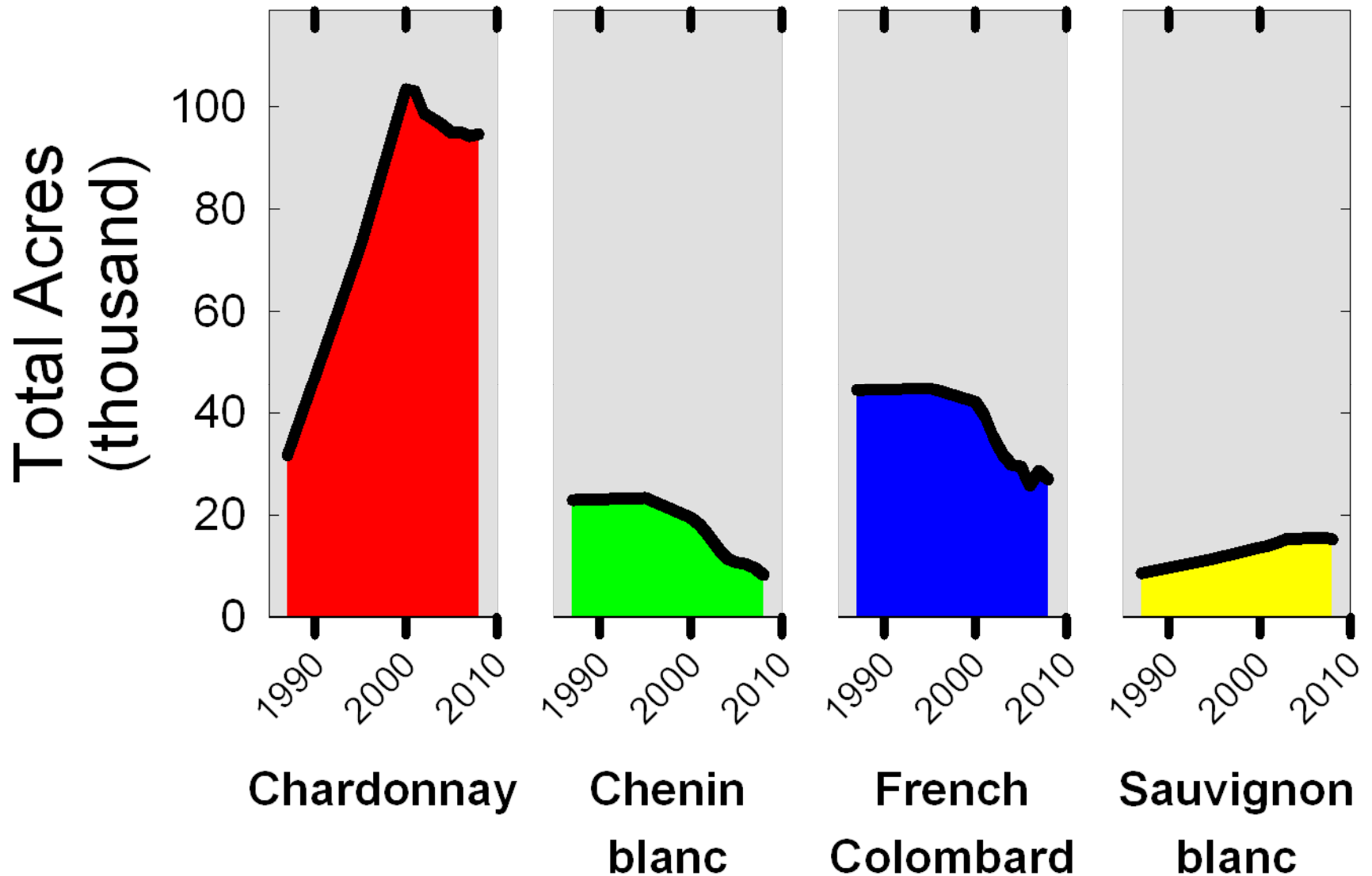
California Red Wine Grape Bearing Acres



California White Wine Grape Bearing Acres

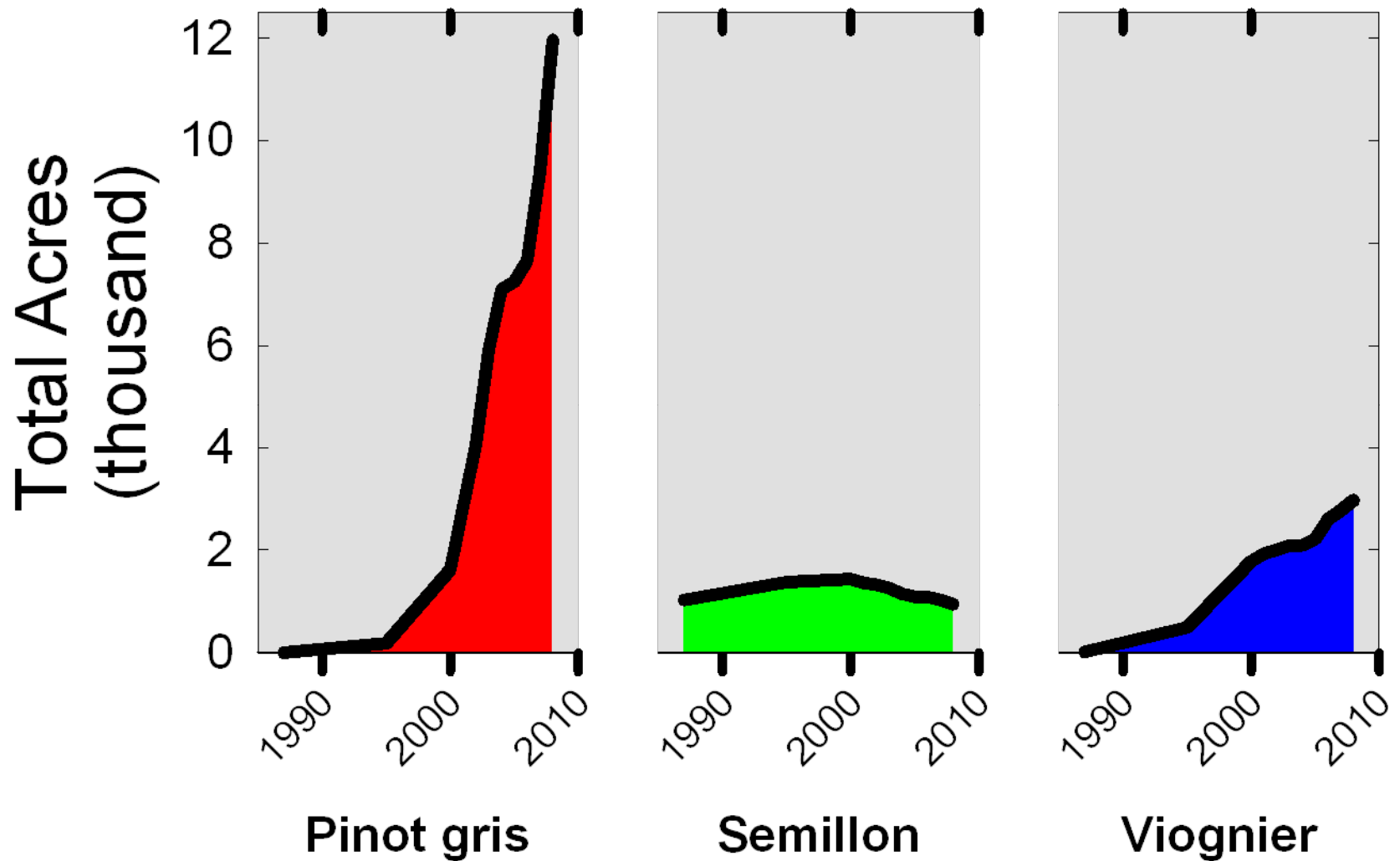


Standard White Wine Varieties 1987 - 2008



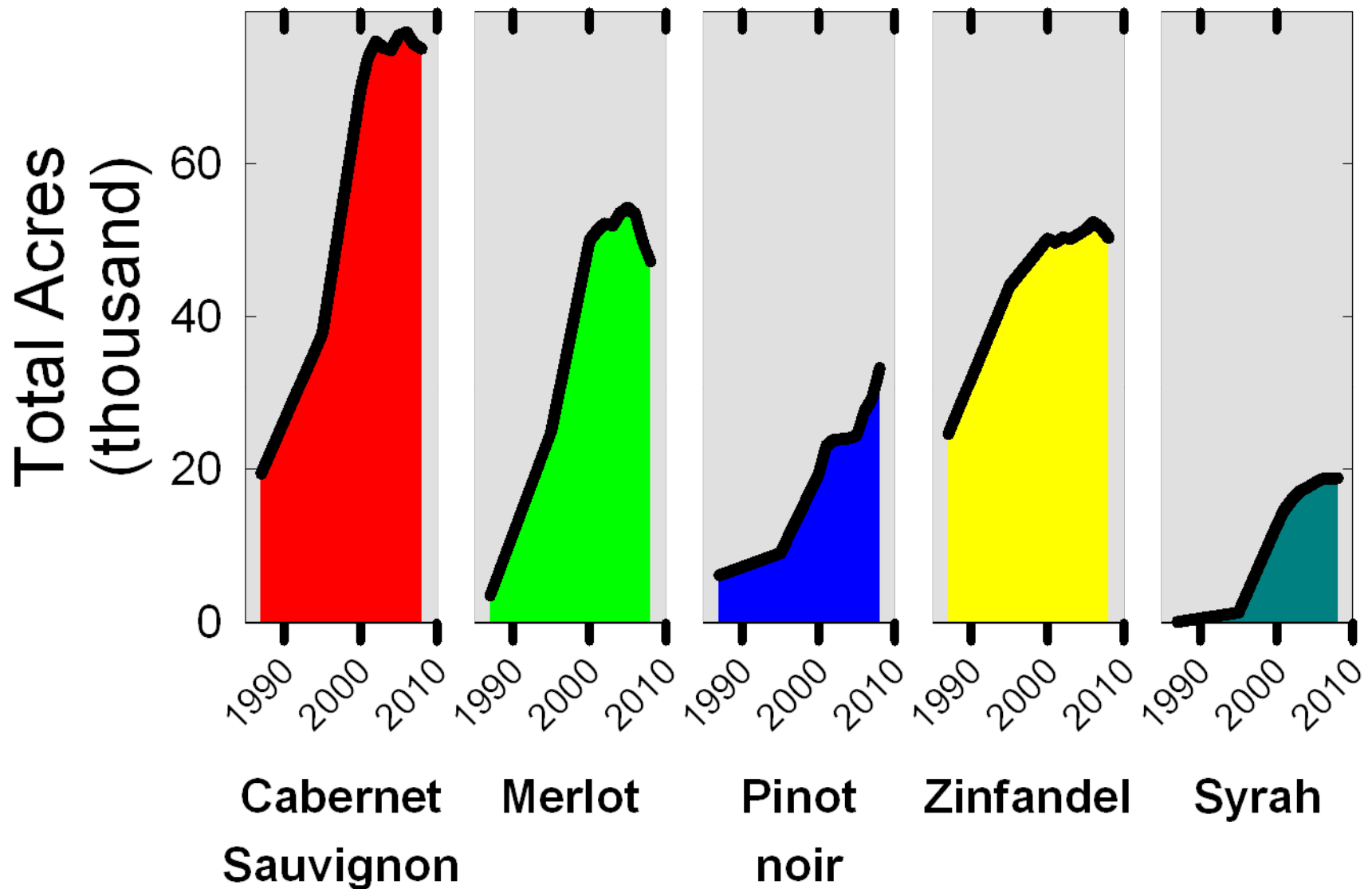
source: California Crop Acreage Report

Emerging White Wine Varieties 1987 - 2008



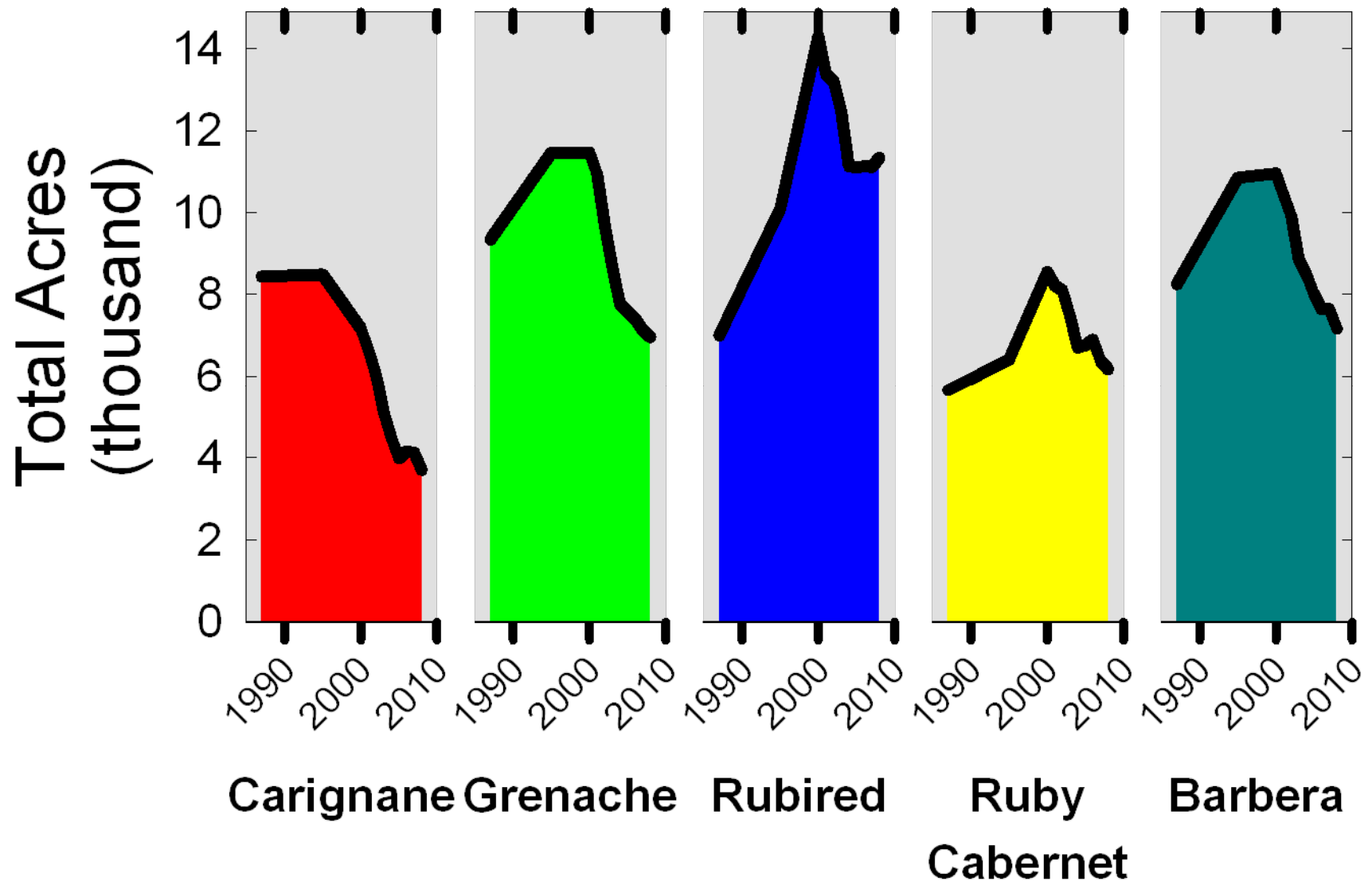
Standard Red Wine Varieties

1987 - 2008

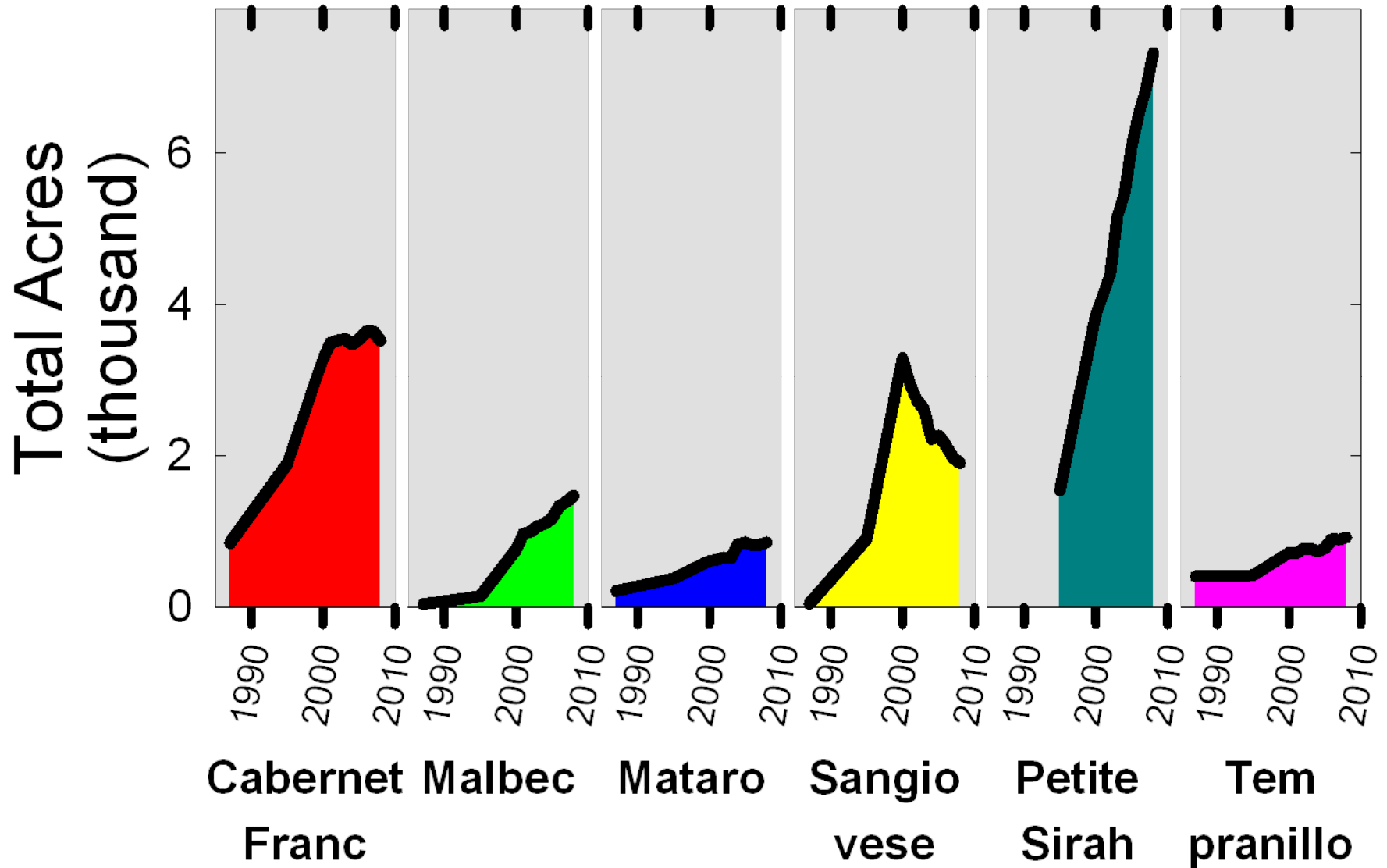


source: California Crop Acreage Report

Minor Red Wine Varieties 1987 - 2008



Emerging Red Wine Varieties 1987 - 2008



source: California Crop Acreage Report

U.S. Wines

- 10 varieties comprise about 80% of all bottled varietal wine:
