ANALYSIS OF GRAPE SUPPLY FOR LAKE COUNTY & CLIENT REGIONS

Commissioned by the Lake County Winegrape Commission

FULL GLASS RESEARCH

February 2015

Section #2 – SUPPLY OF RELEVANT GRAPES

Introduction

It's hard to see where you are going, if you don't know where you have been. The goal of this section is to provide background data on the recent history of supply of Lake County Cabernet and Sauvignon Blanc, clarify Lake County's position in terms of pricing and quantity vs. the rest of California, and illustrate trends from 2005 to 2014.

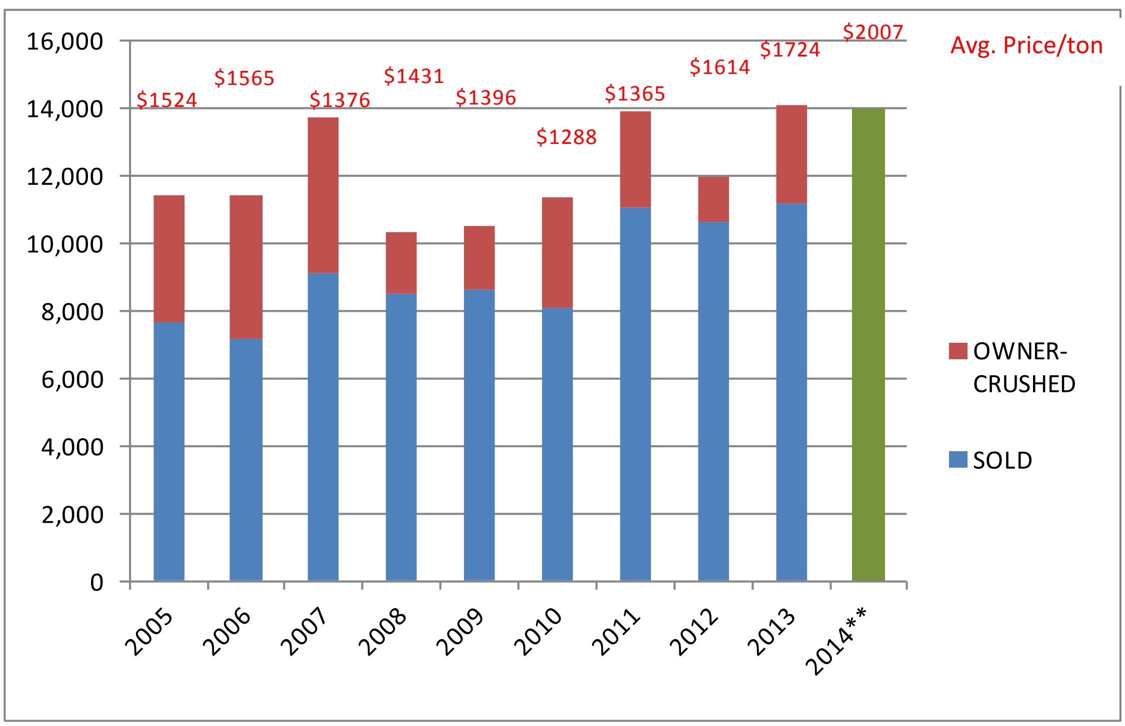
The data used in this report (and in subsequent report #3 on demand) is derived from the California Agricultural Statistical Service reports on grape acreage and crush, filed 2005-2013. In addition, CASS data forms the basis for projections of future grape supply. The projection method is discussed on page 15. Finally, where feasible, this edition of the report has been updated with the CASS preliminary crush data for 2014.

Note that unless otherwise specified, "Cabernet" in this report refers to Cabernet Sauvignon. "Sauvignon Blanc" does not include Sauvignon Musque.

Historical Analysis

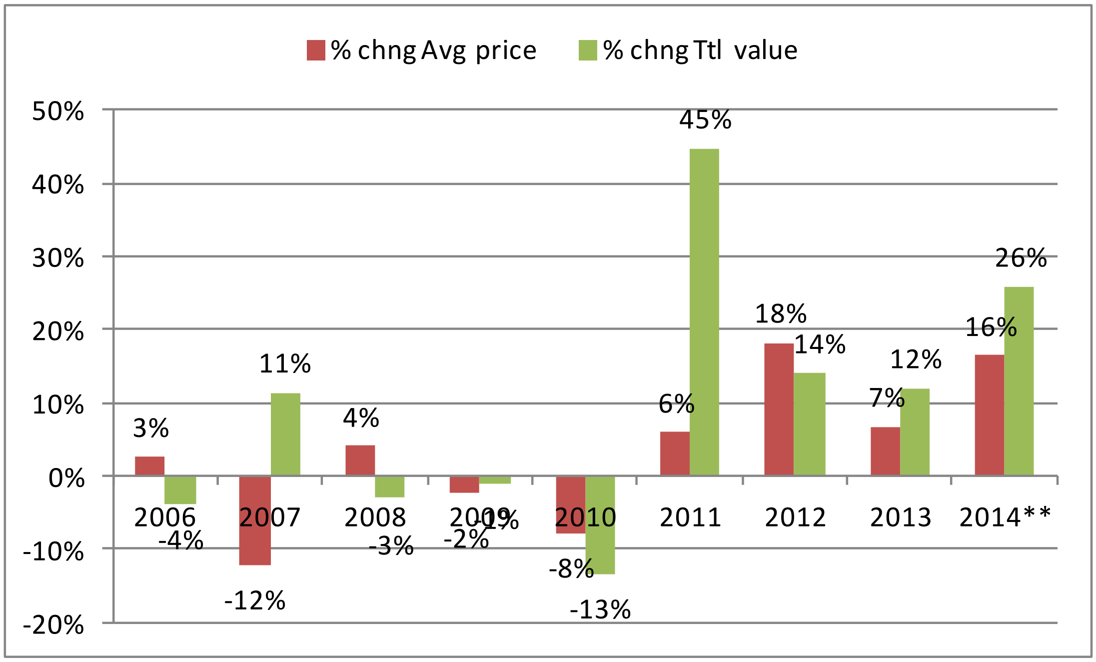
CABERNET SAUVIGNON

Lake County Cabernet Crush 2005-2014 (preliminary)**



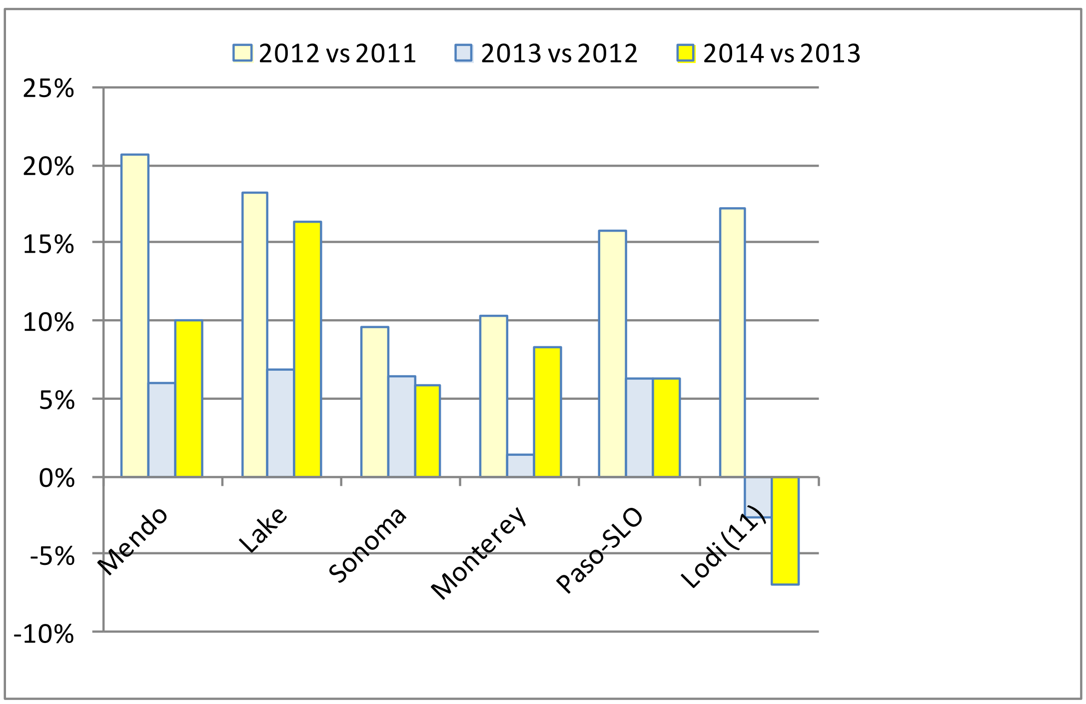
From 2005 to 2010 price varied inversely with the change in volume. From 2011-2014, the average price per ton for Lake County Cabernet rose steadily, regardless of increases or decreases in supply. The proportion of owner-crushed Cabernet has declined somewhat in recent years.

