

Biodynamic Farming Is on The Rise – But How Effective Is This Alternative Agricultural Practice?

Source: theguardian.com

Published: March 5, 2017



Apricot Lane Farms is a 213-acre biodynamic and organic farm in Moorpark, California. The farm nurtures 100 different types of vegetables, 75 varieties of stone fruit, Scottish highland cattle, pigs, chickens, sheep, ducks, hens, horses and livestock dog. Photograph: Apricot Lane Farms

[Esha Chhabra](#)

National retailers like Whole Foods are stocking more biodynamic brands, but horticultural critics continue to question biodynamic's unconventional methods

When John Chester, a filmmaker from California, quit his job to become a farmer, he didn't do it out of a desire to "feed the world". Instead, he says: "I'm trying to feed my neighbors – and if everyone did that, we would be able to replicate this."

He is referring to Apricot Lane Farms, a 213-acre biodynamic and organic farm in Moorpark, California, that Chester runs with his wife, Molly. The couple nurtures 100 different types of vegetables, 75 varieties of stone fruit, and countless animal residents: Scottish highland cattle, pigs, chickens, sheep, ducks, hens, horses and livestock dogs. Last year, Apricot Lane Farms was recognized by the National Wildlife Federation and the North American Butterfly Association for supporting so much wildlife – not a recognition typically given to farms.

Apricot Lane is part of a growing movement in biodynamic farming. The number of biodynamic farms in the US is rapidly increasing, according to Elizabeth Candelario, co-director of Demeter USA, the nonprofit certifier of biodynamic farms and consumer products in the US. According to Demeter, the total acreage for biodynamic farming in the US increased by 16% last year, totaling 21,791 acres.

Earlier this year, [Demeter began collecting topsoil samples from biodynamic farms](#). This will help the organization determine if the soil quality is improving year after year on certified biodynamic farms. According to Candelario, Demeter is the only national farming organization implementing this practice. “This will provide a tool for farmers who continue to focus on building healthy soil, and give voice to power about biodynamic agriculture’s role in mitigating the impacts of climate change,” she says.

So what is biodynamic farming, and what distinguishes it from organic? Austrian philosopher Rudolf Steiner, a controversial public figure, introduced biodynamic principles by encouraging farmers to look to the cosmos before planting and harvesting crops. The biodynamic calendar is based on the positioning of the stars and the moon. While many biodynamic farmers utilize the lunar calendar, it is not a requirement for Demeter certification.

However, the certification does include Steiner’s nine so-called “preparations” made from herbs, mineral substances and animal manures that are turned into field sprays and compost. One of the farming methods championed by Steiner involves taking cow manure, packing into a cow horn and burying it underground over winter. It is then mixed with water and applied to the soil – biodynamic followers believe this compound can stimulate root growth.

“Cow manure is a dense nutrient rich material,” Candelario says. “When placed in a cow horn under the ground, where the temperature is constant throughout the winter, the manure ferments much like a sourdough inoculate, or a kombucha culture, ferments. When it is exhumed, the material looks like chocolate and has a beautiful earthy aroma. This inoculate is then added to water and broadcast on soil, where it directly impacts the microbial life of that soil.”

[Many horticultural academics remain skeptical about Steiner’s methods](#), which they argue were not developed through scientific methodology, but through mysticism.

Because these methods cannot be tested and validated, and no evidence exists to prove these preparations improve plant or soil quality, horticultural academics argue that [“any effect attributed to biodynamic preparations is a matter of belief, not of fact”](#).

“The movement is controversial because at its core it is a philosophy, not a science,” says Linda Chalker-Scott, associate professor and urban horticulturist at the Center for Precision and Automated Agricultural Systems at Washington State University. “It is an entanglement of some good, science-based organic practices with alchemy, astrology, and homeopathy. As long as biodynamic preparations continue to be at the heart of the movement, it will continue to be questioned by the scientific community.”



Molly and John Chester, who run Apricot Lane Farms. Photograph: Yvette Roman

Although Demeter likens the biodynamic preparations to [“homeopathic remedies” on its website](#), Candelario argues that the terms “alchemy, astrology, and homeopathy” are not mentioned in the Demeter standard. “We are certainly not in the business of certifying people’s spirituality,” she says. “However, the standard does not represent all of the ways farmers practice biodynamic agriculture, just like one type of yoga (let’s say Ashtanga) does not describe the entirety of what yoga may mean to the yoga movement.”

While the more spiritual and unconventional aspects of biodynamics don’t appeal to all farmers, for some, a personal connection to the land is crucial to their agricultural practice. “You may find some who practice biodynamic because it is a sound agronomic system that delivers real benefits to the farm like healthier soil, better crops, more vibrant ecology,” Candelario says. “You may also find some biodynamic farmers who would agree with all that plus they may describe their personal relationship with their farm that speaks to a deeper connection with the farm and its place in nature.”

The National Organic Program (Nop) standard forms the base to the Demeter standard – so if it’s not allowed in organic, it’s not allowed in biodynamic. Both approaches prohibit the use of chemical pesticides – allowing plants to produce more of their own antioxidants to fight damage – and don’t permit genetic engineering methods.