 - *Chardonnay, Cabernet Sauvignon, Merlot, Zinfandel (incl White Zin), Sauvignon blanc, Pinot noir, Pinot gris/grigio, Syrah/Shiraz, Petite Sirah, Viognier*
- First three are often referred to as the “International Varieties”

New Varieties: Is There a Role?

- Interest in “New Varieties”
 - Consumer interest – excitement of discovery of new varieties/regions
 - Core consumers say ABC: “Anything but Chardonnay”
 - Winemaker interest
 - Capture new consumers
 - Offer something unique to Club members
 - Blend new varieties with traditional varieties to add richness and interest: flavor, color, tannin
 - Winemaker concern
 - SJV winemakers are skeptical of new varieties as “stand alone” (high volume) wines because names are not recognizable to the U.S. wine-drinking public (Viognier)

Question:

The last time you had a glass of wine,
what variety was it?

“New Varieties”

- New to California
- Traditional varieties
 - “autochthonous” = indigenous
- Southern Europe focus
 - Portugal, Spain, southern France, Italy and Greece

EUROPE

EUROPEAN UNION

- EU Member States
- EU New Members 2004
- EU New Members 2007
- EU Candidates
- EFTA Member States

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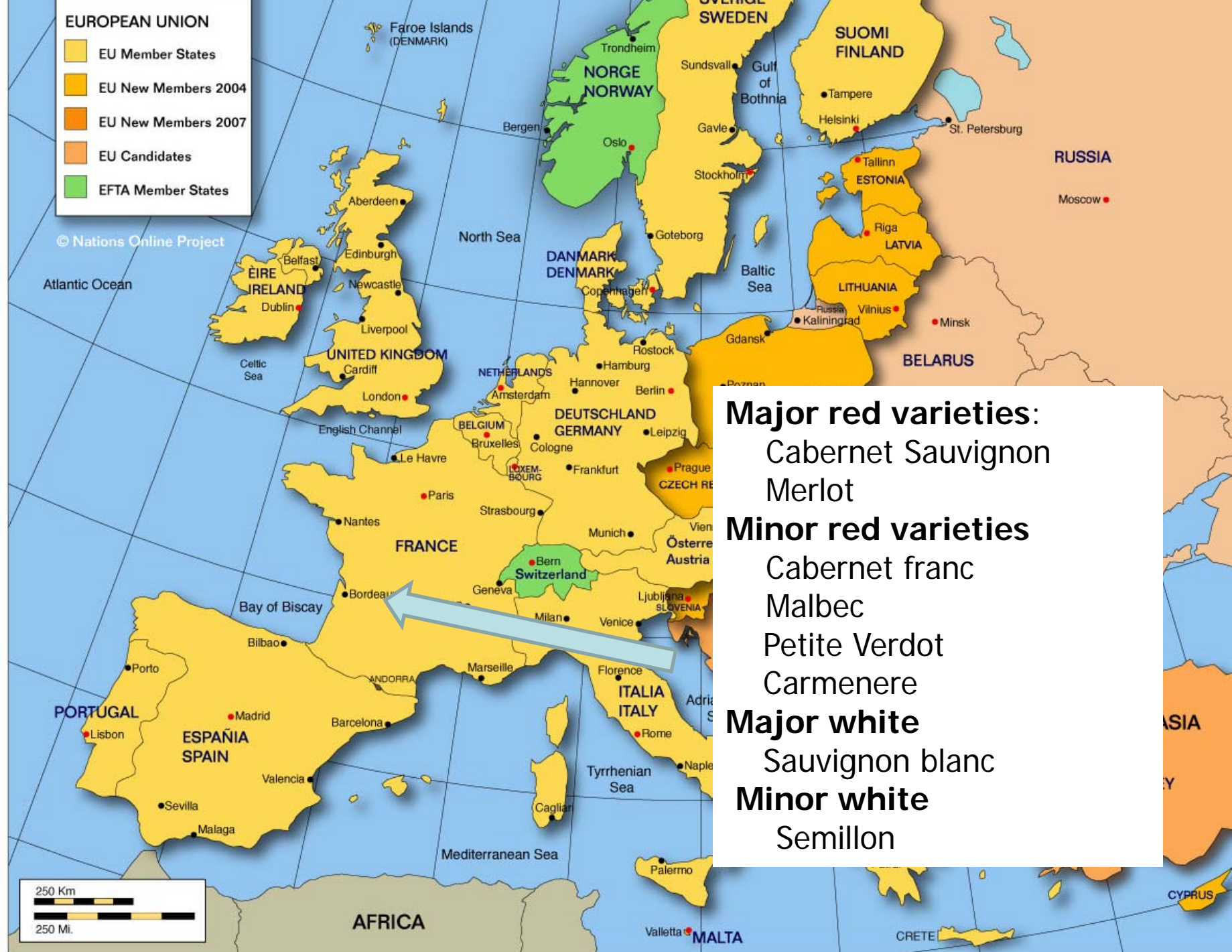
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EUROPEAN UNION

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Major red varieties:

