

## DIRECT PRESS

### JANUARY 2023

#### **BIODYNAMIC WINES**

# Cow poop and cosmic

calendars — these are usually the first things that come up when talking about Biodynamics. Unavoidable to be sure, they are only the beginning of any look at this esoteric approach to farming. Organic certification can be granted by any number of entities worldwide and requirements vary greatly; but at its core it is a ban on synthetic chemicals and fertilizers. Biodynamic certification is another story. Organic at then-some, Biodynamic is a term owned by a body known as Demeter International, though there are one or two other certifying entities like RESPEKT who have split from Demeter over specifics. There are some variations in Demeter from country to country but it is a far more rigorous and holistic approach than what we commonly see labeled as organic.

The basis of Biodynamics comes from a series of lectures on agriculture by Austrian philosopher Rudolf Steiner in 1924. I'm not going to try and give anything more than a

passing knowledge of this complex polymath, but if you are looking for a rabbit hole to explore, the life and work of Ruldof Steiner is a deep one. His own writings are as dense and sometimes inscrutable as they are prolific. He wrote on everything from science to education to religion to architecture to dance, and created not just schools of thought on each of those subjects (that still exist) but actual schools: there are about 1200 Waldorf schools in 75 countries based on his theories, including three in New York City. He designed buildings and made sculptures. He created Eurythmy, a form somewhere between ballet and modern dance that tries to express the actual sounds of music of speech through movement. He tried to change medicine and even created a pharmaceutical company called Weleda that is alive and well today: I used to buy their natural shampoo at Whole Foods.

As to Steiner's specific vision of organic farming: importantly, to be Biodynamic you have to have a polycultural farm, not just a vineyard like many wine estates. There's really no such thing as a Biodynamic vineyard on its own — Biodynamic certification requires a vineyard to be a part of a mixed farm with other

crops and livestock. This mix of soil, plants, and animals creates an integrated system that is the crux of the Biodynamic approach.

Cows are particularly important, and are used

primarily for their fertilization capabilities. As promised, here we are at cow poop: the most famous (and most ridiculed) Biodynamic practice is probably the use of horn manure compost spray, known as #500 preparation in Biodynamic circles. This is where cow horns full of cow manure are buried underground during the winter, creating a rich bacterial humus, Cow manure, after all, is vegetable matter that has passed through the cow, so putting it back in the soil connects the

animal and the plant in a cycle. The cow horn itself is important. In most modern farms, cows have their horns removed to make them more docile and to keep more of them in closer quarters. Biodynamics sees removing cow horns as akin to declawing a cat. Their horns not only preserve a cow's sense of itself but act as instruments to connect with solar forces.

Ancient cultures from Denmark to Egypt to Georgia valued cow horns as symbols of abundance, drinking water and wine out of them to absorb their health-giving properties.

Biodynamic adherents can make 500 prep

Not exactly scorched-earth but will allow the use of some chemicals and synthetic pesticides or fungicides if necessary.

some Natural Farming Methods

No synthetic chemicals allowed but copper and sulfur are permitted.

#### REGENERATIVE

Can mean anything from not plowing in order to sequester carbon in the soil to using farms to rebuild indigenous communities. It is more worryingly being co-opted for marketing corporate agriculture in some instances.

· BIODYNAMIC

A term trademarked by Demeter International that must adhere to specific practices outlined by Rudolf Steiner. Organic and then-some, it requires polycultural farms and field sprays made from cow manure, among others. The Zodiac calendar is often invoked.

themselves from their own cows' dung, but for consistency's sake, many actually order balls of 500 prep from a trusted source that they then make into a liquid (the perfect job for an intern) that will be sprayed onto the fields. This is done by stirring about 100-150 grams of dung into 60-70 liters of water, using a long stick to create a spiral vortex. The spiral is an important element of Biodynamics. It is seen as a physical form that manifests latent forces of life.

visible in rose petals, the arrangement of seeds in sunflower, or the hair on our own heads. This is the kind of thing mentioned quite often in Biodynamic teachings: something physical manifesting something invisible. Depending on your perspective, this is where you're interest is piqued or you start using terms like 'new age woo-woo' and 'pseudo-science.'



Biodynamic farmers are mandated to use several other unique preparations. #501 is a horn silica spray; 502-507 are different composts based on yarrow, chamomile, nettle, oak bark, dandelion, and valerian, respectively. According to Demeter, "Biodynamic preparations are vitalizing additions for soil and plants. As a kind of remedy for the earth, they also promote the growth and quality of the plants and animal health. For their production, plant, mineral and animal substances are combined and exposed to natural forces, and then returned to nature in a modified form."

