

THE INDUSTRIALIZATION OF ORGANIC DAIRY



Giant Livestock
Factories and Family
Farms Sharing the
Same Organic Label



CORNUCOPIA
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The Cornucopia Institute is chartered as a tax-exempt public charity focusing on research and education. Cornucopia aims to empower organic producers, consumers, and wholesale buyers to make discerning marketplace decisions, protecting the credibility of the organic food and farming movement and the value it delivers to society.

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THE INITIAL PROMISE OF ORGANIC DAIRY AND THE CURRENT ECONOMIC CATASTROPHE FOR FARMERS

BY MARK A. KASTEL

How Can Consumers Be Assured They Are Getting Authentic Products?

THE ORGANIC FARMING MOVEMENT was built on a loving, collaborative relationship between producers farming in consort with nature and consumers who are willing to more fairly compensate them for their efforts. For the first 25 years, this relationship returned increasing and economically stable farm gate prices—unlike the rest of agriculture. But the lucrative and growing industry was just too much to resist, and corporate agribusiness, with the tacit endorsement of federal regulators, accelerated its takeover and is currently squeezing family-scale farmers out of business (as is happening in other organic commodities, including eggs and poultry, fresh fruits and vegetables, cereal, and feed grains).

Although there were farmers who declared their “organic” status, shunning petroleum-based nitrogen fertilizers, as early as the first third of the last century (and rejecting synthetic pesticides subsequent to their widespread adoption after World War II), the organic dairy movement did not begin commercializing, in earnest, until the 1980s.

The few original, nascent “organic” dairy brands were marketed by farmstead producers that both milked cows and bottled milk, made cheese, or manufactured yogurt—mostly sold at farmers markets or through member-owned natural foods grocery cooperatives. These included such brands as Butterworks, Seven Stars, and Hawthorne Valley, still producing yogurt today and highly rated in Cornucopia’s dairy study. During the last years of the 80s, at least two independent groups of farmers, one producing cheese in Ohio and



Jack and Anne Lazor started Butterworks Farm in 1979. It has grown incrementally from yogurt prepared on the wood cookstove with door-to-door delivery to an array of exceptional quality certified organic products widely available throughout much of New England. Photo credit: Shawn Henry

the other becoming the nation’s largest farmer-owned organic cooperative in Wisconsin, were operating.

The Wisconsin cooperative, the Coulee Region Organic Produce Pool (CROPP), launched in 1988 to distribute certified organic vegetables to Milwaukee, Madison, and Chicago as an alternative to labor-intensive tobacco production in Southwest Wisconsin. Some of their organic farmer members also milked cows. With the financial backing of the National Farmers Organization (NFO), they soon started manufacturing cheese.

All of this was occurring against the backdrop of a growing body of research looking at the deleterious health impacts of synthetic pesticide residues in our food. Prominent scandals such as the 60 Minutes exposé about Alar, a growth regulator manufactured by

As we had forecasted, almost a decade and a half later, we are now seeing in organics the same economic model that was squeezing profit margins out of conventional dairy and forcing family farmers off the land.

the Uniroyal Chemical Company and used on apples, helped sensitize the public to food and farming concerns.

CROPP would eventually absorb the handful of farmers in Ohio who were producing cheese on their own. Subsequent to its national expansion, the co-op is now known as the Cooperative Regions of Organic Producer Pools and, today, has over 2,000 member owners across the country. It initially had national distribution through a federated cooperative, North Farm, but soon developed its own brand: *Organic Valley*.

In 1991, a group of wealthy investors in Aspen and Vail, Colorado and natural foods industry entrepreneurs launched the Horizon Organic label. Originally based in Boulder, they started with a pilot project distributing organic yogurt.

Meanwhile, as the overall interest in organic food continued to grow, the arrogance of the conventional dairy industry, adopting and defending Monsanto's newly introduced genetically engineered bovine growth hormone (rBGH), helped catapult organic sales to double-digit annual increases as the last safe haven for shoppers, especially parents, who did not want their children treated like lab rats.

As Monsanto and the conventional dairy industry circled the wagons, suing marketers that dared label their products "rBGH free," organics became *the* alternative in the marketplace.

The Horizon investors included the largest conventional milk producer in the country at the time (Aurora Dairy), with concentrated animal feeding operations (CAFOs), commonly known as "factory farms," stretching across the country. They were well positioned to cash in on the increasing hunger for organics. Tapping venture capital, they converted the first Aurora conventional dairy to organic production, subsequently dropping the family-farm members of the CROPP Cooperative that had been their exclusive supplier up to that point.

Horizon's first organic CAFO, milking 4,000-5,000 cows in arid Idaho, began with half the cows in total confinement, fed conventionally, and shot up with Monsanto's rBGH for extra production. The other half of their milk herd, also confined to feedlots and sheds, was fed certified organic crops. The entire facility would eventually be converted to all organic production. By then, Horizon's primary products had become fluid milk and cream.

Organic Valley and Horizon product lines would rapidly diversify to include butter, spreads (cream cheese), cottage cheese, sour cream, coffee creamers, and almost any other dairy product available conventionally. The two companies, at least initially, maintained a cordial business relationship and, according to some reports, assisted each other in balancing supply.

During the 1990s, another one of the original farmstead producers, Stonyfield Farms, built a manufacturing plant in a New Hampshire industrial park and successfully grew their brand into a national leader in that product category. Unlike Horizon, Stonyfield relied on family-scale farmers in the Northeast (members of CROPP Cooperative through an exclusive supply agreement) for their milk supply.

Although there were no other national, name-brand players, as the industry grew more independent, regional fluid milk brands appeared around the country. Some have been able to endure in a challenging market, like Clover Sonoma in California and Natural by Nature in Pennsylvania, while others have fallen by the wayside (i.e., The Organic Cow, Maine's Own Organic Milk, etc.). As the industry has matured, there are now a number of newer yogurts and other specialty brands distributed nationally.

A watershed event in late 2003, and the precursor for the current crisis in organic dairying, was the sale of Horizon to Dean Foods. Dean was the largest dairy concern in the United States, marketing, at the time, about 50 different brands. Simultaneously, the founders of Horizon took the proceeds and launched Aurora Organic Dairy by converting another of Aurora's conventional CAFOs, this time in Platteville, Colorado, to organic production. Aurora also built a manufacturing plant right next to the milking facility, cutting out all middlemen in terms of processing and transportation of raw milk.

The stated marketing goal of Aurora Organic Dairy (AOD) was to make organic milk more "affordable." I said, at the time, that this was coded language for, "We are going to competitively crush all of our competitors by squeezing the margins out of this industry."

The acquisition of the Horizon brand by Dean Foods, and the launch of Aurora Organic Dairy, specializing in producing private-label, or storebrand, packaged organic milk for the grocery trade, was the catalyst for forming The Cornucopia Institute.

During Horizon's rise to prominence as not only the largest organic dairy brand, but the largest organic brand in terms of dollar volume of any kind, I was working for a number of dairy concerns as a consultant, including CROPP/Organic Valley. Unable to convince their chief executive that, down the road, if the illegal operation of "organic" dairy CAFOs was not addressed eventually members of his cooperative would be economically injured, Will Fantle, a longtime colleague, and I founded The Cornucopia Institute in 2004 to address these concerns.

As we had forecasted, almost a decade and a half later, we are now seeing in organics the same economic model that was squeezing profit margins out of conventional dairy and forcing family farmers off the land. Today, in 2018, there is no doubt that a surplus created by an ever increasing cachet of giant dairies, almost universally using legally questionable practices, is poised to accomplish just that. The only thing that postponed this day of reckoning was the corresponding meteoric rise in demand for organic dairy products in the marketplace.

To illustrate the grotesquely disproportionate scale of some of these organic "farms" in the arid Western states, Texas produces 1.4 times the organic milk that Wisconsin produces, the state with the most organic dairies—even though Wisconsin, commonly known as "America's Dairyland," has 75 times more organic producers (453 versus 6, according to the most recent USDA records).

Between 2000 and 2004, the USDA's National Organic Standards Board (NOSB) had already passed no fewer than five resolutions trying to rein in abuses on CAFOs that by then were supplying the Horizon label (later joined by Aurora's factory dairies—and now others as the abuses were systemically being ignored). One of the first things Cornucopia did was to file four formal legal complaints with the USDA. We argued that organic regulations were being violated by the Dean/Horizon corporate-owned dairy in Paul, Idaho, a leased dairy Horizon operated in Maryland, a supplier with a split herd (conventional/organic) of 10,000 cows in Pixley, California, and Aurora's operations in Colorado and Texas.

The USDA's National Organic Program (NOP) during much of the Bush administration was led by Dr. Barbara Robinson, a veteran of the bureaucracy at the agency. Robinson had no production agriculture or organic experience. She dismissed Cornucopia's complaints without an investigation, claiming that the NOSB was working on new rulemaking, despite our allegations that the current law was already being violated without stricter provisions, as the NOSB was proposing.



After we filed a formal appeal, the department eventually adjudicated Cornucopia's claims. One Horizon supplier, the Case Vander Eyk, Jr. dairy in California, with no pasture available within a mile of their facility, was decertified. Horizon's corporate-owned facilities in Idaho were never formally audited, presumably because of the economic/political clout wielded by the \$12 billion-a-year dairy conglomerate Dean Foods.

The Dean/Horizon Maryland dairy close to Washington, DC was visited by the USDA, but only after their lawyer required USDA investigators to "make an appointment." Not coincidentally, lots of cows were out grazing on pasture that day. A number of years later, an "unannounced" visit by a commercial aerial photography contractor, hired by The Cornucopia Institute, once again confirmed zero cows out on a randomly selected day with ideal grazing conditions.

Aurora, which by then was producing private-label "organic" milk for Walmart, Target, Costco, and a number of the largest supermarket chains, was fully investigated by sworn USDA law enforcement officers. Unfortunately, the quality and earnestness of these investigations went downhill, radically, when the NOP secured their own enforcement staff.

These career civil servants found Aurora "willfully" in violation of 14 tenets of the organic law, including confining their cattle (grazing is required by law) and illegally bringing in conventional replacement heifers. USDA staff recommended that Aurora be decertified and lose their right to engage in organic commerce. The investigators reportedly found many more violations, but documented only the 14 they felt they could successfully prove if Aurora attempted to litigate over the matter.

However, Aurora hired an attorney from the powerful Washington, D.C. law firm of Covington and Burling to represent their interests. That lawyer, William J. Friedman, a former NOSB member, had a more-than-

No matter what level of evidence has been presented to the NOP concerning scofflaw dairies ignoring grazing and other operational mandates, they have failed to act.

friendly relationship with Dr. Robinson, based on documents obtained by Cornucopia through a request under the Freedom of Information Act (FOIA).

The result of their negotiations was to override the staff recommendation for decertification and offer Aurora a one-year probation. They did have to reduce the number of animals at their Platteville, Colorado dairy from approximately 4,400 milk cows to just 800 (even after plowing up some of the feedlots and tearing down sheds, that was the number of cows that could legally be accommodated—illustrating how fraudulent their operation had been theretofore).

Since I was personally contacted by the Under Secretary of Agriculture at the time, in his attempt to “sell” me on the deal, claiming that it was the only expedient avenue to bring the scofflaw dairy to justice, we know that higher-up political appointees were also involved in the sweetheart deal. Whatever Aurora paid to Covington and Burling was definitely worth the investment.

The USDA at the time, again during the Bush administration, claimed that the organic standards were ambiguous and unenforceable and charged the NOSB with promulgating additional rulemaking. This was a specious argument, intended to delay action, as Cornucopia proved after Aurora was successfully prosecuted a little over a decade ago.

By 2011, after years of delay, a new “pasture rule” was finally put fully into effect. It required at least 30% of the dry matter intake (DMI) in a ruminant’s diet to come from fresh pasture and required grazing for the entire season, which could not be less than 120 days.

Since then, no matter what level of evidence has been presented to the NOP concerning scofflaw dairies ignoring grazing and other operational mandates, they have failed to act. Their standard approach has been to solely rely on the statements made by the operation’s organic certifiers that, obviously, have an inherent conflict of interest in the matters. Cornucopia’s contention is that, in some cases, these certifiers have either been incompetent or are co-conspirators in the violations.

Quite frankly, although we have personally visited or flown over most of the certified organic CAFOs, we probably could have filed complaints using satellite photos and state regulatory documents alone.

How can a dairy with 1,500-15,000 cows milk three or four times a day (two times a day is the standard and still challenging) and move cows in and out of a milking facility, back and forth to fresh pasture each time? They can’t. How can cows meet the minimum standard for pasture intake with stocking levels of up to 10 cows per acre or more (when polled, organic dairy farmers across the nation reported an average of one cow per acre)? They can’t. And the proposition gets even more ludicrous when we find, again through scrutinizing regulatory documents, that some of these dairies also cut some of the annual growth, in challenged desert-like environments, for stored hay, maybe increasing the effective stocking rate to a preposterous 15-20 cows per acre. Preposterous? All this seemed reasonable to the USDA, industry lobbyists, and the largest certifiers.

Cornucopia’s contention has always been that the organic regulations are “scale-neutral.” However, if judiciously enforced, which they have never been under either Republican or Democratic administrations, they would be “scale-limiting.”

Things got even worse during the Obama administration. Whereas the Bush USDA was outwardly hostile to organics, USDA Secretary Tom Vilsack, a lawyer and former Governor of Iowa (recognized as governor of the year by the biotechnology industry), appointed Kathleen Merrigan, a former Agricultural Marketing Services administrator and former NOSB member, as deputy secretary. She had a background in organics but, unfortunately, also had a very cozy relationship with the industry lobby group, the Organic Trade Association (OTA), even sending students to intern at AOD when she was previously teaching at Tufts University.

Merrigan, in turn, appointed individuals at the NOP with, for a change, experience in the organic industry, including former certifier Miles McEvoy to run the program. However, under their leadership, OTA lobbyists were in the driver’s seat and their members, including Aurora, Organic Valley, and Horizon (all of which have had employees in leadership positions with the powerful lobby group; Danone/Horizon still has an employee on the OTA board) certainly didn’t advocate for vigorous enforcement of any rules that would have constrained industrial dairies.

As an example, although it was cited as a top priority at the end of the Bush administration and reiterated as such by McEvoy at the beginning of his tenure nearly a decade ago, a misinterpretation of the organic stan-

dards (some call it a “loophole”) continued to allow conventional replacement animals to be brought continuously onto organic dairies.

This loophole created an unfair competitive advantage for the CAFOs. Real organic farmers didn’t buy replacement heifers for their milk herd, they sold replacement heifers. Their cows, not pushed for maximum production, lived long enough that they always had surplus heifer calves. In the meantime, industrial dairies, pushing for high production, could “burn out” their cattle in as little as one or two years, and depend on a ready supply of conventional replacements converted to organic during the second year of their life.