Lake County Cabernet change in price and change in total revenue 2005-2014**



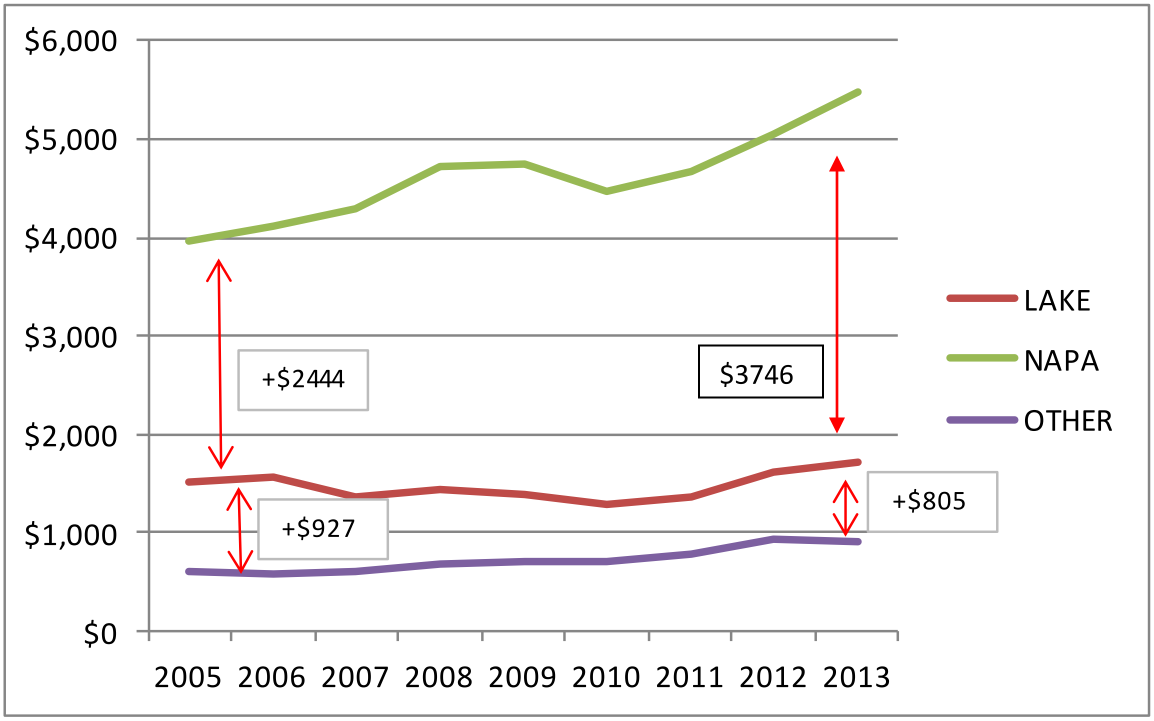
**estimated

Change in Cabernet Prices 2011-2014, Select Districts**



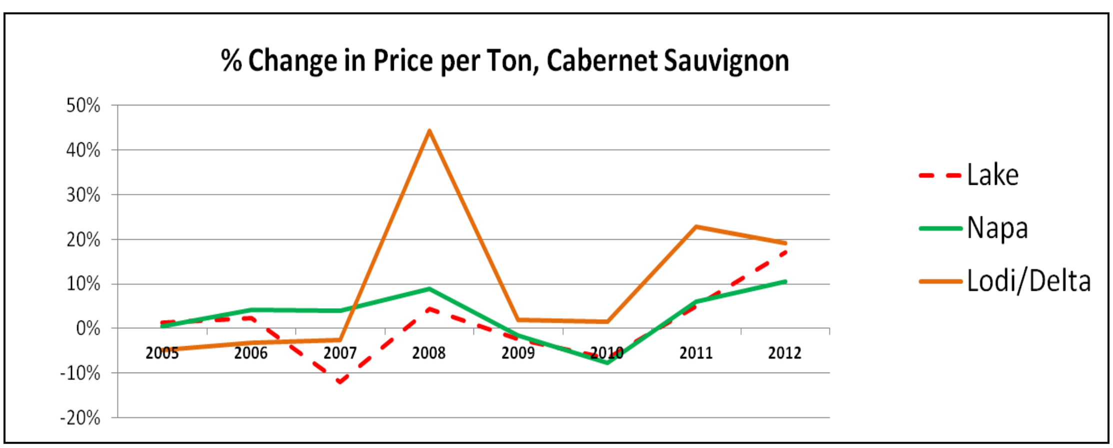
While Lake County prices are up from 2011 to 2014, prices have increased for other regions too, with the exception of Lodi. Lake County has the highest average growth rate, and outperformed other regions in 2014.

Lake vs. Napa vs. Other CA Cabernet price per ton 2005-2013



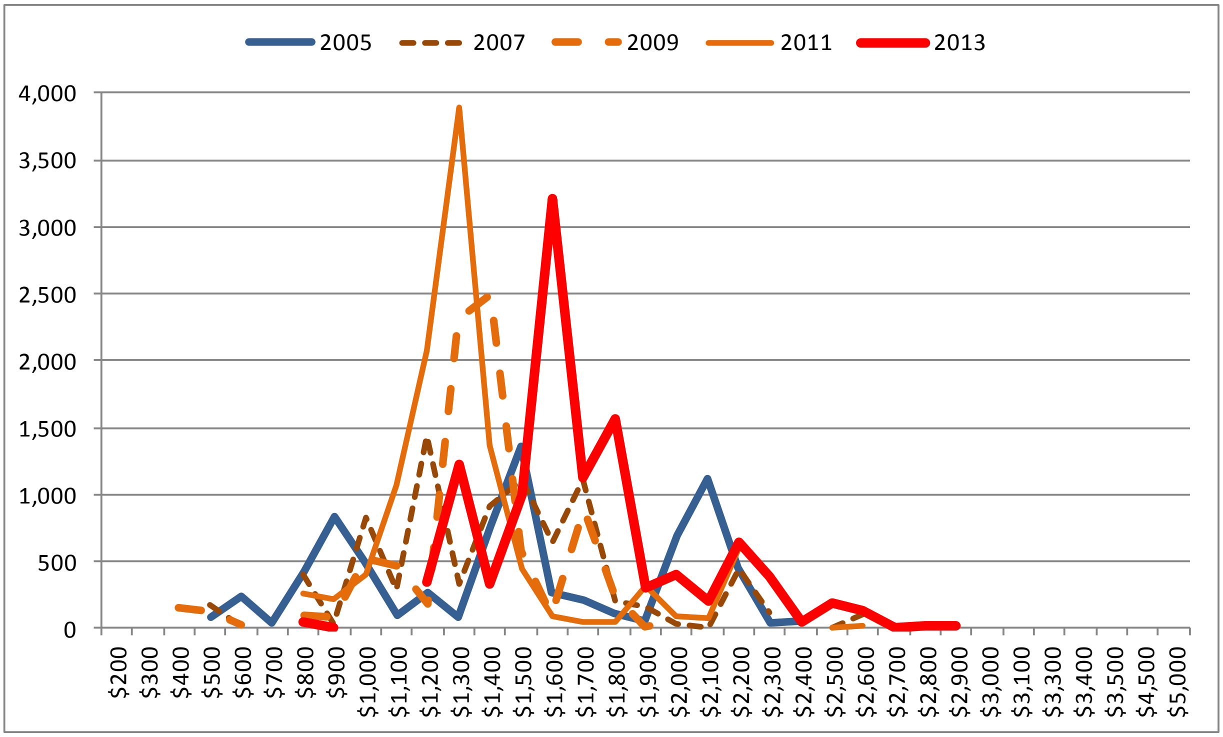
The gap between Napa Cabernet pricing and Lake County has widened; in 2014 it reached $3,923 per ton. Longer term, the margin Lake County has over all other Cabernet regions' average has shrunk somewhat. However, the 2014 preliminary data shows Lake County's margin increasing over Paso Robles, Mendocino and Lodi.

Lake vs. Napa vs. Lodi/Delta Cabernet change in price



Changes in Lake County prices have more or less tracked those of Napa since 2008, whereas Lodi is more variable. This suggests Lake County operates in a similar market to Napa, rather than Lodi.

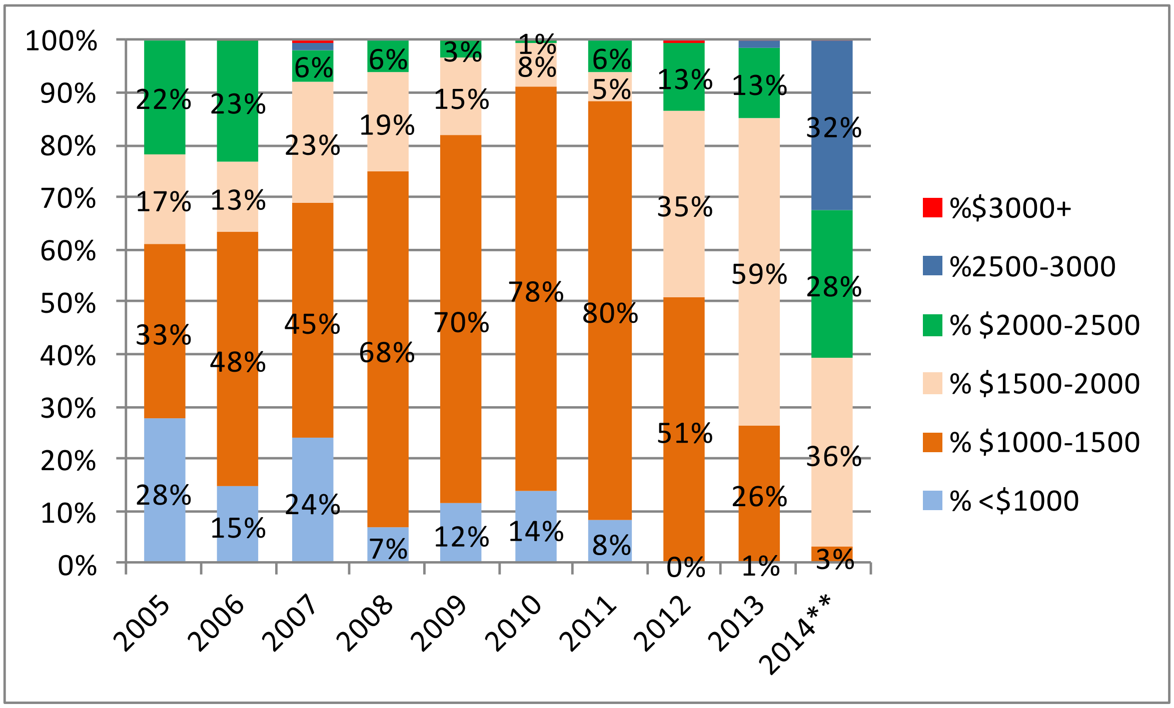
Lake county Cabernet – distribution of volume by price 2005-2013



This graph measures the distribution of Lake County Cabernet tonnage sold at different prices since 2005. Note that the variance in prices was much greater in 2005, with more tonnage sold at the high and low ends. The average stayed nearly the same from 2007-2011 ($1365-$1396/ton). Then from 2011 to 2013, the high end of the distribution gets much longer and the low end starts to disappear.

