November 17, 2011

With harvest done, and for that matter all of the primary fermentations, we have turned our attention to replanting L and M and O blocks. Almost all of our efforts are directed at putting in place all of the necessary vineyard infrastructure, as in 21,000 training rods (almost 16 miles worth), 5,500 highway posts (over eight miles) and 626 end posts (more than one mile, for a total of 25 miles).

Then there's the drip irrigation and frost protection pipes, etc. that also have to be laid out and installed (try to imagine gluing 4,450 sections of pipe, and that's just for the drip irrigation).

It is a lot of very hard work, of course not for me as I'm management. Instead of working I get to walk around, take some pictures and try not fall over or into anything. The best thing I can do is to not get in the way. But not getting in the way doesn't mean not taking advantage of the fact that we've got a lot of trenches being dug. Meaning I get to look at the soil below the surface, not just by looking in a newly dug hole or pit, but whole cross-sections – which is really interesting, at least to me, as I can see the changes in the soil structure within a block.

This is kind of dirt you would expect to see on a working farm.

However we've got a lot of rockier areas too, sometimes just a few feet away.

Even at this far remove, I can sense some, among the few, who may actually have read this far, will be murmuring, "aha, proof that *terroir* does exist; that even he (he being me) can not deny." So, for you '*terroirists'* here we go again. First, note, *terroir* fails spell check and is almost always appears in italics. I think that says volumes. Moreover, proponents try to define it so as to somehow give it substance. For example, below is a fairly common attempt at a definition.

"Terroir: The character of a wine that arises from its unique expression of place, including geography, soil, climate, and other factors." Karen Page with Andrew Dornenburd, The Food Lover's Guide to Wine, 2011. (An excellent book which I am happy to recommend.) Note the inclusion of 'and other factors'. Next is a much better attempt: ***"Terroir,*** the combined influences of vineyard atmospheric, soil, and cultural conditions on vine growth and fruit ripening; the term is often misused in an attempt to justify the supposedly unique quality of wines from certain vineyard sites." Ronald S. Jackson, Wine Science, Principles and Applications, 3rd Edition, 2008.

The problem is that the term *terroir* is used by so many (mainly sommeliers and wine writers and those who deal with them), so often, and so authoritatively and yet so vaguely (as in 'other factors') and with such inconsistency that it becomes meaningless, at least when you are trying to figure out how and what to plant. For example, here's a recent quote from an article about a family that makes truly excellent wines in the Rhone Valley: "Cycling is a fabulous way to discover *terroir.* You smell, you see, you hear, you feel the wind, you feel the slopes. When you drive you don't feel anything." Wine Spectator. Nov. 30, 2011. It seems to discover *terroir* it has to be smelled, heard and felt?

Now I understand, I am not sufficiently authoritative to be, well, authoritative on the question of *terroir.* To most I am just a reactionary *'anti-terroirist.'* The last time I broached the subject I relied on Harold McGee as an appropriate authority figure. That did not seem to enough for many, if not most people, although it should be. So this time, I turn to one of the coolest, most authoritative, best photographed, and more to the point, researched beyond a reasonable doubt book, okay tomes, on food, Modernist Cuisine, The Art and Science of Cooking, 2011, by Nathan Myhrvold and his Cooking Lab (yep, I have the full six volume set), and here's what they wrote:

"'Terroir' is a favored term in the wine lexicon…it connotes the environmental characteristics – soil chemistry, microclimate, and other special attributes – that define an agricultural region…connoisseurs use 'terroir' with confidence, as if they can discern the very dirt where the grapes of a wine grows. " To quote Rick Perry, "oops," as it looks like they favor the existence of *terroir*, but then they go on: "And although nutrients, water runoff, and other physical conditions certainly matter in growing any plant, grapevines included, the argument that tiny variations in terroir make a detectable difference in wine quality is much harder to accept." (Note, they do not use italics.)

Their arguments against *terroir* include: 1. According to a 2005 study by French and Belgium researchers for the British Royal Economic Society, "terroir plays no role in the production of great wines; rather, they contend, winemaking technologies and good enologists are the determining factors;" 2. Certain of the leading Bordeaux estates are quite large, in some cases larger than whole communes in Burgundy. For example, the Chateau Margaux's AOC is about 210 acres, while Vosne-Romanée, famed for Romanée-Conti – a mere 4.5 acres, and La Romanée, 2.1 acres – is total of 70 acres; and 3. The great vineyards of France (including Romanée Conti and La Romanée) are often made up of rectangular "lines picked arbitrarily by a surveyor," and do not follow natural contours, etc. (By the way he's totally right, just go to Google Earth, it's scary.)

So why am I an anti-*terroirist*? Because, as I've said in the past, insisting upon *terroir* as the main explanation as to why some wines are better than others is like having a caste system without the hope of reincarnation. There is no incentive for anyone not already on the top of the heap to make better wines. To prove my point, here's a quote from the abstract of the 2005 British Royal Economic Society study:

"French producers try to mitigate the numerous drawbacks of their 'Appellation d'Origine Contrôlée' (AOC) system in order to recover their lost market shares. These AOC laws are now much too strict. Many exceptional wines such as Daumas-Gassac, produced in Languedoc,

are unable to obtain an AOC label essentially because they use vines that are not in conformity with AOC rules. As a result, producers are forced to sell their wine as 'vin de pays,' a low grade for a wine, while Didier Daguenau, who is known to produce outstanding Pouilly-Fumé wines, obtained an AOC label for his worst production, a lemon he calls 'quintessence of my balls' (sic), produced with bad quality grapes that are however in conformity with the AOC tradition."

So back to the fact that we see various, and sometimes dramatic, differences in soil structures within a block, as is the case in O Block, here is what you'd expect to see:

Yet, this is what the soil looks like, maybe 15 feet away.

Will that make a difference in the flavor? Possibly, but only because the rockier areas have a lower TAW, as in 'total available water." However, we can compensate for that by changing our irrigation zones, using different rootstocks, varieties (Pinot Noir prefers rockier soils) and even which clones we use.

