



**BIODYNAMIC  
ASSOCIATION**

# BIODYNAMIC PRINCIPLES & PRACTICES

[www.biodynamics.com](http://www.biodynamics.com)

Biodynamics is a holistic, ecological, and ethical approach to farming, gardening, food, and nutrition. Biodynamics is based on the work of philosopher and scientist Dr. Rudolf Steiner, and has been developed through the collaboration of many farmers and researchers since 1924. Around the world, biodynamics is alive in thousands of thriving gardens, farms, vineyards, ranches, and orchards. The principles and practices of biodynamics can be applied anywhere food is grown, with thoughtful adaptation to scale, landscape, climate, and culture.

## A Biodynamic Farm Is a Living Organism

Each farm or garden is an integrated, whole, living organism. This organism is made up of many inter-dependent elements: fields, forests, plants, animals, soils, compost, and people. Biodynamic farmers and gardeners work to nurture and harmonize these elements, managing them in a holistic and dynamic way to support the health and vitality of the whole.

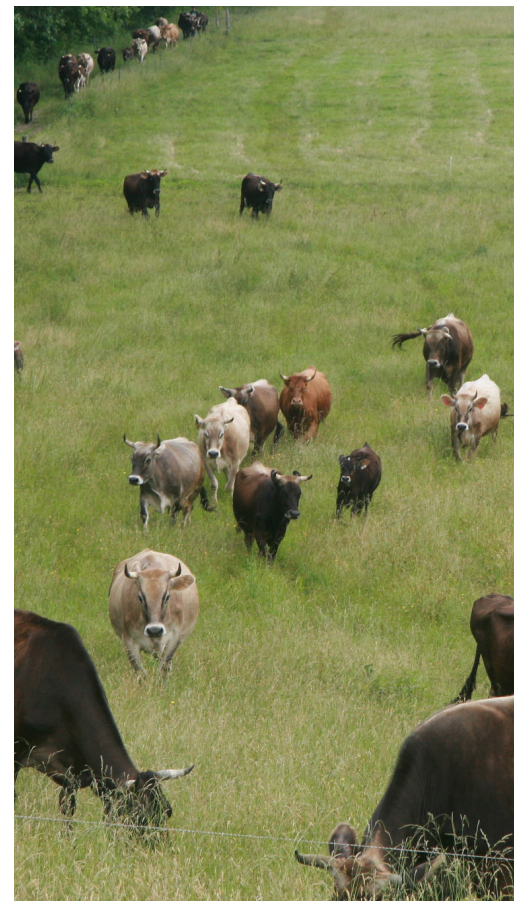


## Biodynamics Cultivates Biodiversity

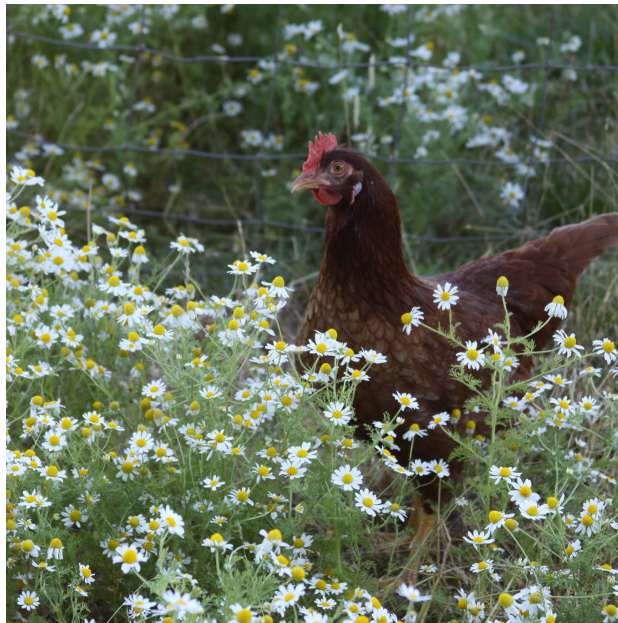
Biodynamic farms and gardens mimic the biodiversity of natural ecosystems, amplifying the health and resilience of the farm organism. Annual and perennial vegetables, herbs, flowers, berries, fruits, nuts, grains, pasture, forage, native plants, and pollinator hedge-rows can all contribute to plant diversity. Diversity in livestock is also beneficial, as each animal species brings a different relationship to the land and unique quality of manure. The diversity of plant and animal life can be developed over time, starting with a few primary crops and one or two species of livestock (even as small as earthworms or honeybees), and adding more species as the farm organism matures.

## Biodynamics Brings Plants and Animals Together

Natural ecosystems include both plants and animals, which fill complementary niches in the web of life. Many conventional and organic farms only grow crops or only raise livestock, which may be more efficient by some measures, but often creates problems such as nutrient deficiency (if only growing plants) or pollution from excess manure (if only raising animals). Biodynamic farms and gardens work to bring crops and livestock together into healthy symbiotic relationships, so that the plants feed the animals and the animals feed the plants, supporting and balancing each other. Mindfully incorporating plants and animals strengthens the integrity of the farm organism.







