



GRGICH HILLS ESTATE

BIODYNAMIC® FAQ



What is Biodynamic farming?

The term comes from a combination of two root words:

bio: *life, living organism*

dynamic: *energy*

Biodynamics can be defined as working with the energies that create and maintain life. For growing grapes, this means treating the soil as a living organism and working to bring the grapevine and the soil into balance. We do this through environmentally sound farming, using natural preparations and timing our work with the rhythms of the earth and cosmos.

What is the origin of Biodynamics?

Biodynamic farming developed out of eight lectures given in 1924 by Austrian scientist, educator, and philosopher Rudolf Steiner (1861-1925). Steiner developed anthroposophy – a theory of spiritual science that takes a spiritual view of the relationship between human beings and the cosmos but with an emphasis on knowing, not just faith – and Biodynamics developed as the agricultural facet of this work. Steiner and his students also applied anthroposophy to art, medicine, architecture and, most famously, education (by developing the Waldorf schools).



**Our vineyard in balance.
Rutherford, California**

What is the difference between sustainable, organic and Biodynamic farming?

Sustainable farming is a widely used term but it has no legal definition so it can mean almost anything. Organic farming feeds the plants without the use of synthetic insecticides, fungicides and fertilizers. Biodynamic farming feeds the soil, keeping it alive and healthy using organic materials but it is advanced in that it uses the earth's natural cycles and preparations to produce balance in the soil and plants. Organic farming is concerned only with substances, while Biodynamics is concerned with forces.

What are the key points of Biodynamic farming?

- Each farm is a living entity that strives to be self-sufficient and maintain a rich, healthy biodiversity.
- It uses minute amounts of natural preparations to promote life-enhancing qualities, which increase microbial life and nutrients in the soil. Studies have shown that below 30 cm, where the vine's roots are, Biodynamic soil has vastly greater beneficial microbial life than organic or conventionally farmed soil.
- The “dynamic” aspect of Biodynamics incorporates the four elemental states of matter (earth, light, heat and water) and follows natural rhythms (see following pages).

What are the Biodynamic preparations?

There are nine traditional Biodynamic preparations that can be divided into sprays and compost preparations.

Sprays: The sprays are greatly diluted and then activated (energized) by a special stirring process known as *dynamization*. This stirring creates a vortex in the liquid, which draws in ambient energy and imprints the memory of the preparation into the solution.

#500: Cow manure packed in a cow horn, buried through the winter in the soil to undergo an alchemic transmutation (somewhat similar to the fermentation of wine). Sprayed on the soil, it promotes root activity, stimulates soil microbial life, increasing beneficial fungal and bacteria growth, regulates nitrogen content, and helps in the release of trace elements.

#501: Ground quartz (silica) mixed with rainwater and packed in a cow's horn, buried in the spring and then dug up in autumn. Sprayed on the vines, this preparation enhances the light metabolism of the plant and stimulates photosynthesis and the formation of chlorophyll. It also influences the color, aroma, and flavor of the crop.

#508: Fresh or fermented tea prepared from horsetail plant (*Equisetum arvense*). This is used as a spray to counter fungal diseases and improve the plant's ability to withstand water stress.

Compost Preparations: Preparations 502 through 507 are known as compost preparations. Just one teaspoon of each preparation is used to inoculate up to 15 tons of compost. These preparations influence the finished compost so that it provides an abundance of beneficial life forms to the soil and plants.

#502: Yarrow blossoms stuffed into a stag's bladder in early summer, which are hung up in the sun, then buried through the winter, and dug up the following spring. Provides and attracts potassium and sulfur, and permits plants to attract trace elements in extremely diluted quantities for their nutrition.

#503: Chamomile flower heads stuffed into a piece of bovine intestine and buried. Stabilizes nitrogen within the compost and increases microbial soil life, which stimulates plant growth.

#504: Stinging nettle buried and aged in an inert container. Stimulates soil health and provides plants with necessary nutritional components.