Cabernet Sauvignon
Merlot

Minor red varieties

Cabernet franc
Malbec
Petite Verdot
Carmenere

Major white

Sauvignon blanc

Minor white

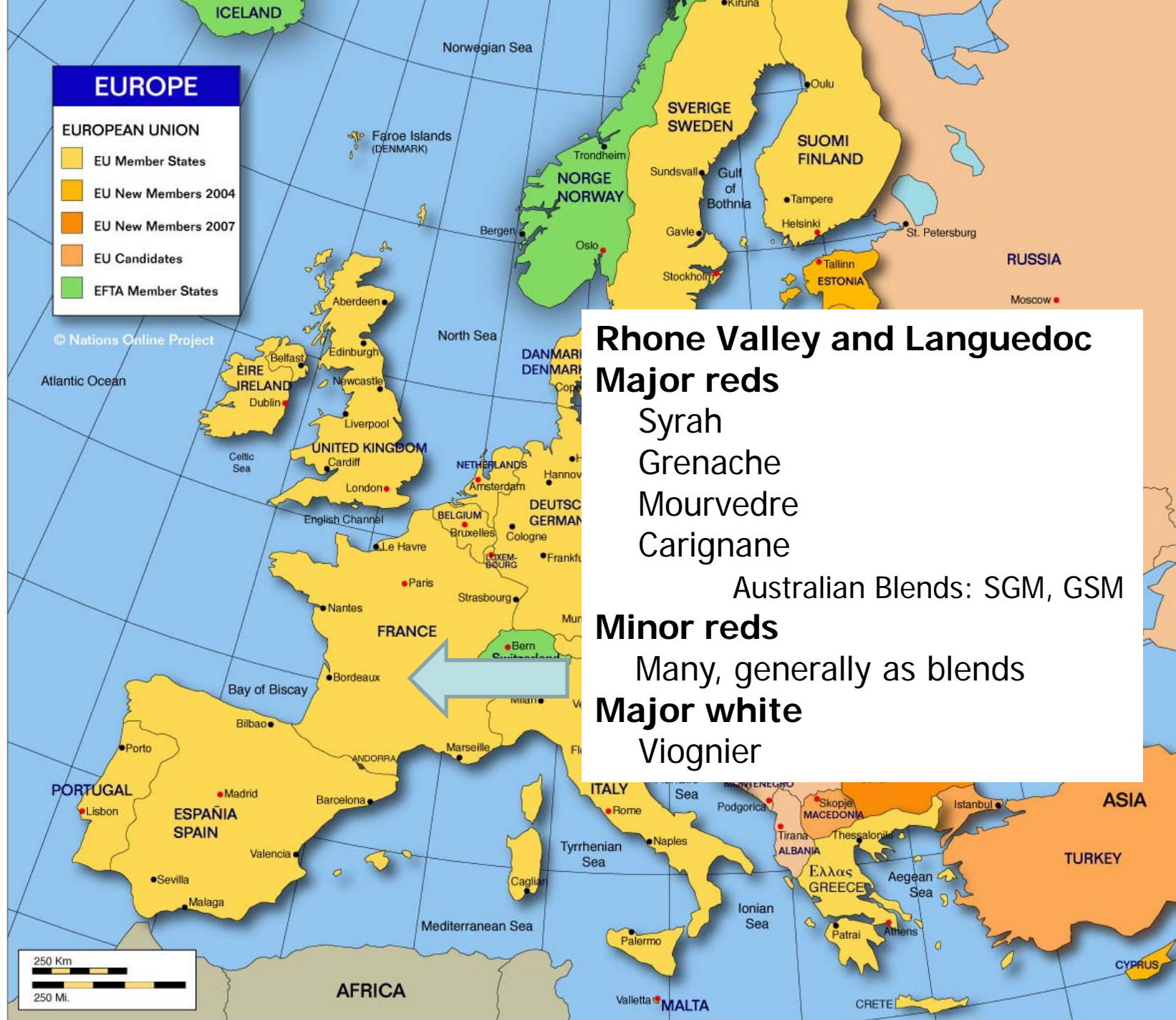
Semillon

EUROPE

EUROPEAN UNION

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Rhone Valley and Languedoc

Major reds

Syrah
Grenache
Mourvedre
Carignane

Australian Blends: SGM, GSM

Minor reds

Many, generally as blends

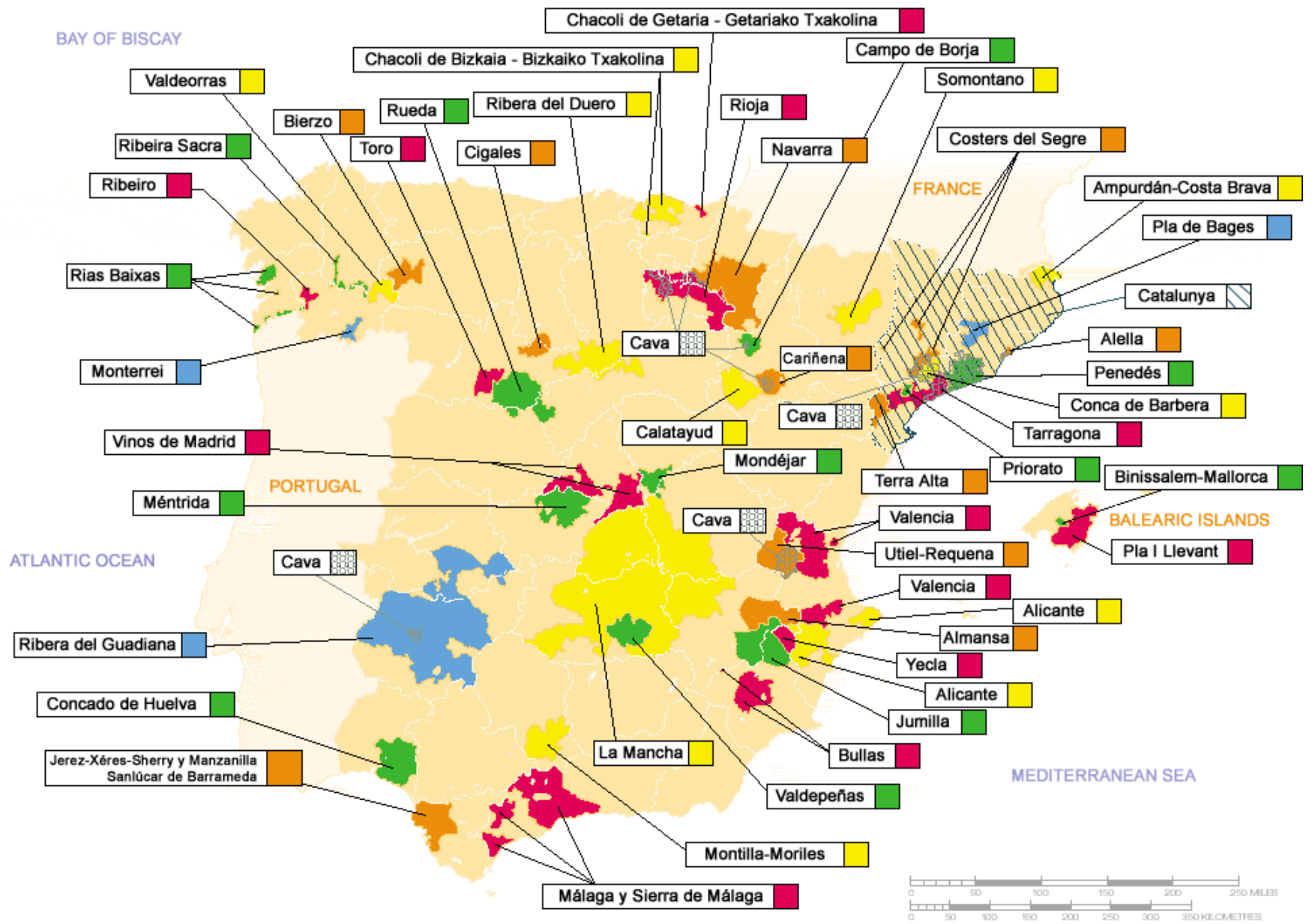
Major white

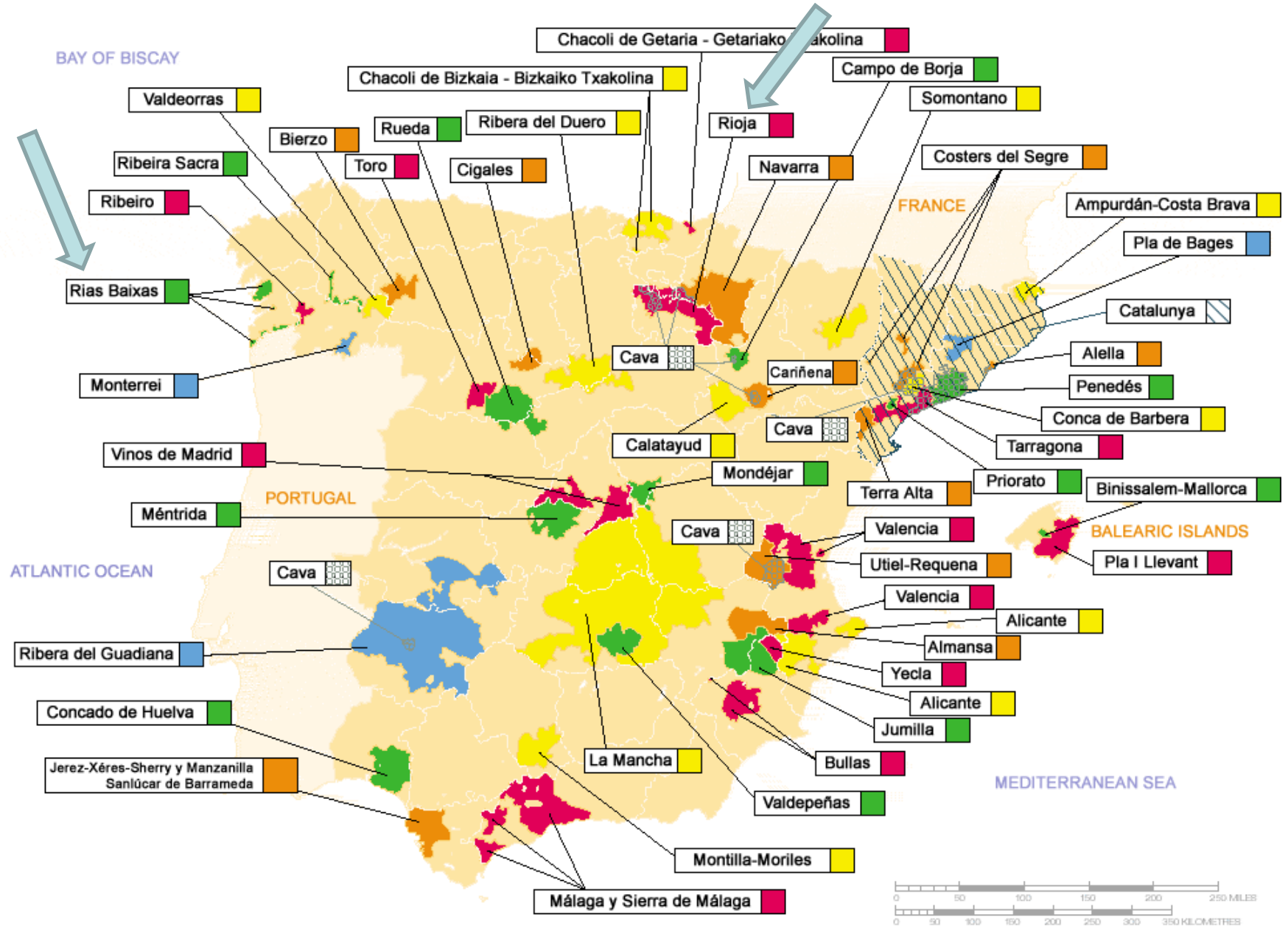
Viognier

Alternative Varieties - France

- Marsanne/Roussanne
- Mourvèdre
- Grenache blanc/gris
- Tannat
- Carmenere
- Malbec (Cot)
- Petite Manseng
- Other minor cepages of Rhone