The existing regulations for most in the industry are quite clear. After a “distinct” herd of dairy cows is converted to organic production (a one-time provision), subsequent animals brought onto the farm must have been managed organically from the last third of gestation.

Flouting of this regulation allowed large-scale dairies to increase production quickly by buying more conventional cows when the supply of organic milk was tight, allowing some interests to rapidly gain market share at the expense of competitors abiding by the spirit and letter of the law. This rapid influx of milk eventually upset the supply–demand dynamic and is now a material factor in causing extreme economic hardship for most industry participants.

A noteworthy byproduct of the Aurora investigation was the revelation that their replacement cow supplier appeared to be “laundering” conventional cattle that had never gone through the conversion process. That supplier, Promiseland Livestock, operating in Nebraska and Missouri and selling both replacement heifers and organic beef cattle, another longtime investigative focus of Cornucopia, would be decertified by the USDA just as Aurora *dodged the bullet*.

These giant dairies were even selling the milk that legitimate organic dairy producers were using to bottle feed their young calves. What McEvoy referred to as “the age of enforcement” as he took over his responsibilities would end up being nothing more than a cynical PR sham.

It should be noted that the same lawyer from Covington and Burling not only represented Tony Zeman, the

owner of Promiseland Livestock, accused of laundering conventional cattle to factory dairies and beef processors (and subsequently decertified) and many other alleged scofflaws in the industry, but is also currently representing the OTA itself.

Most of the organic dairy CAFOs are certified by Quality Assurance International (QAI), CCOF, and Oregon Tilth. They are the largest certifiers accredited by the USDA and active in OTA leadership, as well as being major financial sponsors of the organization. With the

exception of QAI, many of the early, and now largest, certifiers were originally founded by farmers, back when certification was voluntary and the organic community was trying to build credibility. They have now morphed into multimillion dollar business enterprises certifying multibillion-dollar corporate agribusi-

nesses. Their responsibility in this unfolding tragedy for family farmers cannot be underestimated.

Since the first iteration of this report and scorecard, numerous brands have been added, some upgraded and some downgraded. Our scoring criteria and compliance oversight have become more rigorous. We also focus on new developments, such as the promise of 100% grass-fed labeled products, soy-free feed, and A2 genetics.

We have additionally had to watchdog companies that we assumed were operating on a higher ethical standard. As an example, at one point, we discovered that CROPP/Organic Valley had purchased, at a time of shortage, milk from a giant CAFO, milking 6,000 cows in an arid region of Texas (since grown to a capacity of 9,000 cows). Our investigation resulted in the cooperative’s member owners taking control of the situation and forcing its management to discontinue the practice. We were able to continue rating them on our scorecard, even with their management boycotting the process due to their animosity towards our work, because their farmer members were willing to be transparent and share co-op policy with our researchers. We are now happy to report a renewed level of openness and what appears to be a well-deserved excellent ranking on the scorecard.

Strange collaborations also exist. For example, close to half of the milk marketed under the Horizon label comes from family-scale farmers who we believe are just as ethical as those supplying any other brand. Yet Horizon producers are suffering from a surplus as well,



with their pay price cut by approximately 25%. Without the cooperation of the company, it's hard to determine where all their milk supply is coming from. As Horizon is terminating contracts with smaller family farmers in states like Maine and New York, they are simultaneously bottling milk at the Aurora plant in Colorado.

Although everyone in the industry, large and small, is impacted now, companies like Aurora, with millions in outside equity from investors, may be better positioned to survive in the long run. Some industry experts surmise that their low cost of production could be insulating them from the extreme economic stress family-scale producers, and their marketing partners, are currently enduring.

Meanwhile, in 2017, Aurora announced a major expansion of their business with the construction of a second processing plant in Columbia, Missouri, which will reportedly require the milk production of 30,000 cows to operate.

The most recent USDA records indicate that organic milk production in 2016 was up 18.5%, with conventional producers converting to organic in an ill-fated attempt to escape the parallel crisis in the conventional milk market.

Today, this is now a “bifurcated” industry. There are two organic labels. The vast majority of name brand organic dairy products are produced with integrity and highly rated in our study. Unfortunately, the default in this secretive industry, is that it has to be assumed all private-label milk comes from illegal factory farms.

What we once hoped would be a shortcut for our ethical food research, the organic seal, is now just a beginning. It's incumbent upon consumers and wholesale buyers to empower themselves with additional knowledge so they can make good, discerning purchasing decisions in the marketplace, rewarding the true heroes in the organic dairy industry. We hope, in that regard, The Cornucopia Institute's 2018 Organic Dairy Brand Scorecard has utility.



Mark A. Kastel is the executive director, cofounder, and senior policy analyst at The Cornucopia Institute. For over 3 decades, Kastel has worked on behalf of family-scale farmers to empower farmers in the marketplace. His development work has focused on creating sustainable farmer-owned businesses, with an emphasis on dairy production and marketing. Kastel played a key role in the farm community's response to the introduction of rBGH. He continues to be closely involved in monitoring the seriously flawed management of the National Organic Program at the USDA.

EXECUTIVE SUMMARY

SINCE THE CORNUCOPIA INSTITUTE'S ORIGINAL DAIRY REPORT in 2006, the industrialization of organic dairy has steadily progressed. Although USDA agricultural census data is somewhat dated, many industry observers believe more organic milk now comes from livestock factories. Most of these giant “organic” dairies employ suspect practices that are common in the conventional agriculture industry.

After years of aggressive growth, the annual increase in organic dairy consumption has flattened, while industrial-scale dairies continue to increase production, flooding the market with surplus milk. This has resulted in catastrophic cuts in farmgate pricing and production quotas. The current marketplace lot of organic milk has placed the livelihoods of organic dairy producers from around the country in jeopardy.

These industrial-organic dairies and the businesses marketing their milk skirt organic regulations, harm the environment, compromise the nutritional content of organic dairy products, and sacrifice the health and well-being of livestock. They also undermine the organic market, making it difficult for ethical family-scale* organic farmers to get a fair price for their milk and maintain their livelihoods.

To illustrate the grotesquely disproportionate scale of some of these “organic dairies” operating in the semi-desert conditions of Texas, Idaho, Colorado, and California, Texas alone produces 1.4 times more organic milk than Wisconsin. Wisconsin, commonly known as America’s Dairyland, has 75 times more organic producers (453 versus the six in Texas, according to the most recent USDA data).

Regulators, under pressure from large agribusiness interests, are failing to maintain the integrity of organic dairy. They could do so by enforcing existing regulations that would shut down or constrain these mammoth operations. With this report, Cornucopia urges conscientious consumers to differentiate between authentic organic production and greenwashing, to support family-scale organic dairies, and force the organic dairy industry to clean up its act. Cornucopia’s accompanying mobile-friendly Organic Dairy Brand Scorecard is designed to empower consumers and wholesale buyers to make these important marketplace decisions.



The organic seal is the only federally regulated label that mandates the process by which a product is grown and processed. The United States Department of Agriculture (USDA) controls the rules governing organic dairy production. Independent certifying agencies accredited by the USDA grant use of the label, giving certified organic farms and processors access to a growing niche market.

The organic seal represents an alternative to the environmental and human health problems created by the conventional industrial food system. These problems include the use of toxic agrichemicals and genetically modified organisms (GMOs), overuse of antibiotics and other drugs in livestock, and long-lasting consequences for human and environmental health.

Many consumers believe organic food is healthier and safer, and scientific evidence continues to accumulate to support this belief.^{3,4,5}

Additionally, consumers who have concerns about the humane treatment of livestock have turned to organics as an alternative.

* Most family farm dairy operations range from 50-100 cows. Although an exception, some dairies, with expert management and help from extended family members, can milk hundreds of cows successfully. Though a multi-generational model is a common occurrence in small organic producers, not every “family farm” represents a biological family’s farm ownership; it could be represented by an individual or on-farm co-op.

Markedly different approaches to milk production have emerged in the organic dairy sector, despite uniform federal standards. The label is threatened by powerful economic interests that want a share of the approximated \$47 billion organic market.² Loose interpretations and lax enforcement of the organic standards have led to a market where the organic seal is displayed on dairy products representing a wide range of production practices.

Pasturing ruminants is a prominent element in the federal organic regulations. Many organic dairy farmers embrace the use of grazing as a major part of their cows' diets, supplementing with organic grain in moderation. A few producers go above and beyond by maximizing grazing, sometimes feeding no grain or calorie supplements at all.

On the other side of the spectrum, organic concentrated animal feeding operations (CAFOs)* favor practices that are almost identical to conventional industrial-scale dairy production. These mega-dairies often feed large amounts of grain and raise cattle in confinement.

Despite these dramatic disparities, all organic dairy producers and their certifiers claim to be following the same federal standards. The reality is that administration of the regulations varies widely based on differing interpretations, working definitions, and applications of the standards. The USDA, intended by Congress to be the arbiters of industry disputes, has generally delegated the interpretation of the standards to independent certifying agencies hired by farm and agribusiness operators. Many of the largest certifiers (California Certified Organic Farmers, Quality Assurance International, Oregon Tilth, and others) have adopted the most liberal interpretations of the organic standards. Some of these lax interpretations have been challenged as illegal.

In order for consumers to trust and benefit from the organic label on dairy products, the standards for organic dairy production must have a straightforward and uniform interpretation.

The organic dairy industry is still considered one of the big success stories in contemporary agriculture.⁶ Consid-

The organic seal has given small and medium-size farms the opportunity to make a living wage in an age when the industrialization of agriculture has driven many of their conventional neighbors out of dairying altogether.

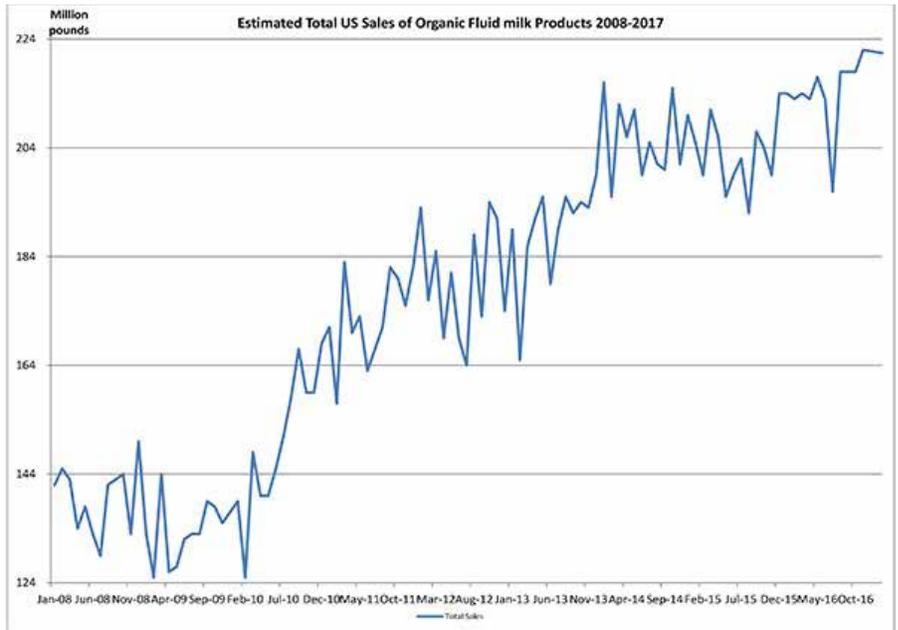


Figure 1. Estimated total US sales of Organic Fluid milk Products, 2008-2017. Note that a surplus gives buyers more leverage on pay price. For more charts, see nodpa.com/feed_payprice_update_032317.shtml

ering the market's tendencies in the past, sales of organic fluid milk more than tripled between 2007 and 2015, while sales of conventional (non-organic) fluid milk declined.⁷ In fact, there was a gradual but steady increase in demand for all organic dairy products between 2005 and 2015.^{8,9,10}

2017 bought change to these trends, however. At the end of 2017, new data was released showing organic milk sales had declined 2% in part because of a consumer shift toward plant-based beverages.¹¹ According to the USDA, retail prices for organic whole milk in December were down in a majority of the cities they surveyed, while rising or remaining unchanged in the remainder of surveyed cities (compared to January 2017).¹²

* The Environmental Protection Agency defines "CAFOs" as an agricultural enterprise with more than 1,000 animal units (an animal unit equates to 700 dairy cows) confined on site for more than 45 days during the year.

Since the creation of federal organic standards in the early 1990s, farmers that make the sometimes difficult transition to organic have been rewarded by being able to sell their products for a premium price. This premium covers the additional expenses required to be organic and provides these farmers with a stable income (although in some recent years profitability has been worse on some organic farms than conventional).

The organic seal has given small and medium-size farms the opportunity to make a living wage in an age when the industrialization of agriculture has driven many of their conventional neighbors out of dairying altogether.

Organic dairy farmers still enjoy greater pricing consistency than other commodity producers; however, a current surplus of organic milk, primarily driven by industrial sources, is now putting dramatic downward pressure on farm-gate prices. This downward pressure is also, in some cases, placing farmers on quotas that can create profound economic stress. This industrial organic milk not only undermines the livelihoods of family-scale farms, it also damages authentic organic producers by sowing the seeds of distrust among consumers. If consumers are unable to trust the organic label, the market security that has allowed ethical farmers to bring in a living wage could disappear.

What is the USDA's view of the rising industrialization of organic dairy? Unfortunately, the federal agency is largely silent on the subject. Most serious allegations of improprieties are redirected by the USDA for investigation to the organic certifiers that, in some cases, appear to be co-conspirators in violations of the organic standards. In other cases, the USDA and certifiers suggest that serious violations are an aberration in the industry. Meanwhile, factory farm dairies are producing an increasingly large percentage of organic milk.¹³

If this troubling trend is not stopped, the organic dairy market that originally tossed a lifeline to small and medium-scale producers, may push those same producers out of business. This is what happened in the conventional milk market; the organic dairy market would do well to heed this lesson.

This report illustrates how the success of organic dairy is threatened by lax regulators and industrial agricultural interests, and why it is essential for consumers to support organic dairy products that are produced with integrity.

This report illustrates how the success of organic dairy is threatened by lax regulators and industrial agricultural interests, and why it is essential for consumers to support organic dairy products that are produced with integrity.

With this report's accompanying Organic Dairy Scorecard, Cornucopia showcases brands that partner with family-scale farmers from across the country who supply truly ethical organic dairy products that are worthy of the conscientious consumer's support. The new scorecard covers organic dairy farms and brands not previously rated by Cornucopia, and it includes expanded scoring criteria that highlight the best beyond organic practices discussed in this report, such as:

- The percentage of grass in a cow's diet;
- How much pasture is available for grazing;
- The level of control a brand has over its milk supply; and,
- How the farmer suppliers expand their milking herd (some are bringing in conventional cows).