Another Biodynamic practice that often gets mentioned is the use of the lunar calendar. Four types of day are outlined: root, leaf, flower, and fruit, which correspond to different tasks that are best suited to each day. Root vegetables are to be sown on root days, for example. Vineyard workers often don't



spray on leaf days — when the moon is in Cancer. Scorpio, or Pisces — because the plant is focused on producing chlorophyll and it's ideal to not inhibit this process. Grape vines should be sown and cultivated on fruit days. Wine is said to taste best on fruit days, as well. Many times I've joked that a wine isn't tasting right because it's a 'root day'. Is this provable? Hard to say. For some winemakers, trying Biodynamics is like trying out a supplement from a health-food store. Does the bee propolis or oregano oil I take really improve my health? Who knows, but it's probably not hurting, either.

As far as wine goes, most of the focus on Biodynamics is on agriculture, not on winemaking, but it does limit the use of most chemicals besides sulfur, and many winemaking tasks like racking or bottling are executed on specific days of the Zodiac calendar. I think there is a misconception that



Biodynamic wines will smell like cow poop, but those funky barnyard or cow poop aromas found in wines are actually due to a yeast strain called Brettanomyces (aka *Brett*) that can be found in any cellar if not kept at bay. While there's no doubt that a Biodynamic winemaker would be more likely than conventional peers to be ok for this to be in their wines. it's not to do with Biodynamics, per se. Reduction, which can smell like sulfur or rotten eggs, is the result of a wine being deprived of oxygen. Many natural winemakers prefer this protection from the spoiling effects of oxygen when not using other preservatives like sulfur: but. again, it has nothing to do with Biodynamics. The group of wines this month come from all over the world, and while a few sport some funk from Brett and reduction, most are clean as a whistle. We wanted to show that what connects Biodynamic wines is not about the cellar but the

vineyards, the soils, and the holistic philosophy that guides the farms.

One of this month's producers, Panagiotis Dimitropoulos of Sant'Or (*Press 4 Red*), among the very first Biodynamic wineries in Greece, told me, "Steiner wrote down many things and also gave many lectures. When I started about 14 years ago, there were many things I could not understand or appreciate. But every year I understand more and

more, and realize how right he is on so many fronts. The old traditions of observing each plot were starting to be forgotten, and through Biodynamics this traditional wisdom of our grandparents is coming back to the surface. What led me to Biodynamics was the pursuit of what's beyond organics, so that I can do without even organic preparations, and, if possible, not intervene at all. I wanted to rely more on co-plantations between different plants, bushes, and trees, creating a rich ecosystem. instead of intervening. In nature there are no enemies, but the balance among the different elements, the yin and the yang. I wanted to protect and empower the microorganisms in the soil. Immediate changes included an effect on my own personality, my vineyards becoming more responsive, their leaves becoming more alive, and the soil becoming richer."

I have to say that one of the more appealing traits of Steiner was that he wanted people to try things for themselves. He did not want dogmatic followers, he wanted careful,



independent observation to rule the day and he wanted people to see how much agency they had to shape the world around them. He encouraged a pick-and-choose attitude towards his teachings that is very much the opposite of all-in fundamental approaches. With Steiner, that's helpful, as he had some brilliant insights and he had some equally baffling and dated ideas, especially about race and culture. Though he saw humanity's ultimate freedom in leaving constructs like race and religion behind, he was extremely Eurocentric in his values. On the other hand, he was outspokenly appalled by the rise of Hitler and rejected antisemitism. Steiner had many progressive ideas beyond farming. His teachings inspired not just Waldorf schools, but the Campbill movement of communities for children and adults with developmental disabilities and special needs that were far ahead of their time.

Much of Steiner's work was devoted to questions that we struggle with to this day, mostly questions about the spiritual and invisible forces that we can't quantify. It's easy



to understand why his work still resonates. He earnestly believed we could connect with the invisible by quiet meditation and practicing our powers of awareness, a unique mix that is not fully scientific but not fully willing to give up on empirical observation. It draws heavily on Johann Wolfgang von Goethe's romantic notions of the human