We are doing some amazing things these days (truly cutting edge), which if we were bound, by what I consider to be the restraints of, *terroir,* we would never have done, such as field grafting Pinot Noir and Chardonnay in September using bud wood selected the same day from vines that have not yet been harvested (trust me, it makes all the difference).

The result is that the Chardonnays from C and Z Blocks and the Pinot Noirs from H Block we made in 2009 through this year are significantly better than the wines we made before the replant.

2011 Harvest Part 2

In my last post I mentioned how in this post I would write about the cool things we were able to do in the winery this year, which I will, sort of, but with a different slant than I had originally intended. My point was that a smaller crop might be better because we can manage it better, not that it is better because it is small. But, for many even that is not the case this year. For example last week winemaker David Munksgard and I went to look at a colleague's Chardonnay block here in Green Valley. As I understood it, on Sunday October 9, the fruit was fine even if the sugars were a little lower than desired (just short of 22 brix). Then on the 10th it rained about a tenth of an inch, how ironic. By Thursday every cluster had rot the likes of which I have never seen. I took some pictures, which I won't post, as they make the zombies in Walking Dead look healthy.

Which leads to the question, 'why did they wait to pick?' I'll never know the real answer (I didn't have the heart to ask), but all I can guess is that it probably comes down to Dr. James A. Kennedy's, (Dean of Viticulture and Enology at CSU Fresno), definition of maturity, which is, "when fruit composition matches that required to make the style of the wine desired." If a winery's style is big, fruity, high alcohol Chardonnay (with a hint of RS) then they will want more sugar in the grapes, and if the contract allows the winemaker to reject fruit that's below 22 brix, then after a certain point all a grower can do is wait and pray. At any rate it was heartbreaking as waiting and praying did not work.

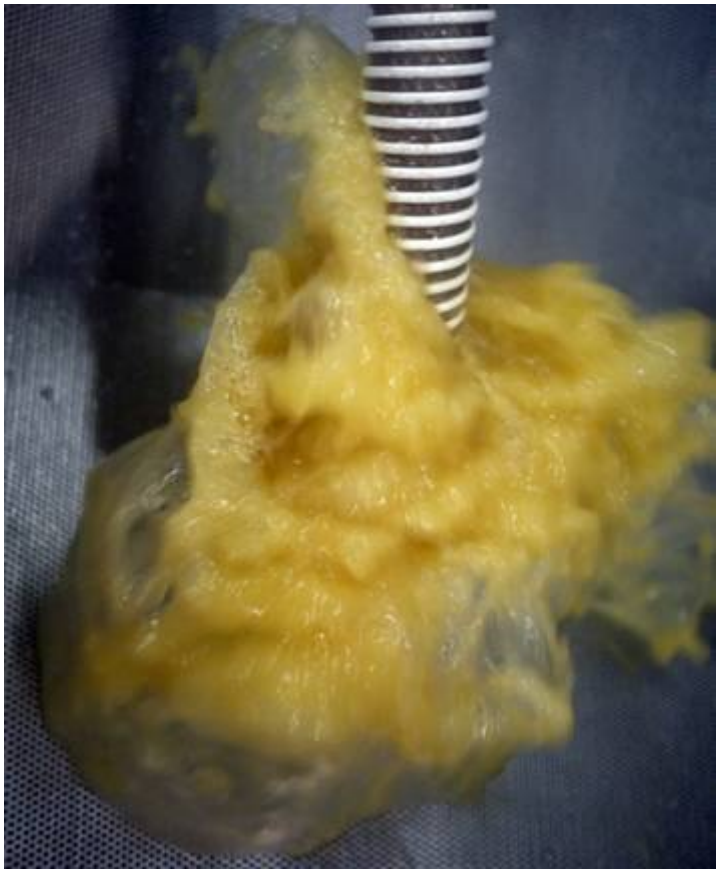
So why didn't we fall into the same trap. The simple answer is we are 'Estate Bottled.' But it is not just that, we, and I mean 'we,' led by David's example, are flexible and are willing to adapt to the given situation. Mainly, if the weather forecast looks bad then go out and bring that fruit in. So, if it's damp we'll still pick.

If it's hot and dusty, we'll still pick.

This does not make me popular with the pickers. But, in the end it all comes down to the juice that flows from the press which is a function of the soundness of the fruit we put into the press, not just the sum of the numbers.

Above, Chardonnay free-run juice for Sparkling. Below, Pinot Noir after only a four day cold soak (we pump out the free juice, heat it up to 80F, then return the juice to the skins, add some yeast and start the fermentation when the 'must' is about 65F). Note only a four-day cold soak. Usually the Martini Clone Pinot from the Thomas Rd. vineyard needs at least a week. However, the new clones in H Block, Calera, 828 and Pomard 5, are so intense David only needed to wait four days.

Next, stimulating the yeast in what will be 2011 UnOaked Chardonnay.



So fine, the press et al will most likely describe 2011 as a 'winemaker year.' The good news is that we have in David a winemaker who isn't afraid of making a 2011 wine in 2011 and most of all not adhering to a fixed formula or style. Which is why I'm feeling pretty good about what we've got in the tanks and barrels, even as I feel bad for our neighbors and colleagues.

2011 Harvest, Part 1

On Saturday, October 1, 2011 we picked the last of our grapes at Iron Horse Vineyards (Chardonnay from C1 for our UnOaked). On October 3, we recorded 0.72 of an inch of rain; by October 10 the total was 2.55 inches. While many of our colleagues still had a lot of fruit on the vine to pick, I no longer need to worry about rain, bunch rot, sunburn, birds, turkeys or raccoons, at least not until next year. And yes raccoons are a pest, cute maybe, but still they eat my grapes and our cat's food.

The yields were low this year. Quite low. However, the fruit we picked came in sound, beautiful and of the highest quality. Below, Clone 4 Chardonnay for sparkling from C4.

Above, Pinot Noir from H Block for still. In short, our 2011 wines will be outstanding. As is always the case the credit has to go to the best crew in the County (seen in black and white to save money).