- EU New Members 2004
- EU New Members 2007
- EU Candidates
- EFTA Member States

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Albariño

Tempranillo



Alternative Varieties - Spain

- Tempranillo (R)
- Graciano (R)
- Mencia (R)
- Verdejo (W)
- Albillo Real (W)
- Albariño (W)
- Godello (W)

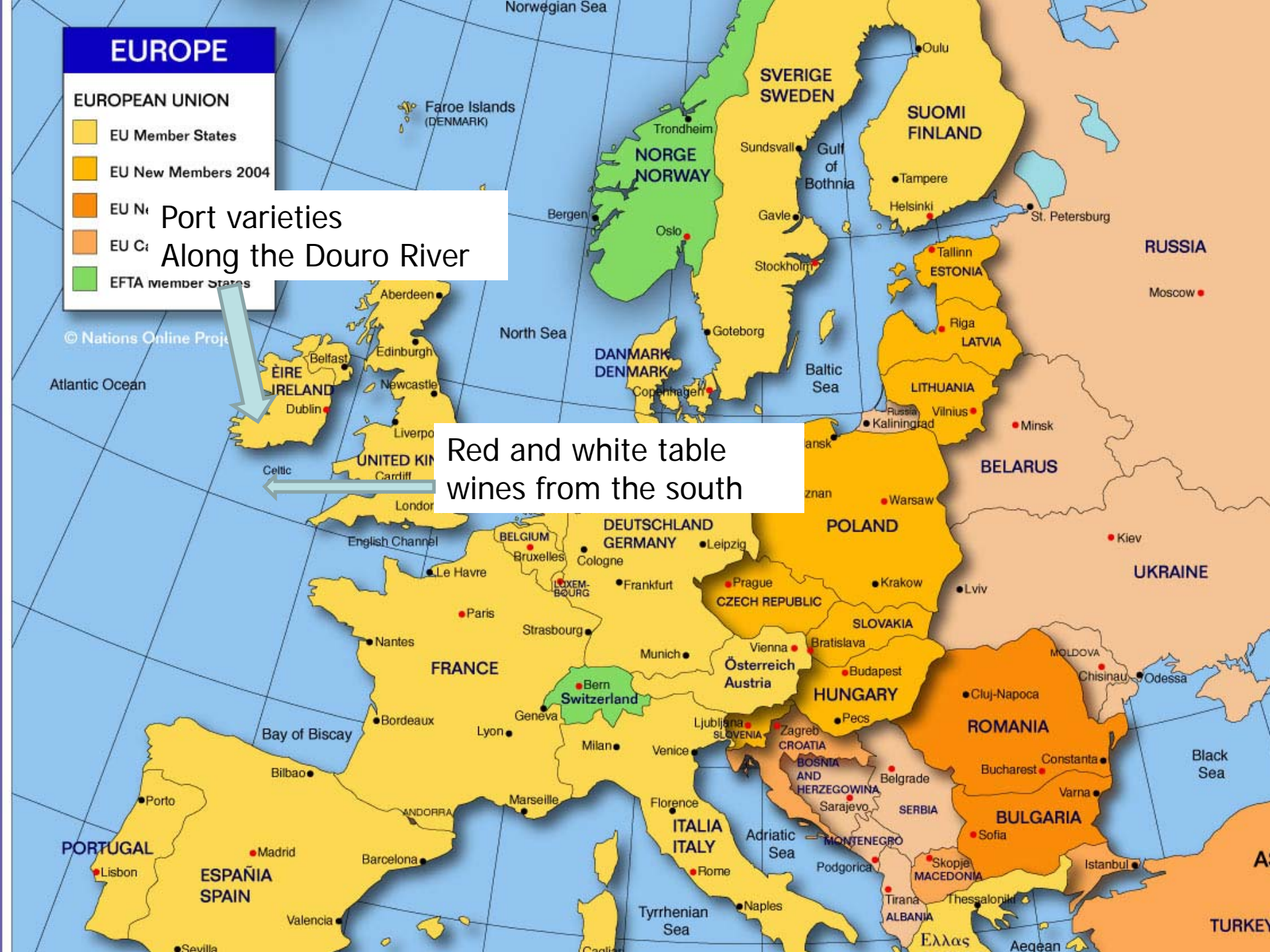
EUROPE

EUROPEAN UNION

- EU Member States
- EU New Members 2004
- EU New Members 2007
- EU Candidate Countries
- EFTA member States

Port varieties
Along the Douro River

Red and white table
wines from the south



Alternative Varieties - Portugal

- Trincadeira Preta
- Touriga Nacional
- Touriga Francesa
- Tinta Cao
- Tinta Roriz
- Castelão (aka Periquita)





Alternative Varieties - Italy

- North and Central
 - Teroldego (R) Arneis (W)
 - Freisa (R) Garganega (W)
 - Ruché (R) Timorasso (W)
 - Sagrantino (R) Vermentino (W)*
 - Ciliegiolo (R) Vernaccia di San
 - Fumin (R) Gimignano (W)






Alternative Varieties - Italy

- South

- | | |
|------------------------------------|----------------|
| – Nero d'Avola (R) | Inzolia (W) |
| – Negro Amaro (R) | Grecanico (W) |
| – Aglianico (Taurasi, Vulture) (R) | Grillo (W) |
| – Montepulciano (R) | Cattarrato (W) |
| – Nerello mascalese (R) | Falanghina (W) |
| – Malvasia Nera (R) | Fiano (W) |



EUROPEAN UNION

-  EU Member States
-  EU New Members 2004
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Alternative Varieties – Greece

- Moschofilero (W)
- Assyrtiko (W)
- Agioghritiko (R)
- Xinomavro (R)
- Mavrodaphne (R)

Associations

- ZAP
- Rhone Rangers
- Cal-Italia
- P.S. I Love U
- TAPAS

Examples

- Berryessa Gap – Winters
 - Zinfandel, Petite Sirah, Tempranillo, Malbec
- Chiarito Vineyards - Ukiah
 - Nero d'Avola, Negro Amaro, Zinfandel
- Bokisch Vineyards – Lodi
 - Tempranillo, Graciano, Garnacha, Albariño
- Other wineries
 - L'Uvaggio di Giocomo, Monte Volpe, Vino Con Brio

- Bonny Doon (Randall Grahm)
 - Too many varieties to name
- “Bonny Doon is the champion of the strange and the heterodox – Ugly Duckling grape varieties whose very existence is threatened by the dominant Cabo/Chardo-centric paradigm.”
Bonny Doon notes on Pacific Rim Dry Riesling

Sources of Variety Information

■ **Wine Grape Varieties of California –**

- UC Ag & Natural Resources
- <http://iv.ucdavis.edu>

■ **Vines, Grapes and Wines**

- Jancis Robinson (UC Bookstore, PWV magazine)

■ **Catalogue of Selected Wine Grape Varieties and Clones Cultivated in France (in English)**

- French Government Offices (UC FPS)

■ **Various variety books**

- Australia, South Africa, Italy (UC Bookstore)

Information on “Alternative” Varieties

- Bastianich, Joseph and David Lynch. 2002. *Vino Italiano: The Regional Wines of Italy*. Mitchell Beazley, London, 528 p.
- Belfrage, Nicolas, 1999. *Barolo to Valpolicella: The Wines of Northern Italy*. Faber and Faber, London, 368p.
- Belfrage, Nicolas. 2003. *Brunello to Zibibbo: The Wines of Tuscany, Central and Southern Italy*. Mitchell Beazley, London, 493 p.
- Mayson, Richard. 2003. *The Wines and Vineyards of Portugal*. Mitchell Beazley, London, 354 p.
- Radford, John. 1998. *The New Spain: A complete guide to contemporary Spanish wine*. Mitchell Beazley, London, 224p.
- All were available at Amazon.com (now, unsure)

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Interaction of Yield, Pruning Weight and
Harvest Date for 20 *Vitis vinifera* cultivars
grown in the San Joaquin Valley, California



June 22, 2011



Trial Site

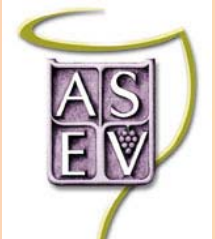
UC Kearney Agricultural Research and Extension
Center (**KARE**)



UCDAVIS
UNIVERSITY OF CALIFORNIA

V&E

June 22, 2011



Trial Site

UC Kearney Agricultural Research and Extension Center (**KARE**)

Soil - Hanford sandy loam

Accumulated degree days (DD) at the Kearney Research and Extension Center CIMIS site (Kearney_Ag_Ctr-01.P). Lower temperature threshold = 50 °F.

