



My technical letter for Goldschmidt Vineyards - April 2023



Aconcagua mountain 22,830 feet and Yosemite at 2,425 feet. Both photos were taken on Monday 3/27/2023. It shows the contrast of snow. The summer drought in Chile has been devastating and even in the summer this vast mountain is usually covered in snow. Meanwhile, at much lower elevation Yosemite is buried in the stuff.

Good day to you all,

I would like to quickly cover the **CA Fires of 2020** as wines are hitting the market and then an update on the **Southern Hemisphere Harvest 2023**, which is just wrapping up. But first I lead off with my insights on the latest words and techniques used in the way we farm. **Today a focus on Regenerative Farming which is a step past Organics.**



Right now in Alexander Valley we have “buds swelling” on Cabernet. We’re roughly 2-3 weeks behind last year.

Regenerative Farming There are lots of different ways of farming these days, and I love them all, but how do I find the one that resonates for me. My background is Horticulture 1981 (Lincoln University/New Zealand) which was a study of what is now called Organics. This took me into Viticulture (University in Australia).

Conventional, sustainable, organic, biodynamic – and now we have the newcomers: sunculture, permaculture and **Regenerative viticulture**. But what does this mean in practice?

For all of these, including Organic/Biodynamic farming, we use petrochemicals and fuel for equipment and employ certain processing procedures. A conventionally farmed vineyard emits more carbon than the plants can consume during photosynthesis. Tilling and cultivation are mainstays of organic approaches, but this is



where regenerative farming differs. These processes damage soil structure and result in the loss of soil organic material, and so they should be avoided. I'm also not against organics and biodynamics. Both approaches make me think more deeply about what we are doing. But regenerative agriculture takes the thinking a step further.

The key to regenerative viticulture is the idea of the vineyard as an agroecosystem. Seen this way, we aren't just thinking about the vine growing as a plant in the soil. Instead, we think about all the organisms in this ecosystem, and how we can make the vineyard rich, resilient and self-sustaining. It is about farming soils, not just seeing the vine as a crop plant.

With this in mind the big "Aha" to me is that we measure what comes out of the soil rather than what goes in. I remember the first time I heard the comment that taking nutrients in one's life is a waste of time; you "pee" most of them out. So I have always wondered if there was a way to measure what comes out of us as humans. If we can then just replace that, nothing would be in excess and go to waste.

Measuring what comes out of the soil I think is way better than measuring the soil and adding what we think it needs.

So here is the detail and my thought process



The major distinguishing factor of the regenerative farming philosophy is the emphasis on restoration, which means a focus on topsoil and cover crops. Increasing biodiversity, improving the water cycle, enhancing the ecosystem, and supporting biosequestration—capturing and storing greenhouse-gas carbon dioxide (CO₂ emissions)—the regenerative farm strengthens the health of its own soil and increases the earth's resilience to climate change.

Farming in Marlborough is exactly that, I mean check out the photo above. The grass that grows is crazy. (Fitzroy harvest 2022) We can't do this in CA so what can we do to get close? Permanent cover crops not only sequester up to two additional tons of carbon per acre, but they also improve underground microbe and vertebrate diversity, and increase water absorption and retention. Check out the right hand photo vineyard where it is disced. This releases 80% of the Carbon that the soil has and what the vines need. What the hell are we doing? I always use Barossa as an unfortunate example. There is very little organic matter left there as most of the top soil has blown away after years of discing. The theory to disc means the organic matter is being turned in and that weeds will not compete for water.



Regenerative farming is based upon organic farming methods, then builds from there to include specific protocols to improve soil health, animal welfare, and social justice. The goal of regenerative organics is to simultaneously decrease carbon emissions and increase carbon uptake and storage, primarily through the use of cover crops.



The regenerative vineyard on the left uses many types of plants that will eventually be folded over (crimped). On the right, the organic vineyard will be disced in exposing naked soil which will lose carbon.

If you can build a 'sink' to capture moisture and you have a natural resource for nutrients, the vines basically have everything they need right there. The fungal activity is important and people are even selling these sorts of microbes to promote cover crops, the mycelium that grows in the soil, has a massive effect. The cover crops slough off the carbon processed through the root system during photosynthesis and therefore the soil is able to store even more carbon.

To help with the natural regeneration of the plants in the row, we will employ crimping. Yes, new to me as well. What this machine will do is fold the weeds over, allow them to still flower and seed but also create a thatch to prevent a loss of soil moisture. It will build organic matter as well.



It is common just to think of the soil as a physical object, not a living system. Now, with the help of sequencing tools, the vast network of microbial life, as well as soil microfauna and flora, is being revealed. The rhizosphere – the soil in close proximity to the roots of plants – is particularly rich in life, because plants release some of the photosynthates they produce to the soil. The communities living there communicate, and in the case of mycorrhizae, form associations with plant roots where plants trade food for the mineral nutrition that these extensive networks are able to sequester. Soil microbes also signal to the roots, and this can affect plant physiology. The presence of roots in the soil not only feeds these communities, but also helps with soil

structure. Microbial life in the soil raises the organic matter present, which helps lock carbon in the soil, thus helping with the vineyard's carbon footprint.



If you have a nitrogen deficiency, use a nitrogen-fixing plant like clover. If your structure needs improving, what about a plant with a tap root, like daikon radish? Check out the above photos. We can even eat our cover crops. Grasses such as oats can help, too. And certain flowering plants create refuge zones for beneficial insects. It's common to roll these cover crops once the growing season is underway so they can act as mulches, preserving soil water and also releasing nutrients as they break down.