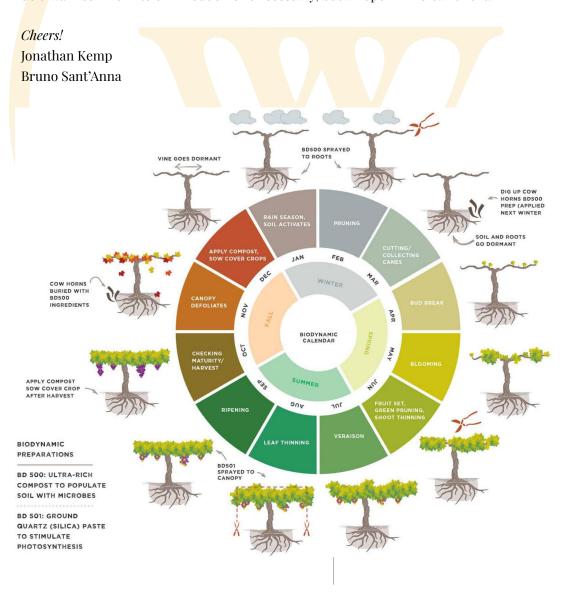
ability for perception, it values academic rigor, prioritizes face-to-face human interaction over technology (even the printing press) and, maybe most crucially, allows for an impressive amount of space for cognitive dissonance. It's an idiosyncratic combination, to put it mildly, but it gives his body of work an edge that feels fresh and poignant to the casual reader like myself, even a century later. His agricultural lectures were an early rejection of the industrial farming, pesticides, and chemical fertilizers that were becoming widespread. Where corporations and science offered quick chemical solutions that targeted a problem without regard to its side-effects or ecological context, Steiner spoke of the farm as a whole organism, with humans, animals, plants, soil, and even the planets connected as one. He spoke out against making farmers dependent on companies for fertilizers and sprays. 100 years later, as farmers are dependent on the companies who have patents on seeds to go along with proprietary GMO sprays, Steiner's guidance is as in-demand as ever. There are close to 1,000 Biodynamic wineries today, a tiny fraction of the larger wine world but one with gravitas and influence nonetheless.

One of his ideas was that farming could not be improved until agriculture became part of larger culture. If farmers were granted the same status as artists, writers, and designers, they could better influence the way we treat soil, animals, and the life that sustains us. I find this particularly salient, as I see firsthand the cultural hierarchy that gives winemakers a role in our culture that other farmers don't necessarily get. By the same token, it means wine is a great way to get people to pay attention to farming. When you learn about wine, you have to start paying attention to things like pruning and cover crops; water retention in sandy soils; frosts and fires; pests like phylloxera and diseases like powdery

Above: Anna Martí of Ca N'Estruc (Press 4 White) in Catalunya has been working organically since 2013 and Biodynamically since 2019

mildew; root days and fruit days. I love shopping at the Greenmarket and am a frequent patron of the Biodynamically-certified Hawthorne Valley Farms — but I don't often get into discussions about agriculture as a result. Wine, being a luxury product and a social lubricant, has always spurred on friendly debate and deep thoughts about society in a way that even the finest produce cannot. As much as my colleagues and I go over obscure farming points, the best discussions are always with the stewards of the vines, themselves, and seeing vineyards and Biodynamic farms firsthand is crucial for understanding all of the abstractions. Panagiotis of Sant'Or simply recommends that everyone explore Biodynamics. "You will see agriculture under a different light, you will love the earth, the soil, and respect it more."

If Biodynamics is a process of slowing down and paying attention to connections, wine is a great way to do that. A cow horn to drink out of isn't necessary, but an open mind can't hurt.



#### Weingut Heinrich 'Naked' White Weinland 2021

#### **Burgenland** • Austria

#### [Press 4 Mix + Press 4 White]

Gernot and Heike Heinrich were making a very different style of wine a few decades ago, winning awards and finding success with a more extracted style of wine that was in fashion. In 2006 they made the switch to Biodynamic farming, which was no small undertaking with their 100 hectares, but all the more important because of their size. Like their Burgenland neighbors at Meinklang, they are a model for scaling natural farming without

sacrificing their beliefs. The Heinrich plots are still all worked by hand, in fact.

The 'Naked White' is a pretty fun example of a cloudy, funky-fresh Austrian wine, with some Brett and reduction on the nose but not

enough to distract from the tangy, refreshing qualities. Zippy citrus notes give it a bright lift while salty undertones, gingerbread, and minerals provide contrast and complexity. 38% Pinot Blanc, 37% Chardonnay, 11% Pinot Gris, 8% Grüner Veltliner, 6% Welschriesling from a mix of soil types on the east and west sides of Lake Neusiedlersee, fermented with native yeasts, aged in old oak casks, and bottled unfiltered with a small amount of sulfur. *Jonathan Kemp* 

#### Ramon Jané 'Baudili' Blanco 2021

Penedès • Spain

[Press 4 Mix + Press 4 White]

There's a strong movement of natural winemakers in Catalonia championing

Biodynamic farming, and Ramon Jané and his wife Mercè, are super involved in sharing experiences and furthering the understanding of such practices in their region.