The scorecard also helps consumers find products with specific attributes they may desire, such as 100% grass-fed or dairies that use soy-free feed. The ratings help consumers separate brands that meet the spirit and letter of the law from industry scofflaws and profiteers.

Importantly, the scorecard ratings also spotlight family-scale organic farmstead dairies, in every region, that go beyond organic, making it easy for consumers to vote for integrity with their family's food dollars.

When we make informed decisions about the products we choose to consume, whole markets—and perhaps the planet—can be changed for the better.

ORGANIC DAIRY PRODUCTION

DESPITE THE HAPPY-COWS-ON-GRASS IMAGES that make up the majority of dairy marketing materials, milk production in the U.S. would be better represented by images of genetically modified corn, confinement conditions, and pharmaceuticals.

Organic dairy production was supposed to be an alternative to the giant livestock-factory model of production that has come to dominate the conventional milk industry. Organic dairy standards mandate that cows graze on pasture. The standards were also designed to encourage organic dairy farmers to prioritize animal health by providing healthy living conditions and preventing disease, rather than remediating problems with drugs after the fact. Oftentimes this proactive approach means that organic dairy producers don't "push" cows as hard—practices that contribute to poor overall health, body conditioning, and reproductive problems leading to early slaughter.

While most organic dairy is a better choice for environmental and human health than conventional, the informed consumer should also know how to differentiate between ethical family farm dairies and the livestock factories that now share the same organic label.

What is Organic Dairy?

The question, "What *is* organic dairy production?" is a contentious one. Most consumers and many organic producers expect that "organic farming" respects the underlying principles of the organic movement. These principles include:

- Building soil fertility and soil health;
- Maintaining ecological balance and biodiversity;
- Reducing dependence on off-farm inputs;
- Recycling nutrients;
- Integrating livestock onto the landscape in ways that are ecologically sound;
- Allowing livestock to display natural behaviors, and
- Principles of fairness.¹⁴

For most organic farmers and consumers, the organic label signifies much more than a set of specific federal regulations: it is a farm management system, an agricultural philosophy, and a way of life.

These values are instilled in the practice of grass-based dairying: nurturing healthy, high-quality pasture to capture the sun's energy and then harvesting that bio-matter with the cows. If managed correctly, including recycling manure nutrients, this pasture-centric dairying model supports the health of the animal and builds soil health.

The price premium of certified organic food reflects these principles of environmental stewardship and humane animal welfare, while supporting financial stability for family-scale farms. Certified organic food is always preferable to conventionally produced food. But, ethical organic dairy farms face pressure from large-scale producers adopting the industrial model of conventional dairy production.

Large-scale producers, and the USDA, insist that the industrial model of food production can be applied to organics, regardless of its dependence on inputs imported from off the farm or on confinement-based systems for livestock. These practices produce more milk than pasture-focused organically managed cows, returning increased profits at the expense of the health and longevity of the animals as well as the quality and nutrient content of the milk.

In many instances, the USDA and its accredited certifiers are failing to enforce the organic rules. Therefore, consumers need to educate themselves to ensure the products and farms they support reflect their expectations of the organic seal. This will not only protect their families but will create economic pressure on government regulators and industry interests.

This report delves deeply into specific practices that are mandated by federal regulations for organic dairy production and examines how it has come to pass that these regulations are not being enforced, allowing for factory farming of organic dairy. To lay the groundwork for this later conversation, it is necessary to first understand specifically how "organic" is legally defined.

The USDA's Definition of Organic Dairy

Unlike other food marketing claims and labels, the use of the organic seal is defined and highly regulated under federal law. After the passage of the Organic Foods Production Act of 1990 (OFPA), a food package cannot claim to be organic unless it was produced and processed according to a strict set of federal rules.

OFPA delegates the oversight of the organic industry to the USDA and established the National Organic Program (NOP). The NOP is responsible for developing, maintaining, and overseeing the organic rules and investigating and sanctioning misuse of the organic seal.¹⁵ They also accredit independent domestic and international organic certifying agencies—these, in turn, certify organic farms, businesses, and products.

Under the law, the Secretary of Agriculture must consult* an expert, volunteer advisory board of organic stakeholders called the National Organic Standards Board (NOSB) when developing regulations.¹⁶ The NOSB was established under the Organic Foods Production Act, and in accordance with the Federal Advisory Committee Act. Congress mandated the 15-member board include four organic farmers, two handlers, three individuals with expertise in environmental protection or resource conservation, three representatives of public interest or consumer interest groups, a scientist, an organic retailer, and an organic certifying agent.¹⁷ The organic standards assure consumers that products bearing the organic seal meet minimum uniform standards of production.

The USDA's general definition of foods eligible for organic labeling are those that are:

*...produced using sustainable agricultural production practices. Not permitted are most conventional pesticides; fertilizers made with synthetic ingredients, or sewage sludge; bio-engineering; or ionizing radiation. Organic meat, poultry, eggs, and dairy products come from animals that are given no antibiotics or growth hormones.*¹⁸

This is a baseline definition that only hints at the breadth of the organic rules. The federal standards concerning organic dairy production encompass dozens of rules and regulations, including the following:

- Each animal must consume a certain percentage of their diet from foraging on pasture during a defined grazing season;
- All of the cattle feed—including the pastures—must be certified organic; and,
- Livestock cannot receive antibiotics, growth hormones and other prohibited drugs.

All farms and handling operations (such as dairy processors) that display the USDA organic seal must be certified organic by a USDA-accredited, independent state program or private agency to ensure the federal organic standards are met. Farms that follow the standards and have less than \$5,000 in annual sales are exempt from certification and can use the term organic on their label, but may not use the organic seal.¹⁹

The NOSB promulgated a national standard in 2000²⁰, on top of the baseline definition, requiring organic livestock operations to:

- Meet animal health and welfare standards;
- Avoid antibiotics and growth and reproductive hormones;
- Provide 100% organic feed; and,
- Provide access to the outdoors.

Additionally, no prohibited substances may be applied to land for at least three years prior to the harvest of an organic crop, including hay or pasture.

Under the *Terms Defined* section of the National Organic Program's federal standards, "organic production" is defined as:

A production system that is managed...to respond to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity.

This definition suggests that organic farms were intended to adopt principles of *sustainable* and *regenerative* agriculture: improving and conserving the valuable natural resources of the land used to produce organic food. When properly managed, grazing animals such as cattle can have a strong beneficial impact on soil regeneration and health which, in turn, promotes resource cycling, ecological balance, and biodiversity, as well as flood and fire control, protection from erosion, and sequestration of atmospheric carbon dioxide to help combat climate change.

Organic Dairy as Interpreted by Certifying Agencies

Independent certifying agencies conduct annual inspections of all organic farms and processors to ensure that they are complying with federally regulated standards. As of the end of 2017, 80 agencies were authorized to certify farms and businesses; 48 of which are based in the U.S.²¹

USDA-accredited certifying agencies have a substantial variation in their interpretation of the organic federal

* This consultation typically takes place via the NOP.

As the only *federally regulated* label that speaks to how a food item is produced, the organic seal has a unique role in creating a true marketplace alternative to the conventional model.

standards pertaining to dairy production. Farms can choose which certifier to work with and, as such, industrial dairies choose certifiers that have a history of interpreting the regulations to suit their type of production methods (“shopping for a certifier”). These certifying agencies are playing a significant role in the industrialization of organic dairy.

Variation in certifier interpretation of the federal standards is problematic because it contributes to the misinformation about what the organic seal rightly signifies. Congress intended the USDA to prevent “shopping for a certifier” by establishing and enforcing consistent standards.

Consequently, with the differing certifier interpretation of the rules, not every product with the organic seal is created equal. This means that the health benefits of organic dairy products are also variable depending on their source. Ultimately, this puts the burden on consumers and wholesale buyers to do their research—both into which certifiers enforce the rules, and which producers go above and beyond the minimum standards.

The Consumer’s Role in Defining Organic Dairy

Why not abandon the organic label entirely since it is being overrun by interests that want to avoid transparency in our food system? As the only *federally regulated* label that speaks to how a food item is produced, the organic seal has a unique role in creating a true marketplace alternative to the conventional model.

It is incumbent on real organic farmers and consumers to work together to bring the organic standards and their enforcement back into alignment with the original intent of organic food production, and to create transparency when that is not the case. Although lax oversight by the USDA has allowed organic livestock factories to operate illegally, certified organic food is still always preferable to conventionally produced food.

When buying certified organic food, the product’s price premium should be supporting environmental stewardship, humane animal welfare, and financial stability for family-scale farms. The failure of the USDA to enforce the organic rules means that consumers need to educate themselves to ensure that the products and farms they support reflect their expectations for the organic seal.

Third-party labels have a place in the food marketplace, but the federal organic label is the one consumers should be able to rely on first because of the strict standards and oversight it was intended to represent.

With many of the most ethical organic dairy farms facing pressure from increased industrialization, it is now more important than ever for consumers to discourage practices that do not mesh with organic integrity. When consumers become informed about organic dairy production practices and learn of the gulf between livestock factories and authentic organic dairies, they can make decisions to support ethical farms, sending a strong marketplace message to those who are bending the organic rules that they need to clean up their act.

Conventional vs. Organic Dairy Production

Consumers typically know that there are fundamental prohibitions in organic production—organic milk can never come from cows treated with antibiotics or genetically engineered growth hormones—but less commonly understood are the primary differences when it comes to day-to-day farming.

In general terms, industrialized agriculture uses tactics to get the highest volume of milk possible per cow and per acre of land. These methods are usually characterized by a high-energy and protein diet (heavy on grains and concentrated proteins) and confinement in large buildings or feedlots. These practices deny animals the ability to experience natural behaviors.

Differing Feeding Systems

The most fundamental difference between conventional and organic dairy production is how the cows are fed.²²

The current conventional market is dominated by big players who rely on stored grain and corn silage for feed and confinement of cows for their production model to work. In contrast, *all organic dairy farms are required to graze livestock over six months of age. “[M]ore than 60 percent of organic operations reported using pasture-based feeding that provided more than 50 percent of seasonal forage from pasture (during the grazing months), compared with just 18 percent of other operations.”*²³ Most conventional dairy cows are never on pasture while lactating, which represents the majority of their lives.²⁴

In conventional dairying, it is common that the majority of feed inputs are corn—both as silage (fermented fodder) and as grain. Conversely, organic dairy cows are required to rely on pasture for a meaningful percentage of their diets and many also use perennial grasses and legumes as

stored forage rather than using corn silage. Many organic farmers also grow their own hay, silage, or baleage and supplemental grains. Organic producers must supply certified organic grain and feed to their cattle, and their pastures must also be certified organic.

The cost of this grain is one of the significant limiting factors in organic dairy production. While an increase in imports of organic soy and corn have satisfied increased demand they have also displaced domestic feed producers.

However, the higher cost of organic feed is not all bad. It gives the organic grain grower a living wage for growing organic feed. It encourages farmers to grow their own feed or rely more on pasture for a greater proportion of their cows' feed intake. The organic consumer favors a market that is transparent, making their final products more traceable, trusted, and truly sustainable.

This facet of transparency is becoming even more important as massive quantities of "organic" feed are now imported into the U.S. This feed-grade corn and soy is used at organic dairy and egg CAFOs. Much of this grain is being imported from China, Turkey, Romania, and other countries with documented histories of commercial fraud.

These imports undercut sustainable prices for U.S. organic crop growers, adding another economic advantage enjoyed by giant industrial operations over livestock producers who grow their own feed or buy their feed from local, certified organic crop farms. The economic model for this trend was clearly illustrated when cheap, subsidized feed grain hastened the demise of hundreds of thousands of family-scale conventional farms over the past 50 years as livestock production shifted toward factory farms—the same trend threatening organic farms today.

Differing Confinement Methods

Confinement is another obvious difference between conventional and organic dairies. Because of the pasture requirement, organic dairy cows are required to have access to pasture for the entire grazing season.

Conventional cows do not have such requirements and, regardless of scale, often spend their entire lives in a feedlot or barn being shuffled to and from the milking parlor and feed bunks. This confinement goes hand-in-hand with feeding a grain-intensive diet and trying to get as much milk as possible out of the animals.

To maximize production, many industrial-scale dairies milk their cows three to four times a day, something that would be impossible to do if every animal were given meaningful time on pasture. The labor, time involved, and—most importantly—the loss of milk production, would just be too high. Almost all ethical organic dairy



GRASS-FED DAIRY

Consumers are now starting to look for "grass-fed" dairy after exponential growth in the "100% grass-fed" beef sector.

Cows that produce 100% grass-fed milk get the most natural diet possible, feeding on fresh pasture during the grazing season and eating stored forage (such as hay) during the non-grazing season (typically winter). Corn, even as silage, is not a permitted feed for milk labeled 100% grass-fed.

While 100% grass-fed still represents only a small portion of overall organic dairy sales, it is growing as the nutritional benefits of dairy products from cows not fed any corn silage, grains, or protein concentrates become more well-known. A market has recently been established with a number of competitors producing these 100% grass-based dairy products.

While it can be difficult to run a successful 100% grass-fed dairy operation, due to the high caloric energy demands of pregnancy and lactation, consumer demand will fuel this market. Despite the challenges, many skilled dairy farmers are stepping up to the plate.

The large organic dairy co-op, CROPP (Organic Valley), is spearheading the movement with its *Grassmilk* products.²⁵ Some processors, marketers, and certifiers are currently working to develop enforceable standards and alternative certifications for grass-fed dairy products. Another market leader is the brand Maple Hill. First known for its 100% grass-based yogurts, Maple Hill is now diversifying into other organic dairy products.

Several of the top-rated brands highlighted in Cornucopia's Organic Dairy Scorecard produce milk products from 100% grass-fed cows. The growing popularity of the grass-fed movement in the organic dairy market is a positive trend for the future.



Some breeds, other than the ubiquitous Holstein, which has been genetically selected and refined for high milk production, generally performed best on grass. Holsteins that have been selectively bred for grazing can also perform well.

producers milk twice a day and find even that challenging in terms of moving animals to pasture.

When cows are being milked three to four times a day, it often indicates a high-grain diet, which, unlike pasture, enables the production of larger milk volumes. This high-grain diet often goes hand-in-hand with using breeds more suited to conventional dairying that may not thrive on grass-based systems. The cost of the resulting high milk volume is paid in poor overall animal health, metabolic problems, chronic disease, hoof problems, reproductive problems, and environmental consequences.^{26,27,28,29,30}

While a cow on a grass-based farmstead dairy can live for ten or more years, animals on CAFOs, conventional or organic, are often “burned out” by the intense production pressures on their physiology by their second lactation cycle, at around four years of age.

