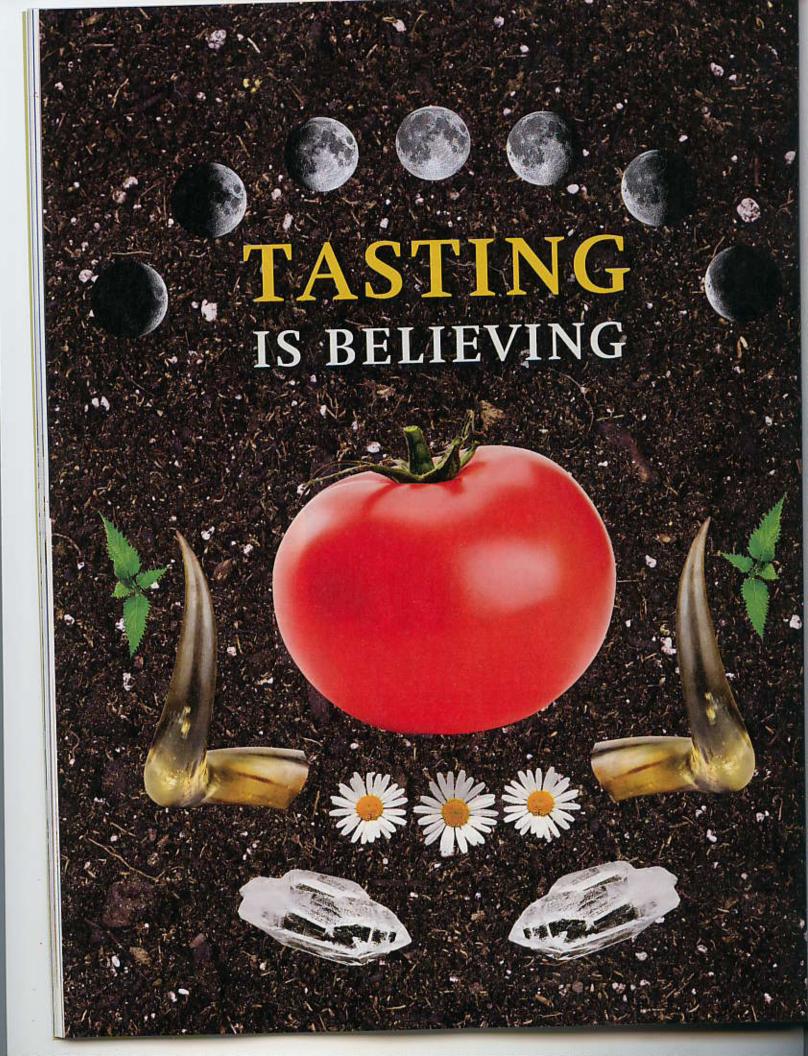
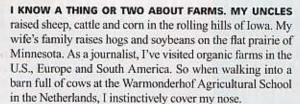
Beyond forgiveness: Healing after the hurt







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 Esoteric practises, agriculture-and some believe is the next step belike burying manure inside yond organic. But the whole undertaking cows' horns, has put many people fuels my skepticism about esoteric pracoff biodynamic agriculture. tises that purport to Now, the sensational flavour-and bring a spiritual dimension to farming. ecological benefits-of biodynamic Crops are planted according to the cycles produce is winning them over. of the moon. Manure is buried inside cows' horns, BY JAY WALLJASPER and yarrow blossoms are stuffed into stags' bladders to give special properties to compost.

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

quantities so minute it's hard to believe it could make a

Crushed quartz is sprayed onto fields in

difference. How do I make sense of all this?

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.

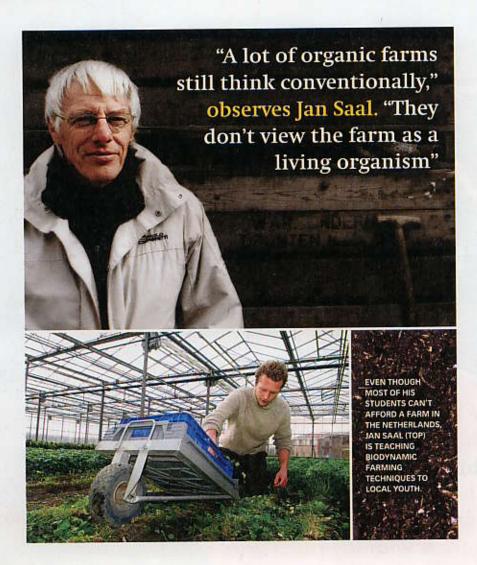
statistics show, since some growers don't bother with certification because it's an extensive, expensive process and biodynamic crops don't yet fetch higher prices than organic ones. Katrina Frey of Frey Vineyards in California, a member of Demeter's board, notes, "It's growing rapidly in the United 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."