The couple has two distinctive projects: the accomplished and beautifully composed wines of Mas Candi, a project focused on native Catalan varieties run alongside friend and fellow champion of Biodynamics Toni Carbo; and their personal project bearing Ramon's name, featured here. In comparison, wine's under the Ramon Jané label feel a bit more

irreverent, with a playful brightness and accessibility to the wines (some of this may be chalked up to the absence of added sulfur) but don't get it twisted: it takes a lot of trial and error to make wines that feel this breezy and effortless, and this

commitment to natural farming and winemaking is a big part of this - finding purity and expression in simplicity.

'Baudili' is made from Xarel-lo and Parellada grown in Ramon's family estate. Vines between 10-25 years old, grown on calcareous clay soils. The vineyard is not tilled: true minimal intervention agriculture. Grapes are chilled then pressed into stainless steel tanks and fermented with indigenous yeasts and no additions. The wine is refreshing, breezy, with a slight carbonation when first opened giving it some movement, and settling down after it's open for a few minutes. Salted melon, crunchy



Above: Gernot and Heike Heinrich began with one hectare in 1993 and now have 100. With their sheep, geese, and horses they generate 1000-2000 tons of compost a year that helps trap Co2 and allow microorganisms to enrich the soil.

honeycrisp apple type fruit. The perfect aperitif and a safe bet to revisit on day 2. *Bruno Sant'Anna* 

#### **Sulauze 'Les Amis' Rouge 2021**

#### **Provence • France**

#### [Press 4 Mix + Press 4 Red]

Karina and Guillaume Lefèvre met hiking across Corsica and together they built their family and domaine in the tiny village of Miramas in the Côteaux d'Aix-en-Provence appellation.

With help from the government and a small amount of savings, they purchased Domaine de Sulauze in 2004, which was comprised of 29 hectares of vineyards, a few stone buildings, and a stone barn where a wine cooperative once operated. Together they began converting the entire estate to organic and then Biodynamic viticulture and polycultural farming, which includes wheat fields (for bread), barley (for beer), olive trees (for olive oil) and an extensive vegetable garden to feed their family and employees. Today the entire domaine is Demeter certified and a good portion is worked by animal traction.

The focus is on classic Provençal red and white varieties of the appellation including Mourvèdre, Grenache, Syrah, Cinsault, Rolle, Grenache Blanc, Clairette, and Ugni Blanc, all planted in sandy, limestone-centric soils. In fact, the domaine takes its name Sulauze from a soil-type known as Lauze, which is a flaky limestone with excellent drainage that protects vines from temperature variations. Su, or sur, which means "on" or "above" in French, combined with "lauze" translates to "on lauze".

Guillaume is one of the leading voices in the region's natural wine conversation, and he is constantly experimenting, dotting the cellar with barrels of skin-macerated wines etc. That

said, purity and deliciousness are the main objectives, so dogma and dirty wines don't have a place at Domaine de Sulauze.

Whole bunch fermentation in stainless steel and a short rest in "demi muids" (600L casks), make Les Amis a vibrant, perfumed and light-hearted wine with seamless fruit and light herbal undertones. *Bruno Sant'Anna* 



#### Marabino 'Rosso di Contrada' Nero d'Avola 2018

Noto • Sicily • Italy

[Press 4 Mix + Press 4 Red]

When we were looking for Biodynamic wines for this month's selections, we were lucky to time it perfectly with a visit from Pierpaolo Messina of Marabino to Brooklyn. Marabino's 29 hectares are in the Noto Valley in Sicily, between the Ionian and Mediterranean Seas (familiar to viewers of the White Lotus). Biodynamic farming here is enhanced by a plethora of wild herbs that are native to Sicily, and hot winds from Africa eliminate any threat of mildew. All of the vines are trained using the

3,000 year-old *albarello* method, head-trained and low to the ground to reduce the distance from the leaves to the water in the root systems. It is a highly effective method for this hot climate but also very labor intensive, as every vine must be meticulously worked by hand. Pierpaolo and his team also tie the vines using dried herbs instead of the more commonly used plastic. He and his wife dislike plastic's ecological footprint so much they even refuse to buy Legos for their son.