If consumers are concerned about particular issues, such as environmental stewardship and animal welfare, independent family farms that direct market, or brands that exclusively contract with family-scale farmers, have the best ability to control their production practices. As size increases, control over the welfare of individual animals becomes less personal by necessity.

Industrial Organic?

Brands that depend on the industrial dairy model in part or exclusively for sourcing their milk subscribe to philosophies almost identical to conventional dairy producers.

Many of the owners of the largest certified organic CAFOs also own large conventional operations. “Organic” principles appear to hold little value beyond a profitable marketing term to apply to their familiar agricultural production model. In practice, these producers often don’t

go much beyond substituting organic feed for conventional and eliminating prohibited synthetic inputs, such as pesticides and antibiotics.

Size can be a simple indicator of an industrialized dairy, especially when a farm with a large number of cows is located in a climate where it is difficult to grow grass for a long grazing season.

Conventional dairy production started migrating from temperate climate states decades ago to the desert southwest. One principal reason is the ease of managing the manure of thousands of animals, and therefore mitigating environmental risk in the absence of regular rainfall.

Though it is true that many of the dairy brands The Cornucopia Institute identifies as “Top-Rated” on the Organic Dairy Scorecard are smaller farmstead operations, size *per se* is not necessarily an indicator of an ecologically based dairy versus an industrial-based dairy.

However, as the size of an operation increases, industrialization often increases as well. While there are some 500-1,000-cow dairies that do an excellent job of grazing their cattle—typically because they have talented management and are located in areas that receive abundant rain and grow excellent grass—they are very rare. In general terms, milking more cows also requires more intensive management, and this requires a lot of land.

In addition to considerations of farm size, brands that procure their milk from multiple farms have less control over on-farm practices, which raises uncertainty in the food supply chain. A few brands that purchase milk from multiple suppliers have developed their own standards of enforcement and oversight staffing.

With strong market demand, low conventional milk prices, and cheap imported feed, the percentage of organic milk produced by giant CAFOs continues to grow.³¹ With many new mega-dairies operating in organics, the disparity in production, skewing toward large farms, is likely much higher now.

The Health Benefits of Organic

The health benefits of true organic dairy production come from the land where feed is grown, to the animal who eats that feed, to the final consumer product. All along this chain, organic dairy can support environmental, animal, and human health.

Organic dairy cows must be fed an entirely organic diet, whether organic grain or organic pasture, and they cannot be treated with antibiotics or growth or reproductive hormones. As such, organic dairy products are safer (fewer

agrochemical and drug residues) and can be more nutrient dense than conventional dairy products.

Grass-based organic dairy has even greater health benefits for the end-consumer when compared to conventional. In fact, published studies show that organic milk has superior nutrition to conventionally-produced products.³²

Nutritive differences in conventional and organic milk arise from differing feeding methods. The typical conventional cow receives a diet high in grains and soy, while an organic cow receives at least some of her diet from fresh pasture. The higher the percent of a cow's diet is based in fresh green forage, the higher the percent of certain beneficial nutrients such as essential fatty acids in the final milk product.

While dairy consumption is not necessary for a healthy human diet, pasture-focused organic dairy is a nutritious food for those who can digest it and choose to do so.

Benefits of Organic Dairy Consumption

There are several important nutritional benefits associated with the modern consumption of ruminant animals' (i.e., cattle, goat, and sheep) milk:

- Dairy foods are nutrient-dense, supplying energy and significant amounts of protein and micronutrients;
- Milk fat is one of the most complex food fats, containing approximately 400 different fatty acids;³⁷
- Milk contains high-quality protein, meaning it includes all the essential amino acids needed by humans;³⁸
- Ruminant dairy products are the richest source of conjugated linoleic acid (CLA) in human diets and can provide approximately 70% of the total dietary need (compared to 25% provided by beef) if from a good source; and,³⁹
- Dairy is a widely available source of calcium and phosphorus.⁴⁰

Some studies show consumption of dairy products is protective against osteoarthritis and cardiovascular disease,⁴¹ although others show milk consumption may actually contribute to these diseases⁴² (research is ongoing).

Evidence is building that organic foods, including dairy, are more nutritious than their conventional counterparts. A 2001 study noted that organic crops contained significantly more vitamin C, iron, magnesium, and phosphorus, and significantly fewer undesirable nitrates than conventional crops.⁴³ Antioxidants are also generally found to be higher in organically-produced crops.⁴⁴

LACTOSE INTOLERANCE

When humans were hunter-gatherers, milk had toxic effects because adults did not produce the lactase enzyme required to break down lactose, a sugar present in milk. Once agriculture took hold over a more nomadic lifestyle, cattle herders learned to process milk in such a way that preserved it and reduced the lactose by fermenting dairy products to make cheese and yogurt.³³

Then, a genetic mutation spread that gave people of northern European ancestry the ability to produce lactase and drink milk throughout their lives.³⁴ That adaptation opened up a rich new source of nutrition for these communities; however, a significant percentage of our modern-day global population did not develop this mutation and remains lactose intolerant.³⁵

For those individuals that still want to consume dairy without side-effects, lactose-free products are an option. Some lactose-free certified organic products are available!

Lactose intolerance has also helped drive the market for "plant-based" beverages and milk replacers.³⁶ There are some organic non-dairy options, but many are made from conventional ingredients.

A 2017 study showed that it is the pasture-feeding that accounts for the differences in conventional and organic dairy.⁴⁵ When conventional cows were fed pasture in the same way as an organic dairy, it removed many of the differences in nutrition previously reported for organic and conventionally produced milk.

In addition to proving more nutrient dense, evidence that organic food is also *safer* for consumers continues to build. One scientific review found that consumption of organic products likely reduces exposure to pesticides and antibiotic-resistant bacteria.⁴⁶ And, in general, studies show that organically produced crops have fewer detectable pesticides and lower levels of the heavy metal cadmium.⁴⁷ Though the levels of pesticide residue found on conventional crops are considered "safe" by the FDA, few if any studies have been done on cumulative exposure rates or consecutive exposure to these toxins. There is an emerging body of scientific literature indicating that some agrichemicals, even at minute levels (well below federal standards), can mimic hormones in the body and have catastrophic impacts.⁴⁹

When animals ingest pesticides or herbicides, through conventional feed, studies show detectable levels of agrichemicals in the animals. For example, recent research found glyphosate residues in the urine of conventional,



Some agrichemicals, even at minute levels well below federal standards, can mimic hormones in the body and have catastrophic impacts.

GMO-fed cows.⁵⁰ Another study observed that drugs fed to dairy cows end up in their milk.⁵¹ Ingestion of glyphosate residues is associated with kidney disease, gastrointestinal disorders, obesity, diabetes, heart disease, depression, autism, infertility, cancer, and Alzheimer's disease.⁵²

These issues matter in dairy production because one of the basic standards is that cattle producing organic products (i.e., dairy and beef) must be fed only organically produced feed. For dairy cows, that means that they must be fed non-GMO grains or forage crops like hay. Organic livestock have little exposure to agrichemical pesticides and herbicides in their feed, which means the consumer is assured that organic dairy products themselves are much lower in agrichemicals than conventional dairy.

Simply put, organic dairy is safer than conventional because the animals' exposure to agrichemicals, artificial hormones, GMOs, and untraceable feed sources is mitigated by organic regulations.⁵³

Livestock exposure to chemicals and toxins through their environment and feed does affect the finished dairy product. This is one of the fundamental reasons the integrity of the organic label must be protected so that organic standards are uniformly enforced to ensure that all organic dairy products meet the health and safety expectations of consumers.

Production Methods Impact Milk's Benefits

The quality and type of feed given to dairy cows affect the overall health of the animal, the nutritional components of their milk, and the final dairy product. The nutritive composition of milk is primarily dependent on a cow's diet.⁵⁴

The old adage "you are what you eat" holds true for cattle and other ruminants, as well as humans. A cow that grazes on well-managed pasture consumes high-quality calories and nutrients. Grazing, pasture management, and rumen health all affect the nutrients that are available in milk.⁵⁵

The rumen is the first of four stomach chambers in a ruminant animal. The rumen receives food or cud, partly digests it with the aid of specialized microorganisms, and passes it to the next stomach chamber called the reticulum. The rumen acts as a fermentation vat, where microbes break down the cellulose and other feed. The dead, or soon-to-be dead, microbes are flushed into the later chambers of a ruminant stomach.

When a cow or other ruminant eats, it is feeding the microbes in its rumen; it is those symbiotic microbes that then feed the cow, goat, or sheep. Ruminant animals derive their nutrition from what the microbes break down for them.⁵⁶ Cattle have evolved to eat grass, something humans—and many other species—cannot digest.

Grain feeding, especially when grain or starchy feed is the majority of a ruminant's diet, creates an unhealthy environment in the rumen.^{57,58} The microbiome in a rumen is specifically designed to break down fibrous plants and provide the cow with easily absorbed nutrients. When this process is disrupted by feeding a high-grain ration, acid builds up, altering the rumen pH, causing physiological stress. This common malady—in its acute form dubbed "acidosis"—is a precursor to metabolic disease and lameness.

Acidosis from grain-based diets also promotes the growth of harmful microorganisms.

USDA research has shown that cattle switched away from a grain-based diet were less likely to shed *E. coli* in their feces.⁵⁹

Why are dairy animals fed grain in the first place? Primarily because this promotes increased milk production. Grain is a significantly more concentrated form of energy than grass or hay and, since cows can only eat so much in a day, feeding grain increases the total calories a cow can consume. The grain supports energy-intensive processes, including increasing production and growth. In addition, adding grain can be an easy way of adding necessary minerals and vitamins to livestock diets. Balancing a ration on pasture or forage can be more difficult as pasture quality changes due to seasonal and other effects.

When cows consume fresh, high-quality forage their milk has higher nutritive benefits. Knowing this, it is no surprise that many consumers choose organic dairy for its health benefits.

PASTEURIZATION VS. RAW MILK

Milk is a rich source of beneficial microbiota. For some time, it was thought that a mother's breast milk was sterile—but we now know that to be false.^{60,61} Instead, some science now shows that the microbes in mothers' milk help to develop an infant's own beneficial microbiome and establish a healthy immune system.^{62,63}

It is no different for cattle and the milk they produce for their calves, with science showing that a dairy cow's udder naturally has intramammary microbiota.^{64,65} This means that infections of a cow's udder are not necessarily disease caused by a bacterial pathogen, but are instead a consequence of microbial imbalance or maladaptation on or inside the body.⁶⁶

There has been a battle going on over the marketing of raw (i.e. unpasteurized) milk for a long time.⁶⁷ Some raw milk proponents feel that the microbiota naturally present in cows' milk are beneficial for human health and that pasteurization—the method of heating the milk to lower bacterial loads and often increase shelf life—destroys some of these benefits.⁶⁸

Despite differences in philosophies, strict cleanliness is something both proponents of raw milk and pasteurization of any kind can agree on. Even the most aggressive pasteurization

methods cannot permanently eliminate all pathogens, because milk is a good growth medium both before and after it is heat treated.⁶⁹



The U.S. Food and Drug Administration (FDA) states that consuming raw milk and raw milk products is a health risk and unsafe to eat.⁷⁰ The FDA notes that certain bacteria potentially present in raw milk can be especially dangerous to population subsets (including people with weakened immune systems, older adults, pregnant women, and children), citing CDC analysis finding that foodborne illness from raw milk especially affected children and teenagers.⁷¹

Advocates of raw milk hold that pasteurization kills important and beneficial

bacteria that contribute to a healthy immune system.⁷² These proponents believe that raw milk confers various health benefits.

Interestingly, analysis of raw and pasteurized milk samples instead shows that while the numbers of microbes are significantly less after pasteurization, the types of species present do not change.⁷³

While raw, unpasteurized milk can carry dangerous bacteria such as *Salmonella*, *E. coli*, and *Listeria*, which are responsible for causing numerous foodborne illnesses, these pathogens can also be found in pasteurized milk.⁷⁴

Some raw milk proponents focus on the wide-reaching effects pasteurization has on our health, farmers, and the marketplace.⁷⁵ These proponents suggest that pasteurization allows the industry to get away with creating and selling “dirty” milk—milk that comes from cows in factory-farm settings that are fed unnatural diets and antibiotics and other drugs and are much more likely to contain dangerous pathogens.

This is a topic, including political, regulatory and liability issues, Cornucopia will continue to follow as the body of scientific literature on pasteurization versus raw milk continues to evolve.

What organic consumers may not know is that the organic label is only one piece of a more complex picture. While some organic dairies work to maximize their cows' time on pasture, others do not. Instead, the latter only seek to meet the bare minimum required by the USDA organic standards (an average of 30% of the cow's consumption during the grazing season) or engage in outright subterfuge in order to skirt the requirements.

This difference in production can undermine some of the health benefits consumers believe are inherent in organic dairy products. Relatively weak regulations and lax enforcement is one reason there is so much variety in organic dairy production methods. As such, consumers are wise to pay attention and take action when organic policy issues are being debated in Washington. These policies

ultimately affect the qualities and health benefits of all organic products, including dairy.

A Healthy Balance of Fatty Acids in the Diet

Fatty acids are nutrients that, when consumed in the right ratios, have many proven health benefits. In dairy, these fatty acids are derived from the feed the ruminant animal consumes and the microbial activity in the rumen of the cow.⁷⁶

Omega-6 fatty acids are inflammatory, while omega-3 fatty acids are anti-inflammatory. The typical western diet has significantly more omega-6s. Most Americans consume these fatty acids at a ratio of between 10:1 and 25:1 (omega-6 to omega-3).^{77a} Historic ratios of omega-6 to omega-3 essential fatty acids were approximately 1:1, sug-

With the nutrition in dairy linked to what the cows eat, 100% grass-fed dairy products carry the highest potential nutritive benefits.



gesting humans evolved with far more omega-3 present in their historic diets before food became industrialized.^{77b} Higher ratios of omega-6 lead to a wide range of health problems related to excess inflammation. Eating a more balanced ratio of these fatty acids leads to better overall health.⁷⁸

Milk can be a good source of beneficial omega-3 fatty acids *only* if the cows are allowed to graze on pasture for a significant portion of their diets.⁷⁹ The higher the per-

centage of green forage, the higher the levels of omega-3 fatty acids in the milk.⁸⁰ The cow's consumption of grass results in omega-3s; any grain a cow consumes runs counter to omega-3 fatty acid production.^{81,82} Essentially, whatever the cows eat is reflected in changes to the milk they produce, and studies show these changes occur quickly.⁸³ In fact, conventional milk typically has ratios of omega-6 to omega-3 that are about 2.5 times higher than in organic milk.^{84,85}

Conjugated linoleic acids (CLA) are another fatty-acid-related component in milk that is beneficial to human health. The composition of CLAs in milk also relates to how the animal is fed. Milk from cows grazed on fresh green forage have more CLA than milk from silage-fed or grain-fed cows.⁸⁶ In one study, dairy cows grazing on pasture and receiving no supplemental feed had five times more CLAs in their milk than cows fed a conventional, grain-based diet.⁸⁷

The quality of the pasture, and feed in general, also plays a role in the amount of CLAs present in milk.⁸⁸ One study in Germany showed that cows on organic pasture had almost twice as much CLA as those grazing on a nearby nonorganic farm.⁸⁹ A higher level of nutrients in the forage, which often relates to soil health, has a direct relation to the end product.

