A quest for conservation viticulture – part 2

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Samantha Cole-Johnson ventures into Sonoma – to Bedrock, Bucklin Old Hill Ranch, Littorai and Radio-Coteau specifically – to continue her encounters with some of those trying hardest to combine conservation agriculture with vine-growing. See part one on Napa and Mendocino.

Bedrock Wine Company, Sonoma

Morgan Twain-Peterson MW in the Bedrock estate vineyard

Morgan Twain-Peterson, pictured above, defends old vines, old vineyards and traditional growers. He started Bedrock in 2007 with a focus on preserving and rehabilitating old vineyards as well as supporting and encouraging the growers who kept farming them. He champions a wide range of growers and does an incredible job of describing Bedrock's source vineyards, but my lessons from him were learnt while walking the estate property with him.

Twain-Peterson is a Master of Wine so when I asked him his priority in regard to dry-farming, conservation agriculture, organics, closed-loop farming and so on, it was no surprise to be presented with a well-thought-out argument. He believes that you can combine all of these methods; your success depends on your soil and rootstock and how willing you are to make

concessions to accommodate them. For instance, Bedrock's soil is dry and low in organic matter. In order to dry-farm on this site, Twain-Peterson believes you should allow 50 square feet (4.65 square metres) per vine, an allowance that very few growers are willing to make. In addition, you need a deep-rooting rootstock such as St George, 1103 P, 110 R (they've had grafting issues) or 140 R. If you use St George, it scavenges potassium and dumps it into the fruit, resulting in a high pH in the wine, so a potassium-scavenging cover crop such as daikon would be in order to temper that. Any rootstock you choose, he points out, you'll still have to water the baby vines and you'll need to think about training. One of the blocks Twain-Peterson inherited was trained to a Geneva double curtain, a system that is incredibly water-intensive. He's been able to cut water usage by 70% in that block but wouldn't recommend anyone try dry-farming something with such a massive canopy.

2020 was the first time in four years that Twain-Peterson tilled his old vines. He says he consistently tills every third or fourth year, but the ultimate goal is not to. He chooses to till because he wants to incorporate 5–10 tons of compost per acre at once and he wants a better seed bed for his cover crop. His cover mixture varies by block, but he generally plants short-stature barley, clover and insectary flowers. He roller-crimps his cover crop instead of mowing it but this means that after four years he has a thick layer of thatch that can't be planted through with a seed drill. Despite planting perennials, the cover crop starts to peter out over the years, leading to more weeds. In order to get a lush cover, Twain-Peterson will till, incorporate compost, plant cover crops and let it roll for another three or four years. By using this minimal-till approach, he's managed to control weeds, increase the organic matter in his soil (his water-holding capacity has gone up as a result), and can still dry-farm most blocks.

Bedrock is generally farmed organically but Twain-Peterson will make allowances where needed. Compost is used as fertiliser. Herbicides are used only when necessary. Sulphur sprays are used to control downy mildew (sulphur dust requires three to four times as much material per acre and attracts mites). Hedgerows throughout the property encourage beneficial insects that prey on pests. Clover is planted and the voles (a side-effect of tilling less) will chew on that instead of vine roots. Less tilling means fewer mites and no miticide (mites love dust thrown up from tillage). While he's always finding things to tweak, he seems satisfied with his current system.

In addition to sustainable farming, Twain-Peterson's other priority is to help rescue the genetic diversity in California's old-vine vineyards (pictured to left is Bedrock's collection of old California vine varieties). He works with UC Davis to identify varieties that he's come across, and Bedrock has the experimental plot shown above dedicated to unusual varieties found in old-vine California vineyards (these go into his wine labelled Bedrock Heritage). As the state becomes hotter and drier, some of the varieties he's found may fare better than the traditional varieties.

Bucklin Old Hill Ranch, Sonoma

Will Bucklin, pictured at the top of this article, has described himself as curmudgeonly. Perhaps he is. He is also a thoughtful farmer and an eloquent writer. His lack of answers for me simply reflects the extent to which he questions every practice that he chooses to employ.

Old Hill Ranch boasts a melange of gobelet-style vines planted in the 1880s – mostly Zinfandel. Bucklin started working Old Hill in 2000 (it was previously farmed by his stepfather Otto) and it's taken him years to figure out what mixture of vines he has. Since taking over, he says, he's tried and failed at a lot of things.

On taking over, he planted a few irrigated blocks of vines that he calls the 'bambino' blocks. The new vines were irrigated for a number of reasons. Among these reasons was that it takes, at minimum, an additional year to establish a dry-farmed vineyard (that's an additional year, or more, of no return) and dry-farmed vineyards generally have lower yields. In 2006, following a massive heat spike, the young vines he'd planted suffered tremendously and many died but the dry-farmed old vines rolled on. The incident convinced him of the effect of dry-farming on deep

roots (the young vines that he had to pull up had shallow root systems under the irrigators). He began converting the irrigated bambino blocks to dry-farming … a process that took ten years of careful weaning.

After losing vines in a drought in 2014, Bucklin replanted a section of Old Hill and decided to use it as an experimental no-till block. The trial was a failure but he, like Williams, isn't convinced that dry-farming and no-till can't be combined. He's believes that you have to build a certain amount of organic matter in your soil before you're able to convert and is focused on that. Increasing organic matter in dry soils is difficult; compost made on- and off-site has become a regular addition. His cover-crop mixture has become more robust and now includes daikon, fava, crimson clover, peas and mustard. This cover crop is essential for building organic matter and controlling weeds, and when it is incorporated into the soil it acts as a fertiliser, invigorating the vines and helping to balance the stress of dry-farming. In addition to the cultivated rows, Bucklin has no-till rows scattered among his blocks and he aims to grow the number. He also believes that compaction leads to sterility, so he's limiting the number of tractor passes he makes.