If a farm is certified biodynamic, it means it has met the requirements of organic, with some additional measures – including the divisive preparations. For example, while organic permits imported organic fertilizers and pesticides, [biodynamic requires that a farm system itself produce its own fertility – meaning compost and nutrients – as much as possible](#) through the integration of livestock and the rotation of crops. There are limits to the amount that can be imported from the outside – for example, no more than 36lbs of nitrogen per acre, per year.

Also, while organic certification allows for organic feed imported to the farm from anywhere in the world, biodynamic certification requires 50% of livestock feed be grown on the farm.

Biodynamic also requires that a farm set aside 10% of the total farm acreage for biodiversity, and strive for a balanced predator/prey relationship.

Where a conventional farm could bring in synthetic fertilizers, and an organic farm would substitute inputs that are allowed under the Nop, a biodynamic farmer might think: “Why is my farm needing this additional fertility, and how can I come up with a solution out of the farm system itself instead of being imported from the outside?”

“Biodynamic agriculture treats the farm like a living organism, self-contained and self-sustainable,” Candelario says.



Apricot Lane Farms sells its grass-pastured, soy-free eggs to local health food stores such as [Erewhon](#). Photograph: Apricot Lane Farms

For example, on Chester’s farm, the wildlife is vital in dealing with infestations. Last year, the farm had a slug problem. “I could have poured Sluggo and that would have killed them off,” Chester says. “But instead, I let the wildlife sort it out. As a result, I’m producing duck eggs that have been enriched by an escargot diet.”

Biodynamic principles were first introduced in the US after 1924, when Steiner first delivered his agricultural lectures. In 1938, the [Biodynamic Association](#) was established, making it the oldest sustainable agriculture nonprofit organization in North America. Still, there are only about 300 certified biodynamic farms in the US today, compared to 21,781 certified organic operations, representing a growth of almost 12% between 2014-2015, [according to data released in 2016 by the Agricultural Marketing Service’s National Organic Program](#). This is the highest growth rate since 2008, with an increase of nearly 300% since the count began in 2002. The total retail market for organic products is now valued at more than \$39bn in the US, compared to \$75bn worldwide.

Can we feed 10 billion people on organic farming alone?

While organic has grown significantly, until now, biodynamic farming has lagged behind. Challenges such as low yields, the unconventional, divisive practices and lack of support from the horticultural community could go some way to explaining why biodynamic farming has got off to such a slow start. But in spite of the skepticism and lack of science, retailers and consumers are driving demand.

Candelario says it's winemakers that caught on first. "Winemakers couldn't help but notice that some of the finest wines in the world are made from grapes grown in biodynamic vineyards. Vineyard and winery adoption has occurred so quickly that [the US] now has the third largest number of biodynamic vineyards and wineries in the world, following France and Italy."

Now more than a dozen US food companies, including Republic of Tea, Back to The Roots, Amy's Kitchen, Lakewood Juices and Lundberg Family Farms, are now sourcing from biodynamic farms, [citing commitments to sustainable practices](#).

Last year, Demeter worked with more than 50 US brands to bring biodynamic products to the market. Errol Schweizer can attest to the demand; he was the lead merchandiser and negotiator at Whole Foods for nearly a decade and now consults at numerous health food retailers across the US. When Schweizer joined Whole Foods, the company was carrying few biodynamic brands. Schweizer added more to the shelves, not only because of the farming practices but because of one basic test: taste.

"Customers want it, even if they don't recognize the biodynamic certification on a box," he says. "What they want is food that tastes good and is grown ethically."

Chalker-Scott argues that consumers don't always care about scientific evidence when making decisions. She says, "biodynamic is the new organic" in consumers' eyes. "Many consumers make emotion-based choices, not science-based ones."

Another limitation of biodynamic farming is its ability to feed the masses. Nikhil Arora runs Oakland-based [Back to the Roots](#), which sells biodynamic cereal. Arora sources the wheat from Fred Kirshenmann's 1800-acre farm in Windsor, North Dakota, which is certified organic and biodynamic. Kirshenmann was an early adopter of Steiner's methodology; in 1975, the farm was organic but by 1981, he had become one of the first biodynamic farms in the country.

Launched in January 2016, Back to the Roots biodynamic cereal sells in Whole Foods and Krogers for about \$5 a box, on par with health food cereals such as Kashi and Nature's Path. The company's cereals are also in 2300 schools across the country. The demand has been tricky to manage. [Like organic farming, biodynamic yields are lower and more unpredictable](#). "We want to scale but we have to be mindful of how much supply we have," Arora says. "We're working directly with the farmer, not a commodities market. We pre-purchase the wheat before he even harvests it. So it's a different model."

Apricot Lane Farms likes to keep it local, selling eggs to local health food stores such as [Erewhon](#). Some of the vegetables and fruits are sold to LA restaurants and the rest are sold at specialty markets as well as online.

“What people don’t understand is that biodynamic farming is about responding to the farm, living, breathing it,” Chester says. “If you have a problem, you have to think of three solutions that come from the farm itself. Those so-called problems are part of the art of farming, which has been lost in this rat race to produce cheap food.”

This article was amended on 6 March and 7 March 2017 to clarify misleading information about the benefits of biodynamic farming and to include opposing viewpoints for balance