The Rosso di Contrada comes from a blend of four parcels, covering all the soil types of their vineyards: poor white limestone, rocky limestone, black alluvial clay, and yellow clay. I was shocked to find that the grapes were picked in late to mid-October, which wou<mark>ld no</mark>rmally mean a seriously big. intense wine. To avoid this, the wine is

made in an 'infusion' method with very light extraction. It's still got plenty of ripe, juicy notes, however, with strawberry, blueberry, black cherry, and fruit leather notes matched with complex tannins and a lifted, mineral energy. It's a surprisingly finessed for a wine of this much substance, so Pierpaolo recommends pairing it with bluefish, red tuna, sardines, and eggplant dishes with capers and dried tomatoes. Just 18 mg/liter of sulfur added. *Jonathan Kemp* 

#### Sant'Or "Krãsis" Mavrodafni 2020

#### Peloponnese • Greece

#### [Press 4 Red]

Panagiotis Dimitropoulos was the first Greek viticulturalist to receive Demeter Biodynamic certification, back in 2006. His five hectares of vines are dry-farmed on the top of a mountain said to have been moved by Hercules. He adapted the teachings of Steiner to Greece by looking at Australia, where the climate is closer to his home region, and using goat manure instead of cow manure, which is more readily

available in Greece.



mandarin orange notes and a tangy bite. Panagiotis says it has "a cherry and strawberry jam bouquet with gentle earthy and animal hints." It's dark and textured but somehow it's quite thirst-quenching and easy to knock back. Jonathan Kemp

#### Christoph Hoch 'Hollenburger' Rot NV

Kremstal • Austria

#### Press 4 Red

Christoph Hoch is another Austrian in this month's lineup of Biodynamic producers,

maybe not surprising given Rudolf Steiner's heritage. In addition to farming 12 hectares, Hoch also teaches Biodynamics at the wine school in nearby Krems. He has a lot of ideas that are not typical, especially in the more conservative and esteemed Kremstal region of lower Austria. One of his ideas is that he wants to do away with vintage, preferring to have soil take precedence. I was also very interested in the unique way he classifies his parcels, as laid out by his importer Bowler Wines: "Throughout all of Hoch's vineyards, you find a mix of mustard, rye, and phacelia. He considers all of his parcels by four categories: dry, chalky, nutrient rich, or holds water. Depending on the category, he will plant the herbs and grains accordingly. Mustard brings sulfur to the soil, which protects the plants and transfers it naturally to the wines, so that he can use as little as possible at bottling. Rye brings carbon to the soil. He knocks it down after it has grown and it creates a natural humus. The carbon from the rye works with the phacelia and creates nitrogen."



The Hollenburger Rot (*rot*=red in German) is a blend of vintages and a blend of Zweigelt and Portugieser. It's a very light, chillable red with some of that animal funk, maybe because some of the barrels are not topped up and develop *flor* like in the Jura or in Sherry. Cherry, sumac,

sassafras, burnt orange, and iron notes with savory complexity and smooth freshness. Only 9.5% alcohol, it's perfect for spicy food, brunch, or both. Unique and definitely shows

Christoph's goal of making wines that 'inspire emotion' even if people reject them at times.

Jonathan Kemp

#### Ca N'Estruc BI Muscat 2021

### Catalunya • Spain [*Press 4 White*]

Anna Martí Pitart has grown up immersed in wine and viticulture. In collaboration with her father Francisco, Anna focuses on Catalan varieties at Ca N'Estruc, influenced by Mediterranean breezes and sheltered from northern winds by the iconic Montserrat mountain range.

In the 1980s and 1990s, Francisco decided to <mark>focu</mark>s on repl<mark>an</mark>ting the estate to indigenou<mark>s</mark> Mediterranean varieties and began vinifying their own wines in a newly built cellar. Their contiguous 22 hectares have been certified organic since 2012, and Anna has been working with local experts to pursue Biodynamic certification from Demeter since 2019. Since 2013, Anna has been making her own wines under the Ca N'Estruc label working with grapes from selected plots on the family estate. Her goals with Ca N'Estruc BI ('ALIVE') are not to break with family tradition, but rather to focus on ancient, low intervention methods and smaller production quantities. The wines are made in a corner of the Ca N'Estruc cellar, where Anna works without additives, never filters or clarifies, and bottles only by gravity.