Of course we always say great things about the wines when the crop is low. We even say great things when the crop is normal and for that matter, when it's big. When I say we, I mean almost all of us around the world. For example, here's what they are saying in Champagne:

"The Champenois have praised this year's Chardonnay crop as "outstanding". The grapes, marked by a good balance of sugar and acidity, offer the "potential for promising cuvées", according to the Bureau, although the final assessment will only be made in early spring 2012. The Bureau reports that all winemakers should have reached the minimum yield of 10,500 kilos per hectare.

By the way, 10,500 kilos per hectare works out to be an average yield of about 4.6 plus tons to the acre (that's pretty high). In Italy more of the same, only there the overall crop was down:

Hot, dry weather dehydrates the grapes, reducing the yield. But it also generates proportionately more sugar in the fruit and can produce excellent vintages. "It means less, but better, will be drunk," declared Lamberto Vallarino Gancia."

If you want honest you have to go to Australia:

The wine grape sector in the Murray Darling and Swan Hill wine regions may have hit rock bottom. At least growers will be hoping that's the case after the release of the latest crush survey which reported yet another year of low prices, exacerbated by losses from rejected, downgraded and diseased fruit. "Not only have growers lost more than $18 million in revenue compared to 2010, on what they delivered, but they also lost something in the order of $40 million in stuff they didn't deliver because it was so rotten they couldn't do anything with it," he said.

My favorite is a recent report from Bordeaux:

Consultant Eric Boissenot told Decanter.com: "This has been a labour-intensive year, and the best wines will have undergone vigorous sorting in the vineyard." Yields are going to be lower than 2010: Pontallier expects 'around 10% lower than last year because of hail in the first weekend of June, and excessively high temperatures at the end of June." But, he added, "what we are bringing in is of excellent quality." One proprietor of a renowned left bank chateau told Decanter.com*: "We need an ordinary vintage this year. The market would not stand another great vintage,'* (emphasis mine)."

To be honest, just because the crop is small doesn't mean it is better. The sole benefit of a small crop, at least here at Iron Horse, where we are estate bottled, is that we can better manage the harvest, and subsequent wine making.

As you can see from the shots above and below our picking crew were able to focus on bringing in the all of the fruit that needed to be picked, without too much stress. We were never racing against the weather, be it rain or sugars in the berries.

From a winemaking point, David Munksgard has been able to do all sorts of cool things which I'll write about in Part 2 to be posted later as this is getting way too long.

August 31, 2011

Harvest begins on Thursday, September 1, 2011, and not a day too soon for me. Everything we needed to do in the vineyard was done as of August 31, 2011. As for the winery, we'll have two days when we'll be pressing and bottling the 2010 Sparklings at the same time, but the guys are great and so all should go well.

Assuming the weather holds I feel pretty confident as to the quality of this year's fruit. By way of illustration, below are Dijon Clone 115 (or 667, we planted both in the block but forgot to note what went where) Pinot Noir clusters from the lower part of G Block. Note how 'sound' they look.

Sound as this Champion Berkshire I bought at the Sonoma County Fair last month.

When sampled (and photographed) on August 25, 2011 (I'm referring to the grapes not the pig), the *Brix* was 17.1, pH 2.89 and TA (titratable acid) 1.38. By August 29, 2011, the *Brix* was 19.1, pH 3.0 and TA 1.1. Our target *Brix* is between 19.5 and 20 for Sparkling and

we want a pH of over 3.0 (so that we can ferment the stuff) and TA to be less than 1.2. (I'm often asked what we mean by *Brix*, the definition, according to Ronald S. Jackson, PhD is: "An indirect (specific gravity) measure of the total soluble solids in grape juice or wine; typically sugar content in juice and (by adjustment to alcohol content) in wine." I hope that helps.)

As a grower the sooner we pick the better as it means there are fewer things that can go wrong. As I wrote in last month's post, our goal is to grow uniformly ripe fruit, that is sound, has correctly abundant flavor and is harvested in a timely manner, and I might add a decent quantity is also important. Basically how much fruit, how ripe it is, what flavors are present and the timing of the harvest in a particular season is mainly a function of the weather. Where a grower can have the most direct impact is on delivering 'sound' fruit. That's why the Clone 4 Chardonnay from C4 below makes me happy. Look at those wonderful berries.

The Z/Rued Clone Chardonnay is also looking very good, at least the day I took the picture.

So was the 828 Clone Pinot Noir in H Block.

The challenge is that there are many challenges, some of which, like powdery mildew, have been successfully addressed, but still out there, waiting to happen, are problems including bunch rot (usually botrytis), sunburn and birds.

As for bunch rot, at this point in time it really is too late to spray anything that works so the only available tool we have at this point in the season is hand-work, as in opening up the canopy by pulling leaves and laterals and dropping any questionable fruit - so far not a lot, maybe 200 clusters, or three to five cases of wine depending on final cluster weight. We really don't want rotten fruit in the press. But it is hard work.

I'd help, but I've had to participate in various dosage trials to determine the 2007 Bruts, also hard work.

Besides being hard work there is also the problem of which leaves and how much should be pulled. After all, grape vines need leaves to continue to photosynthesize and the clusters need protection from too much sun. Sunburn is a serious defect and raisins are even worse, or so I've been told - it's something to do with premature enzyme release. Which is why we only pull leaves and laterals in the fruit zone only on the morning side or if a split canopy then we also drop the interior leaves to improve airflow.

As for the birds, the property is just too large to net. So we put out little shinny streamers. It seems to work most of, but not all of the time. Mainly they look real pretty and we feel like we are doing something.

July 27, 2011

Above a boatman on the Narmada River (the Sacred Virgin Goddess) in India, more vacation pictures at the end of the post.

I start this very delayed posting (or at least the Iron Horse related portion) with a quote from Joshua Green's article on Summer Sparklers in the August 2011 issue of Wine & Spirits, which got me thinking about what we are doing these days that's making all the difference in our wines, "few sparkling wines outside Champagne have the depth of flavor achieved at Iron Horse…" According to the article, winemaker David Munksgard believes, "it is the viticultural work that makes the difference in the depth of flavor." While gratified I'm not so sure David's entirely right, as I shall try to explain below.