Animal studies suggest that CLAs promote bone growth⁹⁰ and reduce inflammation. The specific kind of CLA found in ruminant milk has also been linked to anti-cancer properties.⁹¹

With the nutrition in dairy linked to what the cows eat, 100% grass-fed dairy products carry the highest potential nutritive benefits. Now more consumers are recognizing that fact and seeking out 100% grass-fed dairy and paying higher premiums to do so.

* Pasteurization of any kind (high or low temperature) does not appear to destroy the fatty acids in milk. In addition, there are more fatty acids in whole milk than in any other types of milk.

ORGANIC DAIRY POLICY

SPECIFIC QUALITY OF THE FEED SOURCE is one of the major differences between conventional and organic livestock production. But there are other differences that bring consumers to the niche market, like wanting to purchase milk from cows that have been allowed to exhibit their natural behaviors, such as grazing on pasture. It is also important to many consumers that their food animals are treated respectfully.

These production differences comprise the organic standards, and they have to be enforced if organic dairy is to maintain the animal welfare, environmental, and human health properties that consumers seek. In this way, the history of organic dairy production and organic dairy policy go hand in hand.

The “Pasture Rule”

The integrity of organic dairy means something to consumers and the farmers who care about their impact. Farmers and consumers can and do make a difference in how the organic label is regulated. Public outcry against poor enforcement can have an impact as the case of the “pasture rule” testifies.

After many years of delaying tactics, the USDA published more precise organic livestock standards in 2010 (incorporating minimum benchmarks for time on pasture and consumption from pasture). The updated livestock rule—better known as the *pasture rule*—became effective 120 days after publication, in June of that year. Operations that were already certified organic had one year to implement the provisions. Dairies that obtained organic certification after the effective date, however, were immediately expected to demonstrate full compliance.⁹²

When the new pasture requirements were finally enacted, the Secretary of Agriculture stated that that the rule “*will give consumers confidence that organic milk or cheese comes from cows raised on pasture, and organic family farmers the assurance that there is one, consistent pasture standard that applies to dairy products.*”⁹³ The USDA confirmed that pasture was one of the fundamental foundations of organic dairy.

The organic dairy pasture rules currently stand as summarized:

- Pasture is: “Land used for livestock grazing that is managed to provide feed value and maintain or improve soil, water, and vegetative resources.”⁹⁴

The USDA confirmed that pasture was one of the fundamental foundations of organic dairy.

- Dairy animals must graze pasture during the entire “grazing season,” a minimum of 120 days per year.
- Livestock have to obtain a minimum of 30% dry matter intake (DMI) from grazing pasture during the grazing season. “Dry matter” is defined as: “The amount of a feedstuff remaining after all the free moisture is evaporated out.”⁹⁵
- Producers must have a pasture management plan, requiring producers to manage their pasture as they would a crop to meet their animals’ feed requirements and to protect soil and water quality (which are negatively affected by overgrazing).

These 2010 changes set the minimum bar for organic dairy production.

This is a *low* bar and should be easy to meet in most places in the U.S., even those with very arid climates; although in order to comply in challenging environments, many operations have to irrigate their land and must have the proper balance between available acres of pasture and number of cows.

For perspective on this standard, 120 days of grazing time is only one-third of a year. Even in northern states like Wisconsin, with long, cold, and snowy winters, farmers can have their cattle out on well-managed pasture for 200 days or longer.

In wetter climates, such as northern California, portions of Oregon, and Washington, cattle may only be kept under a roof for four months at most during periods of heavy rainfall. Pasture quality degrades rapidly when saturated, and this can cause serious environmental damage if cattle graze during heavy rainfall. This regional practice

prevents manure runoff and water pollution. Also, in most areas of the U.S., cows can easily average at least 50% of their dry matter intake from well-managed pasture forage during the season. Some enterprising dairy producers even meet the market demand for milk produced from 100% pasture and hay without grain feeding.



Mulas Dairy is an example of feedlot-style “organic” dairying (Sonoma, California). Aerial photo commissioned by The Cornucopia Institute.

Since pasture feeding helps distinguish organic from conventionally produced milk,⁹⁶ organic regulations *requiring* grazing are what make the products different.

The Emergence of Organic “Factory Farms”

One of the big concerns highlighted in Cornucopia’s previous dairy report (circa 2006) was the lack of pasture access for organic dairy cows. Before 2005, when Cornucopia filed the first of a series of formal legal complaints, there were several brands that had organic dairies that provided their cows no pasture access.

If livestock did have outdoor access, they were confined to dry-lot conditions identical to those found in conventional, Western mega-dairies. The cows on these dairies were pushed to produce very high volumes of milk with high-production grain-based diets, commonly milking three or four times a day. When organic and conventional feeding systems start to look alike, the industry should know it has a problem. Cornucopia calls this “organic-by-substitution,” while academics tend to call it “conventionalization.”

At the time of our previous dairy report, exemptions from the organic rules that would allow “temporary confinement” were being abused in conjunction with the lack of pasturing. Legal exemptions for protecting the life and health of the animal or the environment are allowed, but only for “temporary” use. Some industrial dairy operators even argued that “temporary confinement” could encompass a cow’s *entire* lactation cycle (about 305 days).

These interpretations were an abuse of the organic regulations. Read together, the rules pertaining to organic dairy mandate that animals be afforded the opportunity to perform their natural instinctive behaviors—making it clear that meaningful time outside, on grass, was the intent of organic dairy regulations from their inception. These industrial “organic” dairy operations were a far cry from what the public viewed as organic, and that deceit hurt brands operating in a lawful and ethical manner as well as the integrity of the organic label in general.

The USDA has been uninterested in vigorously enforcing these requirements without public pressure. Cornucopia documented industrial dairies’ abuses of the pasture requirements, gathering evidence and exerting pressure on a reluctant USDA.

During the Bush administration, instead of acting, the USDA argued that the rules concerning organic dairies were too vague to enforce. Cornucopia’s interpretation of this problem, based on the opinion of legal advisors, maintains that every rule means *something*. To do nothing in the light of written regulations was unlawful. The USDA’s subsequent enforcement—prompted by Cornucopia’s actions—would prove that the regulations were enforceable at the time.⁹⁷

Continuing Abuses on Industrial Dairies

The pasture standards controversy was far from settled by the rulemaking in 2010. The problem of enforcement has not been solved by establishing clear minimum benchmarks for pasturing. Some dairy brands continue to depend on operations that manipulate the organic regulations to fit their desire for higher production and lower costs. During the Obama administration, the USDA’s efforts at enforcing the rules were virtually nonexistent, and widespread abuses continued.

Large dairies have shifted from trying to justify their lack of grazing and pasture for their lactating dairy cows to creating the *illusion* of meeting the low standard set by the USDA. This illusion is made possible by a number of agreeable accredited organic certifying agents who are willing to collect large certification fees while looking the other way, facilitated by deficient oversight of these agents by the NOP.

One of the indicators of abuses of the pasturing requirements by industrialized dairies is the fact that many have continued milking cows three to four times a day. Grazing experts note that these milking practices make it impossible to provide individual animals the required amount of grazing. Essentially: shuffling thousands of cows back and forth from pasture to milk them numerous times per day means less time for the cows to actually graze. This milking frequency is consistent with diets high in con-

centrates, formulated for high production, rather than the health and longevity of the animals. Certifiers and the USDA are complicit in facilitating these practices.

The NOP's benchmark rules should require that organic dairies milk their cows a maximum of two times a day because it takes time to move cows to and from pasture. Milking more than two times a day should trigger extra scrutiny by certifiers.

Federal regulations do not specifically address the timing for milking, stating that a farmer may temporarily deny a ruminant animal pasture or outdoor access “...for short periods daily for milking... Milking frequencies or duration practices cannot be used to deny dairy animals pasture.”⁹⁸ The regulations are clear, precisely stating that: “Milking must be scheduled in a manner to ensure sufficient grazing time to provide **each animal** with an average of at least 30 percent [dry matter intake] from grazing throughout the grazing season” (emphasis added).⁹⁹

Read together, the regulations surrounding the pasture requirements and how dry matter intake is calculated make it clear that *all* animals—dry cows, heifers, and lactating cows—must get an average of 30% dry matter from pasture. Unfortunately, this regulation continues to be abused.

Another indicator of pasture abuse appears in nutritional testing. Recent testing conducted by the *Washington Post* in mid-2017 proved that certain organic brands had nutritional attributes indistinguishable from conventional milk.¹⁰⁰ These brands came from certified organic CAFOs.

In 2016, Cornucopia collaborators visited a number of large factory dairies. These experts discovered that these mega-dairies were averaging the amount of dry matter intake (DMI) for *the entire herd*. This means that cows in the milking barn (dry cows and young heifers who have not started lactating) are getting a majority of their diet from pasture, while the high-producing, lactating cows get less than 30% of their dry matter intake from pasture. In some flagrant cases, confidential investigators found that the cows received zero DMI from pasture.

Cornucopia brought these deficiencies to the attention of the USDA. Instead of investigating, the USDA did nothing more than contact the certifiers, who confirmed that the operations in question were “in good standing with [their] certifier.”¹⁰¹

The NOP's guidance on this issue supports the plain language of the regulation.¹⁰² These dairies are not just bending the rules, they are breaking them.

These abuses by mega-dairies show that there is still a lot of work to be done to get all organic dairy brands to comply with the organic regulations and consumer expectations.

EXAMPLE: AURORA AND HORIZON

The Cornucopia Institute's 2005 legal complaints were based on allegations of violations of organic livestock management practices at three industrialized dairies, two of which supplied the Dean Foods-Horizon label and one owned by the vertically-integrated Aurora Organic Dairy. Aurora is still the largest supplier of “private label,” or store-brand, organic milk in the U.S., supplying such retail giants as Walmart, Costco, Target, and major supermarket chains.

When the abuses of the rules came to light, the public and farmers, incensed by the corruption of organic integrity, rallied together to demand meaningful enforcement of the pasture standards. After the media drew attention to Cornucopia's allegations, the next meeting of the NOSB saw an outpouring of comments from farmers and the public. Most of the comments demanded that the NOSB close the loopholes these “organic” livestock factories were using to produce dairy in confined, industrialized conditions.

At the time, there were additional feedlot dairies being constructed across the country, and the USDA claimed more specificity in the pasture regulations was necessary to facilitate enforcement. Many organic farmers feared that without enforcement industrialized dairy would take over the organic market.

When Cornucopia initially filed a complaint against Aurora and other industrial-organic dairies in 2005, it contended that these brands were not abiding by organic certification rules that required dairy cows to have proper time on pasture. The USDA dismissed that complaint, but Cornucopia filed a second complaint in 2006. The 2006 formal legal complaints were filed against the original Aurora operation in Platteville, Colorado; the Dean Foods-Horizon corporate-owned dairy in Paul, Idaho; and the Case Vander Eyk Dairy in Pixley, California (a split, conventional/organic 10,000-cow operation supplying Horizon).¹⁰³



Legitimate grazing believed to be unlikely given overhead photography evidence of this “organic” Aurora dairy (Dublin, Texas). Aerial photo commissioned by The Cornucopia Institute.



At this Aurora Coldwater dairy, a combination of climate, dairy size, and facility management effect the ability to offer legitimate grazing (Stratford, Texas). Aerial photo commissioned by The Cornucopia Institute.

In response to these complaints, the USDA decided that new regulations were necessary to make the organic dairy standards less vague. However, the USDA's claim that the dairy standards were vague proved to be specious, as there was enough clarity in the regulations to subsequently de-certify the Vander Eyk Dairy due to its practices, which included zero pasture available for their lactating cows.

In addition, a USDA investigation of Aurora found that it “willfully” violated 14 tenets of the federal organic standards and was recommended for decertification by career civil servants at the NOP.^{104,*} The allegations initially filed by Cornucopia, which USDA investigators found meritorious, included confining its cattle without access to pasture and illegally bringing conventional cows into the operation. Again, these enforcement actions took place under *original* organic standards requiring grazing.

Unfortunately, Aurora may not have learned its lesson from previous complaints against the company.¹⁰⁵ In May 2017, the *Washington Post* published an investigative report showing that Aurora Dairy appears to continue to flaunt organic regulations by not grazing enough to even meet the current minimum standards.¹⁰⁶

The *Post* report found that milk obtained from Aurora tested as more nutritionally similar to conventional milk than milk from reputable organic dairy brands. Records and photographic evidence also supported the finding

that this organic dairy is willfully gaming the system, confining cattle in order to push cows for higher milk production, similar to standard operating practices on conventional dairies.

In response to this evidence, Cornucopia immediately filed an updated complaint against Aurora and its certifier, the Colorado Department of Agriculture (which was also recommended for sanction a decade ago after the USDA's investigation of Cornucopia's 2005 complaints).^{107,108}

Unfortunately, at the time of publishing this report, the USDA's response to these legitimate concerns proved unhelpful.^{109,110}

These revelations prove the value of watchdogs in organic agriculture. Due to inconsistencies in the enforcement of the organic rules, the industry needs people and organizations who care about the future of organic agriculture and are willing to shine a spotlight on bad actors. In addition, organizations like Cornucopia help promote those ethical farms that the organic label was intended to support in the first place.

Anemic Enforcement

As this history attests, the USDA, acting through the NOP, has a spotty enforcement record regarding organic dairy regulations. The NOP has allowed industrial agribusiness to manipulate, abuse, and take advantage of perceived vagaries in the regulations. When pushed to enforce the regulations, the USDA has historically responded with delaying tactics or excuses. Its performance has been applauded by the industry's most powerful lobby group, the Organic Trade Association.[†]

The NOP is, however, subject to audits. Previous audits carried out by the USDA Office of Inspector General and via a contract with the American National Standards Institute (ANSI), provide further proof of the lack of enforcement in the organic sector.[‡] The first of these audits in 2005 found that the NOP was deficient in many of the statutory responsibilities in overseeing the accreditation of the nation's organic certifying agencies, among other concerns.¹¹¹

A more recent 2010 audit by the USDA Office of Inspector General revealed that the “*NOP did not respond to these in a timely or effective manner*” when enforcement was recommended for five large producers.¹¹² Even when the NOP slowly got around to enforcing violations, the opera-

* Political appointees in the Bush administration would later allow Aurora to continue operating under probation.