#505: Ground oak bark packed in the skull of a farm animal and buried in a moist location through the winter. This calcium-rich preparation combats harmful plant diseases and fungal attacks.

#506: Dandelion flower heads stuffed in a cow's mesentery (lining of the abdominal cavity). Stimulates the relationship between silica and potassium so that silica can attract cosmic forces to the soil.

#507: Fermented juice from valerian flowers. Half of this preparation is inserted into the compost pile and half is sprayed over it. Valerian stimulates the compost so that phosphorus components will be properly used by the soil.

• **Barrel Compound (BC):** Not part of the traditional preparations, Barrel Compound was developed by Maria Thun, a German Biodynamic farmer and researcher, as a quick way to supplement compost preparations. The compound is made in a barrel with cow manure, basalt and ground eggshells and aged in a closed pit.



Nettle being packed into its canister to make preparation #504.

Where do the preparations come from?

We, and most Biodynamic farmers in the United States, rely on the Josephine Porter Institute (www.jpibiodynamics.org), a nonprofit organization in rural Virginia, to produce these specialized preparations. We make some of our preparations and our goal is to eventually make them all, as part of attainable self sufficiency.



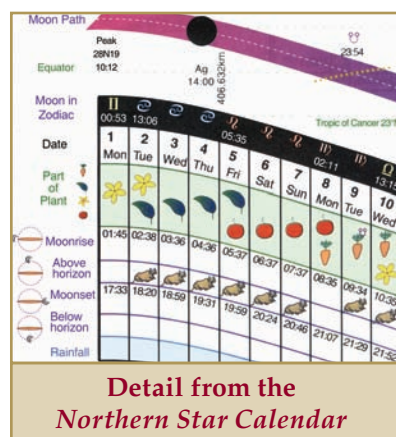
The cow horn is dug up, and the manure packed inside will be used for preparation #500.

How do you achieve balance in the vineyard?

In a Biodynamic environment, there is a healthy balance of animals, plants, and minerals. Each contributes physical and energetic qualities. We've strengthened these qualities by raising bees and chickens and by planting gardens and a variety of shrubs such as rosemary, lavender and sage plus trees such as apple, pear, cherry, hazelnut, elm, and alder as a way of adding biodiversity and attracting beneficial insects. These trees bloom at different times of year and attract diverse insects. Cover crops prevent erosion, break up compacted soil and provide organic matter to the vineyard. For example, we plant a variety of legumes and grasses that capture nitrogen from the air. When we chop and plow the plants into the ground, they release nitrogen and add organic matter to the soil. We keep the rodent population under control by placing owl boxes and hawk perches in the vineyards to attract birds of prey.

Do lunar and cosmic cycles affect grape growing?

Just look at the powerful impact the moon has on water, as demonstrated by the oceans' tides. Also consider circadian rhythms, humans' biological clock that is attuned to the earth's rotation even in the absence of environmental time cues. Plants, too, follow natural cycles. By understanding these, we are able to determine the best times to plant, prune, cultivate and harvest to ensure the optimum health of the plant and the highest-quality grapes.



Maria Thun developed this philosophy further in 1963 by applying to Biodynamics the ancient concept of four states of matter: earth correlates to roots; light relates to flowers; heat affects fruit; and water relates to leaves. These four elements rotate among being dominant, usually for two-to-three day periods. To follow these rhythms we use Maria and Matthias Thun's *Biodynamic Sowing and Planting Calendar* and Brian Keats' *Northern Star Calendar*, and Stella Natura's *Biodynamic Planting Calendar*. Each is published annually.

For example, we apply preparation #500, which promotes root activity, during an "earth" day. During harvest, we don't pick on water days when lunar and cosmic forces pull water up into the plant, diluting the grapes. When we began Biodynamic farming in 2003, we harvested during a water day and discovered the juice from those grapes was noticeably less concentrated.

How do you control pests and diseases?