The fact is, wine is complex, it maybe mainly water and alcohol but over a 1,000 different compounds have already been found and while some of those compounds may be rather minute in terms of quantity some of those compounds, when interacting with other compounds will have a disproportionate affect on how and what we taste - such as ß Damascenone – (no I can't pronounce it) which increases our perception of various 'fruit' flavors. Specifically we know that most of the 'flavors' are created in the berries independent of the vine itself, and often during a period of senescence – basically the berries cease accumulating sugar after 21 to 23 degrees brix and are actually starting to breakdown, which, arguably, helps flavor extraction etc. during fermentation. Which means we need to distinguish between ripening, i.e. sugar accumulation in the berry, which sugar is then converted into alcohol through fermentation, meaning that the other flavor components (those that are unrelated to alcohol) are, I would argue, the result of 'maturity.'

So what do we mean when we use the word maturity? Conveniently, to help answer that question and more, the other week Daniel Roberts (our topflight viticulture consultant) arranged for James A. Kennedy, PhD., Dean of Viticulture and Enology at CSU Fresno, to help educate a group of us on "Berry Development and Environment." His first item was a definition of maturity, which is "when fruit composition matches that required to make the style of the wine desired." I.e., maturity is purely subjective, which means that the depth of flavor we taste in our wines is mainly due to David's picking decisions. That said, according to Prof. Kennedy, we growers should strive to grow

uniformly ripe fruit, that is sound (free of defects such as sunburn and rot), has correctly abundant flavor and is harvested in a timely manner (as in, can the winery actually handle the fruit as it arrives from the vineyard?), and that is what we do here at Iron Horse. The advantage David has is that, because we are estate bottled, we can be flexible and responsive in terms of when we pick and what pick it for - sparkling or still.

Still, other than making sure we have uniformly ripe, sound, correctly abundant flavorful fruit ready to be harvested in a timely manner (which ain't easy to do) is there anything else we can do to affect flavor in the vineyard? After listening to Prof. Kennedy the answer is probably "we don't really know." We only have two tools at our disposal, reduced vigor and stress. We do know that lower vigor, meaning less vegetative growth (as in shoots and leaves), can mean less sugar in the berry, hence, more flavor because the berries ripen slower. We just don't know why (we can debate for hours whether the key factor is light or heat or even a combination of the two and never reach a satisfactory conclusion). Nor can we 'dial it in.' For example, we can reduce the number of leaves simply by pulling them off. Reduced overall leaf service means lower sugar production by the vine. But remove too many leaves too soon and the grapes will never ripen. There's also the risk of sun damage, unless the grapes are sun-acclimated (I shan't get into that issue for now). As for stress or deficit irrigation, another 'tool,' that is more a function of how much and when it last rained (drying out the soil is a lot harder than it seems) than whether we do or don't irrigate. I also know from personal experience too much stress is not a good thing in terms of flavors.

So here's what we want; moderate sun exposure, low soil fertility – mainly low levels of nitrogen, low soil moisture and moderate canopy. As such, it's probably more important where you plant (soil, aspect and climate) and what you plant (root stock and varietal/clone) that it is to try and fine tune leaf surface area and the vine's moisture needs. In short, while proper vine training and keeping the vines healthy enough to produce uniformly ripe, sound, correctly abundant flavorful fruit ready to be harvested in a timely manner for the winemaker are also important, I believe that the right grapes in the right place (and no I'm not advocating for terroir, there is no such thing as terroir) and a decent winemaker are the primary reasons why the wines are as good as they are. That said, we really are working very hard to produce uniformly ripe, sound, correctly abundant flavorful fruit ready to be harvested in a timely manner every year, and that is also making a difference.

A separate note, and totally unrelated to wine and Iron Horse, we're just back from a week in India. What follows are some of my favorite pictures.

The red 'flowers' is mace.


ROOP RANG
ROOP RANG

June 2, 2011

I realize it has been awhile since I last posted an update.

In the interim we went from bud break (April 4, 2011)…

To bloom (May 30, 2011)…

From spring, to, well, not quite summer…

That said, the roses that survived the deer (sorry about that) have been glorious.

My excuse for not posting is that I've been very busy. Try to understand, I try to live up to the standard set by Tolstoy as to the proper course for a educated person which he laid out in his book What is to be Done, which is, according to Joseph Lelyveld , who wrote the recent biography of Gandhi, Great Soul (I tried to read What is to Be Done, but it sure was boring, that and I really like meat): "An uncompromising rejection of materialism, a life of simple living and physical labor to provide for one's own necessities." It's easy to be uncompromising, but the rest, such as rejecting materialism and in particular physical labor, is rather time consuming.

My other excuse is that growing grapes for wine is much harder than I thought. There are many things that either want to kill the vines or at least reduce the amount of fruit. Below is just a partial list:

- Fungal Pathogens
- Botrytis (bunch rot)
- Powdery Mildew (oidium)
- Downy Mildew
- Eutypa (dieback, can kill the vine)
- Bacterial Pathogens (also fatal)

- Crown Gall
- Pierce's Disease

- Viruses
- Fan Leaf
- Leaf Roll

- Nematode Pathogens (fatal)

- Insect and Mite Pests
- Phylloxera (fatal)
- Leafhoppers
- Sharpshooters (they carry P.D.)
- Spider Mites
- Light Brown Apple Moths (LBAM)
- European Grapevine Moth (new just last year)
- Asian Brown Marmorated Stink Bug (actually they don't hurt the vines but just ten can ruin a ton of grapes if they get into the press).

- Animals
- Deer (when they aren't eating our roses)
- Rabbits
- Birds (including wild turkeys)
- Gophers.

Which is why I like visitors like the snake below who showed up at Earth Day…

I also like Coyotes.

However, the toughest challenge is coping with the weather. Panicking helps, but in reality, when it rains and in general the temperature is cooler than we'd like, like it has been in both May and now June, there is nothing one can do, except be glad one is trying to reject materialism. Physical labor, such as digging holes in the wet ground can also help. (Note Tolstoy had a much longer beard, but the eyes are similar.)