† An official with Horizon, now a brand owned by France's Groupe Danone, has been a long-time member of the OTA board.

‡ Since the implementation of the organic program in 2002, NOP has not established a peer review panel to annually evaluate its accreditation decisions and adherence to regulations. In 2004, the NOP contracted with the American National Standards Institute (ANSI) to assess its accreditation process to address the peer review panel requirement. However, these reviews are not conducted annually.

tions in question continued to improperly market their products as certified organic. The audit also revealed that, in those cases where enforcement actions *were* issued, the NOP did not monitor the operations to ensure future compliance.

OFPA requires certifiers, which are vetted and accredited by the NOP, to conduct residue testing of organic products. The 2010 audit also found that the USDA did not mandate that this testing occur. Furthermore, the USDA was not requiring certifiers to carry out legally-mandated, *unannounced* inspections.

It's worth noting that even though these are OFPA requirements, the NOP failed to incorporate these provisions into federal organic regulations. When asked, NOP officials blamed the expense of residue testing on their lack of adherence to their own standard.

It is clear that the Bush and Obama administrations were not interested in preserving the integrity of the organic label without outside pressure. The "pasture rule" that went into effect in 2010 would not have transpired without a long campaign by Cornucopia and other groups representing organic dairy farmers.

Early moves by the Trump administration in the summer of 2017 to downgrade priorities to prohibit conventional cattle on organic dairies do not bode well for the new leadership at the USDA as well.

EXAMPLE: TEXAS AND NEW MEXICO CAFOS

Cornucopia has filed about a dozen federal lawsuits against the USDA alleging the illegal withholding of public documents in violation of the Freedom of Information Act (FOIA).

In one of the cases, Cornucopia researchers had requested documents related to a trip where NOP staff director, Miles McEvoy, and the former head of the Compliance and Enforcement Division, Matthew Michael, visited a number of large certified organic livestock operations in Texas and New Mexico.

After a lawsuit compelled the NOP to release some of the documents, Cornucopia learned that one of the operations in Texas, Redland Dairy, had been decertified. However, more than a year later, the NOP still listed it on its "integrity" public database as a currently certified organic operation.

Why was Redland Dairy decertified? What did NOP or certifiers find in violation of the law, and what penalties, if any, were applied? Cornucopia's lawyers continue to seek documents illegally withheld from the public that would answer these questions. Although the NOP touts

its "transparency in most enforcement cases" the genesis of these violations is withheld from the public, detracting from the potential deterrent effect of any penalties.



Some industrial "organic" dairies, like Hilltop LLC's Boehning Dairy, resemble conventional CAFOs more so than idyllic farmsteads (Earth, Texas). Aerial photo commissioned by The Cornucopia Institute.

EXAMPLE: THE ILLUSION OF GRAZING

Since the new livestock and pasture rules went into effect, mega-dairies are making an effort to create an *illusion of grazing*.

Cornucopia has attained evidence that many industrial-scale organic livestock facilities, some managing up to 18,000 dairy cows, continue to provide no legitimate grazing, as required by federal regulations.

In an effort to convince the USDA to take action, in December of 2014 Cornucopia provided the NOP with hundreds of aerial photographs exposing the confinement of livestock on organic dairy (and egg) production CAFOs in nine states. Cornucopia also offered the NOP information including first-hand testimony of witnesses who had evidence showing those dairies did not abide by the minimum standards required. This information was augmented by state regulatory documents that are required for manure management of each suspect facility (also called "nutrient management").

The NOP dismissed each of the 13 separate complaints filed *without* conducting any investigation. Instead, it relied on confirmation from the operation's certifier that the facilities were compliant with current regulations. This conclusion was based on pre-existing, scheduled inspections. USDA officials suggested that the photographic evidence was "insufficient" and depicted only a "single

moment in time,” despite the clear evidence that pastures were being hayed or lacked evidence of cattle movement.*

The annual inspections carried out by accredited certifiers also take place during a “single moment in time.” The only difference is that certifiers make an appointment with operators to inspect their production facilities at a mutually convenient time. During investigations of numerous certified organic CAFOs first-hand confidential witness testimony has confirmed that an atypical number of cattle are on pasture during inspections.

This illustrates another troubling trend in the regulatory arena: the USDA’s blind reliance on the word of organic certifiers. Though the NOP accredits certifiers, some individual inspectors are inexperienced, minimally trained, and may have a poor understanding of the current regulations or dairy management.

Certifier Complacency

After the USDA failed to investigate any of the organic CAFOs brought to its attention in 2014 by Cornucopia’s formal complaints, pro-bono attorneys acting on behalf of Cornucopia reviewed the NOP procedures that mandate how such formal complaints must be handled.

Language guiding NOP investigative activities gives the program discretion as to whether or not to investigate, stating it “may” investigate complaints submitted. Given the well-researched data that was turned over to the agency, and the track record of The Cornucopia Institute submitting cases of fraud which have proven to be meritorious, one would have thought that the NOP would have investigated at least some of the 14 complaints filed. Instead, the agency exclusively depended on the analysis of certifiers, despite the fact that those certifiers are compensated by the perpetrators of the alleged violations.

Since some of the CAFOs should never have been certified in the first place, due to inadequate amount of pasture acreage based on the size of the herd, it was the job of the NOP, vis-à-vis its congressionally-mandated accreditation responsibilities, to confirm whether or not certifiers were properly applying the regulations.

Cornucopia’s legal research indicated that, although investigative guidance gave the program discretionary flexibility not to investigate the allegations, the same guiding language indicated that they “shall” investigate all complaints filed against certifiers, since the Organic Foods

Production Act specifically gave the program responsibility to directly oversee the accreditation of certifiers.

In 2015, Cornucopia refiled its flyover complaints, this time against certifiers, requesting that they be investigated along with the operations to verify whether or not they were applying the regulations properly. At publication of this report the USDA has not yet responded. In terms of protecting the interests of law-abiding organic dairy farmers, *justice delayed is justice denied*.

The Origin of Livestock: Conventional Cows on Organic Dairies

A novel area of gross abuse by corporate “organic” agribusiness has come to light in recent years: the issue of the origin of livestock.

There are specific rules as to how a dairy can initially convert from conventional management to organic practices. In a perversion of the rules, giant livestock factories, many milking thousands of cows each, have been buying conventionally-raised heifers and “converting” them to organic on an ongoing basis.

This gaming of the system relates to how a farm’s calves and other young stock are handled. In simplified terms, a dairy runs on its cows’ biological clocks. Cows first “freshen”† around their second year of life and start lactating at that time. Calves are usually taken off their mothers soon after birth to be raised on a bottle or bucket until they are weaned. The methods for raising calves varies widely, based on a farmer’s own methodology.

When a dairy cow “ages out” or otherwise is removed from milk production, both conventional and organic dairies need to replace her if they want to maintain the same level of production.

Cornucopia’s Organic Dairy Scorecard documents how replacement animals are managed as one of the indications of an organic farm run with integrity. This is important because some certified “organic” dairies are violating the spirit and letter of the law in a way that allows them to sell more organic milk by replacing their dairy cows with *conventionally raised animals*, rather than raising their own calves by feeding them organic milk.

* Although all photographs do illustrate a “single moment in time,” the precise times were chosen by the aerial photography contractor (based on their schedule of other contractual work in the area), not by Cornucopia. It is highly unlikely that it is a coincidence that no more than 10% of cows were on pasture at any given dairy when the flyovers took place.

† Meaning the time when a young heifer produces her first calf and starts her first lactation cycle.

Their replacement animals do not originate from organic sources. Instead of raising their young calves, these operations instead purchase cheaper cattle raised on medicated milk replacer that includes antibiotics and, potentially, other banned pharmaceuticals and substances. Then, after weaning, these calves are fed conventional GMO grains and hay treated with toxic chemicals.

Essentially, these animals are being raised as any conventional animal would be up until their first birthday. Then, for the second year of life, approximately one year before they start producing milk, they are switched to organic management. These dairies are in “continuous transition” to organic with the replacements they bring in.

Similar abuses are taking place when investors launch new industrial-scale dairies, sometimes with thousands of cows each. In order to quickly start producing milk, they purchase converted heifers from contractors to expeditiously start their revenue streams. This is, instead, taking advantage of the regulatory framework to convert a distinctive herd to organic management a single time. Milk from these giant factory dairies has flooded the market, injuring family-scale farmers starting or growing their herds in accordance with federal regulations.

Twisting the Rule for Transitioning to Organic

The current rule that applies to transitioning organic livestock went into effect with the adoption of the original standards in 2002. It states:

“Livestock products that are to be sold, labeled, or represented as organic must be from livestock under continuous organic management from the last third of gestation or hatching: Except, That... Milk or milk products must be from animals that have been under continuous organic management beginning no later than 1 year prior to the production of the milk or milk products that are to be sold, labeled, or represented as organic, Except,

(i) *That, crops and forage from land, included in the organic system plan of a dairy farm, that is in the third year of organic management may be consumed by the dairy animals of the farm during the 12-month period immediately prior to the sale of organic milk and milk products; and*

(ii) *That, when an entire, **distinct herd** is converted to organic production, the producer may, provided no milk produced under this subparagraph enters the stream of commerce labeled as organic after June 9, 2007: (a) For the first 9 months of the year, provide a minimum of 80-percent feed that is either organic or raised from land included in the organic system plan and managed in compliance with organic crop requirements; and (b) Provide feed in compliance with §205.237 for the final 3 months.*

(iii) ***Once an entire, distinct herd has been converted to organic production, all dairy animals shall be under organic management from the last third of gestation.***¹¹³ [emphasis added]

While these regulations seem to be straightforward, the USDA somehow decided that certain farmers could convert conventional cattle *in perpetuity*, well beyond the first transition from a conventional farm to an organic one. This move has been legally questioned because it is a gross misreading of the purpose behind the “*once an entire, distinct herd*” language.

Essentially, because the above list of (i)-(iii) does not include the word “*and*” between points (ii) and (iii), the NOP has allowed producers to treat this rule as though every point does not need to apply to every dairy. In practice, the NOP is allowing a loophole that goes against the intent of the rule.

The preamble of the organic regulations makes it clear that continuously transitioning in conventional animals was not how the regulations were intended to read. It states: “*Once the herd has been converted to organic production, all dairy animals shall be under organic management from the last third of gestation.*”¹¹⁴ This requirement is immortalized in the “origin of livestock” rule.¹¹⁵

The NOSB noted in a 2003 recommendation that the preamble and the regulation strongly support a “systems” approach to organic production, highlighting this language in the rule:

“*The conversion provision also rewards producers for raising their own replacement animals while still allowing for the introduction of animals from off the farm that were organically raised from the last third of gestation. This should protect existing markets for organically raised heifers while not discriminating against closed herd operations. Finally, the conversion provision **cannot** be used routinely to bring non-organically raised animals **into** an organic operation.*”¹¹⁶ [emphasis added]

In addition to this evidence, the NOSB pointed out that the regulation at section §205.236(b)(1) clearly states that animals may not be rotated between organic and nonorganic production. Continuous introduction of conventional dairy replacement animals undermines the systems approach.

The NOSB was correct in its 2003 assessment of the rules. As noted by the Board, the rule itself clearly states that animals may *not* be rotated between organic and nonorganic production.¹¹⁷ The rule as a whole makes it clear that §205.236(a)(2)(iii) applies to all animals once a herd is converted. The NOSB’s recommendation, if adopted, would have given clarity to the rule by simply changing the numbering of the “origin of livestock” section.

This change would have made it clear on the face of the regulation that every point applies to *all* organic dairies. However, the USDA never implemented the advice and direction from the NOSB.

The simplest solution to the abuse and poor enforcement of the “origin of livestock” problem would be a guidance developed by the NOP. By acknowledging the rule was being misapplied during the Bush administration and making a blanket decree that the entire rule applied to *all* dairies, the NOP, during President Obama’s tenure, could have nipped uneven treatment of the regulations in the bud. In a precedent-setting move the Obama USDA acted to address this kind of issue at least once before when an inappropriate ruling permitted non-reviewed synthetic compounds (DHA alga oils developed by Martek biosciences) to be used in infant formulas and milk produced by Dean Foods/Horizon.¹¹⁸

But the NOP refused to act, neither clarifying the rule with a statement, nor adopting the NOSB’s 2003 recommendation. Instead, the question was left open for dairies and their certifiers to respond to however they chose, leaving organic integrity open for interpretation.*

Breaking the System of Organic Integrity— Cheapening the Definition of Organic

Why does bringing in conventional cattle matter? Besides the blatant disrespect to organic ideals and consumer perception, there are many practical reasons why transitioning in conventional calves is bad for the organic label and disadvantages organic dairy farmers who follow the spirit and letter of the law.

True organic calves must be raised on *organic* milk until weaning. On a family-scale dairy this is a simple system: some of the milk the farmer produces is fed to the calves born on the farm (the same quality milk as what we can buy in the store).

This will cut into the farmer’s profits because that milk is held back from sale. In contrast, conventional calves are often raised on milk replacer which is full of synthetic additives and antibiotics. Milk replacer can be made with soy, dried whey, and animal fat with vegetable oil, wheat gluten, and even animal blood plasma.¹¹⁹ Ultimately, using milk replacer allows industrial dairies to sell *more* of the organic milk they produce by not giving it to the calves. For large CAFOs this could amount to as much as a \$1 million windfall in additional revenue.

The system also facilitates pushing cattle for high production and “burning them out”—sending them off to slaughter at a prematurely young age, sometimes after just a year or two of being milked. When running an industrial dairy, where cows are considered expendable production machines, it makes more sense to discard the calves and buy cheap heifers that are ready for their first breeding. But this is not consistent with the common belief held by organic consumers that they are supporting a more humane animal husbandry model. It is argued that



At Hawthorne Valley Dairy (Ghent, New York), calves are allowed to nurse for up to six months after birth. This is sometimes used in the dairy industry. Photo Credit: Collin Howell.

the initial antibiotic use and feed that might have pesticide or herbicide residues can permanently affect the microorganisms in the rumen and digestive track of the animals, impacting their long-term health.

Family-scale organic dairies typically have “closed herds” where the calves born to their cows are used as replacements on that farm. In those dairies where the lifespan of the cow is long due to high welfare management, most of these farmers end up selling their excess calves as a separate profit center. In the past, Cornucopia officials have been quoted by the media as saying, “Real organic farmers don’t buy replacement heifers—they sell replacement heifers.”