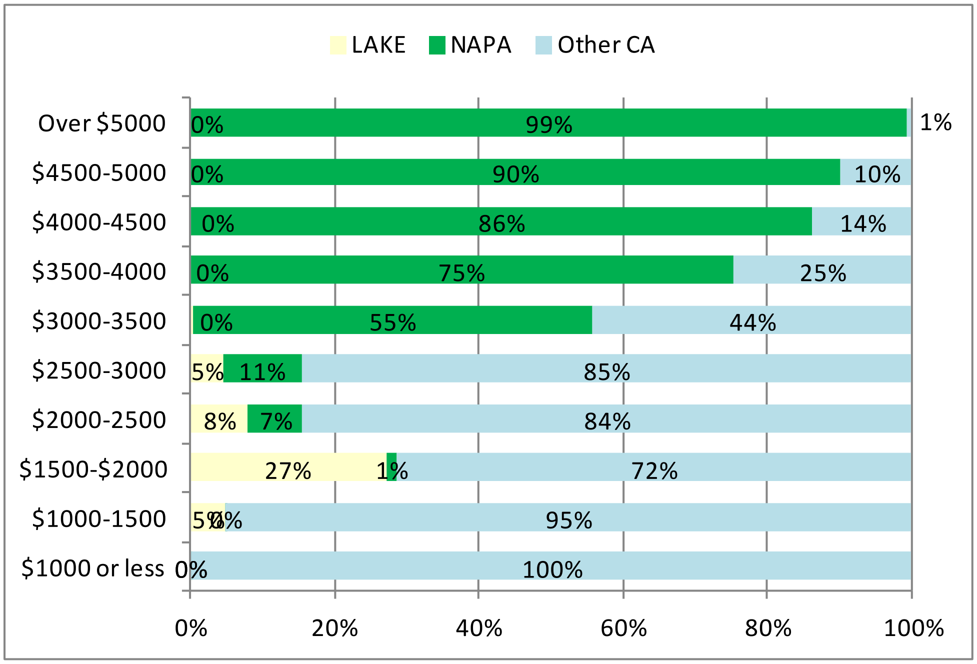
The Cabernet sales distribution is "spikier" than Sauvignon Blanc. While the majority of sales take place within about a $1000 band ($800-1800 until 2011 when it shifts up $1-200 depending on year), the distribution is not smooth and in most years there are significant volumes (100+ tons) sold at far above the typical price band. In most years from 2005-2010 there were also significant "clumps" of volume sold below the main band, ranging from $300-800. After 2011, there are no substantial "fire sales" of Cabernet on record, yet the spikes on the high end continue.

Lake County Cabernet Price Distribution 2005-2014 (preliminary)**



Prices have progressed steadily upwards since 2010, primarily by the reduction in the percentage sold under $1500. Prices surged upwards in the 2014 preliminary crush data, for the first time surpassing the high end proportions of 2005-2006. Meanwhile sales below $1500/ton have dwindled to 3% of all Cabernet grapes sold.

Share of Cabernet Grape Sales by Price Segment



Where does Lake County fit in California grape price? In 2013, Lake County had a substantial share of the $1500-2000/ton Cabernet market, and significant but distinctly minor sales in the $1000-1500 bracket and $2000-3000 bracket.

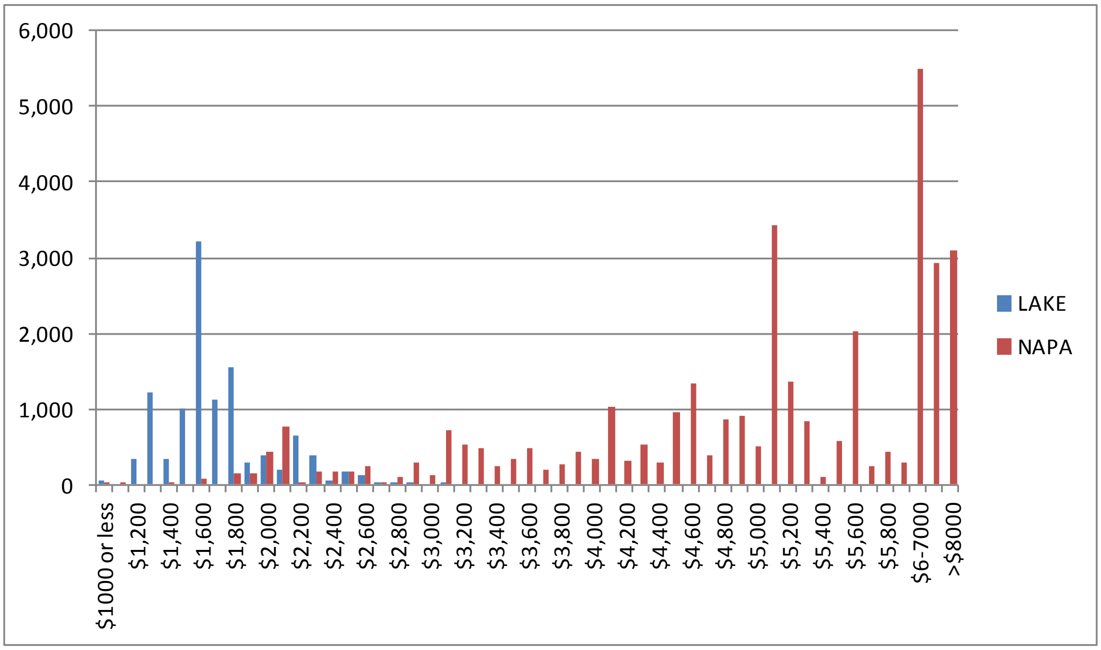
Just taking 5% more share of the $2000-2500 and the $2500-3000 segments would shift an additional 12% of the Lake County Cabernet grapes (1,425 tons) above the $2000/ton price line. Based on preliminary 2014 results, this appears to be happening.

On the other hand, based on the survey, majorities will not pay $2000+ per ton for Cabernet unless it achieves a retail price over $20. This eliminates the majority of California from the purchase side, implying that much of the demand would have to come from blending into Napa and perhaps Sonoma wines, or from building Lake County brands. To derive this entire shift from blending into Napa wines would require obtaining a dominant share of outside-the-county grapes used for blending into Napa Cabernet (79% in 2013).[1] It seems that increased sales to Sonoma and perhaps higher end North Coast blends would also be required to shift this substantial an amount over the $2000/ton line.

Alternatively, shifting 1,425 tons into this price segment via Lake County brands implies selling an additional 96,000 cases of $20+ Lake County Cabernet.

[1] *assumes 31% Napa wineries blend, 8% average rate from survey, 65,000 ton future Napa Cabernet harvests*

Grape Sales by Price Segment: Lake County vs. Napa Cabernet Sauvignon 2013



There is little overlap between Lake County and Napa for either Sauvignon Blanc or Cabernet pricing. But the premium charged for Napa Cabernet vs. Lake County is much higher than for Sauvignon Blanc, typically over $3200 vs. about $800 for Sauvignon Blanc.

However, on a margin basis the Napa Cabernet grape premium relative to winery FOB prices is relatively similar to the premium on Sauvignon Blanc vs. winery FOB prices.

The price premium realized by Napa wineries for Napa Cabernet vs. Lake County Cabernet is $87.74 per case. But based on average grape prices, $56.71 of that premium is eaten up by grape price difference, leaving a margin difference of just $31.03 per case.[2]

For Sauvignon Blanc, the numbers show a $35.21 Napa premium in price per case and a $12.52 difference in grape cost per case, leaving $22.69 margin difference. So the Napa Cabernet price premium is not as high as it seems in terms of profitability.

However, if you factor in the high proportion of Napa Cabernet sold Direct-to-Consumer (29% of sales at an estimated $65/btl)[3], and then subtracting the Napa grape cost premium still leaves $128.68 per case. So to some extent Napa wineries still have room to bid up Cabernet prices, as long as they have robust DtC programs, whereas the room is much less for Sauvignon Blanc. It is also worth noting that if the Napa/Lake County Cabernet premium continues to expand (over $3900 in 2014 preliminary data) this issue of margin difference may have to be reevaluated. Either Napa wineries will have to further increase FOB and consumer prices, or increase the proportion blended from grapes outside Napa.