There may be more biodynamic farms than international

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.">>>>



THE WORLD'S FIRST BIODYNAMIC FARM

was established in Loverendale, the Netherlands, in 1926, but the idea draws upon centuries of tradition about how best to take care of the soil and grow wholesome food. The principles of biodynamics were originally articulated in a series of lectures to farmers near Breslau, Germany, (now Wroclaw, Poland) in 1924 by Rudolf Steiner, a controversial figure then and now.

An Austrian scientific researcher and mystic with a devoted following throughout Europe, Steiner introduced a number of practical social innovations that are still flourishing: Waldorf education, in which children learn at their own pace; Camphill communities, where developmentally disabled adults are cared for as part of a wider community; anthroposophic medicine, which helped set the tone for today's holistic-health movement; and experiments

in alternative economics, which led to the creation of the GLS bank in Germany, the Rudolf Steiner Foundation in the U.S. and the Triodos Bank in the Netherlands, Belgium, Spain and the UK.

Many people find the spiritual theories behind Steiner's work challenging, and can't accept the full scope of his anthroposophic philosophy, including his emphasis on the powerful properties of certain water-washed colours and his belief in the ancient civilization of Atlantis.

Even many loyal to biodynamic farming dismiss some of Steiner's teachings. Hartmut Spiess, one of the world's leading biodynamics researchers, notes, "Steiner himself said that what he was saying had to be tested under real conditions and if it doesn't work, then it's rubbish. He said we must keep developing spiritual science and that his work was just a beginning."

Spiess' own research at Germany's IBDF found no scientific basis for claims by Steiner and early followers that the astrological alignment of the planets affects crop growth. But over lunch in the dining room of Dottenfelderhof-an old monastery outside Frankfurt that houses the institute, along with a working farm, cattle herd, natural-foods grocery, bakery, cheese plant and 100 residents-Spiess says firm evidence supports the influence of lunar cycles on plants. Pointing to a pot of stew on the table, he explains that carrots planted several days before the full moon get higher yields. With potatoes, he says, it's just the opposite; they grow best when planted at the new moon.

Spiess insists it's no surprise that the moon's gravitational pull would affect plant life; tides in the ocean, after all, are governed by lunar cycles. He references a 1998 article in Nature showing that tree trunks expand and contract according to effects of the moon. Published studies from Austria and Cuba, he says, demonstrate that wood from pine and fir trees cut before the full moon is more susceptible to damage from bark beetles. His own research with carrots found they spoil less when planted before the full moon-which fits with reports from many biodynamic gardeners that their produce keeps longer than that grown by conventional or organic methods.

Spiess' data sound convincing, but I know one thing for sure: The unexpectedly rich flavour of the stew instills in me a new appreciation for the sensuous, delicious potential of root vegetables. Carrots, potatoes and squash never tasted this good.

WHILE SOME TENETS OF BIODYNAMIC

farming can be explained by ancient peasant knowledge or modern ecological understanding—for instance, the idea of setting aside 10 percent of all acreage to be kept wild, or of rotating crops in cycles of five to seven years—others strain the patience of many who are steeped in Western thinking.

Especially challenging are preparations applied to the land and to crops, which is the essence of biodynamic agriculture. Steiner mandated that fields be sprayed once each year with minute amounts of cattle manure that's been stored inside a

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 (21/2 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 water, 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 pestresistant, 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 Verdonschot, 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 farmswhere monoculture crops are planted in endless rows, where animals don't step MAY 2008 00E 41

dynamic produce a rare sight in grocery the transition is one thing that keeps bio-THE DIFFICULTY FOR FARMERS IN MAKING

some great results, I might go in for it," to see what happens. "Who knows? If I see plied to his compost pile, and he's curious Steiner's prescribed preparations was aphow it was done. At the conference, one of about biodynamics faded when he saw Yet Smith admits some of his doubts

get a price beyond that of organic." and time to do it, and I'm not sure you can it looks as if it would involve more labour and see if you want to go all the way. And started. You can't just do it half-measure dynamics," he says. "It's not easy to get me back is the discipline in following biosouthwest coast of England. "What holds farm on the Isles of Scilly, 30 miles off the a biodynamic conference at his small organic vegetable grower, recently hosted Jonathan Smith, a 26-year-old British

he doubts it could fetch a higher price. a lot of time to learn a new way to farm and biodynamic, he says, because it would take