This is one indication that an organic dairy is operating within the spirit of the law: the fact that they *sell* calves or heifers every year. When a dairy farm has extra organic

* Although some of the largest certifiers are allowing continuous conversion of organic dairy replacement, a handful of the most ethical certifiers will not permit the practice.

calves to sell it indicates that they are producing more calves than they are aging out dairy cows (meaning their cows are well cared for and probably not pushed for high production).

Unfortunately, the pricing and demand for certified organic calves and heifers is depressed by the fact that a large percentage of organic milk production is taking place on industrial dairies that are sidestepping the prohibition on bringing conventional animals in as replacements. Most family-scale organic dairies are selling their surplus calves through the conventional market *without* a premium.

Rulemaking Delays—This Time for the Origin of Livestock

After repeated delays by the USDA, and long subsequent deliberation by the NOSB and the organic community, the NOP developed a proposed rule in 2015¹²⁰ that would help control the problem of continuous transitioning of conventional livestock into organic dairy.

The Proposed Rule was commented on by numerous organic producer groups and individuals. The next stage should have been the publication of a Final Rule taking into account all comments on the Proposed Rule. As of the end of 2017, the USDA has failed to publish a final rule and has stated it is no longer a priority for the agency. The ongoing need for enforcement action by the USDA has sparked an increase in consumer awareness in the issue of the origin of organic livestock.¹²¹

The conventional calf issue is more obscure, so there has been less public outcry compared to the issue of cattle being on legitimate pasture. However, dairy farmers have kept the heat turned up on the agency.

The 2015 draft rule specified that, once the transition into organic production is complete, a producer would not be allowed to conduct any additional transitions. To expand their operation or replace lost animals, the proposal states that replacements can qualify in one of two ways:

- By adding dairy animals that had been under “*continuous organic management since the last third of gestation...*”
- By adding dairy animals that had “*already completed the transition on another dairy farm during that producer’s one-time transition.*”¹²¹

The above requirement mirrors regulations already in place (but that are not being enforced). Existing organic dairies, many of which have long-term financial and emotional investments in multiple-generation dairy herds, are allowed a single opportunity to convert them to organics.

The NOP’s proposed rule will, on the surface, eliminate the uneven playing field that organic dairy producers face under the current rule. Certified organic dairies will not be allowed to purchase conventionally-raised heifers for replacements, startup, or expansion purposes.

The extensive delay in closing the loophole has paved the way for the expansion of the industrial organic dairy sector, which now, based on some industry-experts’ back of the envelope estimates, produces as much as half the U.S. organic milk supply. In Texas alone, fewer than ten massive organic dairies produce more than the combined production of nearly 300 certified farms in Wisconsin (the state with the greatest number of organic dairy farms).

Currently, handlers of organic milk, the largest of which include the CROPP Cooperative (Organic Valley) and DanoneWave (owner of the Horizon brand), are cutting prices and placing some family-scale farmers on production quotas due to a purported surplus in the marketplace.

Problems with the Proposed Origin of Livestock Rulemaking

Though the proposed rule would solve some of the ongoing abuses in organic dairy, it is not without its own problems. There are new loopholes that could allow significant abuses to continue to the detriment of organic farmers who follow the spirit and letter of the law. Cornucopia submitted comments on the 2015 draft origin of livestock rule with the hope that these deficiencies could be cured.

These concerns include the proposed rule’s definition of a “dairy farm” which only requires that an operation milk one dairy animal. To take advantage of this loophole, a farm with just one milk cow could be allowed to raise thousands of conventionally fed heifers, transition them to organic using the one-time exemption for a “distinct herd,” and then sell those transitioned heifers to “organic” factory dairies. Essentially, this loophole, if maintained in the new rule by the USDA, would allow the same abuses to occur that prompted the rule change in the first place.

When the draft rule was open for comment, Cornucopia and others representing organic stakeholders suggested that the NOP close this loophole and others.

The Northeast Organic Dairy Producers Alliance (NOD-PA) suggested a simple solution: an outright ban of the sale to an organic operation of any cattle that had been transitioned from conventional production to organic production. While this strict approach might be harmful to farms that convert herds and then experience some emergency that forces them to liquidate their cattle, protections for this could easily be built into the rule. In addi-



Bottle feeding calves is a common practice in the organic dairy industry.

tion, the normal cull (attrition) rate of a dairy would mean that young animals raised as organic from birth would be replacing the original converted cows. Hence, within a few years or so, there would be few converted cows left.

Regardless of the strategy, Cornucopia and other commenters made it clear that rotating animals in and out of organic production should not be considered “organic.”

The draft rule would be a good step toward uniform and ethical organic dairying to *require*, as per the recommendation from the NOSB, that all animals brought onto an organic farm should be managed organically from the last third of gestation.

The Obama administration, via the NOP staff director Miles McEvoy, had declared the origin of livestock rule a top priority. Unfortunately, both the NOP and the Sec. Vilsack-managed USDA dithered away eight years without implementing the rule. During the first year of the Trump administration, new priorities for the USDA have been announced eliminating, among other organic program priorities, the proposed origin of livestock rule.

During the campaign, Mr. Trump expressed a desire to eliminate regulations that would constrain industry, so his administration’s stance is not surprising. In contrast, the Obama regime that talked about organic integrity failed to follow through despite the experience of knowledgeable practitioners running the program. Instead, they listened to the powerful lobbyists at the Organic Trade Association rather than rank-and-file farmers and consumers who overwhelmingly commented in support of new rulemaking on the origin of livestock.

Animal Welfare

In the dairy industry, as with other livestock sectors, animal welfare considerations often have to be weighed against many other factors. Some of these factors include the cost of labor, local weather conditions, and other economic considerations.

Consumer opinion and scientific data regarding animal welfare and animal rights is evolving. Evidence continues to mount showing that livestock are thinking, feeling beings.^{123,124,125}

Though the organic seal is not an animal welfare label as such, some of the rules do pertain to an animal’s well-being. Consumers also have the expectation that organic management embodies a more respectful approach to animal husbandry. The best example is the requirement that all organically-managed animals have outdoor access, and access to pasture for ruminants (including all dairy animals). This outdoor pasture access allows cattle to engage in natural behaviors.

In general, good animal welfare is understood to include:

- Keeping the animals in good health, for example, by keeping the cattle free of disease and lameness;
- Keeping animals feeling content, (i.e., not stressed); and,
- Enabling them to live as naturally as possible.¹²⁶

Natural Behaviors

Many animal welfare proponents have more specific standards, but allowing livestock to perform natural behaviors is a theme underlying most current understandings of animal health and happiness and is enshrined in the organic regulations as well.

OFPA requires that farmers provide livestock living conditions that “...*accommodate the health and natural behavior of animals.*”²⁷ Shelter for dairy animals must allow for “*natural maintenance, comfort behaviors, and opportunity to exercise.*”²⁸

Overall, the organic regulations for livestock support animals exhibiting natural behavior. For cattle, and other ruminants, natural behavior includes but is not limited to:

- Grazing;
- Laying down and chewing their cud;
- Grooming; and,
- Socializing with others in their herd, including their young.*

As social animals, dairy cattle find security in their herd as a natural defensive mechanism against predators. In organic agriculture, which encourages proactive problem solving rather than reactive problem solving, livestock producers prevent illness in their animals by providing good nutrition, sanitation, and a low-stress environment.

The Changing Regulatory Climate

Between 2009 and 2011, the NOSB issued a series of recommendations on animal welfare. The November 2009 recommendation suggested revisions and additions to the livestock health care practice standards and living conditions standards. The NOSB recommended banning or restricting certain physical alterations and requiring organic producers to keep records on lame and/or sick animals, including how they were treated. Some organic activists felt that these NOSB recommendations did not go far enough in protecting livestock.

In December 2011, the NOSB again suggested updating the animal welfare standards.¹²⁹ These recommendations included providing definitions for terms that were undefined in the current organic standards, including “outdoor access” and “soil.”

At this time, the NOSB also reiterated that outdoor access for livestock is the basic tenet of organic production.

After years of delay, in the spring of 2016 the NOP published a draft rule that both edited and helped clarify the existing organic standards concerning organic animal welfare.¹³⁰ Most of the dramatic changes proposed had to do with poultry production, but some would affect dairying and cattle.* For example, the NOP’s proposal regarding physical alterations was significant. The current regulations limit physical alterations to those needed to “promote the animal’s welfare.”¹³¹

If enacted, the 2017 NOP final rule of the Organic livestock and Poultry Practices will expand the use of physical alterations for hygiene, identification, and safety purposes. For example, this new rule would prohibit practices such as tail docking of cattle (cutting off part of the tail), wattling of cattle (cutting chunks out of the hide that hangs under the animals’ necks as a means of identification), face branding of cattle, and tail docking of sheep shorter than the distal end of the caudal fold.¹³² Tail docking of cattle—an alteration theoretically done to reduce manure and bacteria contamination but which also reduces the cow’s natural ability to protect themselves from flies—would also be explicitly prohibited in the rule (although some certifiers already interpret the current regulations as prohibiting this practice¹³³). The draft also provides more specificity regarding how physical alterations on livestock can be performed (for example, with anesthesia).

Cornucopia submitted detailed comments on these issues when the drafts of this rule were released, drawing from staff expertise and the experience of trusted industry advisors, including dairy farmers and allied organizations focused on dairy production.

In early 2017, the implementation of these rules was put on hold due to a Trump administration moratorium on all rulemaking released in the last days of the Obama administration. The Trump administration then compounded the delay further.¹³⁴ More recently, powerful members of Congress, after being lobbied by agribusiness interests, appear to be ready to scuttle the entire implementation of this rule just as it is to take effect.

With the likelihood of new stricter enforcement on conventional cattle in organic dairy being derailed, The Cornucopia Institute’s organic dairy scorecard, which helps differentiate the true exemplary practitioners in this industry, becomes even more important.

* The primary sections that the NOP proposed revising and expanding that apply to dairy operations were 7 CFR 205.238 (Livestock health care practice standard) and §205.239 (Livestock living conditions). The Origin of the livestock section did not have any proposed changes.

INDUSTRIAL ORGANIC'S ARGUMENTS AGAINST TRUE ORGANIC DAIRYING

INDUSTRIAL-SCALE, HIGH-PRODUCTION organic producers have a host of arguments against pasture-based dairy. While it is true that there are science-based approaches to be found on both sides of the fence, industrial agriculture proponents rarely consider the environmental, animal, or human health impacts of their management model.

An accurate cost-accounting often finds pasture-based and diversified farming to come out ahead with respect to the environmental cost of dairy. In fact, the failure to take account of *all* the externalities is a common theme throughout the argument against industrial agriculture.

Environmental Sustainability

Not only is authentic pasture-based dairy production possible on a commercial scale, it is also necessary for environmental stewardship.

There has been a long-standing debate about whether an intensive grain-fed livestock system is more harmful for the environment than a pasture-based system. Proponents of industrial-scale production suggest that grass-fed cattle produce more methane—a potent greenhouse gas—than grain-fed cattle. However, it's no surprise that big agribusiness is manipulating the facts to fit their story in a world increasingly concerned about climate change and sustainability.

In reality, industrial confinement operations have much greater negative implications for the environment. With regard to methane, it is true that a grazing cow produces more methane through the digestive processes in their rumens. However, the resulting methane cows burp out is only one element of overall greenhouse gas production in the dairy industry.

Methane is also produced during the bacterial decomposition of livestock manure when there is no oxygen present—conditions that often occur when a large number of cattle are confined in one area and manure is stored in piles or open lagoons. In contrast, a pasture-based system, particularly one that uses intensively-managed rotational grazing, has the majority of manure deposited evenly on the pasture itself. This natural spreading allows the aerobic decomposition of manure and facilitates its breakdown by bacteria and insects.

In addition, the manure of grain-fed animals (high levels of grain feeding and industrial confinement are inter-



related) gives off more methane than the pasture-raised ruminants. According to the National Research Council, *“the greater the energy content and biodegradability of the feed, the greater is the methane production potential of the manure.”* The National Research Council also states, *“manure from animals fed with grain-based, high energy diets is more degradable and has higher methane production potential than manure from animals fed with a roughage diet.”*¹³⁵

Liquid manures from grain-fed cattle will emit *more* methane than manure deposited on pasture by grazing animals. In fact, diets higher in roughage have less methane yield overall. The focus on how much methane is burped is just a method of attack preferred by the pro-CAFO establishment.

Research conducted and analyzed by Trust for Conservation Innovation and Animal Welfare Approved confirms that pasture-based livestock production is more sustainable. Though they found that pastured cattle have a slower growth rate, yield less milk per cow, and produce more methane from their rumens, these differences are offset by other significant benefits.¹³⁶

One benefit is that it is inefficient to feed grain to ruminants when that grain could go to feed humans, especially when ruminants can utilize feed, such as pasture grasses, that humans cannot. Cropland currently being

used to grow feed crops for livestock could be used to grow vegetables, to provide permanent pasture that can be grazed and used to sequester CO₂, or to provide space for wildlife.

When cattle utilize pasture in their diets, their products are not only more nutritious, the practice also allows the production of food for human consumption in areas that grow grass well but may be ecologically fragile and unsuited for other types of agriculture. Even flat, high-production farmland benefits from having the ground in permanent sod.

Considering where imports like feed are sourced from is an important piece when evaluating total carbon cycling for dairies. It is common for industrial dairies to import feed grown overseas. These grains and legumes are often grown with intensive petroleum-based fertilizers and pesticides (sometimes carrying a fraudulent organic seal),^{137,138,139} and then transported huge distances using fossil fuels. All of these pieces add to the environmental degradation that results from the operation of industrial livestock factories.

Organic dairy also comes with specific bonuses for sustainability. The regulations require on-farm conservation to preserve and improve soil and water quality, and promote biodiversity and the presence of wildlife. These requirements make organic dairy an ideal food production sector to integrate soil carbon sequestration through pasture-based farming. Overall, eating dairy products can be sustainable for those who choose to do so if that dairy comes from pasture-based production rather than intensively farmed dairies.

Land Issues

Another argument favored by big agribusiness is that land use is inefficient in pasture-based livestock systems. Industrial feedlot systems pack many animals into a small area, which proponents of conventional dairy argue allows for more efficient food production. Like the other arguments conventional agriculture makes against pasture-based animal production, this contention does not hold up when you consider all the factors. It is true, of course, that animals relying on pasture for a majority or all of their feed intake need more space. Overcrowding denudes pasture and in these situations the animals will essentially find themselves living in a dry lot, which defeats the benefits of pasturing.

Unacknowledged by agribusiness are the problems that arise when animals are kept in confinement. Manure build-up is the primary issue, as the concentration is often too much for the available land to handle sustainably. In conventional dairies, this manure is usually collected in

large open-air lagoons where biological processes cause decomposing matter to release toxic gasses into the environment. Leaking lagoons, equipment failures, management errors, and sometimes even sabotage, have also led to numerous and widespread ground- and surface-water pollution.^{140,141}

Cornucopia's co-founder, Mark Kastel, has often said, "There are only two types of manure lagoons. The ones that leak now, and the ones that leak later. Concentrating thousands of animals in a limited landmass is an accident waiting to happen."