Pests and diseases are a natural part of the agricultural cycle. We can never hope to eradicate them entirely, nor is that best for the long-term health of the earth. Rather, we try to minimize their effect on the vine by having a healthy vineyard. Our Biodynamically-farmed vines are much like a healthy person with a strong immune system. That person will get a cold occasionally, but will be able to easily withstand it and quickly recover from the illness while a person whose defenses are weak could easily get pneumonia and die.

Also, nature has a way of attacking that which is not natural – if an artificial element is introduced into an ecosystem that throws it out of balance, natural defenses swarm to attack it. With the vine and soil in balance, and with beneficial microbial life in the soil to counteract any malicious bacteria, the vineyard's ecosystem can thrive in harmony.

By attuning ourselves to the natural rhythms of the vine, we're able to anticipate and prevent problems, as well. For example, we've noticed that mildew and mold have a tendency to appear shortly after a full moon (especially at perigee) – the lunar effect pulls moisture into the atmosphere. We now spray our horsetail tea preparation, along with sulfur (which is permitted in Biodynamics; it's natural and part of the heat element and much smaller amounts than used in conventional farming), just before the full moon and have seen a dramatic reduction in mold and mildew.

How can you tell which wineries are certified Biodynamic?



Look for the Demeter symbol. All 366 acres of Grgich Hills Estate are certified by the Demeter Association (www.demeter-usa.org), the U.S. arm of the Demeter International organization, found in 19 countries. This is the only recognized Biodynamic certification organization in the United States. (This is not a government certification because the USDA has outlawed standards that exceed its National Organic Program standards. Demeter has opted out of USDA accreditation.) In order for a farm to be certified, it must demonstrate that it has undergone Biodynamic stewardship for a minimum of two years, as defined by the certification guidelines. Demeter is the ancient Greek goddess of agriculture and fertility, appropriate since Biodynamic farms are naturally more productive and abundant.

How did Grgich Hills become involved?

Though we'd used pesticides sparingly in the past, in 2000 we began farming all of our vineyards organically. In 2002, Grgich Hills' Vice President of Vineyards and Production Ivo Jeramaz attended a lecture by Nicolas Joly – the most influential Biodynamic winegrower and the owner of the renowned Loire Valley winery Coulée de Serrant – and he was immediately attracted to Biodynamics. Coincidentally, in 2003 we had reached a crisis: Cabernet Sauvignon vines in our Yountville Vineyard that had been planted in 1959 suffered from red leaf virus and experts told us to pull them out. Looking to save these old vines, we tried Biodynamic farming and they immediately responded; the vines' new health allowed the grapes to reach full physiological ripeness, resulting in richer fruit flavors in the wine. Based on that experience, we began switching all of our vineyards to Biodynamic and by 2006, all 366 acres had been converted and certified.



Biodynamics requires detailed attention to the vineyards. Here, Ivo Jeramaz inspects a vibrant old vine.

Does Biodynamics make better wine?

We believe so; our grapes display a better balance between sugar, acid, flavors and tannins; the wines are definitely more authentic and distinctive, with a stronger sense of *terroir* (the conditions and characteristics of a specific site). Other top wineries think so as well, such as Spain's Dominio de Pingus and Descendientes de J Palacios; France's M Chapoutier, Domaine Leroy, Zind-Humbrecht, Domaine Huët, Domaine Leflaive, and Domaine de la Romanée Conti have been practicing Biodynamics for years. In the United States, high-profile wineries including Araujo, Robert Sinskey, and Benziger, among others, are embracing Biodynamic farming.

Where can I get more info?

We are members of the Demeter Biodynamic Trade Association, www.demeterbta.com. Other useful sites are the National Sustainable Agriculture Information Service (www.attra.org/attra-pub/biodynamic.html) and the Biodynamic Farming and Gardening Association (www.biodynamics.com). Helpful books include *Wine from Sky to Earth* by Nicolas Joly, *Biodynamic Wines* by Monty Waldin and *Agriculture* by Rudolf Steiner.