So far, while we've lost some leaves in the newer growth, as seen below (because of what our PCA refers to as "noticeable Putrecine" or nitrogen build-up, as a result of the cooler temperatures)…

we've not seen any serious issues. Our spray program is on schedule and warmer weather is due next week, so I may still have the opportunity to continue to have to struggle to reject materialism.

March 17, 2011 Happy St. Patrick's Day…

February was interesting. I don't like interesting. We had daytime highs of 80F (I admit that was nice but not without concerns about early bud break) and morning lows of 25F (so I ceased to worry about early bud break and instead worried about slipping on black ice). We had snow at higher elevations and yet the fruit trees still started to flower. Daffodils and tulips were popping out just early enough to be drenched and/or frosted.

We've even had some flooding, even though total rainfall season to date (i.e. February 28) was slightly below normal. That may seem odd but it isn't. The soil is at full water holding capacity, so any additional rain at this point in the season simply drains off, as can be seen from

the photo below, which is the run-off from J block, over six hours after the rain had stopped! Note how clear the water is, which is why we love our Gold Ridge sandy loam soil.

In short, February was a month like every other month, in that it was not like any other February we've experienced so far. It seems that abnormal is, in fact, the new normal.

That said, my work goes on, I've got vineyards to watch (you can't run a vineyard, you can only watch it and hope you make the right choices as to pruning, etc.) and vineyard workers to watch too (I call it management), and then there's our ongoing replant efforts. We need to always remember that we need to order certain items well in advance of when we'll need them, like rootstock (we need to order in February 2011 rootstock that will be planted in April 2012), and bud wood has to be sourced too, which means, fun with clones, in particular Chardonnay clones.

Send in the Clones… (Sorry for the pun.)

Since vintage 2005 we (as in winemaker David Munksgard and me) have come to really appreciate how much impact clones can have on the final product. Now if I were just writing about Pinot Noir and if I were in a room full of 'somms' (we used to call them sommeliers), they'd all be hard at it as to what's better, 828, Calera, 667, 777, Pomard 5, and so on. Change the topic to Chardonnay clones and all you get is silence. It seems that when most people consider Chardonnay the first item they consider is where it came from – as in a Meursault will always be considered better than a Chablis, etc. Next, who makes it – I'm always surprised, even though I shouldn't be - that many people think Napa Chardonnays are better than Sonoma County Chardonnays even though many of the better Napa houses are sourcing their fruit here in Sonoma County. Third, style seems to matter, as in many like big buttery, oaky Chardonnays and then some don't, so they drink Sauvignon Blanc or Pinot Gris instead. Finally, how the wine is made seems to mean more than what clone it is made from. For example, I participated in a panel discussion in which almost all the winemakers, the master sommeliers and the audience were in agreement, "Chardonnay should be whole-fruit pressed, fermented in the barrel using native yeast, undergo 100% malolactic fermentation, and not be filtered or fined." Full disclosure, I was the lone hold out as I was presenting our UnOaked, which was none of the above.

But we here at Iron Horse have come to appreciate all of subtle nuances that can only be associated with the particular Chardonnay clone. For example, we are just about to release our 2009 Chardonnays. The following descriptions are of three of the seven and are taken (in order) from the tech sheets: 2009 'M' (Stony Hill); 2009 Corral Vineyard (89% Old Wente); and 2009 Rued Clone (100% Rued Clone).

"A complex nose showing caramel, lychee, herbs and honeysuckle; by mouth, lime, nectarine, with a long palate cleansing finish."
"By nose and mouth; minerality, savory and ripe pear, with an impressive long finish."
"By nose; ripe red apple, vanilla and lemon zest. By mouth, classic "rued" profile, a hint of "musque," lemon zest and lime.

They are all clearly Chardonnay. Most of the fruit was from adjacent blocks planted the same year. All three were made the same way, whole- fruit pressed, with some skin contact in the press (one to two hours), barrel fermented, mainly in water-bent barrels, frequent

batonnage (lees stirring) and no malolactic fermentation. Yet they taste different. For that matter the grapes and clusters look different. Note the DNA is the same, it seems we can't test yet for clonal differences.

Although we've decided to replant N block as a Chardonnay block, we realized we needed a clone that can be used for either still or sparkling, as is not the case with the Hyde Old Wente and Rued/Z we've been planting in C, Z and H blocks. In addition, David Munksgard loves the Stony Hill Clone, and I like to make him happy. Moreover, it's quite flexible. But, because we are using low-vigor rootstocks, the bud wood must be clean, which means we couldn't use our existing Stony Hill vines (that and I pulled them all out and burnt them). So off I went on the hunt to find some clean Stony Hill, needless to say, I failed (the moral being, think before you burn). Instead we're going to be using two Dijon clones, 76 and 96, which were brought in from France in the 90's and have been excellent in F Block and I can get certified bud wood.

Curiously, as far as I can tell, all three clones (which we refer to as 'Heritage Clones'), Stony Hill, Old Wente (or Hyde-Old Wente) and Rued (also known as Z) all come from the same source, the Wente Brothers' 70 acres of Chardonnay vineyards in Livermore. (The best, and as far as I can tell only, article on the subject of California Chardonnay clones, was written by Nancy L. Sweet and can be reached though the following link, http://ucanr.org/sites/intvit/files/24489.pdf.) In addition to the article, I also spoke with Larry Hyde and most importantly the man who planted our Corral Vineyard back in the mid-eighties, Bob Dempel. As far as I can tell, Bob never forgets a vineyard. According to Bob, the bud wood for M and P Blocks (i.e. Stony Hill Clone blocks) came from the Turnbull Vineyard in Napa, which got its bud wood from the McCreas' Stony Hill Vineyard, also in Napa, and they got their bud wood from, you got it, the Wente Brothers vineyard in Livermore. So we are faced with an interesting question, how is it the three Heritage Clones ended up so different? My guess is that the original Wente Vineyard was made up of a series of selections and people made selections from the selections. The differences are even more pronounced now that we are using 'true clones' such a Rued/Z and Hyde-Old Wente.