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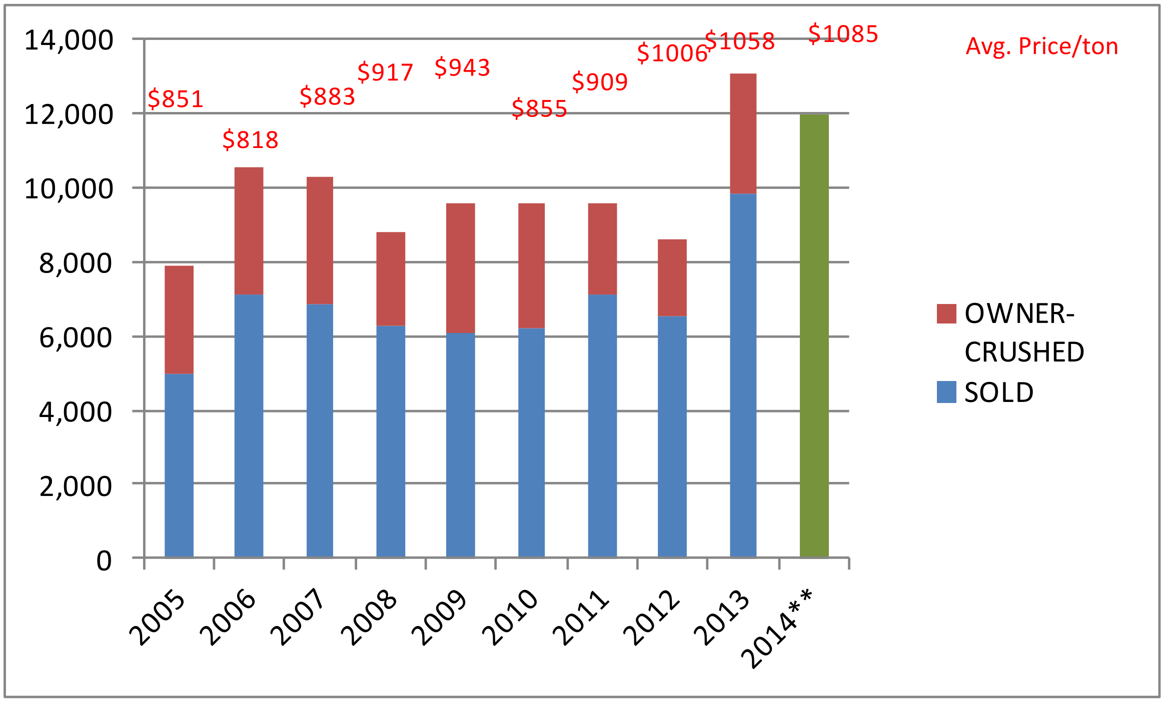
[2] *calculations based on Nielson weighted scan sales, 50% & 33% markup +$6 tax/freight*

[3] *Wines &Vines-ShipCompliant database + Napa Economic Impact Report + FGR calculations*

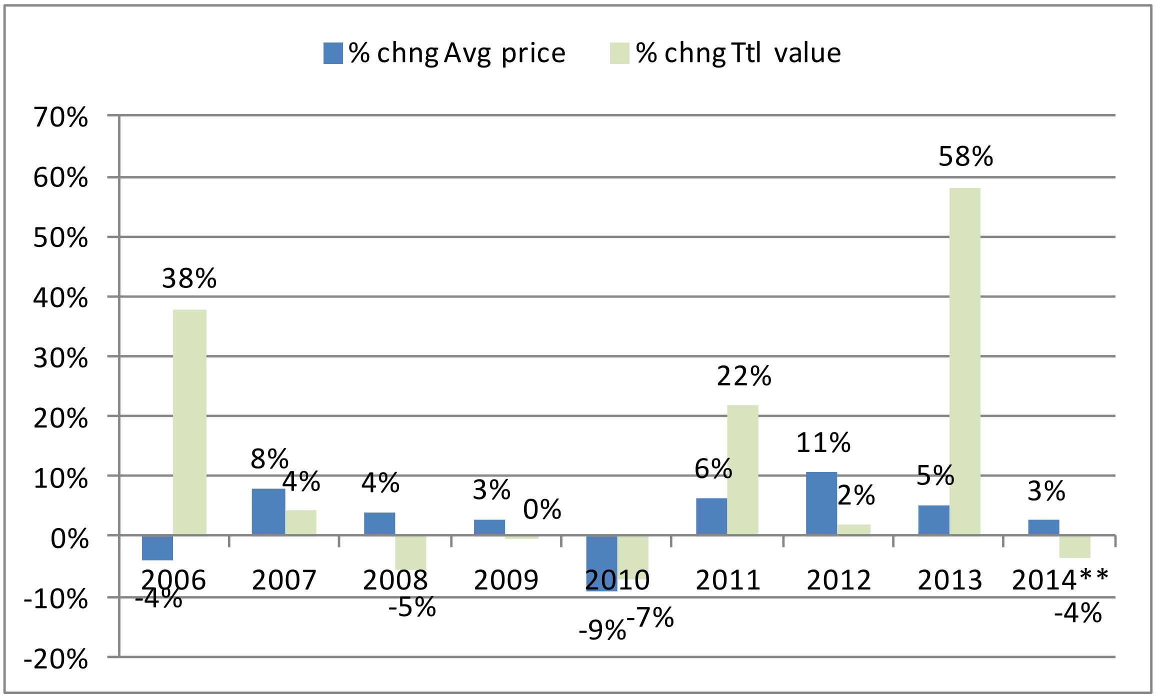
SAUVIGNON BLANC

Lake County SAUVIGNON BLANC Crush 2005-2014 (preliminary)**



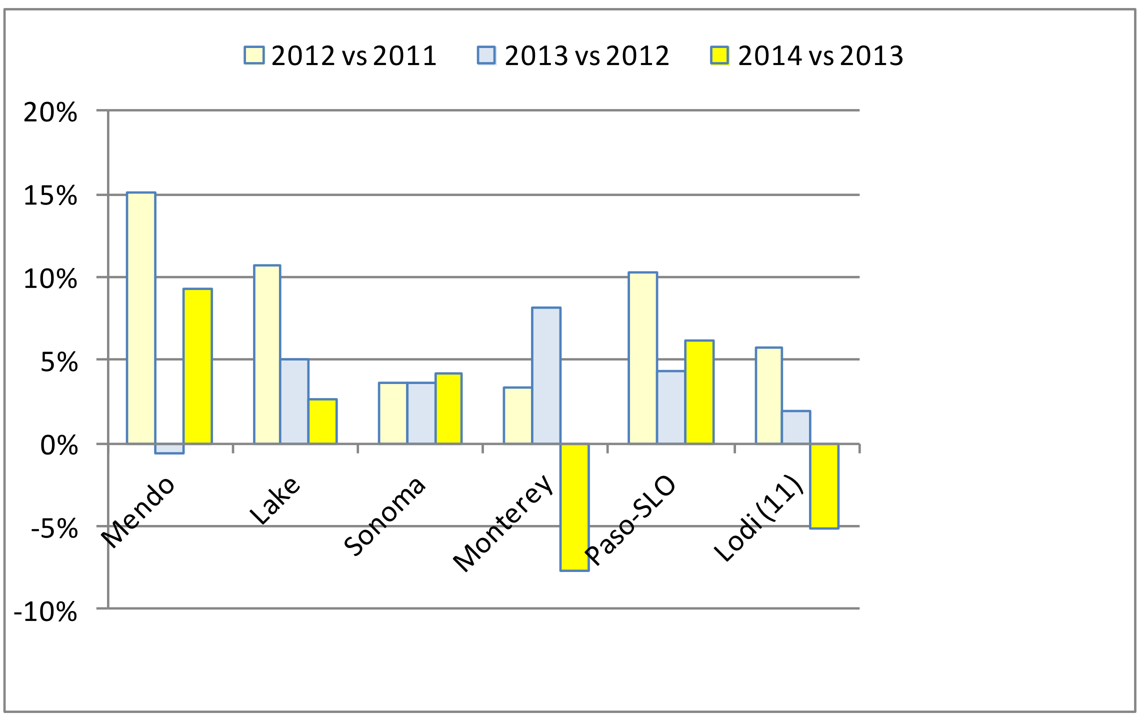
As with Cabernet, from 2005 to 2010 there was generally a negative relationship between changes in crop size and changes in prices. There has been a steady uptick in prices since 2010. Yields have been more variable since 2010 as well.

Lake County Sauvignon Blanc change in price and change in total revenue 2005-2014



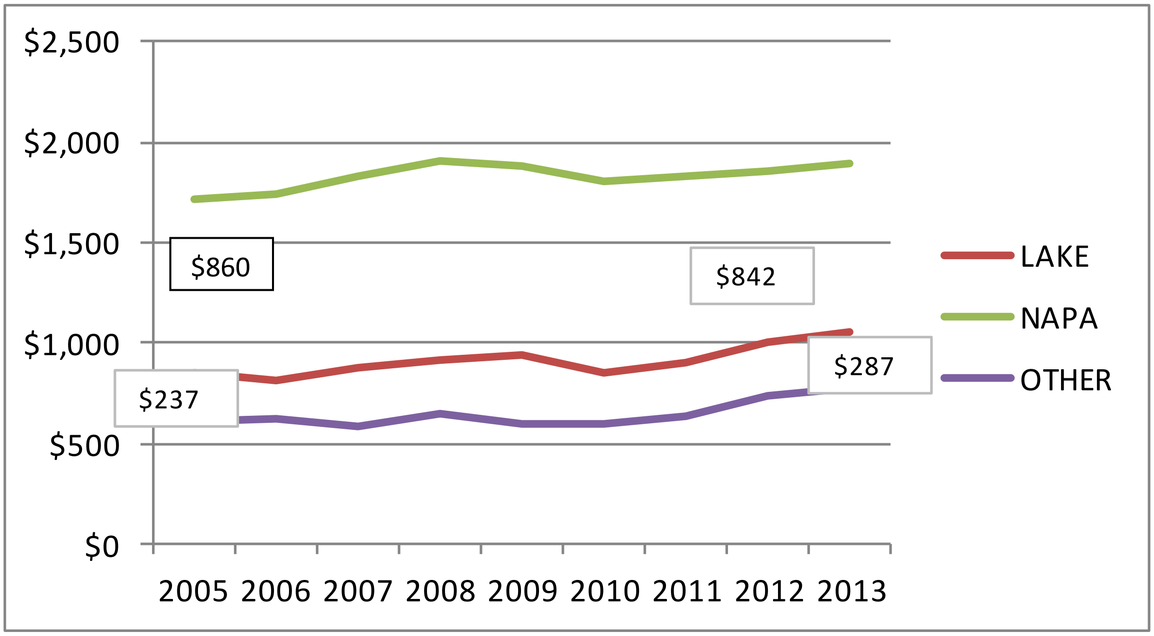
A smaller crop in 2014 appears to have realized lower total value than in 2013, although the average price for Lake County Sauvignon Blanc edged upwards.