Bucklin was clear, 'farming is extractive, always injurious, but we can be progressive about it'.

It's worth mentioning that while Bucklin believes in no-till, he pointed out that in California vineyards can act as fire breaks because of bare soil. If you are no-till with a permanent cover crop, your vineyard is tinder. During the 2020 harvest season, some of the worst fires in California's history rolled through northern California.

Littorai Wines, Sonoma

Ted Lemon has been known for many years for his elegant wines and biodynamic viticulture (though Littorai is not certified as such). The 30-acre (12-ha) estate property boasts eight acres of native habitat, three acres of vines (their Pivot vineyard), and the remainder is rangeland interspersed with large gardens, mason bees (Littorai beehouse pictured to left), ducks, chickens, sheep and cattle. The effort expended and the attention to detail employed on this estate is a testament to what you can accomplish if you believe sustainability is imperative.

Littorai's Pivot vineyard is 80% dry-farmed and hasn't been tilled in three years. Sam Ecenia, the assistant winemaker, attributes this to the Goldridge loam in their vineyard, which has very high water-holding capacity, as well as their 'no bare ground' policy.

Littorai insectiary (pictured below)

The estate property has all-natural cover (purple needle grass, California oatgrass, soft chess and rye grass) and the vineyard team has worked for years to eradicate weeds and continues to do so. Without tilling to control weeds, the cover crop has to be dense enough to discourage weeds, although even then, some will pop up. To help with this, Littorai graze their vineyards in the winter, using a herd of 34 sheep in each section for four to five days. Oxalis, one of their more prevalent weeds, is a favourite of the sheep. Livestock also return organic matter to the soil via manure. Any weeds not eaten by the sheep are painstakingly hand-pulled – a task, Ecencia says, that he's spent many hours on. Two subsequent mowing passes are done by machine. Any ground not covered by plant growth is covered with hay to protect microbial life and prevent it from drying out.

Other fruit sources for Littorai, which are generally rockier with lower water-holding capacity, employ a minimal-till approach. Every other row is tilled, every other year, for weed control and to help plant roots access water. Vineyards that Littorai sources fruit from have companion gardens planted for diversity and as a pollinator habitat. Many of these gardens assist in growing ingredients for biodynamic preparations that are prepared on the estate. These are used in the vineyard, in hay production, and for their sizeable compost project on the estate.

Radio-Coteau, Sonoma

Eric Sussman is fond of the saying, 'the best fertiliser is the farmer's shadow'. He and his partner, Davida Ebner, both live on the estate and are rarely absent for any length of time. In addition to 22 acres (9 ha) of vines, they have a garden, goats, cats, bees, chickens (pictured to left), and a large compost pile to attend to. When Sussman started Radio-Coteau, it was with the intention of practising organic agriculture, encouraging

biodiversity and incorporating the native habitat, which now constitutes 15% of the current acreage. Biodynamics was a natural progression and they were Demeter-certified in 2018.

Sussman (pictured on left) was keen to share insights on organic and closed-loop agriculture with me.

Weeds, Sussman says, are the biggest challenge to an organic farmer. They become harder to manage when you try to incorporate minimal tillage. Radio-Coteau tills under-vine rows but doesn't till between rows, relying on native cover crops to keep the ground covered and weeds at bay. When they spring up anyway, they use a weed whacker. 'What you have to realise is that this is a practice, perfection is an illusion and things may not look aesthetically beautiful.'

Of organic sprays he said, 'The materials you're using aren't as strong, you're going to require more frequent applications but that doesn't mean that you have to apply more in a single pass.' Radio-Coteau uses an electrostatic sprayer for a more even coating, lessening how much material they have to spray (sulphur, preps, mineral oil, and biofungicides such as Regalia and Sonata) and how much it drifts Pictured on left are biodynamic preparations at Radio Coteau.

When animals are part of the picture, they should have a purpose. At Radio-Coteau, goats are used to eat garden waste and invasive Scotch broom. Their bedding and waste is excellent for composting. The chickens were in a movable coop which was rotated to allow them access to weeds and bugs and to optimise the spread of their manure. (Of late they've had to move them to a more permanent structure because they were being massacred by local predators.) The cats are for hunting gophers. The bees are pollinators for the garden. And while Radio-Coteau puts up many owl boxes to encourage natural predators, gopher populations increase with minimal tillage and the more help they can get, the better.

Sussman's piece of advice for others wanting to farm more sustainably? 'The long view is critical. There are no quick fixes. It's a slow process and it takes three to five years to realise the benefits.'

In conclusion

While a vineyard farmed in author David Montgomery's perfect ideal of conservation agriculture has proved elusive, the knowledge and perspective provided by the farmers described above is much more valuable. Eric Sussman may have put it most succinctly when he said, 'practices are specific to your growing region and you have to work within those confines'.

It's certain that in future practices that build organic matter in soils, sequester carbon, conserve water and encourage biological diversity will only become more important. While we should trust responsible farmers to know what is best for their soils, regardless of certifications or buzzwords, I look forward to seeing whether the relatively new Regenerative Organic Certification (specifically combining conservation agriculture and organics) creates more interest in conservation methods.