For now, Kleinschmit has no plans to go

of research to support that." believe it's more than organic. There's a lot don't understand about it," he says. "But I like voodoo and there are a lot of things I ing up on biodynamics. 'It seems almost as well as better for the land, is now readago when he saw it was more profitable transition to organic farming 15 years

in Bow Valley, Mebraska, who made the Martin Kleinschmit, a cattle farmer or how the food is processed."

biodiversity, topsoil, wildlife, composting "Organic doesn't deal with crop rotation, modified organisms (GMOs)," she says. fertilizers and pesticides, or genetically ganic farm is that they don't use artificial point, "The only thing required of an orresentative with Demeter, underscores the

Elizabeth Candelario, a marketing rep-".mzinegro gaivil s zs

has not changed. They don't view the farm as conventional farmers. Their thinking fertilizers and pesticides in the same way ally," observes Saal, "They use organic of organic farms still think conventionment over conventional farming, "A lot whether organic is much of an improvedo the work-leaves some questioning outdoors, where low-paid farm labourers

ing. "A lot of our students go to France or involved in the 1960s and are now retireven from biodynamic growers who got Warmonderhof students to buy farms, cultivation. He says it's impossible for most started in farming, especially biodynamic Saal blames the high cost of getting

Brazil and even Egypt? America, Australia, New Zealand, India,

when biodynamics is taking off in North What explains this stagnation at a time

cultural college recently shut its doors. even though a nearby conventional agri-Agricultural School, which is thriving shovelling manure at the Warmonderhof the enthusiastic students in rubber boots 2005, according to Saal. This in spite of all years until levelling off at about 120 in ally declined in the Netherlands for several according to Kern of the IBDF and actuic farmers is growing slowly in Germany, time stronghold. The number of biodynamany growth in northern Europe, its long-

sector within which biodynamics is seeing Indeed, the wine industry is the only biodynamic agriculture.

is the fastest-growing sector by far in on the soil itself. This explains why wine

apple this good makes perfect sense to me. sion of farming. Anything that produces an the full moon, or any other spiritual dimenstinging nettles, intricate manure recipes, rock, stags' bladders, chamomile blossoms, I have no problem with cows' horns, quartz Greedily, I take another bite, and decide

he answers, chomping his own apple.

"That's what we say about biodynamics," which seems to offer many flavours at once. Saal-it has a more intense, complex taste, from any I've eaten before, I exclaim to yard orchard. And this apple is different gobbled many in my father-in-law's backganic apples straight from the tree, having

Now I know a thing or two about or-

and taking a bite. from a tree in Warmonderhof's orchard biodynamics when picking a big red apple about the magical, mystical elements of

I BECONSIDER MY OWN LEERINESS

interested in the spiritual side of it." spiritual search. Then later, you may get ter cardiovascular health rather than as a

you want to be more flexible and have bet-

gnimist of notensmin fautitiqs esoteric practises that purport to bring a beyond organic, but it fuels skepticism about Some believe biodynamics is the next step

> fits neatly with the biodynamic emphasis essentially, the taste of a place-which wine is rooted in the concept of terroirbelieved to have a finer taste. Indeed, substantial financial premium for grapes tately exceed a few acres and there's a convert to biodynamics because vineyards

It's far easier for wine-growers to

namic growers helped pioneer. supported agriculture program that brodyfrom the farm through a communitybiodynamic fruits and vegetables direct

foods, Most people in North America get stores, even ones specializing in natural

You are more likely to get started because sense of farming. I see it as a lot like yoga. not whether someone has a more spiritual ity of the food and the health of the soil, in the U.S., says, "I'm focusing on the qualto drum up further interest in biodynamics That's why Candelario, whose job it is

exploring new spiritual realms. are interested in growing food but not in

tise, which deters aspiring farmers who the mystical nature of biodynamic prac-A second factor, Saal says, may be "svisnoqxo ssol si

Eastern Europe," he says, "where the land

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