Change in Sauvignon Blanc prices, Select Districts



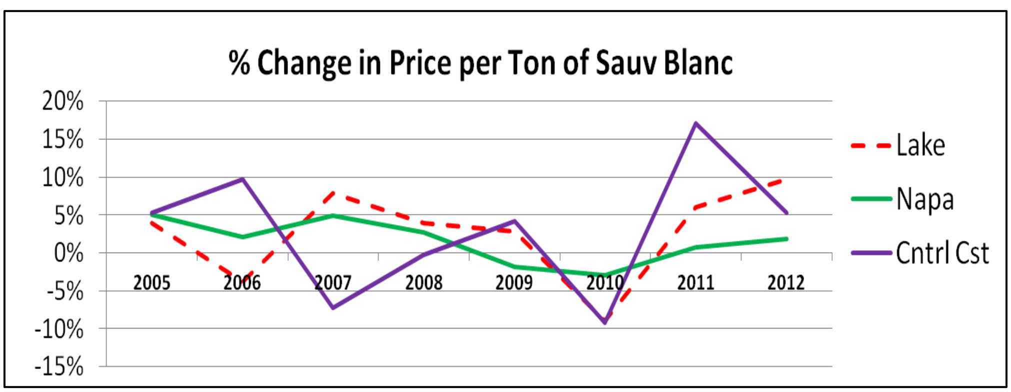
Lake County has achieved the steadiest increases in Sauvignon Blanc prices recently, although at a declining rate. Sauvignon Blanc prices appear to be more volatile by region than Cabernet, perhaps due to more volatile yields from year to year and greater impact of the spot market. The small increases achieved by Sonoma County (despite its strong reputation with consumers) suggest that, unlike Cabernet, there may be an upper boundary to Sauvignon Blanc pricing.

Lake vs. Napa vs. Other California Sauvignon Blanc price per ton 2005-2013

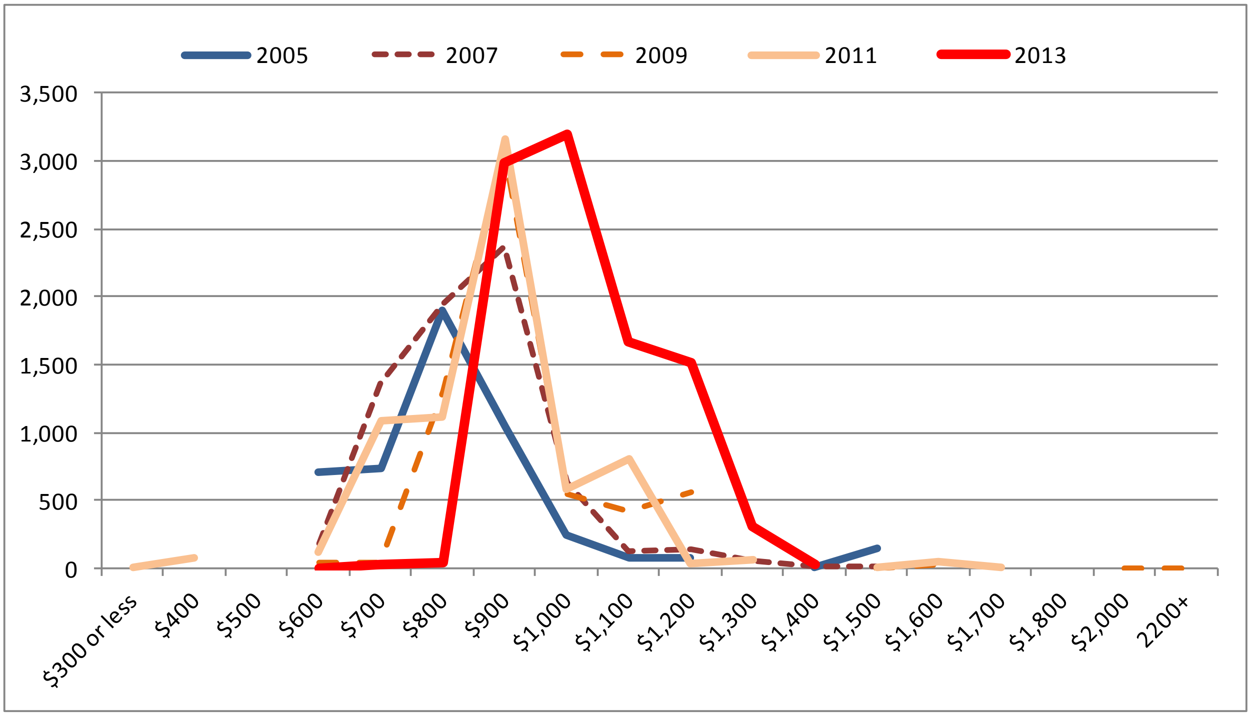


Unlike with Cabernet, Lake County Sauvignon Blanc has expanded its price premium over other regions' average since 2005. The gap between Napa and Lake County for Sauvignon Blanc has remained roughly the same.

Lake vs. Napa vs. Central Coast SAUVIGNON BLANC change in price



Lake County Sauvignon Blanc – distribution of volume by price 2005-2013

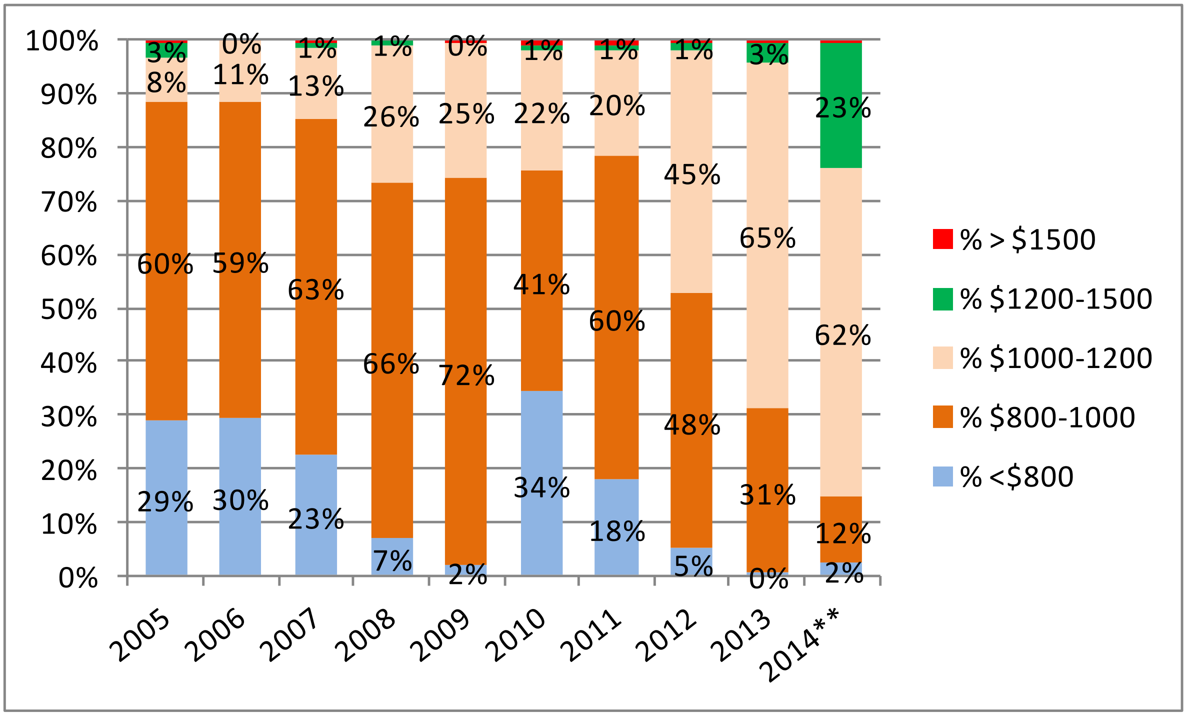


The average Sauvignon Blanc price for Lake County ranged from $851 in 2005 to $943 in 2009, back to $909 in 2011. Then a major shift occurs from 2011 to 2013, with the average jumping to $1058/ton, and a huge drop in transactions below $900/ton.

The shift occurred primarily with the 2012 vintage, but continued with 2013. In 2011, 34% of Sauvignon Blanc sales were under $900 in 2011 vs. 8% of sales in 2012 and 1% in 2013. By 2013, 19% of sales were $1200+ per ton, vs. 2% in 2011.

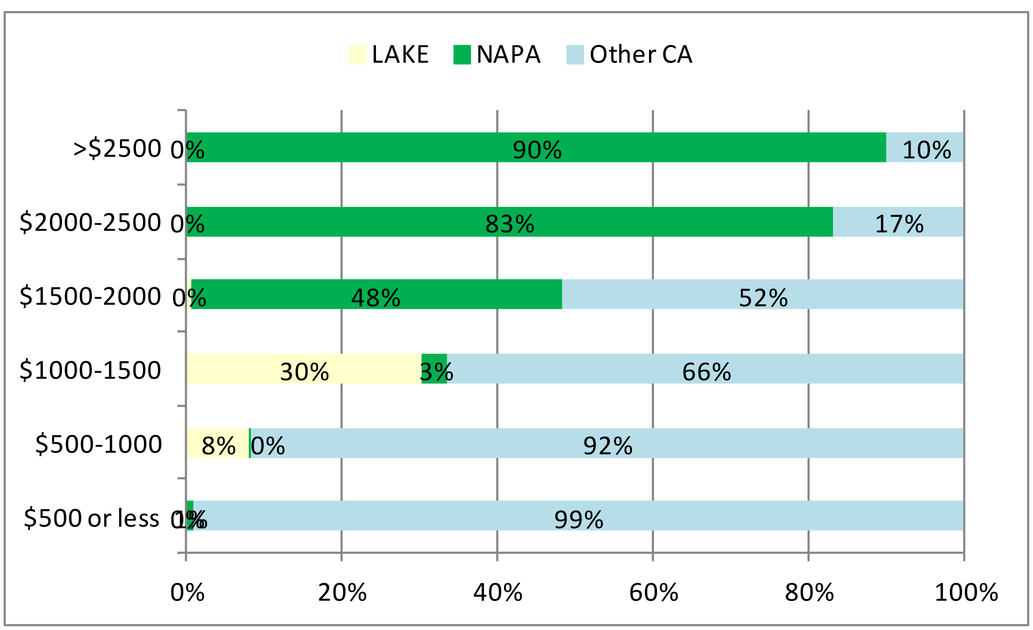
From 2006-2012 there is a very consistent “barrier” at $1300, with very few sales occurring above that price. (In 2011 it drops to $1100.) In 2013 it was slightly breached, with 392 tons at $1300+ and 1514 tons in the $1200 segment. However, despite a higher average price in 2014 for Sauvignon Blanc, just 397 tons were sold at $1300 or above.