	2007	2008	2009	2010
March 15 - September 1	3679	3644	3586	3177
September 1 - October 15	793	929	934	995



June 22, 2011



Varieties in KAC Phase I Trial

Cultivars and clone	Source
Aglianico -03	VCR 2 Rauscedo, Italy
Carmenere -02	VCR 702 Rauscedo, Italy
Cabernet Sauvignon -08	#102, Concannon, CA
Cinsaut -02	Black Malvoisie FPS 02, Sonoma, CA
Durif -03	Petite Sirah FPS 03
Freisa -01	Jackson, CA
Grenache noir -515	ENTAV-INRA® 515, (ENTAV, France)
Malbec -06	VEN, UC Davis, syn=Cot
Montepulciano -02	VCR 10 Rauscedo, Italy
Petit Verdot -400	ENTAV-INRA® 400 (ENTAV, France)
Refosco -03	VCR 5 Rauscedo, Italy
Souzao -01	VEN, UC Davis
Syrah -07	France 877
Tannat -474	ENTAV-INRA® 474 (ENTAV, France)
Tempranillo -02	AGRO, Spain
Tinta Amarella -01	Jackson, CA
Tinta Francisca -01	Portugal
Tinta Madeira 01	Lodi, CA
Tinto Cao -04	Jackson, CA
Touriga Nacional -02	Portugal, 1981

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Petit Verdot -400	ENTAV-INRA® 400 (ENTAV, France)
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Souzao -01	VEN, UC Davis
Syrah -07	France 877
Tannat -474	ENTAV-INRA® 474 (ENTAV, France)
Tempranillo -02	AGRO, Spain
Tinta Amarella -01	Jackson, CA
Tinta Francisca -01	Portugal
Tinta Madeira 01	Lodi, CA
Tinto Cao -04	Jackson, CA
Touriga Nacional -02	Portugal, 1981

"new" varieties

standards

"new" selections

All varieties are commonly cultured
20 varieties – 4 replicates RCBD

Vineyard

1103P rootstock

10' (3.05 m) x 6' (1.83 M) spacing

30 shoots per vine (16 shoots per meter)

Irrigation – 0.6 to 0.8 ETc

Harvest Brix 24



Our Goals:

- To evaluate winegrape cultivars for characteristics suitable for wine production in the San Joaquin Valley.
- To deliver information to nurseries, growers and vintners that allow for well informed and progressive planting decisions.



Description with Viticulture Measurements

Tinta Madeira			
Selection	Tinta Madeira FPS 01		
Source	Lodi, California vineyard		
Treatments	Heat treatment 64 days		
Proprietary	no		
	Mean		
	2007 - 2010		\pm s.e.
Harvest Date	1-Sep		10
Cluster Number per meter	52		1
Berry Weight	(g berry ⁻¹)	1.4	0.0
Berries per Cluster		162	12
Cluster Weight	(g)	231	20
Clusters per Shoot		1.7	0.1
Yield	(kg meter ⁻¹)	6.5	0.7
Brix		24.7	0.2
pH		3.83	0.02
TA	(g L ⁻¹)	4.5	0.1
Shoot Number	(shoot meter ⁻¹)	16	0
Pruning Weight	(kg meter ⁻¹)	1.2	0.1
Yield : Pruning Weight		5.8	0.5
Tons per Acre		9.6	0.0
Cluster % Rot		6	1
Cluster % Shivel		1	1

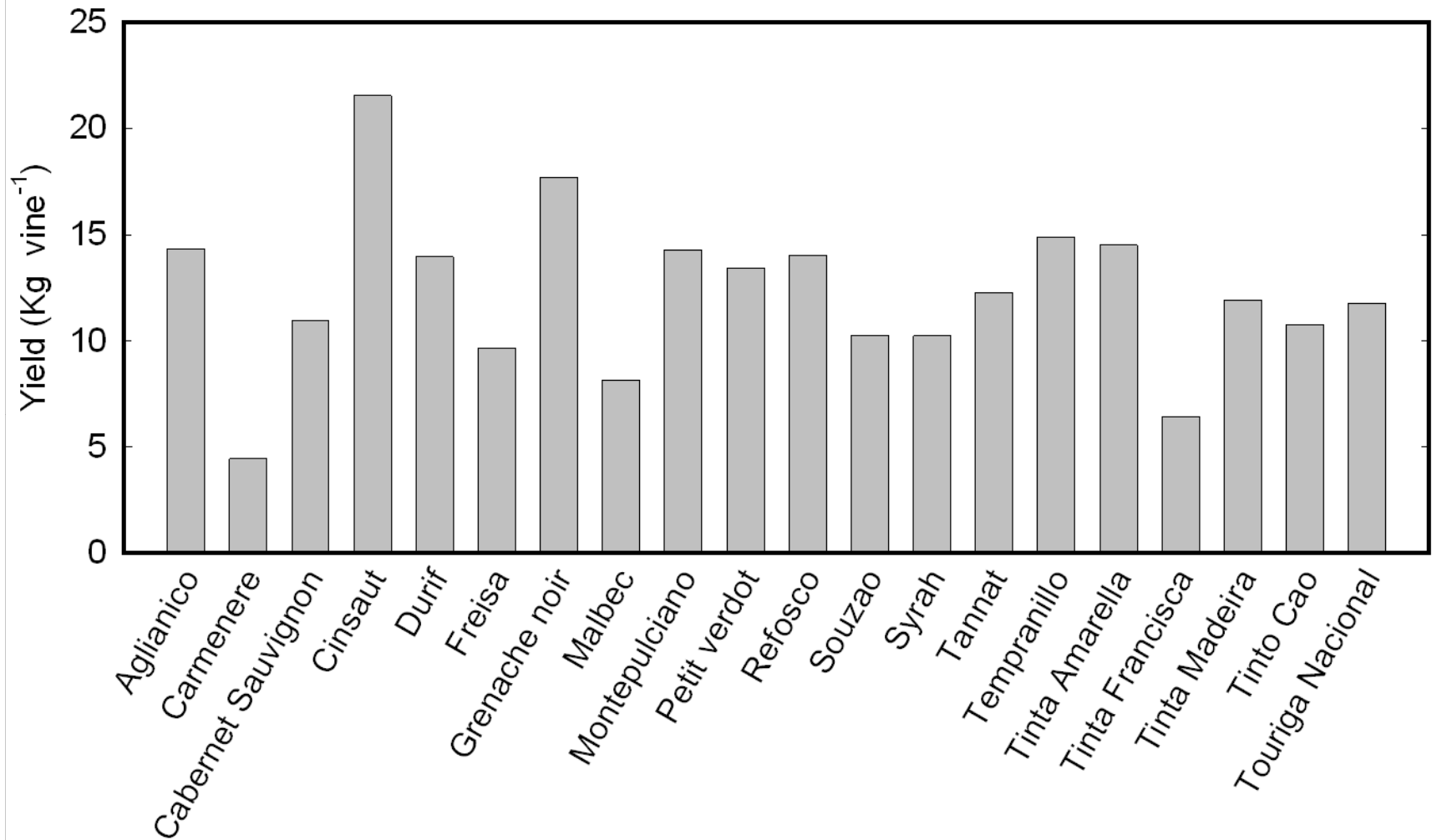


How can we otherwise look at the data?