In conclusion, if you've it this far through this posting, you'll have to agree, I must have really meant it when I wrote above "I don't like interesting."

February 14, 2011, Happy Valentine's Day…

Above is the finest crew in Sonoma County along with a fairly dour (as in cane pruning is serious business and it show on my face) but equally excellent consultant, Daniel Roberts. What is particularly gratifying for me is that two of the above normally spend most of their time in the winery. I really believe that if we are to truly be “Estate Bottled” then we need to continue to blur the lines between the vineyards and the winery. Almost everyone who works here needs to be perfectly at ease both pruning and tying, probably the most important vineyard tasks.

When we are cane pruning it feels like we are constantly ‘training’ the vines.

For example, the distance between the fruit wire and spurs or new canes (preferably between 4” and 6”) is crucial, not just for what will happen this year, but the next two years as well. Too close to the wire and the bend in the cane will be too sharp (interfering with the flow

of water and carbohydrates) and the shoots will be too high to provide replacement canes next year. Too low can be equally bad as not enough buds (eventual shoots with grapes) will be on the fruit wire and it will interfere with any higher spurs or canes.

Meanwhile the canes need to be properly tied (wrapping canes on the fruit wire is forbidden) and it should only be done when it is warm enough so the canes don't break, by someone who is careful yet fast, can tie knots and isn't afraid of wearing a knife ring (which explains why I don't tie, I fail on all counts). Generally that means we prune in the mornings when it's been cold (as low as 28.4F on February 10) and tie in the afternoon, when it's warm (82F on the 6th).

Which leads to my latest gripe, averages. I'm hearing way too much about averages. For example, at the end of December everyone was going on about the fact that rainfall was way over average. Now, because January and the first half of February was relatively dry, we are below average. We complained because it was too cold in November in December, and while we didn't complain about the nice weather we've been enjoying, we're still worried about an early bud-break, not to mention the woes of those who are allergic to Acacia – full bloom on February 8. Bad enough being a farmer, but I really pity those with allergies.

So all I can say is WTF (as in President Obama's tag line from the State of the Union Address, "Win The Future"). Averages are meaningless, unless you are voting for the Hall of Fame. The problem is that we once start to think averages are relevant, or more to the point, predictive, we make plans and decisions based upon the averages we are provided, and that can be a major mistake. As Benoit Mandelbrot (the discoverer of Fractal Geometry – who once wrote, "clouds are not spheres, mountains are not cones, coastlines are not circles and bark is not smooth, nor does lightening travel in a straight line…" so you can't argue with him, mainly because he died last year) put it, "the professionals plan for 'mild randomness' and misunderstand 'wild randomness.'" And, as Prof. Brian Greene wrote in his latest book, *The Hidden Reality: Parallel Universes and the Deep Laws of the Cosmos* (it's what I'm reading now): "After decades of closely studying quantum mechanics and after having accumulated a wealth of data confirming it's probalistic predictions, no one has been able to explain why one of the many possible outcomes in any given situation actually happens."

The fact is, is that sometimes, maybe not often, it snows really heavy in London and/or New York City and they have close the airports during the Christmas Holiday rush. We know catastrophes happen, such as the tragic floods in Australia, we just don't know when or even if they will happen.

Why is this relevant to a grape grower in Sonoma County? Well for many growers in Sonoma County, 2010 was the perfect storm, lower prices (in some cases no buyers), lower yields (overall yield was down 10.7% - Zinfandel down 31%) and overall, higher farming costs. As for Iron Horse, the Ranch (relatively young vines because of the replant) our total yield (comparing apples to apples) was up 10.4% in 2010, and Thomas Rd. (mature vines) was up 41.5%! My point being, we need to be ready for almost anything - including the possibility the crop, rainfall, etc. will be average, it happens too – and to do that, we have to be both prepared and flexible, and accept that things usually don't happen as either planed or projected, which with the great crew we have is doable.

December 14, 2010

Happy New Year…

At Iron Horse, 2011 started on December 7, 2010 when we started pruning in K Block (Pinot Noir, which is obvious given how low the buds are - but you knew that just looking at the photo above).

Instead of writing about pruning, which I've done for any number of years at this time of year, I shall instead write about what I learned about what is happening in the grape at and after *veraison*. I shall also be scattering some new photos I've taken, including various efforts in black & white, in no particular order. Including haunting, artsy shots like this one,

As wells as artsy and not so haunting and not black and white, like the one below (which was shot at Iron Horse and not L.A).

Grape Berry Ripening; what I learnt.