Lake County Sauvignon Blanc Price Distribution 2005-2014



For years, $1200/ton seemed to be the upper boundary to Lake County Sauvignon Blanc sales. In 2014, for the first time a substantial percentage of transactions occurred above $1200. However, the average price for Lake County Sauvignon Blanc has risen largely through the shrinking of low end sales.

Share of Sauvignon Blanc Grape Sales by Price Segment 2013



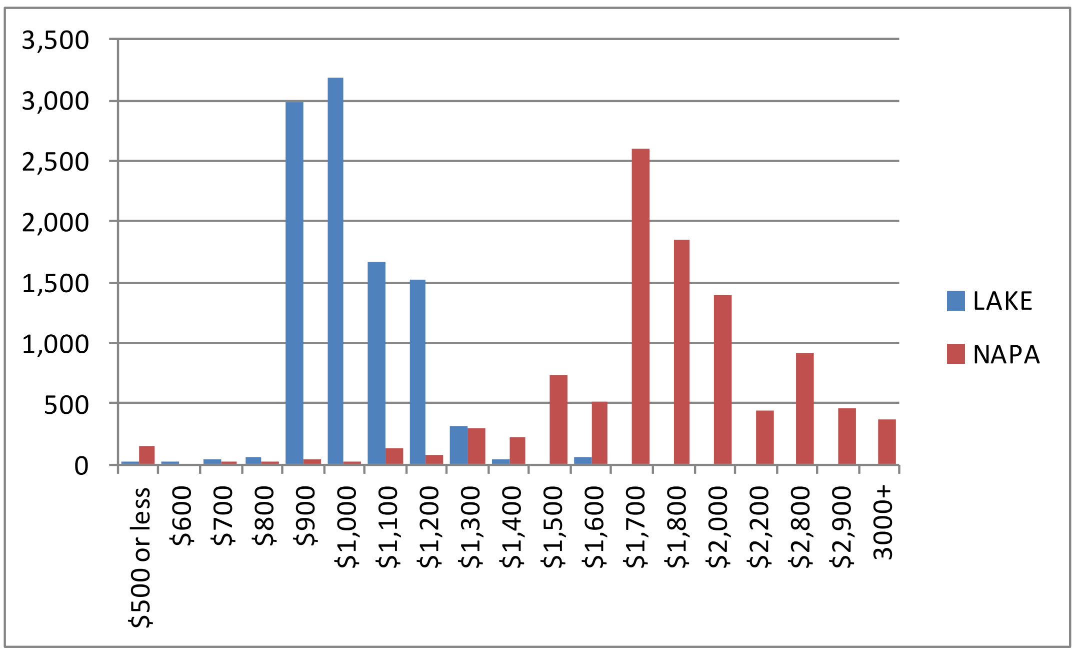
In 2013, nearly 1/3 of California's supply of Sauvignon Blanc between $1000 and $1500 was supplied by Lake County, and over 2/3 of Lake County's supply to the market was sold in that bracket. Nearly 1/3 of

Lake County Sauvignon Blanc was sold between $500 and $1000, but in this segment Lake County represented only 8% of the market. Based on preliminary 2014 pricing data, Lake County's proportion of the market below $1000 had continued to shrink.

While it is unfortunate that Lake County does not have a higher share of the Sauvignon Blanc market over $1500/ton, that segment only represents 17% of total Sauvignon Blanc sales in California, roughly 16,000 tons. Taking a 5% share in 2013 would have shifted 800 tons (8% of Lake County 2013 grape sales) into the higher price bracket. However, Napa occupies half of the $1500-2000 bracket and comparisons of the 2013 Napa crush vs. Nielsen and DtC data suggests that Napa Sauvignon Blanc inventories are sufficient for current demand.

Marketing 800 tons in the form of finished Lake County wine would require sales of roughly 54,000 cases, with pricing over $1500/ton implying a bottle price $15 or more.

Grape Sales by Price Segment: Lake County vs. Napa Sauvignon Blanc 2013



There is little overlap between Lake County and Napa Sauvignon Blanc prices, i.e. blending in Lake County will always lower average cost for Napa. But the price to secure actual Napa Sauvignon Blanc is not that much higher, roughly $400-600/ton.

Projections

The following section estimates future Cabernet and Sauvignon Blanc harvests of Lake County, Napa County and all other California regions combined. The projections have been made based on existing acreage, including recently planted, non-bearing acres. Yields are assumed to be 100% of the intended mature yield for the vineyard by the fifth leaf. One and two year old vineyards are assumed to have no commercial yield, third year to produce 1/3 the level of a mature vineyard, and fourth year to produce 2/3 the mature level.

No new plantings beyond 2013 are taken into account. Readers wishing to account for estimated 2014 plantings in the projection can assume roughly a 4% increase over projection in the 2018 tons for Napa Cabernet, 3% for Lake County Cabernet and 2% for all other California Cabernet. Currently Sauvignon Blanc plantings appear to be running at roughly replacement rate, or even slightly below. In addition, there is no adjustment for under-reporting, beyond the corrections done by CASS in their acreage reports.

Tables are given assuming both a 5 year average yield (corresponding to 2009-2013) and a 3 year average yield (2011-2013) for future harvests. For graphs and the supply/demand analysis in Report #3, the 3 year yield average is assumed. The advantage of using the 5 year average is that it is more likely to smooth out the variable weather conditions that can affect yield. However the pattern of yields has not been randomly distributed among years, regions and varieties. Sauvignon Blanc yields have been variable by region and year, and the difference between the 3 and 5-year averages is not great. However Cabernet yields, particularly in the North Coast, have risen significantly. If this is considered a deliberate trend, in response to the rise in Cabernet's popularity and price, then readers may prefer to use the 3 year average.

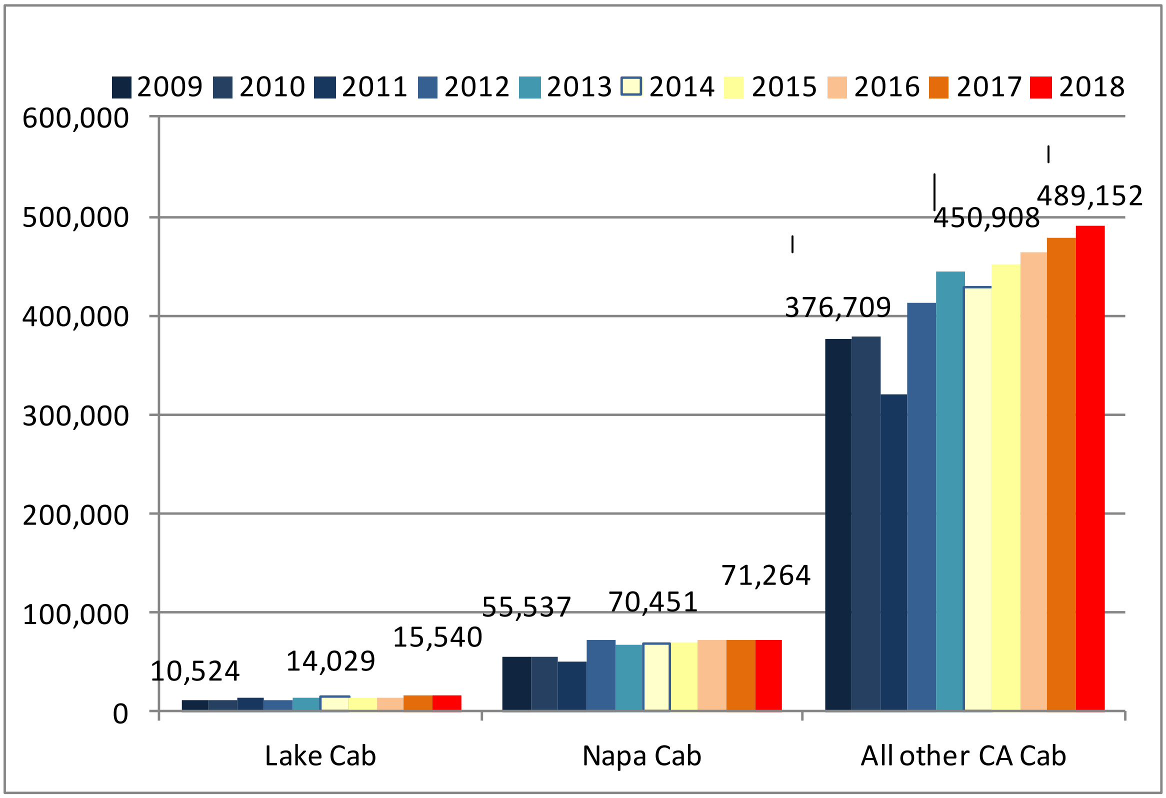
Projection assuming 3-year average of yields