Vines are a crop that can live for 100 years and build root systems every spring, Right now in the winter I can focus on what we can do when the vines aren't photosynthesizing, building plant matter. Some use seasonal cover crop rotation, but I don't want to do that. I want to have the same plants grow also for the 100 years. What I want to do is make sure the vineyard is pulling carbon dioxide out of the atmosphere and turning it into something useful for the soil and vines. I want to get rid of my discs and go no till. The only thing I want to use is my spader to relieve any compaction.



Spader on the left and disc on the right



Considering Animals

Farms that use livestock as natural grazers and fertilizers can further aid carbon reduction. As many of you know we have pretty sheep in New Zealand, and so it goes without saying we are using them. However, in CA, we have coyotes and they will attack sheep unfortunately and so trying to think of solutions to that. Soil fertility comes not just from the crops, but also from the animal manure.

Back in New Zealand, it's an organic source with a very low carbon-to-nitrogen ratio. The manure acts as a readily available nutrient source for the microorganisms. In turn, they can store and stabilize carbon and keep improving the soil.



Fields that are not chemically fertilized, plowed, or irrigated, and have a living carpet of native plant life, results in wines with greater complexity.

The more diverse mix of plants I have above ground means the more the diverse mix of soil organisms we have underground, and these integrate with the vines. It's these differences between sites which contribute to the marked differences between our single vineyard wines.

As a result, we are starting to be even more hands off in the cellar. We have always fermented with native yeasts and we have been lowering additional nutrients now as well. As a result, I think we are getting wines that are more restrained in style but seem to have more energy. I think this is very true in the Katherine 2021. I suggest in a regenerative environment it is more nutrient-dense. It's about the plant-microbe interaction, strong roots are very important for nutrient transfer from the soil to the plant to make the plant strong.

Conclusion

Growers are often scared that if they have other plants growing next to the vines that these will compete for water, and in a dry climate this might reduce yields. This might be a legitimate worry. But growing a cover crop can create a soil structure that allows any rain to infiltrate the ground, and increasing soil organic material helps retain moisture, as does using the cover crop as a mulch by mowing it.

Ultimately, regenerative viticulture is intelligent viticulture. It needs to be tuned for each situation, but this is one of its strengths. Expect to see more of it in the future.



2020 Napa Fires – it is with great restraint that I bring up this topic and the only reason is that there are many people saying they picked before the fires. This is not correct. The fires started at the end of veraison and so all vineyards were affected. The Glass Fire that people talk about, while devastating, was precluded by the Complex Fire which had already been burning since early August. The Glass Fire was not until September 27th, but the Napa Valley was full of smoke well before that.

Smoke affect is simple, really. Smoke affect in a grape is straightforward: burning wood produces free volatile phenols which are absorbed by a grape's skin. These phenols then bind to grape sugars to produce glycosides. These glycosides can break apart during fermentation and barrel ageing and release the volatile phenol. I will quickly add though, that it can get more complicated as it really depends on what you burn. Burning Oak trees produces Guaiacol, Conifers and houses produce Creosol and grasses Syringol.

Not only do wildfires create glycosides but a barrel that has been toasted releases the same phenols, except they're tightly controlled to give attractive toasty oak flavors rather than the menthol you get from smoke. Yes we do know how to treat smoke, and due to the number of fires I have experienced in Australia, Chile, Canada and California we know what we are doing.

In 2020, Goldschmidt Vineyards crushed grapes from all vineyards that did not have insurance. Hence it was a very small vintage for us. **We chose not to make :**

Alexander Valley: Forefathers Lone Tree, Yoeman, Yoeman PLUS

Oakville, Napa Valley: Hilary Goldschmidt, Game Ranch, Game Ranch PLUS, Ultimatum

The Southern Hemisphere has been very challenging again. In a nutshell, all countries have been affected.

In **New Zealand**, Yolyn and I were there for Cyclone Hale which was devastating enough, but then Cyclone Gabriel certainly messed us up further. Marlborough was fine, but Hawkes Bay suffered dearly. In Marlborough though we had a very light crop again. We finished harvest today and we think we are off about 15% of normal yield. Coupled with the loss in Hawkes Bay we could be off by as much as 20% nationally in NZ.



This photo is the results of Cyclone Gabriel on Hawkes Bay. This is the east side of the North Island two weeks before harvest.



South Australia was hit with rains. After so many years of drought to have this much rain in the middle of harvest has been extreme. La Nina has affected all growing regions, and I believe that the crop will be down 30% in Australia. Some say as high as 40%.

Chile suffered from a similar El Nino as we did in California with temperatures reaching over 100F while I was there. I just returned after 5 weeks of consulting. What was interesting is the raisins that we usually see did not occur on the afternoon side of the vine. The grapes were so cold in the morning and the radiation so intense I saw a whole new issue.



Morning vs afternoon. Just a little different.

Meanwhile to the south we had the fires. While they received a lot of publicity they really affected small independent growers to the south. Bio Bio, Itata and Malleco (where we have our vineyard) I saw actual vineyards burn for the first time. Pictured is a friend's winery and his burnt vineyard. It was dry farmed and so little resistance. Terrible.



Argentina was a real challenge as well. This will be one of the shortest crops ever. When I was there in November 2022 the freeze was 20F, and believe it or not, when I was there a few weeks ago it froze again. Then we had hail to top it off. Nuts. The crop will be down around 40%.



Photo of the frost in November and the hail in March.

With drought we have new diseases showing up and new insects spreading.



Pato Negro where the cluster dies going up the rachis. Lobesya, a new caterpillar that can cause Botrytis at 20 Brix.

As always, if you have any questions or comments about this contents. Please feel free to email me, or just pick up the phone!

Cheers,
Nick