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**TASTING**  
IS BELIEVING





**I KNOW A THING OR TWO ABOUT FARMS. MY UNCLES** raised sheep, cattle and corn in the rolling hills of Iowa. My wife's family raises hogs and soybeans on the flat prairie of Minnesota. As a journalist, I've visited organic farms in the U.S., Europe and South America. So when walking into a barn full of cows at the Warmonderhof Agricultural School in the Netherlands, I instinctively cover my nose.

But there's no odour. The mixture of manure, straw, clover and hay smells almost sweet. I must look surprised because Jan Saal, director of the Warmonderhof Foundation that runs the school, tells me with a smile, "Yes, the dung smells different—not a lot of ammonia smell here." He goes on to say that biodynamic agriculture—a way of farming that involves paying detailed attention to creating high-quality soil—results in lower levels of nitrogen in animal feed and manure, which accounts for the agreeable fragrance of the livestock stalls.

I'm at Warmonderhof Agricultural School, an hour north of Amsterdam by train, to learn about biodynamics, which intrigues me as a method of ecological agriculture—and some believe is the next step beyond organic. But the whole undertaking fuels my skepticism about esoteric practices that purport to bring a spiritual dimension to farming. Crops are planted according to the cycles of the moon. Manure is buried inside cows' horns, and yarrow blossoms are stuffed into stags' bladders to give special properties to compost. Crushed quartz is sprayed onto fields in quantities so minute it's hard to believe it could make a difference. How do I make sense of all this?

Yet, on the other hand, how do I explain the surprising smell of the barn?

**INTEREST IN BIODYNAMIC AGRICULTURE IS GROWING** worldwide, sparked by a newfound environmental consciousness, as well as suspicion from some that the organic foods industry is more interested in huge profits than in quality food or careful stewardship of the land.

In Germany, 10 percent of all organically farmed land is

biodynamic, according to agronomist Martin Kern of that country's Research Institute for Biodynamics (IBDF in German). In Australia, membership in the group Biodynamic Agriculture Australia has jumped from 400 to 1,200 in the last seven years, according to CEO Hamish Mackay. He estimates some 50,000 hectares (123,550 acres) are farmed biodynamically across the country. In the U.S., the number of biodynamic operations has tripled since 2004, according to Demeter, the trade association that certifies farms and other food businesses. The group now has 106 members, ranging from a pasta sauce company in New Jersey to a cattle ranch in Arkansas to a creamery in Montana.

There may be more biodynamic farms than international statistics show, since some growers don't bother with certification because it's an extensive, expensive process and biodynamic crops don't yet fetch higher prices than organic ones. Katrina Frey of Frey Vineyards in California, a member of Demeter's board, notes, "It's growing rapidly in the United States. There are so many people who want to go beyond organic, some of whom feel that organic has lost its sense as a grassroots movement."

Wine is the sector in which biodynamic production is surging ahead right now, as winemakers in Europe and on the U.S. West Coast discover it makes a marked difference in the taste of their vintages. A full third of Demeter-certified operations in the U.S. are vineyards or wineries.

Tea is another arena in which biodynamic farming is making inroads.

Ambootia, one of several Indian tea concerns that went biodynamic in the 1980s, now farms more than 6,000 hectares (15,000 acres) on 12 estates in Darjeeling and Assam, India. Shashank Goel, founder of the start-up Ineeka Teas, whose family owns Ambootia, notes that, "In Paris, people will pay up to \$2,500 a kilo (more than \$1,000 a pound) for our tea now. People don't pay that kind of money unless you have a superior product. It was easy for us to get started. Biodynamic is like the way people have been farming in India for centuries. Thinking of farming spiritually is long-rooted tradition here." >>>

**Esoteric practises,  
like burying manure inside  
cows' horns, has put many people  
off biodynamic agriculture.  
Now, the sensational flavour—and  
ecological benefits—of biodynamic  
produce is winning them over.**

BY JAY WALLJASPER







## THE ALCHEMY OF AGRICULTURE

### Two key recipes for biodynamic farming

Rudolf Steiner (photo) believed there was a spiritual dimension to agriculture (and all of life) that modern science ignored. That belief influenced his formulation of biodynamic farming, which involves processes that may not be readily explained by science but Steiner felt improved soil and crop quality. He prescribed these two preparations for farm fields each year:



- **Preparation 500:** A small amount of manure is stuffed into a cow horn and buried over the winter. It's dug up in the spring and sprayed on crops in a solution of 250 to 300 grams (9 to 11 ounces) diluted in 40 to 60 litres (11 to 16 gallons) of water per hectare (2½ acres).
- **Preparation 501:** Ground quartz is stuffed into a cow horn and buried over the summer. Five grams (less than a quarter of an ounce) of the preparation is stirred into 60 litres (16 gallons) of water per hectare and sprayed on fields several times over the next growing season.