	2010	2011	2012	2013	2014	2015	2016	2017	2018
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
Lake Cabernet	11,393	13,938	11,992	14,121	13,981	14,029	14,466	15,012	15,919
Napa Cabernet	55,752	50,847	71,517	65,919	68,920	70,451	70,860	71,120	71,264
All other CA Cabernet	379,054	319,517	413,319	444,047	428,057	450,908	464,208	478,264	489,152
Lake SAUVIGNON BLANC	9,609	9,605	8,592	13,066	11,965	11,461	11,576	11,653	11,731
Napa SAUVIGNON BLANC	11,879	8,470	14,806	18,010	15,079	16,445	16,540	16,556	16,587
All Other CA SAUVIGNON BLANC	81,641	61,000	89,876	96,580	83,102	91,615	92,299	92,945	93,541

Projection assuming 5-year average of yields

	2010	2011	2012	2013	2014	2015	2016	2017	2018
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
Lake Cabernet	11,393	13,938	11,992	14,121	13,981	13,969	14,404	14,947	15,473
Napa Cabernet	55,752	50,847	71,517	65,919	68,920	65,102	65,480	65,721	65,854
All other CA Cabernet	379,054	319,517	413,319	444,047	428,057	423,798	436,272	449,448	459,647
Lake SAUVIGNON BLANC	9,609	9,605	8,592	13,066	11,965	10,963	11,073	11,147	11,222
Napa SAUVIGNON BLANC	11,879	8,470	14,806	18,010	15,079	14,450	14,533	14,547	14,575
All Other CA SAUVIGNON BLANC	81,641	61,000	89,876	96,580	83,102	84,099	84,725	85,314	85,858

Cabernet Forecast – at 3 Year Average Yield

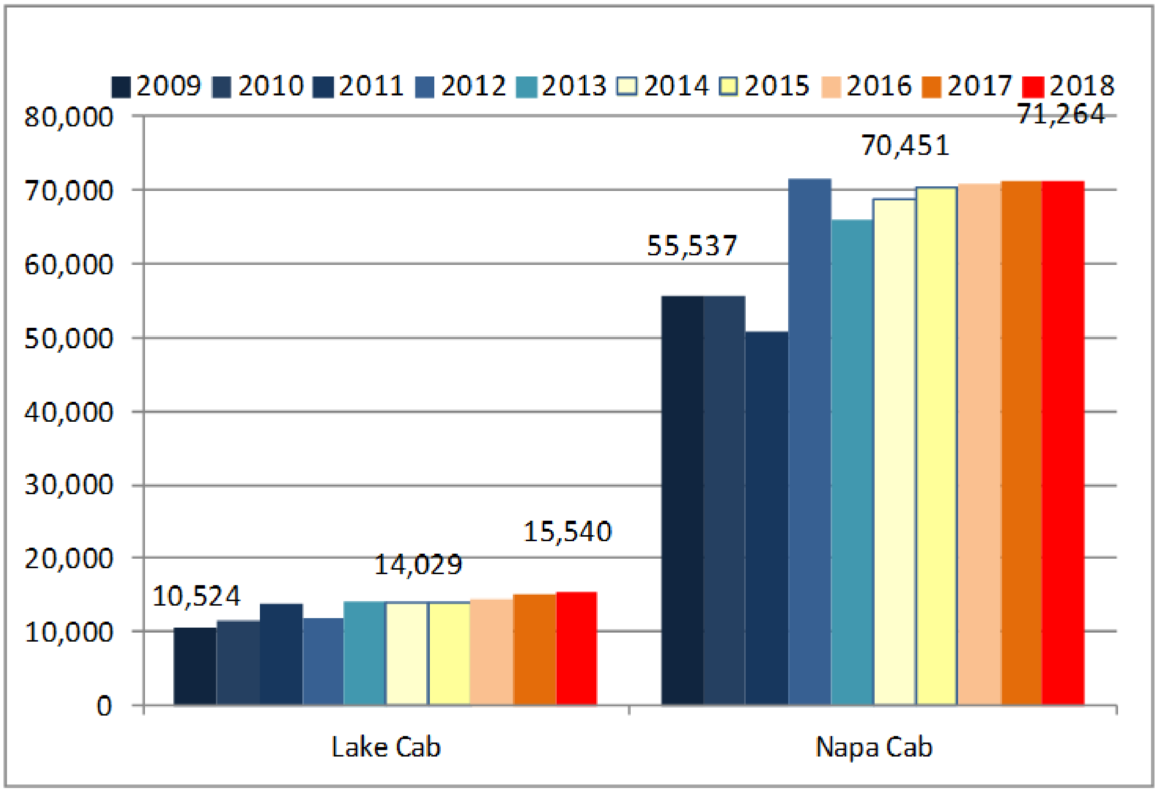


As can be seen from the table, Lake County and even Napa Cabernet supply are dwarfed by the overall California crop. However, above $1000/ton they become much more significant. Recent reported plantings have only running been slightly ahead of replacement rates, resulting in a 1-2% rise in the projected tonnage. However, under-reporting may be a factor for Napa and all other California Cabernet, though apparently not Lake County (see page 20). If the under-reporting pattern for 2009-2013 holds true, the growth in Napa Cabernet tonnage to 2018 may in fact approach 5% (68,792 tons) while California Cabernet generally will rise 10% (to 462,974 tons).

When projecting supply for the rest of California, the question of recent acreage reduction comes into play. According to Jeff Bitter of Allied Grape Growers[4] "Since the last harvest, 15,000 acres of grapes used to make wine have already been pulled as growers tend to plant alternative crops that can make a profit…" The question is: what is being pulled? Given current price trends and economics, nearly all of the tear-outs are undoubtedly in the Central Valley and unlikely to be Cabernet or Sauvignon Blanc. However, even if one was to assume 2000 of these acres were Cabernet and 2000 acres were Sauvignon Blanc, this would comprise less than 2% of Sauvignon Blanc acreage and less than 0.5% of Cabernet acreage, all of it formerly supplying the low end of the market. Therefore we assume no impact of tear-outs in these charts, or in the supply-demand analysis in section 3.

[4] Unified Symposium January 2015

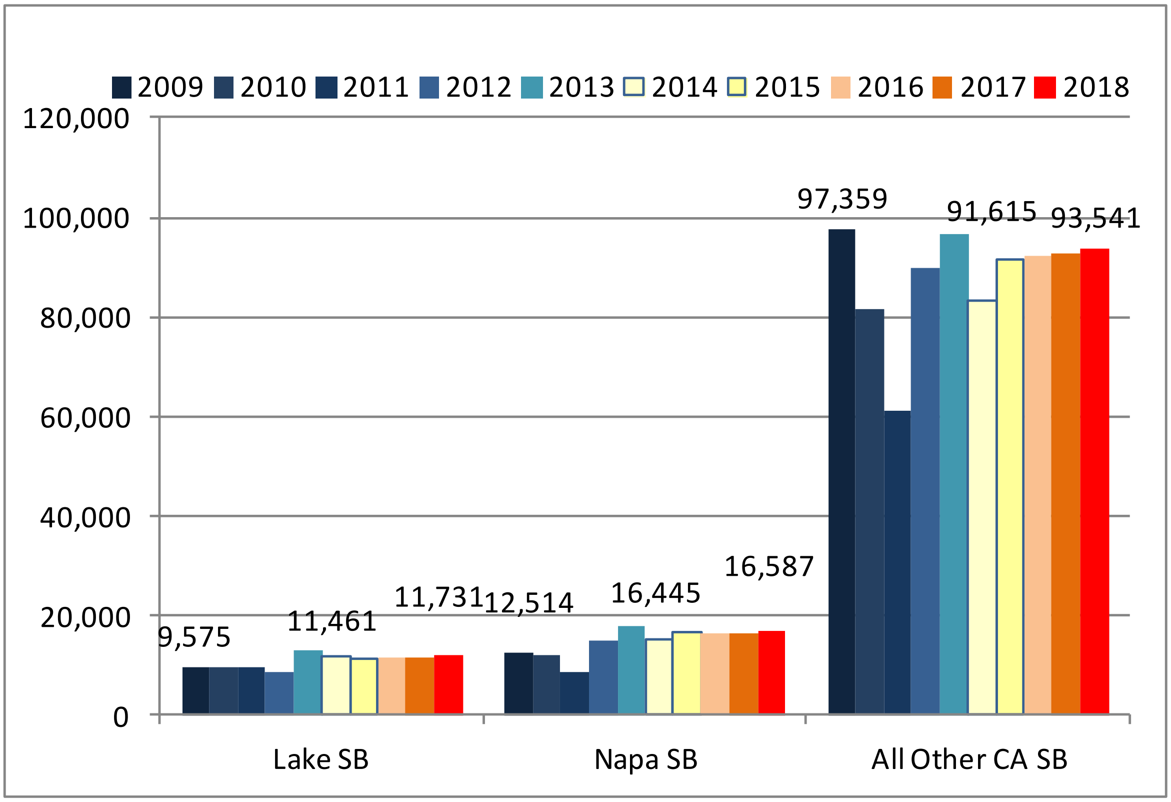
Cabernet Forecast – at 3 Year Average Yield, Napa & Lake Counties Only



The freakish 2012 Napa Cabernet vintage looms large over this chart, reflecting an extraordinary jump in yields over the previous three years. Projected tonnage for 2014-2018 in fact stays under the 2012 vintage total, because of relatively modest increases in recent plantings and the projections use the average of the 2011-2013 vintage yields. The 2012 vintage in Lake County was more normal, and here too we project modest growth up to 2018.

However, when considering Napa Cabernet supply, two things should be kept in mind: (1) under-reporting, which may yield an additional 4% in supply as recent acres mature; (2) the primary vintage in the marketplace right now for Cabernets over $15 is 2011. The market has yet to absorb the roughly 40% jump in Napa Cabernet supply coming with the 2012 vintage.

