



GRGICH HILLS

biodynamic FAQ



What is biodynamics?

The term comes from a combination of two root words:

bio-: *life, living organism* dynamic: *energy*

Thus, biodynamics can be broadly defined as working with the energies that create and maintain life. As it relates to growing grapes, this means treating the soil as a living organism and working to bring the grapevine and the earth into balance. We do this by using natural mineral and animal-derived preparations and following the natural rhythms of the earth and cosmos.

What are its origins?

The biodynamic philosophy developed out of eight lectures given in 1924 by Austrian scientist, educator, and philosopher Rudolf Steiner (1861-1925). Steiner had previously 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 faith – and biodynamics developed as the agricultural facet of that. Steiner also applied anthroposophy to education (developing the Waldorf schools), medicine, and architecture.



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

How is it different from organic farming and sustainable agriculture?

Both biodynamics and organics use no artificial pesticides, herbicides or fungicides. “Sustainable agriculture” is a very fuzzy term that basically boils down to mean “doing as little harm as possible”; it’s certainly a lot better than conventional farming, but not in the league of biodynamic or organic farming.

Main differences between biodynamics and organics are:

- The use of biodynamic preparations (see the following question for details).
- Both biodynamic and organic practices improve soil health by adding compost, but whereas organic farming uses compost for fertilization, biodynamics uses much smaller quantities to enliven the soil. In this respect, biodynamics can be likened to homeopathic medicine, where the aim is to have the body heal itself rather than treat the symptoms. Minute amounts of natural preparations introduce microbial life and nutrients into the soil – priming the pump, so to speak – and that life multiplies and reproduces throughout the earth. Studies have shown that both biodynamic and organic fields have the same level of beneficial microbial life (which is much greater than conventionally farmed land) up to 30 cm deep, but deeper than that (where the vine’s roots are), biodynamic soil has vastly greater life.
- Additionally, the “dynamic” aspect of biodynamics introduces concepts of relating four elemental states of matter and following natural rhythms (discussed further on). In short, organic farming is concerned only with substances, while biodynamics is concerned with forces as well.

What are the biodynamic preparations?

There are nine different biodynamic preparations, each with distinct properties. All of these preparations are vastly diluted and then activated or energized by a special stirring process known as *dynamization*. This stirring creates a vortex in the liquid, which draws in ambient energy and evenly integrates the preparation into the solution.

#500: Cow manure packed in a cow horn, which is then buried and over-wintered in the soil to undergo a chemical transmutation (somewhat similar to the fermentation of wine). Sprayed on the soil, it promotes root activity, stimulates soil microbial life and increases beneficial bacteria growth, regulates lime and 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 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.

#502: Dried flower heads of yarrow put into a stag's bladder in early summer; the filled bladders are hung up in the sun from spring until autumn, buried in the soil during winter, and dug up the following spring. This preparation is connected to potassium and sulfur, and applied to compost it permits plants to attract trace elements in extremely dilute quantities for their best nutrition.

#503: Flower heads of chamomile stuffed into a piece of bovine intestine and buried. Also applied to compost, it stabilizes nitrogen within the compost and increases microbial soil life so as to stimulate plant growth.

#504: Stinging nettle tea, made from nettle buried and aged in an inert container. This tea has two uses. Applied to the compost, it stimulates soil health and provides plants with necessary nutritional components. It's also sprayed on the vineyard in summer, helping the vines to withstand drought and excessive sun.

#505: Grated oak bark aged in the skull of a domestic animal. This calcium-rich preparation combats harmful plant diseases and fungal attacks.

#506: Flower heads of dandelion fermented in a cow's mesentery (lining of the abdominal cavity). Inserted in the compost pile, it stimulates the relationship between silica and potassium so that silica can attract cosmic forces to the soil.

#507: 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.

#508: Tea prepared from horsetail plant. This is used as a spray to counter fungal diseases.

Barrel compost is also used; it's similar to a large biodynamic compost pile, but with the addition of basalt and ground eggshells and aged in a closed pit. These modifications enable the compost to be ready in three to six months instead of the eleven months a large pile requires.

Do we make the preparations ourselves?

No, that's a full-time job in itself. There are very precise requirements for the care of the animals, type of plants used, when to harvest, and creating the preparations, and it'd be impossible for us to do that well and still manage the vineyards. Also, there aren't a lot of stag's bladders lying



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

around handy. We get our preparations from the Josephine Porter Institute (www.jpibiodynamics.org), a wonderful nonprofit organization in rural Virginia that specializes in just that.