In addition, the following preparations, made from medicinal plants, are added to compost in tiny amounts to improve soil conditions:

- Yarrow blossoms in deer bladders
- Chamomile blossoms in cattle intestines
- Dandelion flowers in cow stomachs
- Stinging nettle in peat
- Oak bark in animal skulls
- Valerian flowers in water

cow horn buried underground all winter, and once with ground quartz stored in a cow horn buried over the summer.

Manure buried in a cow horn acquires special properties, according to biodynamics researchers, affecting biochemical processes in the soil that allow plants to take root more firmly and “interact” more fully with nutrients. The quartz preparation—which dilutes 5 grams (less than a quarter of an ounce) of the crushed rock in 60 litres (16 gallons) of water for each hectare—is believed to strengthen the structure of plants, enhancing flavour, fragrance and shelf life.

**STEINER ALSO RECOMMENDED SEVEN** special procedures for making compost based upon medicinal herbs like yarrow, nettle or chamomile being mixed with wa-

ter, peat, deer bladders or cattle intestines. “This is the art of the compost,” declares Warmonderhof’s Jan Saal.

Walking me through the 85 hectare (210 acre) farm, where more than 80 youths aged 16 to 19 (and a few adult students) learn biodynamic farming techniques at a school supported by the Dutch education ministry, Saal emphasizes that the purpose of these spiritually inspired practises is to create prime topsoil. Animal organs, horns, medicinal herbs, minerals, manure, long-term crop rotation and consultation of lunar cycles—as well as other biodynamic principles, such as nurturing wild animals, keeping bees and minimizing use of inputs not produced on the farm—help make the soil as healthy as possible, he says, even if science can’t yet tell us exactly how.

Some agricultural researchers confirm

claims about the quality of biodynamic soil. A study comparing 16 neighbouring conventional and biodynamic farms in New Zealand published in *Science* in 1993 concluded that “biodynamic farms proved in most enterprises to have soils of high biological and physical quality: significantly greater in organic-matter content and microbial activity, more earthworms, better soil structure, lower bulk density, easier penetrability and thicker topsoil.” Richer topsoil, claim biodynamic advocates, translates to crops that are sturdier, more disease- and pest-resistant, more nutritious, less perishable, taller and better-tasting.

Saal notes that neighbouring farmers dismissed biodynamics as a crackpot idea when the Warmonderhof school, founded in 1947, relocated here to the Netherlands’ Flevoland province in 1993. But now they’re wondering about things like why the biodynamic fields don’t have the same problems with carrot flies that theirs do.

Thieu Verdonshot, who has grown pumpkins, squash, onions, cabbage and other biodynamic produce on Warmonderhof land for 11 years, remarks, “When conventional farmers see something is working, they take notice. Just yesterday, a farmer asked me about my mustard crop because it is much taller than his. And last week another said I must be farming conventionally now because there were no weeds in my carrots.”

**WHILE THE PHRASE “BIODYNAMIC”** actually predates “organic” (which wasn’t formulated as a concept until 1945 by Sir Albert Howard, a British botanist who studied traditional methods of farming in India and Europe), the vast majority of biodynamic growers and customers have come out of the ranks of organic enthusiasts. “I’d gardened organically for years,” says John Schaeffer, founder of the Real Goods solar and sustainable-products company. But when he decided to plant 130 hectares (320 acres) of land in Northern California in olive trees and grape vines, he opted for biodynamic cultivation. “It’s the next thing,” he says. “Organic doesn’t do as much to give back to the soil.”

The emergence of huge organic farms—where monoculture crops are planted in endless rows, where animals don’t step