## Biodynamic Fertility is Generated Within the Farm

Biodynamic plants are grown in the ground in living soil, which provides a quality of health and nutrition not possible with chemical fertilizers or hydroponic growing. Biodynamic farms aspire to generate their own fertility through integrating animals, cover cropping, crop rotation, and composting. This reduces or eliminates the need for imported organic fertilizers and enables the farm to become a self-sustaining system. With a sufficient quantity and diversity of livestock, manure from the farm can provide all nutrient needs of the crops. Cover crops also contribute to on-farm fertility by protecting the soil and fixing nitrogen, and crop rotation helps balance the different nutrient needs of each crop. On-farm fertility is further enhanced through composting manure and crop residues, which transforms and returns nutrients to the farm organism in an optimal form.

## Compost is Enlivened with Biodynamic Preparations

Biodynamic compost is enhanced and enlivened through the use of six preparations made from yarrow, chamomile, stinging nettle, oak bark, dandelion, and valerian. Each of these medicinal herbs is transformed through a unique process that brings it into relationship with the animal kingdom, the earth, and the cycle of the year. This magnifies the healing properties of the herbs, fosters the growth of beneficial bacteria and fungi, and creates powerfully concentrated substances to inoculate and guide the development of the compost. A small quantity of each preparation is added to the compost pile just after it is built, and again after it is turned. Biodynamic preparations strengthen the quality of the compost by stabilizing nitrogen and other nutrients,<sup>1</sup> multiplying microbial diversity,<sup>2</sup> and bringing more sensitivity to the composting process. Biodynamic compost helps attune the soil to the whole farm organism while increasing soil life and stable organic matter.<sup>2,3</sup> Biodynamic compost also brings more carbon into the living realm, helping to restore balance to the climate.

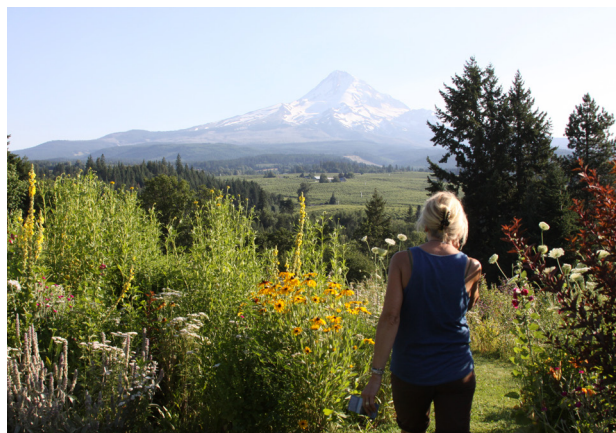


## Biodynamic Farmers Cultivate Awareness

Biodynamics is a mindful approach to agriculture. By observing, sensing, and listening to the land, biodynamic farmers and gardeners develop intimate relationships with their unique farm organisms and expand their capacity for perception. One way this can be cultivated is through a regular practice of walking the land with the sole purpose of noticing. Setting aside time to step away from the hands-on tasks and bring attention to the subtle changes happening on our land strengthens our ability to work creatively with the dynamics of the farm or garden and the wider bioregion, and to bring the vibrancy of the farm organism to full expression.

## Biodynamic Sprays Enhance Soil and Plant Health

In addition to the compost preparations, several biodynamic preparations are applied as potentized liquid sprays to nurture the health of the farm and garden. Horn manure (also known as 500) enhances the life of the soil and the relationship between soil and plants,<sup>4</sup> and is made from cow manure buried inside a cow horn during the winter months. Horn silica (or 501) increases plant immunity,<sup>5</sup> strengthens photosynthesis and enhances ripening, and is prepared from ground quartz crystals buried in a cow horn over the summer months. Horsetail tea (or 508) helps prevent fungal diseases. Together, the biodynamic spray and compost preparations help plants develop in a healthy and balanced way, access the full spectrum of nutrients they need, and become more resilient to pests, diseases, and extreme climate conditions.<sup>6</sup>



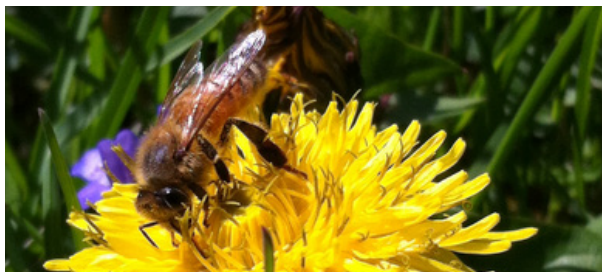


## Biodynamics Supports Seed Integrity and Diversity

Whenever possible, biodynamic farmers and gardeners plant seeds that have been grown in biodynamic or organic systems, and favor open-pollinated and heirloom varieties that have been developed and saved by generations of farmers. GMO seeds are never used. Biodynamic farms strive to supply as much of their own seed as possible, incorporating the selection and saving of seeds into farm activities in order to develop locally-adapted crop varieties with favorable yields, delicious flavors, and resistance to pests and diseases. Sourcing seed from within each farm leads to unique seeds that have co-evolved with the farm individuality.

