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Paul Bernier Vineyards

Dry Farming Winegrapes

Dry Creek Valley, Sonoma



Paul Bernier giving a presentation on dry-farming at a CAFF workshop in 2009

In 1976, Paul Bernier purchased his house and land to start a vineyard in Dry Creek Valley, Sonoma. He had been working for Lou Preston of Preston Vineyards nearby, and the end of that job was just the motivation he needed to break out on his own. Currently, Bernier manages around 45 acres of grapes on various ranches in Sonoma County, including a vineyard at his home. All but 3 of those acres are truly dry farmed, and those acres are minimally irrigated.

Dry farming was a deliberate choice for Bernier. He explains that dry farming is the traditional method of producing winegrapes- it was the way grapes were grown in Sonoma until the widespread adoption of drip irrigation. And more than that, dry farming produces high quality grapes through mild water stress and the deep expression of the land. Bernier sells his grapes to local wineries, and although he cannot say that he gets a price premium for his product, he does sell all his grapes every year, and that, he says, is no small thing.

Dry farming is the simple way to grow grapes for Bernier. There is less manipulation of the soils and vines compared to commercial irrigation systems. Dry farmed vines are tough, Bernier states, and they seem to be self-regulating. Once you start managing vines with irrigation, you will always have to manage them. Vines under drip irrigation concentrate their root systems under the drip emitter, making the vine dependent on irrigation and fertilizers. With the roots staying close to the soil surface around the water source, the vine will quickly leech the nutrients and water from that soil, necessitating the frequent application of water and fertilizers. The roots of dry-farmed vines, on the other hand, constantly grow into the soil to find water and nutrients to support growth. Bernier does use compost on his vineyards providing nutrients, but compared to commercial irrigation, he says his system is easier, more efficient, and produces high quality grapes. And for all these reasons, Bernier dry farms his winegrapes.

Paul Bernier's Home Vineyard

- Located in Dry Creek Valley, Sonoma
- Zinfandel and Petite Syrah
- 8 x 8 foot vine spacing
- Head trained
- St. George rootstock
- Average yields is 4 tons per acre
- Applies 5 tons of compost per acre in the fall. Bernier makes his own compost from local winery waste.
- In the fall, Bernier seeds a mixed cover crop of peas, oats, barley, beans, and grasses.
- The soils are cultivated in the spring by mowing the covercrop, disking the soils to integrate the organic matter, and creating a surface dust mulch.
- Replacement vines or new vineyard blocks are planted in February. Vines are watered during the first year in July and grafted within the first year.
- Sulfur dust is used to protect against mildew.

How Paul Bernier Dry Farms: Vineyard Logistics

Bernier's home vineyard consists of 20-year-old Zinfandel and Petite Syrah, both head trained. The other vineyards that he manages in Sonoma have both head trained and wire-trellised vines. He prefers head trained though, because he can cultivate the rows both ways with his machinery.

The vines spaced at 8 x 8 feet. This is used for two reasons: first, the spacing is optimal for allowing him to do one pass with his cultivation tools, which are about six feet across and throw dirt an additional foot on each side. Second, the spacing creates a slight crowding of the root zones of the vines; the root competition controls the vigor of the vines and keeps them producing at Bernier's desired crop levels and efficiency.

Bernier's vines are planted on St. George rootstock. He uses this rootstock because it promotes the deep root growth necessary for dry farming. And, as Bernier points out, there are 100+ year-old vineyards on St. George still producing quality fruit.

Bernier's home vineyard Zinfandel yields around four tons an acre, and the Petite Syrah has yielded as much as five tons for the one acre



Dry farming at Paul Bernier's Home Vineyard

Planting and Replacing Vines

In February, Bernier will plant the 16" long St. George rootstocks and shoots from the nursery. He buries the entire rootstock and shoot with dirt for protection and to keep the vine from drying out. The new vines will grow up through the dirt.

If Bernier is planting a new vineyard or large vineyard block, he will roll out old drip lines that he collected in the 1980's and will water the new vineyard in July. If he is just planting a replacement vine, then in July he will place a five gallon bucket with a hole in the bottom over the new vine; he will fill the bucket with water and let the water drip down and infiltrate into the soil.

In August, all new vines are budded, and vines are grafted within the first year. Bernier does the grafting himself and says he has a pretty high success rate, so long as the rootstock is growing well and not stressed.



Cluster and Leaf Thinning

In July, Bernier will leaf a hole through the canopy to the trunk of the vine, but does not leaf thin much beyond that. He uses this hole in the canopy to cluster thin. Bernier removes clusters that may be prone to rot because they are too close together or may be hanging on other clusters. He will also remove fruit to help with ripening if the crop load is too heavy. He has had to remove close to 1/3 of his crop to help with fruit ripening.

Row Cultivation

In the Fall:

Bernier will seed a broad-spectrum cover crop. It includes peas, oats, barley, beans, and grasses. He also applies compost, which he makes himself, at five tons per acre.

In the Spring and Summer:

Bernier will start to cultivate in either March or April depending on when the rains stop and when his cover crop is ready. He is done cultivating the rows in all his ranches in June.

Bernier will let his cover crop grow to three or four feet high and will let it stand longer than most growers do. Nitrogen is at its highest when the crop is in bloom, and many growers mow the crop at that time. However, Bernier likes to let the cover crop harden and lignify before he mows it. The hardened crop will break down more slowly in the soil.

Bernier will first mow down his cover crop and then disk the crop into the soil. He will then disk again about three weeks later to further mix the decaying grasses into the soils. He may make up to two passes both ways depending on the year. His cultivation tools throw dirt that buries the weeds underneath the vines as well.

After disking, he uses a solid tool bar to cultivate the soil. In June, he has a mixed soil to about six inches deep, no weeds, and a dust mulch on top to seal in the moisture.



An example of dry farmed and head trained vines in Sonoma.

Frost and Mildew Control

- Frost problems are not common in any of Bernier's vineyards. He had one bad and unexpected frost incident at the home vineyard a few years ago. To protect against frost, he has been double pruning; however, because the frosts are so infrequent, he may quit this practice.
- Bernier has had significant mildew problems, and to protect against this, he dusts the vines with sulfur. He uses a dust instead of a spray because on his steep hillside vineyards it is too dangerous to pull the water and sulfur mixture in a tank behind his tractor. He waits until cloudy moist weather to dust with sulfur. This also reduces the need to manually leaf thin, as the sulfur will make the vines drop the oldest and most fragile leaves.

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www.caff.org/programs/dryfarm/
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