Ca N'Estruc BI Muscat is 100% Muscat from organic and Biodynamically farmed vines planted in 2016 on alluvial and gravel soils. The vines are 165 meters above sea level. The grapes

were harvested by hand, then 80% were pressed directly while the remaining 20% were destemmed. They then fermented with native yeasts in 1,000L stainless steel tanks, where the wine rested for 5 months after fermentation finished. Zero sulfur added. This wine is really irresistible. Pineapple, meyer lemon, honeysuckle, and a charming, softly chalky finish. *Bruno Sant'Anna and Jonathan Kemp* 

#### Bencze 'Autochton' White 2020

### Balaton • Hungary [*Press 4 White*]

István Bencze left his IT job to work his grandparents' vineyards in the Lake Balaton region of western Hungary. He was always working organically but he went fully natural in the cellar and stopped using sulfur in 2017 after inspired visits to

winemakers like Ewald Tscheppe of Werlitsch, Roland Tauss, and Zsolt Sütö of Strekov 1075. He has been certified Biodynamic by Demeter since 2014.

Bencze's wines are some of the most thrilling I've come across recently. This blend of indigenous varieties includes Furmint,
Hárslevelú, and the rare Keknyelú and Rószakö, all from the basalt, volcanic soils overlooking the vacation-destination Lake Balaton. It's sizzling and stony with dusty apple skin crunch and almond notes. István says he likes "acidity-driven wines with a nice saltiness," and so do I. He certainly nailed it with this one. *Jonathan Kemp* 

#### Nikolaihof Riesling Vom Stein Federspiel 2020

#### Wachau • Austria

#### [Press 2]

I could talk forever about Nikolaihof, one of the jewels of the Wachau wine trail and the world's first Biodynamic winery, certified in 1971. They also occupy the oldest building in Austria (470 A.D.). They make wines with power, age-worthiness, and gravitas, but they never feel like they're showing off. I've had the pleasure of visiting them twice, and their



generosity and humility is infectious. If you ever get the chance, make sure you stay for dinner at their restaurant where many of the greens and herbs come from their own (Biodynamic, of course) gardens.

Though Nikolaus Saahs has been making the wine for some time now, his mother Christine is the matriarch, and it was at her insistence that they began working their vines using Biodynamics. At the time, the estate was not well-known and it was also motivated to work without chemical treatments because they could barely afford them. Today is a different

story, as they have become a leading face for legitimizing Biodynamic agriculture.

The Vom Stein Riesling comes from a single plot on gneiss and mica, overlaid with loess and a few feet of topsoil. Fleshy, soft pear fruit with grassy notes, spearmint, wet stones, and orange zest. Racy, dry, and mouth-watering, this is elegant and fabulously delicious with just a touch of cooling menthol and mineral texture on the finish. It's less reductive than some vintages, so it's a perfect wine to drink now, but I would highly recommend setting another bottle aside for 5–10 years. They often do library releases



of this wine and they are always incredible. *Jonathan Kemp* 

#### I Custodi 'Aetneus' Etna Rosso 2016

Mount Etna • Sicily • Italy

#### [Press 2]

Extreme diurnal
temperature swings mark
one of the many
differences that separate
the vineyard area
surrounding Mount Etna
from the sun-'n'-fun
"White Lotus" vibe you

usually find in Sicily. The dry-terraced lava walls are a defining feature of the semi-lunar vista, dotted with some of the oldest vines on the whole island.

From its beginning in 2007, Mario Paoluzi set the groundwork to make I Custodi (*the Custodians*) one of the references for the traditional viticulture in Mt. Etna. The premise of I Custodi was to employ traditional methods and the caretakers of these hills for generations, the ones most intimate with the area's cycles and these ancient vines (some over 150 years old). Today, the winery employs most of the working folk in their village, and serves as the place where new generations work shoulder to shoulder with and learn from farmers who've worked these vines for decades. The cellar master is long-time Etna guru Salvo Foti, who has a knack for making wines showing elegance and tension, while keeping the pristine volcanic spice and depth as the framework for all wines.

Aetneus is their old-vine rosso, and the flagship wine of the winery. The Nerello Mascalese (80%) and Nerello Capuccio (20%) are grown on a north-facing plot with fine volcanic sands, farmed Biodynamically, and enjoying a cooler microclimate than the rest of the property. We were pleasantly surprised when tasting 2016, as previous vintages of Aetneus have been quite dark and chewy - begging for even more time in the bottle. This release is the most elegant and accessible version of Aetneus' spice and depth, with fine texture, more brilliant color and high pitched aromatics. *Bruno Sant'Anna*