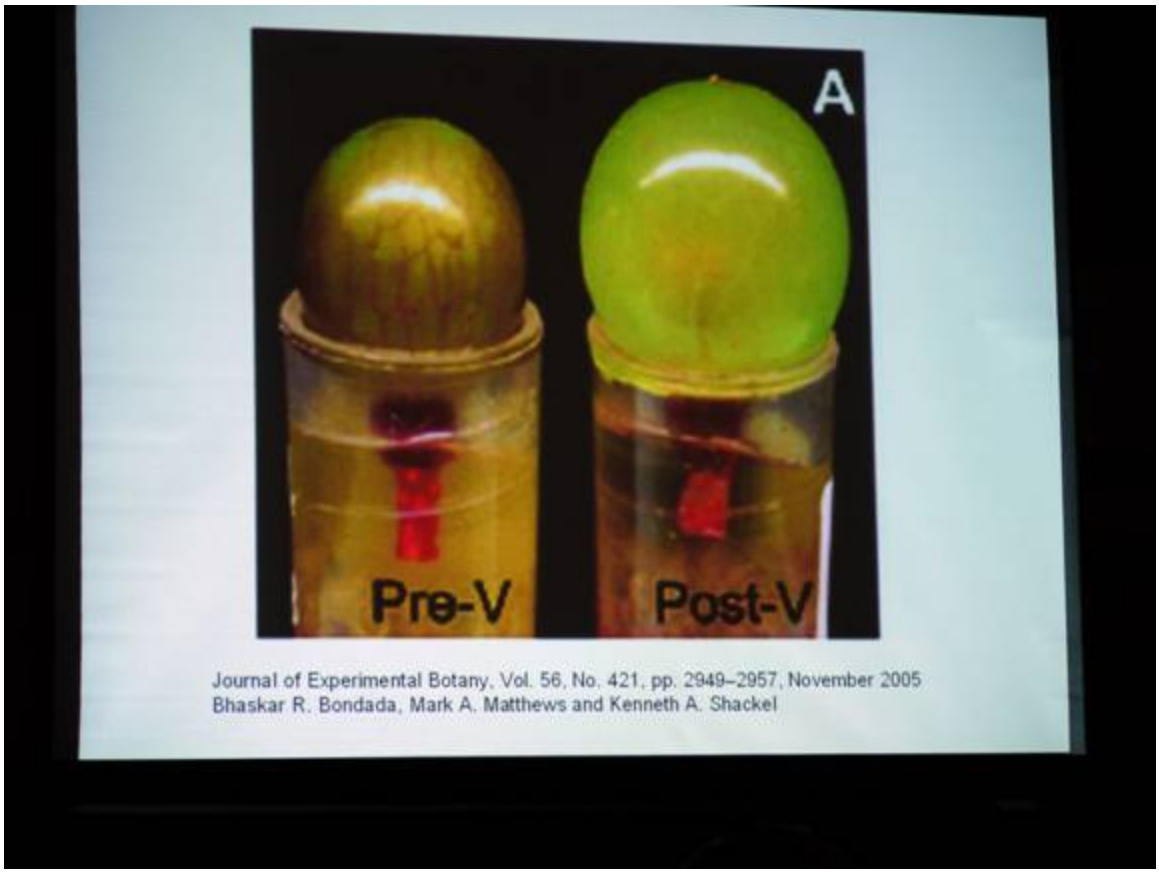
Below is an attempt to synthesize and somehow relate to my own experience the information passed on at a gathering organized by Dr. Daniel Roberts by Dr. Doug Adams, Professor & Biochemist Department of Viticulture and Enology Agricultural and Environmental Sciences at U.C. Davis. His specialty is grape berry ripening, a topic I am very interested in as we have a fair number of grapes in any given year (some years not as many as I'd like). A few caveats: As Dr. Adams noted, he was only given an hour or so to cover what is a ten-week course at Davis. That meant he assumed we all knew our plant biology, in that regard, he was wrong about me, I may be a professional member of the American Society for Enology and Viticulture, but that doesn't mean I'm actually qualified (my guess is they need the dues). Nor was he able to spend time as to the relationship between the various developments as they occur and resulting flavors, nor on what happens when, other than all of the below happens at and after *veraison*. Please also note, in many instances, the various levels of any item in a given berry is a result of both location and viticultural practices; we just don't know what and/or why - in a way, a refreshing thought. Further, there were no handouts I could plagiarize.

Dr. Adams organized the talk based upon the abundance of that which is accumulated in the berry: In order; water, sugars, acids, amino acids, inorganic ions, phenolics, and volatiles. The key take home message is that the actual quantity, or abundance of a material does not mean it has the most important influence on the final product, water being the best example. Another take home message is that each individual berry is, at the same time, both dependent on the rest of the vine (from whence it gets water and sucrose, etc.) and autonomous, which will make sense in a bit. I think this second point is important in relation to our focus on "Precision Viticulture," in particular Pinot Noir, and the seasonal decision we need to make, should we or shouldn't we drop fruit? Perhaps the argument that those clusters, which seem to be lagging and we might drop, will eventually catch-up, may make sense, further, at least after *veraison,* dropping clusters won't help speed up the ripening of the clusters not dropped. A final conclusion, berry size (not just in terms of the skin to juice ratio, but also the concentration of all the various other components of the berry) really does matter, which, I think, explains the differences between red and white wine, clones and, location and vintage variations, i.e. why some clones, some blocks in certain years are best made into Sparkling or UnOaked and others are best suited to be Pinot Noir and Chardonnay - further ammunition for us anti-terroirists.

Water & Sugars

As noted above, the main event is *veraison*. Before *veraison*, water and sucrose is transported into the berry by both the xylem (woody tissue) and the phloem (living tissue). After *veraison*, water and sucrose, plus, is only supplied through the phloem, which mainly transports sucrose (the xylem usually transports more water), hence the accelerated accumulation of sugars in the berry (or at least that's how I understand it).

Next, the breaks in cell walls fill in, meaning that the berry is no longer growing through cell division and instead it starts to accumulate rather than use the water and sugar to make new cells. Note the dispersion of red dye in the berry pre-V versus post-V.



This accumulation thing is good as it means we have the necessary materials, primarily water and sugar, to make wine.

What I had not known was that leaves only make sucrose, $C_{12}H_{22}O_{11}$, which each berry (here's an example of the berry acting autonomously) degrades and synthesizes into glucose $C_6H_{12}O_6$ and fructose (same formula, just a different structure than glucose, or at least that's what Wikipedia told me), which, and please, I may be wrong, are easier to ferment and taste better (as in 'sweeter'). This transformation is not rare. Almost all (two notable exceptions being sugar cane and sugar beet) of the fruits (yes I know neither are fruit) and many of the plants we humans cultivate, undergo a similar process, which explains why we cultivate them.

There are two other physiological developments post *veraison*; first, the hypodermal cell walls get thicker. Which means the cells at the skin level are harder to break down, which explains how we can make whites from reds, Sparklings, and why reds need to be fermented on the skins if we want to extract color and skin tannins. Second; and this will be repeated later when dealing with inorganic ions, hydrogen ion concentrations are lower in the skin, meaning the pH is higher and, just to make it all harder, they are uneven. Damn nature.