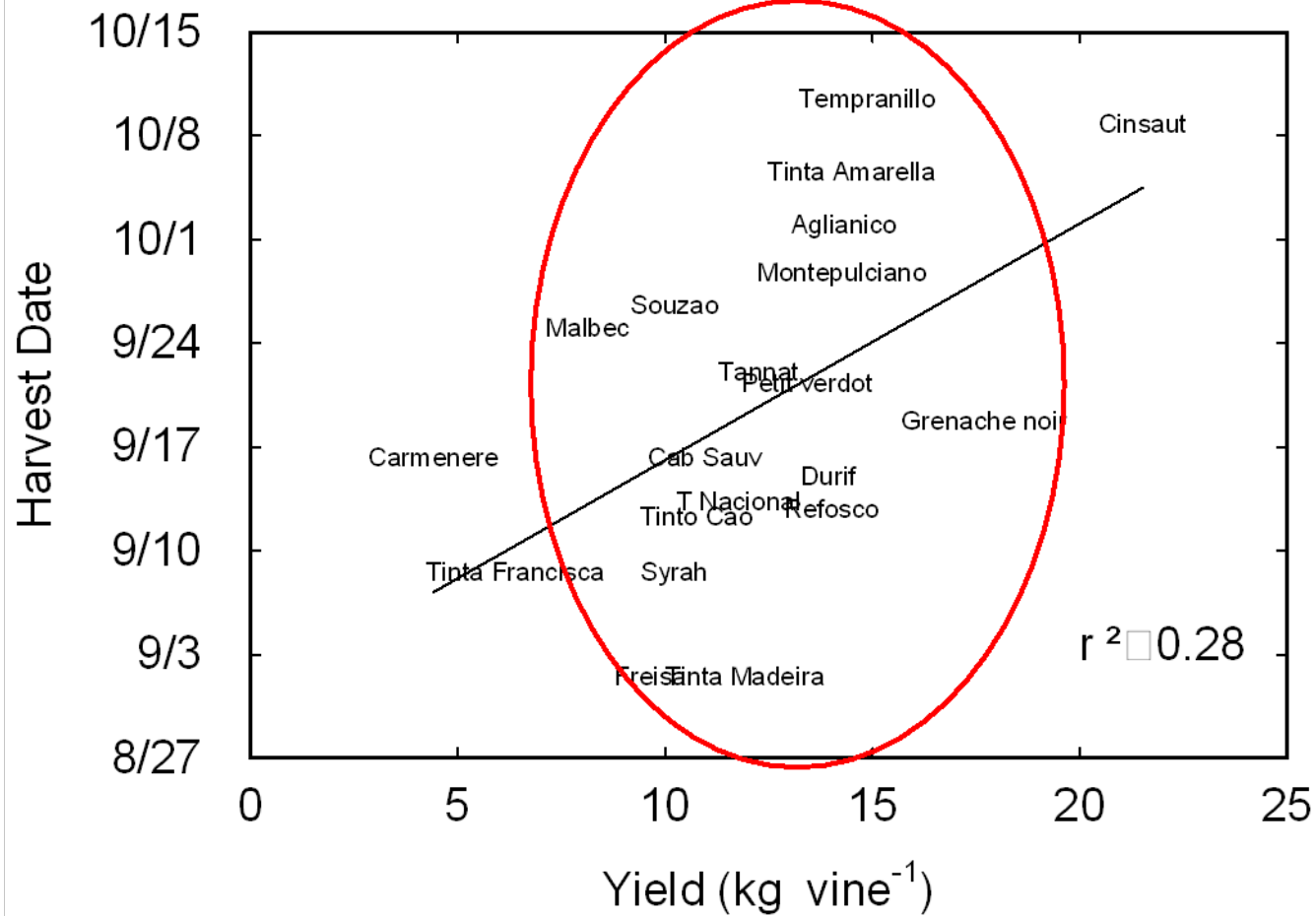
Petit Verdot			
Selection	Petit Verdot ENTAV-INRA® 400		
Source	Petit Verdot ENTAV-INRA® 400		
Treatments	none		
Proprietary	yes, Distributed by ENTAV-INRA licensees		
	Mean		
	2007 - 2010	± s.e.	
Harvest Date	21-Sep	3	
Cluster Number per meter	67	2	
Berry Weight	(g berry ⁻¹)	1.2	0.0
Berries per Cluster		186	10
Cluster Weight	(g)	217	10
Clusters per Shoot		2.5	0.1
Yield	(kg meter ⁻¹)	7.9	0.6
Brix		23.5	0.3
pH		3.70	0.02
TA	(g L ⁻¹)	5.4	0.2
Shoot Number	(shoot meter ⁻¹)	15	0
Pruning Weight	(kg meter ⁻¹)	0.5	0.1
Yield : Pruning Weight		17.2	1.4
Tons per Acre		11.6	0.0
Cluster % Rot		0	0
Cluster % Shivel		0	0