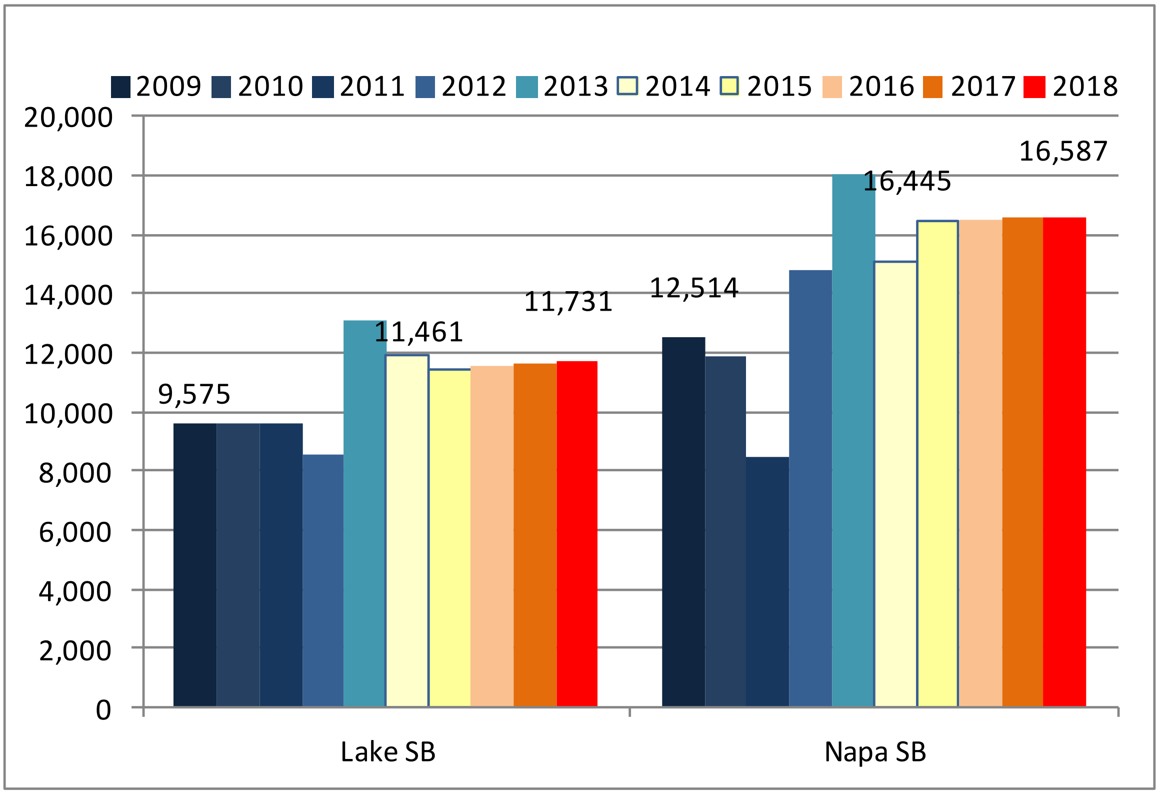
Sauvignon Blanc Forecast – at 3 Year Average Yield



The extreme variability in some years of the Sauvignon Blanc harvest is apparent from the chart above, with particularly short crops in most regions in 2011, bumper crops in Lake and Napa counties in 2013, and also for other Californian regions in 2009. Nonetheless, assuming no unusual vintages in the near future, only a modest 2% growth is forecast for Lake County and "all other" California regions, and just 1% for Napa County.

What is striking about this chart is the forecasted lack of growth in the overall California supply of Sauvignon Blanc, despite several years of strong consumer demand. This bodes well for Sauvignon Blanc pricing in the short term.

Sauvignon Blanc Forecast – at 3 Year Average Yield, Napa & Lake Counties Only



For Sauvignon Blanc, there was a substantial jump in supply from Lake County in 2013, and in both 2012 and 2013 for Napa County. The growth rate represented by these vintages outstripped Nielsen retail growth rates for Sauvignon Blanc the past few years. However, assuming no vintage surprises, there will be much less Sauvignon Blanc coming to market during 2015-2016. Once the 2013 vintage currently in the stores is exhausted, the market should come be in balance to slightly short during that period, unless consumers suddenly grow cold on Sauvignon Blanc,

Is there under-reporting?

Broadly speaking, planting data based on acreage filed with the California Agricultural Statistics Service (CASS) has indicated only a relatively modest rise in acres since the last huge harvest of 2005. While there have been distinct exceptions – Muscat and Pinot Grigio in the Central Valley, possibly Pinot Noir overall – the increase in plantings has not kept pace with the growth in wine sales combined with the natural replacement rate.

The contrast between robust wine sales and rising grape prices vs. relatively modest increases in acreage is historically unusual. Normally grape farmers respond to a sustained price signal with acceleration in planting. This raises the possibility that there has been considerable unreported planting in the past few years. While reporting acreage to the CASS is encouraged, it is not actually required until the resulting grapes are filed for production into wine. There have been periods in recent history, for example 1997-2000, where new acreage was substantially under-reported and the CASS statistics lagged the actual acreage.

The CASS reports acreage by district and year planted (Table 8). One way to gauge under-reporting is to examine the corrections in acres planted by year of planting in the years following the initial report. The tables below do this for acres of Cabernet Sauvignon and Sauvignon Blanc in Lake County (district 2), Napa County (district 4) and California overall. For example, there were 58 new acres of Cabernet reported in Napa County in 2009. In the 2010 report, the 2009 plantings of Napa Cabernet had risen to 89 acres as additional vineyards went on record with the CASS. By 2013, when presumably they were registered as contributing grapes to the crush report, the 2009 plantings had risen to 402 acres.

	IS REPORTED AS X ACRES IN…				
	2009	2010	2011	2012	2013
LAKE CTY CABERNET SAUV PLANTED IN 2009	110	109	109	109	109
LAKE CTY CABERNET SAUV PLANTED IN 2010	-	108	108	108	108
LAKE CTY CABERNET SAUV PLANTED IN 2011	-	-	7	7	10
LAKE CTY CABERNET SAUV PLANTED IN 2012	-	-	-	0	95
LAKE CTY SAUV BLANC PLANTED IN 2009	13	13	13	13	13
LAKE CTY SAUV BLANC PLANTED IN 2010	-	15	15	15	15
LAKE CTY SAUV BLANC PLANTED IN 2011	-	-	10	10	31
LAKE CTY SAUV BLANC PLANTED IN 2012	-	-	-	12	12

2013 Total Lake County Cabernet Acres =3,435; Total Lake County Sauvignon Blanc Acres = 1,893

Based on CASS numbers, there does not appear to be significant under-reporting in Lake County. This was echoed in our phone interviews with grape brokers and Lake County growers.

	IS REPORTED AS X ACRES IN…				
	2009	2010	2011	2012	2013
NAPA CABERNET SAUV PLANTED IN 2009	58	89	378	378	402
NAPA CABERNET SAUV PLANTED IN 2010	-	10	137	137	148
NAPA CABERNET SAUV PLANTED IN 2011	-	-	76	76	166
NAPA CABERNET SAUV PLANTED IN 2012	-	-	-	24	138
NAPA SAUV BLANC PLANTED IN 2009	7	7	25	25	26
NAPA SAUV BLANC PLANTED IN 2010	-	0	61	61	61
NAPA SAUV BLANC PLANTED IN 2011	-	-	32	32	47
NAPA SAUV BLANC PLANTED IN 2012	-	-	-	0	0

2013 Total Napa County Cabernet Acres 2013 =19,814; Total Sauvignon Blanc Acres 2013 =2,719

However, there appears to be significant under-reporting occurring in Napa County when it comes to Cabernet Sauvignon. This may be related to tear-outs and replacements or grafting over, no doubt in response to the extraordinarily high prices achievable for Napa Valley Cabernet.

For Napa Cabernet, the average 1st year correction was 450%, 2nd year was 148%, 3rd year was 4%. Applied to 2013 acreage, this suggests under-reporting of 872 acres in 2013, 4.4% of Napa Cabernet acreage. It is also worth noting that, Garret Buckland of Premiere Viticultural Services (North Bay Business Journal) stated that Napa is replanting at 6-7%, above the usual 2-3% replacement rate.

Under-reporting for Napa Sauvignon Blanc does not appear to be an issue.

	BECOMES X IN…				
	2009	2010	2011	2012	2013
ALL CA CABERNET SAUV PLANTED IN 2009	632	984	1,515	1,621	1,774
ALL CA CABERNET SAUV PLANTED IN 2010	-	1,033	1,337	1,488	1,577
ALL CA CABERNET SAUV PLANTED IN 2011	-	-	634	758	998
ALL CA CABERNET SAUV PLANTED IN 2012	-	-	-	1,693	2,830
ALL CA SAUV BLANC PLANTED IN 2009	89	97	126	128	131
ALL CA SAUV BLANC PLANTED IN 2010	-	100	173	168	174
ALL CA SAUV BLANC PLANTED IN 2011	-	-	90	111	148
ALL CA SAUV BLANC PLANTED IN 2012	-	-	-	70	101

2013 Total Napa County Cabernet Acres 2013 =86,259; Total Sauvignon Blanc Acres 2013 =15,144

Looking at California overall, there also appears to be significant under-reporting for Cabernet, and modest under-reporting for Sauvignon Blanc. For California Cabernet, the average 1st year correction was 43%, 2nd year was 32%, 3rd year was 6%. Applied to the 2013 acreage, this implies under-reporting of 1,641 acres in 2013, 1.9% of the total reported Cabernet acreage.

Anecdotally, Allied Grape Growers is on record estimating that reported non-bearing acres are about 40% under actual non-bearing acreage. They also believe that total acreage estimates for California are about 4% short.