Organic Acids

Two types of acids are formed in the berry (to repeat, in the berry); Malate, HO2CCH2CHOHCO2H and Tartrate C4H4O62. Now we move into yet more serious and complex biology. Tartrate doesn't go away, and no one knows why, although we know that it, as does the malate, starts as ascorbate, at least that what the vine delivers to the berry, then the berry synthesizes ascorbate into tartrate and malate. Meanwhile, after *veraison* the malate level's drop quite dramatically in each berry as a result of respiration, which, like so much, is temperature dependent. Note, temperature, not light, is the word. Now you know why, in most years we don't need to do malolactic fermentations in our Sparklings and Chardonnays, although it does not explain why our Pinots do undergo ML, even though the pH is higher and acidity is lower.

Amino Acids, Inorganic Ions

So far I've been okay, I understand water, sugar and acids, but now I'm starting to journey into the dark because I was not aware that vines produced glutamine, while apparently not an essential amino acid, it is, at least as amino acids go, quite abundant, and, to make things a tad more complicated, it seems that amino acids somehow involve nitrogen uptake into the berry, which is fine except I thought it all went into the leaves, so again, another reason not to be biodynamic.

It, glutamine, gets passed into the berry and then converted, in the berry, into a series of items like proline and arginine, and many others, which I was totally unable to note fast enough, other than some varietals accumulate more of one than the other, and the differences of accumulation within a varietal (e.g., Chardonnays tend to accumulate proline, while Pinot Noirs tend towards arginine) may explain varietal and clonal flavor differences. What is noteworthy is that relative concentrations in different berries can vary as much as 20 fold, sometimes more, and again we don't know why. Curiously, most amino acids are 'used' by the yeast during fermentation, which may explain why wines made from different yeasts taste different. Another significant finding is

that, again, while compared to water, sugars and acids, we are dealing with fairly small numbers, hence the differences from berry to berry and year to year can be quite dramatic.

Meanwhile inorganic ions (mainly potassium) also seem to play a role, although I'm not quite sure why. It seems, as noted above, hydrogen ion concentration is lower in the skins than inside the berry, meaning the pH in the berry skin is higher. By the way pigment doesn't seem to affect flavor, go figure.

Note; the photo below is the same as the one above but in color.

Phenolics and Volatiles

Phenolics are apparently very diverse compounds that include tannins, anthrocyannins and cinnamates. Many are variety specific, and are sensitive to viticultural practices and location, and, as noted before, we just don't know how. Two interesting facts emerged; first 56% of the phenolics are in the roots, only 7% in the berries and second, seed tannins are found almost exclusively on the outside of the seeds (I have no idea why this is important, still it's interesting).

As for volatiles, Dr. Adams was feeling time pressure so I never really got a chance to learn much other than the concentration of volatiles seem to be higher in the skins and they are only released by yeast during fermentation, which, if as noted above, pigment has no effect on taste, explains why reds are so very different from whites.

Above, need we any more proof of global climate change?

November 18, 2010

I like to read obituaries, I find they provide all sorts of useful information and often, some really entertaining reading, like the recent obituary for Charles Reynolds, a Magicians' Magician: "Charles Reynolds, who described his business as providing 'chaste, charming, weird, wonderful and supernatural illusions' – and who proved it by coming up with two entirely different ways to make an elephant disappear – died on Thursday at his home…"

I doubt I shall ever get anything close to a final write-up as that, first we don't have any elephants to disappear, and second, it seems the only thing I can make disappear is lunch and dinner. But that doesn't mean I'm not proud of what we're doing here at Iron Horse, particularly our vineyard replant efforts.

As can be seen from the shot below, we've removed all of the vines from our "Corral Vineyard."

At best, a bittersweet feeling, the open fields look beautiful and the Pinot we plan to plant will be better than anything we'll have done before, but I shall miss what were some really great Chardonnay blocks.

Replanting vineyards is a major undertaking. It takes time: Since 2005 we've pulled out and replanted about 80 acres (out of about 160 acres devoted to vines), and we won't be done until about 2014. It takes money, about $40,000 an acre. Every acre (assuming seven foot rows and four feet between the vines) needs 1,557 vines, 1,557 buds have to be grafted (sometimes more, as not all grafts take), 1,557 pencil rods, 1,557 emitters, 390 highway-posts (to hold the wire and overhead sprinklers), 39 overhead sprinklers, 46 end-posts (on average, an acre that was a perfect square would need 60), 6,228 feet (1.18 miles) of drip hose, 49,824 feet (9.44 miles) of steel wire, and 368 grippers (to hold the wire tight). There's also twine, tape and clips and all of the pipes and fittings for the irrigation and frost protection system that are also in the mix, and don't forget the straw, wattle and cover crop seed. The logistics are daunting and the money, (note, the $40,000 an acre does not include lost production and interest) is enough to render a sane person catatonic. No wonder many try to make a big deal out of old vines. There are times I wish it were true that old vines are better, but then I taste the wines from the new blocks like Z, and I know we are doing the right thing.

Mainly though, replanting is a lot of hard work, although not on my part. All of the stuff listed above needs to be 'installed.' Moreover, removing the old vineyard and getting the land ready for the wet season involves much hard physical labor.

Before we can pull out the vines all of the old wire and irrigation hose has to be removed. Actually pulling the vines out isn't that hard as it's partially mechanized, but a lot of ground needs to be covered.

Then it gets really hard. The guys have to separate out anything that is not vine, such as wood posts and cross arms.

Sometimes they need machetes to get the job done, old vines can be clingy.

All the vines then need to be picked up and moved to burn piles away from where we plan to plant the new vines (ash is very high pH, and that's not good).

After discing and seeding the open field with dwarf barley the exposed acres need to be covered with straw. This year we rented a straw blower, which made for some great shots (like the one at the start of the post and below) and saved about 150 bales of hay (at $4.75 a bale, that ain't hay) and about 250 man-hours.

All of the above work, including laying out the wattle had to be done by November 15, which wasn't easy as harvest didn't end until October 8, so the crew had to work fast. But I wasn't worried, not with the crew we've got.

Also, for the most part the weather was favorable, the rain actually helped by making it easier to pull the vines out. And we had some glorious days with views to match.