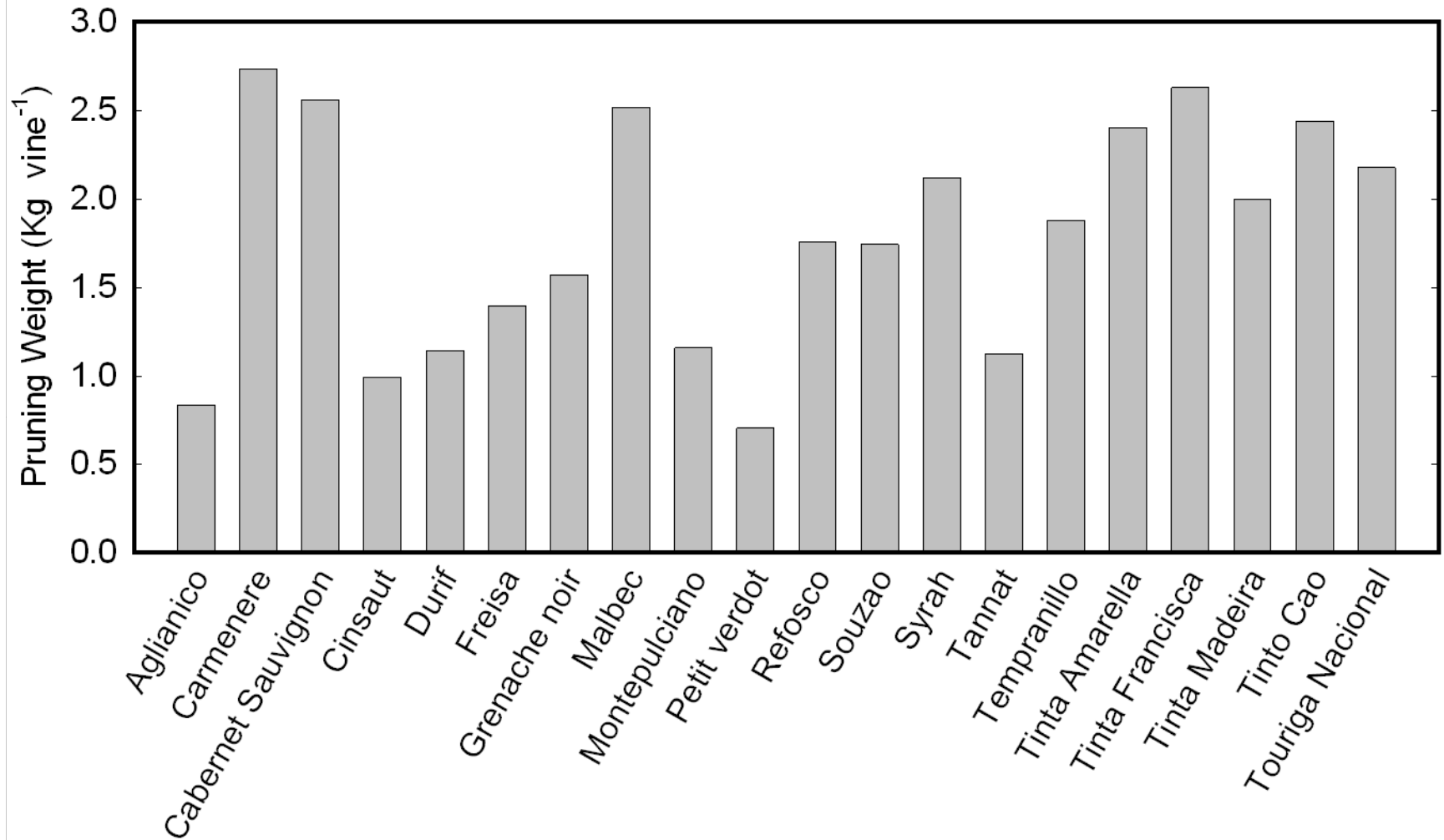
KARE 2007-2010

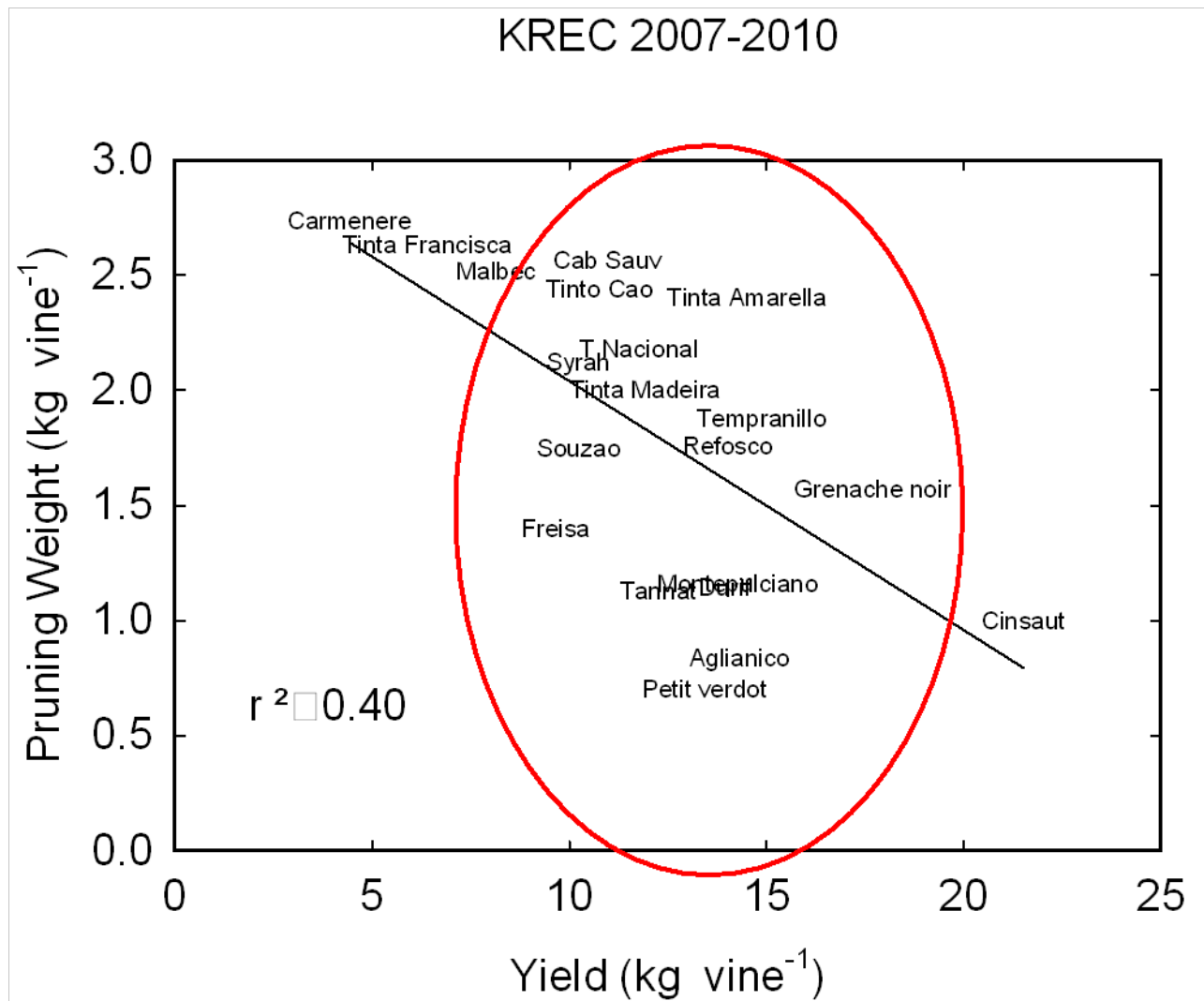


KARE 2007-2010

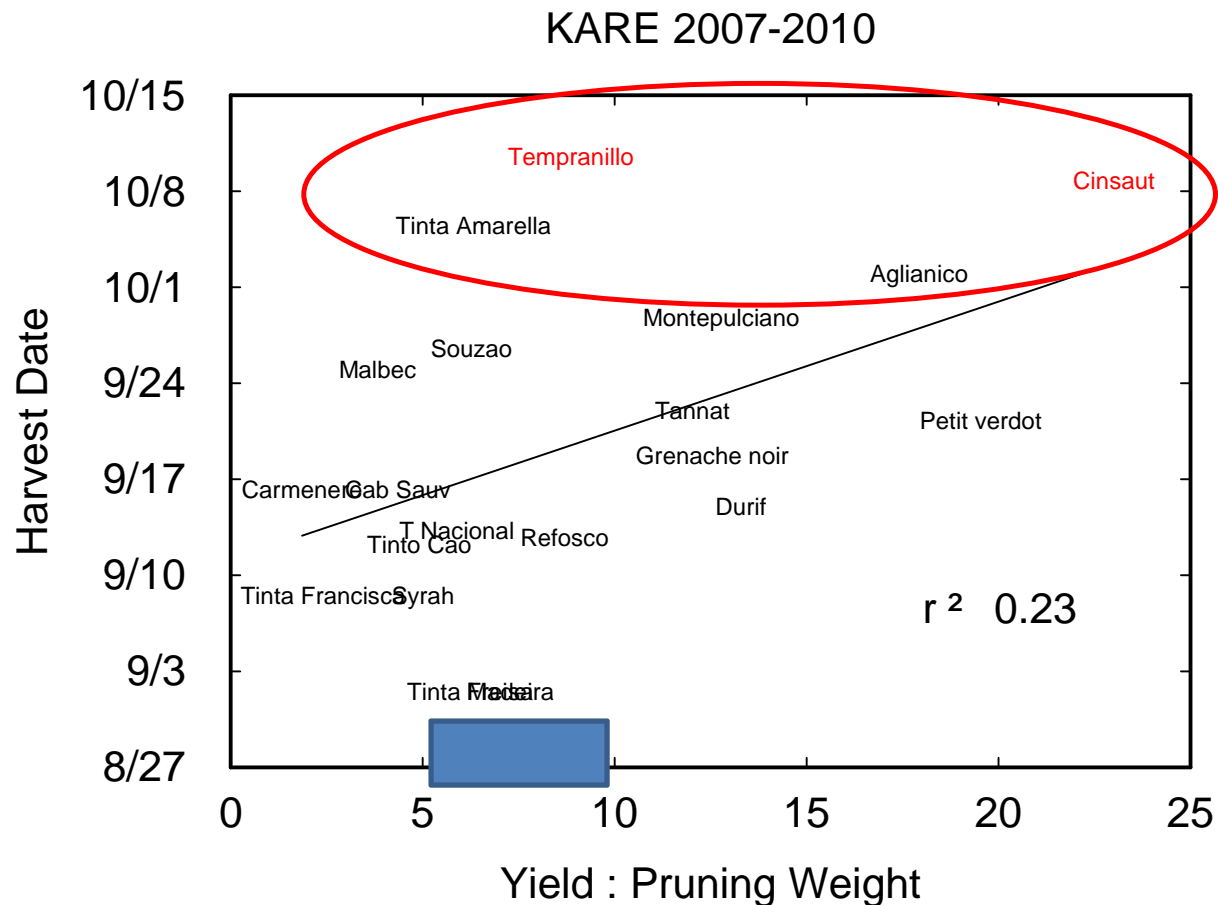


KARE 2007-2010





What does overcropped mean?



Wine analysis of single lot fermentations made in 2008

KAC Varietal Trial Wines	gallic ng/ul	catechin ng/ul	epicatechin ng/ul	caffeic ng/ul	rutin ng/ul	quercetin ng/ul	m-3-g ng/ul	resveratrol ng/ul
Malbec	31.1	113	148	5.8	4.7	2.5	114	1.2
Tannat	65.4	197	290	14.3	4.7	4.6	209	2.0
Carmenere	36.9	93	125	7.4	4.6	3.3	185	1.5
Durif	39.8	167	212	8.1	nd	3.4	219	nd
Refresco	81.9	307	307	9.0	3.4	2.7	138	1.2
Grenache Noir	32.2	82	74	9.4	3.4	1.6	23	0.8
Petit Verdot	72.7	196	244	12.7	17.5	3.9	203	1.7
Anglianico	99.9	323	607	8.1	nd	1.8	80	0.9

Recommended Varieties

Petite Sirah - Durif

Malbec (if better yielding clone)

Petite Verdot

Tannat



June 22, 2011



Back to the vineyard for more data



New Trial at Kearney: 55 Varieties

Red Varieties

Arinarnoa	Mourisco da Semente
Bonarda	Nielluccio
Caladoc	Periquita
Carmenere	Pinotage
Ciliegiolo	Plavina
Corvina Veronese	Prieto Picudo
Counoise	Rondinella
Donzillinho	Sagrantino
Ederena	Schioppettino
Garnacha Tinta	Segalin
Graciano	Semebat
Juan Garcia	Trincadeira Preta
Mammolo	Vespolina
Marselan	
Morrastel	

White Varieties

Albillo Mayor	Malvasia Bianca
Albillo Real	Marsanne
Alvarinho	Moscato Giallo
Arinto	Parellada
Arneis	Perera
Bianchetta Trevigiana	Petit Manseng
Biancu Gentile	Picolit
Biancolella	Ribolla Gialla
Coda di Volpe	Roussanne
Cortese	Tocai Friulano
Erbaluce	Trebbiano Toscano
Falanghina	Viozinho
Fiano	
Forastera	
Greco di Tufo	

Acknowledgements

Stephen Vasquez
Dr. Matthew Fidelibus
Dr. Larry Williams

Funding

American Viticulture Foundation

KAC Personnel
Dale Pattigan
Rudolfo Cisneros

California Competitive Grant
Program

Viticulture Consortium West

Constellation Brands
Oren Kaye
Jim Orvis
Jon Holmquist



June 22, 2011