## Biodynamics Treats Animals with Respect

Biodynamic livestock is cared for in ways that support their inherent health and the full expression of their nature. Animals are given feed that is appropriate for their digestive systems, and never fed animal by-products. Calves, lambs, and kids are raised on the milk of the herd, not milk replacer. Chickens keep their beaks and cows keep their horns, as each part of the animal serves an important natural function. All animals have access to the outdoors and free range forage, along with plenty of space to move around freely.



## Biodynamics Works in Harmony with Natural Rhythms

Biodynamic farmers and gardeners work to develop awareness of the rhythms and cycles of the earth, sun, moon, stars, and planets, and seek to understand the subtle ways that they influence the growth and development of plants and animals. Biodynamic calendars support this awareness and understanding by providing detailed information about the movements of the earth, moon, and planets throughout the year, and indications of optimal times for sowing, transplanting, cultivating, harvesting, and using the biodynamic preparations.



## Biodynamics Approaches Pests and Diseases Holistically

Biodynamics focuses on creating the conditions for optimal soil, plant, and animal health, providing balanced nutrition and supporting healthy immunity. When farms and gardens incorporate a robust diversity of plants and animals and create habitat for natural predators, pests and diseases have few places to thrive. When a disease or pest presents itself, it is often pointing to an imbalance in the farm organism, and can be seen as nature's way of trying to correct the imbalance. In the case of an outbreak, biological controls can be used, but a biodynamic farmer also tries to discern the underlying imbalance and find ways to adjust management practices to bring the farm organism to greater health.

## Biodynamic Certification Upholds Agricultural Integrity

The Demeter Biodynamic® Standard for certification was established in 1928 and is managed worldwide by Demeter International. Over 5,000 farms encompassing more than 400,000 acres are certified in 60 countries around the globe. Biodynamic certification in the United States is managed by Demeter USA ([www.demeter-usa.org](http://www.demeter-usa.org)) and uses the USDA organic standard as a foundation with additional requirements. Beyond organic certification, the Demeter Biodynamic Farm Standard requires that the whole farm, and not just a specific crop, is certified; crops and livestock are integrated and animals are treated humanely; imported fertility is kept to a minimum; the biodynamic preparations are regularly applied; at least 50% of livestock feed is grown on farm; at least 10% of the total farm acreage is set aside for biodiversity; and the farm upholds standards of social responsibility.



## Biodynamics Contributes to Social and Economic Health

Biodynamic farmers are motivated by a desire to meet the real needs of people and planet, which often extends beyond growing food. Most biodynamic initiatives seek to embody triple bottom line approaches (ecological, social, and economic sustainability), taking inspiration from Steiner's insights into social and economic life as well as agriculture. Community supported agriculture (CSA) was pioneered by biodynamic farmers, and many biodynamic practitioners work in creative partnerships with other farms and with schools, medical and wellness facilities, restaurants, hotels, homes for social therapy, and other organizations. Biodynamics is both a regenerative agricultural system and a potent movement for new thinking and practices in all aspects of life connected to food and agriculture.

## Biodynamics Offers Regenerative Solutions for the Future

Biodynamics is a holistic, coevolutionary, earth-friendly practice and way of being that creates abundant health for soil, plants, animals, people, and planet. Each unique and self-sustaining farm organism contributes generously to the ecological, economic, social, and spiritual vitality of its surrounding community and landscape, and the whole living earth. Through biodynamics, we can access new capacities in human creativity to sense and respond to the needs of the planet, and unfold new solutions in a living and dynamic way.



<sup>1</sup> Carpenter-Boggs, L., Reganold, J.P., Kennedy, A.C. 2000. Effects of biodynamic preparations on compost development. *Biological Agriculture and Horticulture* 17:313–328.

<sup>2</sup> Maeder, P., Fliessbach, A., Dubois, D., Gunst, L., Fried, P., Niggli, U. 2002. Soil fertility and biodiversity in organic farming. *Science* 296:1694–1697.

<sup>3</sup> Raupp, J. 2001. Manure fertilization for soil organic matter maintenance and its effects upon crops and the environment, evaluated in a long-term trial. In: Rees, R.M.; Ball, B.C.; Campbell, C.D. and Watson, C.A., editors. *Sustainable Management of Soil Organic Matter*. CABI Publishing, p. 301-308.

<sup>4</sup> Reganold, J. P., Palmer, A. S., Lockhart, J. C., Macgregor, A. N. 1993. Soil quality and financial performance of biodynamic and conventional farms in New Zealand. *Science* 260:344–349.

<sup>5</sup> Fauteux, F., Remus-Borel, W., Menzies, J. G., Belanger, R. R. 2005. Silicon and plant disease resistance against pathogenic fungi. *FEMS Microbiology Letters* 249:1–6.

<sup>6</sup> Fritz, J. 2014. Results of scientific trials. In: Hurter, U., editor. *Agriculture for the Future: Biodynamic Agriculture today. 90 years since Koberwitz*. Verlag Am Goetheanum, p. 201-214.

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