What's this business with the cow horn?

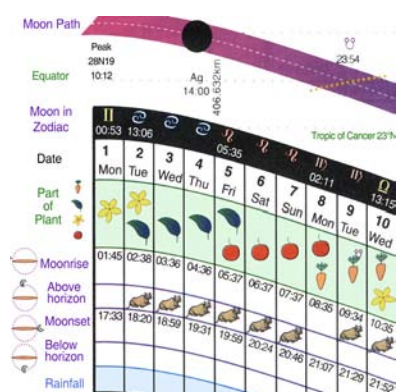
In an ideal biodynamic environment, everything is balanced – animals, plants, minerals. Each contributes not only physical qualities, but an energy as well. As grape growers, it's not practical for us to rotate crops or have animals constantly roaming through the vineyards, so these preparations introduce the animal element in other ways. The animal organs also possess the unique properties of their former functions – for example, chamomile is used medicinally to treat digestive tract ailments. Thus, to draw out the beneficial properties of the chamomile in that preparation, bovine intestine is used as a catalyst in the fermentation. Additionally, the animal-based preparations introduce unique beneficial microbial life into the soil and bring it into balance.



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

Do lunar and cosmic cycles really have an effect?

Without question. Just look at the powerful impact the moon has on the oceans' tides, and people as well – the word *lunatic* derives from *luna* (moon), because of the full moon's effect on human behavior. Also consider circadian rhythms, man's 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, water, and harvest to ensure the optimum health of the plant and the highest-quality grapes.



Detail from the Northern Star Calendar

Calendar and Brian Keats' *Northern Star Calendar*, both published annually, to follow these rhythms.)

So, the best time to apply preparation #500, which promotes root activity, is during an "earth" day. During harvest, we don't pick at all on water days; lunar and cosmic forces pull water up into the plant, diluting the grapes. This might sound farfetched, and it did to us initially as well – 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?

It's vital to understand and accept that pests and diseases are a natural and inevitable part of the agricultural growth 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 naturally control them and to minimize their effect on the vine. Going back to the homeopathic medicine analogy, we liken our biodynamically farmed vines to a healthy person with a strong immune system. That person will likely get a cold occasionally, but will be able to easily withstand it and be none the worse for wear. A person whose defenses are stripped, however, could easily get pneumonia and die. Similarly, our strong, healthy vines can better withstand any attacks (and also excessive heat or rain).

Also, nature has a way of attacking that which is not natural – if an artificial element is introduced into an ecosystem that brings it out of balance, the natural defenses swarm to attack that. With the

vine and soil in balance, and with beneficial microbial life in the soil to counteract any malicious bacteria, the ecosystem of our vineyard can thrive in harmony.

By attuning ourselves to the natural rhythms of the vine, we're able to anticipate and prevent problems, as well. 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've begun spraying our horsetail tea preparation, along with sulfur (permitted in biodynamics; it's natural and part of the heat element), just before the full moon and have seen a dramatic reduction in mold and mildew.

Is there any certification process?

Yes. The Demeter Association (www.demeter-usa.org), the U.S. arm of the nineteen-country Demeter International organization, is the only recognized biodynamic certification organization in this country. (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.

How did Grgich Hills become involved?

We've always tried to keep our vineyards vital and healthy, for the simple reason that the best wine comes from the best grapes. 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 was immediately convinced.

We started off converting 18 acres in our Yountville vineyard after the 2002 harvest and the results were fantastic. We converted 87 acres more after the 2003 harvest, and after the 2004 harvest brought our total to 257 biodynamic acres, roughly two-thirds of our total acreage. We will be fully biodynamic for 2006.

The end result – does it make a better wine?

We believe so; definitely more authentic and distinctive, with a stronger sense of *terroir* (the conditions and characteristics of a specific site). More and more wineries think so as well. Top European wineries 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 Quintessa, Viader, Araujo, Robert Sinskey, and Benziger, among others, are embracing biodynamic farming.

Great! Where can I get more info?

Two good books are *Wine from Sky to Earth* by Nicolas Joly and *Biodynamic Wines* by Monty Waldin. There are many useful Web sites; two excellent 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).



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

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