Excess manure is shipped out to be put on crop fields as fertilizer. Frequently the application is done in liquid form through irrigation equipment, creating an ongoing threat to surface and ground waters. Application of raw manure to fields also disburses antibiotic-resistant bacteria.

While the idea of using animal manure for fertilizer sounds good in theory, conventional dairies produce so much manure that there are predictable negative consequences. Manure "spray fields" are created when raw manure that may be mixed with other agrichemicals is applied to soil.

There are links between adverse environmental health and manure pollution.¹⁴² Manure runs off from fields where it is sprayed when it is applied in excess of what the soil can absorb. In wild waterways, manure runoff causes nutrient pollution, which leads to algae blooms that deprive freshwater ecosystems of oxygen and cause massive wildlife die-offs.

Pollution from industrial dairies also occurs in groundwater systems, contaminating human drinking water with nitrates and agrichemicals. These agrichemicals include pesticides, herbicides, antibiotics, and other non-prescription veterinary medicines. The majority of the over-the-counter pharmaceuticals are included in animal feed, so this specific issue is decreased or avoided entirely by a grass-based diet.

Stories of pollution from industrial dairy operations pepper the news. For example, the EPA released a report in 2013 linking several dairy operations in Washington State to the high concentrations of nitrates and other contaminants in drinking water.¹⁴³ The same situation led a federal court to find one of the dairy operations contributing to the problem of groundwater pollution in Washington's lower Yakima Valley.¹⁴⁴ Northeast Wisconsin is also a hotbed of legal fights against the concentration of factory dairies and their impacts on water quality.¹⁴⁵

Grass-based systems do not have these same issues and are found, in general, to contribute fewer nitrates to the groundwater.¹⁴⁶ In large part, this is *because* there are

fewer animals on the available land. When ground is not bare, nitrates from animal manure are picked up and held by plant roots. As an added benefit, because organic dairy animals are not fed agrichemicals, including antibiotics, that residue does not show up in the manure waste. Specific grazing strategies, including rotational grazing and mob grazing, often have the effect of spreading the manure evenly, all without added labor, cost, or energy consumption from trucking and spraying manure elsewhere.

Besides concerns of manure pollution, the argument that land use is inefficient in pasture-based systems continues to ignore the overall impact of conventional livestock. This impact includes the massive amount of land planted in crops to feed the dairy animals, including corn, soy, and other cereal crops. As already discussed, the farms that support the conventional dairy-feed industry come with their own host of environmental, land use, and economic issues.

Diseases in Livestock and Humans

When ruminants are taken off pasture and put on a grain-based diet, they suffer from a number of health problems caused by increased acidity in their digestive tracts.¹⁴⁷ This “acidosis” contributes to a host of health issues, including intestinal issues, dehydration, liver abscesses, metabolic disorders, lameness, and even death.¹⁴⁸ One reason antibiotic use is more prevalent in conventional dairies is because the low-level acidosis makes livestock more prone to infection.

Industrialized livestock producers consider sub-acute acidosis to be a normal state for their animals. In fact, *Feedlot Magazine* states: “The researchers stress that nearly every animal in the feedlot will experience sub-acute acido-



This WhiteWave Foods Horizon Dairy shows little signs of grazing in the green fields alongside bare-earth feeding pads and manure lagoon (Kennedyville, Maryland). Aerial photo commissioned by The Cornucopia Institute.

*sis at least once during the feeding period.*¹⁴⁹ The magazine was speaking about the high-grain ration that applies to beef finishing, but high levels of grain consumption are common in production-intensive dairies as well (and many large dairies with thousands of cows, even those that are certified organic, are essentially feedlots).

A high grain ration also, not coincidentally, produces significantly more milk. This places the animals under extreme stress, compromising their overall health and well-being, and is a precursor to one of the most ubiquitous health problems in dairy cow; mastitis (infections of the udder). Mastitis leads to antibiotic use and, often, the early slaughter of the animal. Antibiotics are prohibited in organic dairy production, which further supports preventative management strategies over disease response.

For example, infection with *Salmonella* can be a serious health problem in dairy cattle, particularly in calves where mortality from the bacterial infection is high. Risk factors for contamination with *Salmonella* and other infectious microorganisms include confinement, wild birds feeding on the cows’ grain supply, and contamination of feed and water with feces.¹⁵⁰ Conventional calves are often “fed” medicated milk replacer laced with antibiotics as a preventative.

All of these risks decrease when dairy cows have pasture-centered lives.

Why? Cattle are less likely to ingest infected feces because they are less crowded, preventing the spread of disease. Birds are also not attracted in untenable numbers to pastured cows because there is no grain for birds to feast on while the cows are spending their days out on grass. Instead, wild birds provide a valuable source of insect and pest control for organic farms.

Pasture-based production has other disease-prevention benefits. Ruminants that spend their time performing natural behaviors, including grazing, have more robust immune systems, fewer overall health problems, and likely are not dealing with low-level acidosis.

As many organic dairy producers attest, when they begin to focus on a pasture-based diet and discontinue pushing for extraordinarily high levels of production, most of the disease and health problems their animals faced in a conventional system disappear. It is not uncommon for dairy farmers, after converting to organic, to boast that they never see the veterinarian, when they used to see them weekly. Healthier animals are a real benefit to the bottom line, and they live a much better quality of life, something organic consumers believe they are supporting by paying the organic price premium.

Because the *cull rate* is so much lower on family-scale organic dairy farms, with cows living longer, this facilitates an additional profit center. Unlike many of the industrial-scale CAFOs that constantly need an influx of replacement heifers, burning out their cattle and sending them to an early slaughter, most family-sized farms have surplus calves, heifers or cows to sell.

With respect to human disease, the impacts of sick cattle are complicated. Both conventional and organic milk are heavily regulated for food safety. In fact, there is no difference in sanitary standards for *milk* with *organic* certification.

Controlling food-borne diseases such as *Salmonella* and *E.coli* is indeed a concern for all producers, regardless of whether they are conventional or organic. However, this does not mean that all producers should be required to implement the same preventive measures. Some producers pose more risk to the public than others.

When the Animal and Plant Health Inspection Service (APHIS)—a branch of the USDA—studied *Salmonella* contamination in milk, it found that *large* herds were associated with much greater risk.¹⁵¹ Another thing that increased the apparent risk was dairy operations that purchased replacement animals from outside the herd without testing them. Because of the low attrition rate on family-scale organic dairies, many operate “closed herds,” significantly reducing biosecurity risks. Also referenced was a failure to routinely test feed components for *Salmonella*. For *E.coli* the message was similar.¹⁵²

The topic of human disease is further complicated by problems such as manure spray fields and manure runoff, as previously discussed. Produce contamination with *E.coli* and *Salmonella* is associated with animal manure exposure which, in turn, is associated with larger industrialized dairies and other livestock facilities.

ORGANIC DAIRY MARKET

THE ORGANIC DAIRY MARKET HAS SUPPORTED family-scale farms for decades. Becoming certified organic was a lifeline for many family farms when giant livestock factories began to produce abundant, cheap milk, pushing long-time dairy farming families out of business as they could no longer compete with the low margins and vast quantity of industrial product.

Organic certification has provided a robust market for humane, grass-based, farmstead dairy operations to realize a higher price for their products that enables them to make a sustainable living, something that is no longer possible in the conventional dairy market.

Growing consumer demand drives this market. Consumers recognize the health, animal welfare, and environmental benefits that organic dairy has over conventional, and they are willing to pay more for organic products. But as industrial scale operations entered into organic dairying, due to lax regulatory enforcement, the same squeeze that pushed smaller conventional dairies out of business is now being felt by organic farms.

Organic Dairy Economics

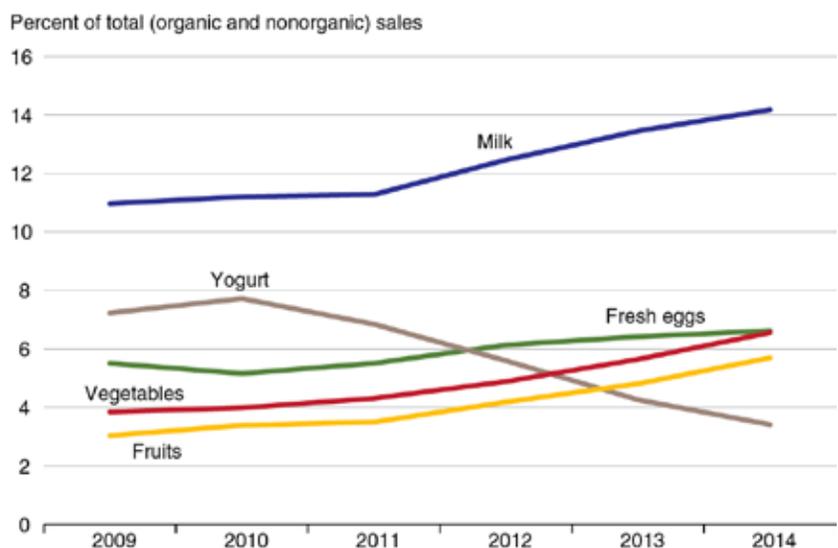
There are many reasons to choose organic food, and the scientific support for all these reasons is building. An important driver in the growth of organics is consumer distrust of the conventional food system. Consumers are willing to pay premium prices in the market for certified organic dairy products, in the belief that:^{153,154}

- The food is healthier and more nutritious;
- The food is safer because the standards prohibit the use of common genetically engineered feed, pesticides, antibiotics, growth hormones, and chemical fertilizers;
- The animals are treated more humanely;
- The farms operate in a more environmentally sound manner; and,
- The organic market supports economic fairness and the sustainability of family-scale farms.

Organic dairy has always been a popular sector of the organic market. Demand for organic dairy products resumed steady growth after the recession of 2007–2009. While fresh produce (fruits and vegetables) is still the top-selling organic product category, organic dairy is the second largest in terms of sales.¹⁵⁵ The market continues to grow; reports indicate that organic milk holds 6–14% of the organic market share (according to current data, it held the highest market share in 2014).¹⁵⁶

The dramatic increase in sales for organic fluid milk slowed after 2015. Part of the decrease in sales was due to shortages of organic milk on the market and increasing demand for plant-based beverages.¹⁵⁷ Recently, that trend has continued, with the popularity of plant-based beverages apparently accounting for drops in overall milk sales. However, while conventional fluid milk sales continued to fall in 2016 and 2017, total sales of organic fluid milk products increased compared to 2015.¹⁵⁸

Retail market share for organic eggs, milk, and the top fruits and vegetables increased from 2009 to 2014, matching commodity increases



Source: USDA, Economic Research Service and data from market research company IRI for the 2009–14 period.

VERMONT DAIRY STUDY: INPUTS VS. GRASS

University of Vermont agricultural economist Dr. Bob Parsons collected the financial data from organic dairy operations in Vermont from 2004 to 2012 and found that the average Vermont organic dairy was not making much money, approximately \$48,000 in average net farm income. The highest cost for organic dairies in 2012 was organic feed. Parsons highlighted an issue with the bottom one-third of organic dairy farms in Vermont; these farms did not make the baseline for family income—raising questions for their long-term viability. In contrast, the most profitable group purchased much more grain and produced the most milk per cow.

Despite the indication that organic dairy can only be profitable with a larger farm and greater inputs, Parsons also reported on another type of organic dairy that was doing well in Vermont. These farms were 100% grass-based, purchasing no organic grain. The grass-based farms had a much lower milk volume than the high-production, grain-based farms, but their significantly decreased costs meant a higher net return per cow. Therefore, these grass-based farms were able to make a living income. This research took place before many of the premium markets, such as that of 100% grass-based milk, had developed.

Table 2. Certified Organic Sales by Major Sector and Top Commodities, 2016

(\$ million and percent change)

	Sector Total	Commodity Sales (\$ million)	% change, 2015 to 2016
Livestock and poultry products	2,205		15
<i>Milk</i>		1,386	18
<i>Eggs</i>		816	11
Vegetables in the open	1,644		21
<i>Lettuce</i>		277	6
<i>Tomatoes</i>		175	102
<i>Potatoes</i>		151	127
<i>Spinach</i>		118	-24
<i>Sweet potatoes</i>		101	43
Fruits, tree nuts, and berries	1,407		17
<i>Apples</i>		327	8
<i>Strawberries</i>		242	60
<i>Grapes</i>		218	4
<i>Blueberries</i>		101	-19
Livestock and poultry	1,157		56
<i>Broiler chickens</i>		750	78
<i>Cattle</i>		233	0
<i>Turkeys</i>		83	19
Field crops	763		16
<i>Corn for grain</i>		164	27
<i>Hay</i>		130	11
<i>Wheat</i>		107	-1
<i>Soybeans</i>		78	25
<i>Tobacco</i>		62	26
Nursery and floriculture	113		64
Mushrooms	111		16
Vegetables under protection	89		22
Total	7,554		23

NASS Highlights, United States Department of Agriculture.
National Agricultural Statistics Service www.nass.usda.gov,
October 2017 • No. 2017-6

The most recent USDA surveys of organic milk producers took place in 2016.¹⁵⁹ That survey found that organic milk was among the top commodities for the organic market overall (at \$1.4 billion, up 18 percent).^{160,161} In 2016, 2.56 billion pounds of organic milk products were sold (amounting to 5 percent of all milk products sold that year) from more than 2,500 farms.¹⁶²

Aside from sales figures, research by the USDA shows that individuals are, on average, drinking less fluid milk.¹⁶³ However, dairy products such as butter and cheese are becoming more popular with consumers than fluid milk.¹⁶⁴ The demand for organic dairy, overall, remains strong.

On the supply side, there are serious financial barriers to farmers entering dairy, whether it is conventional or organic production. Land and infrastructure costs are substantial. If a conventional dairy farmer already utilizes well-managed pasture, it is not as difficult for the dairy to switch over to organic production. However, outside of the Amish and Mennonite communities, grass-based conventional dairy production is very rare today. Even in this environment, the transition to qualify for organic certification can be costly due to the requirement for dairies to switch over their feed and practices to organic methods well before they are allowed to sell their milk under the organic label.

However, much of this success is premised on continued demand for organic milk. If a surplus of milk occurs, ethical farmers are likely to be pushed out of business by those using factory-farm strategies. This is what happened to conventional dairies over the past 40 years when



Cows at Hawthorne Valley Farm (Ghent, New York) leaving the barn on their way to graze in lush pastures. Photo Credit: Collin Howell.

Due to surpluses at the time of this report's publication, the economic viability for the family-scale organic dairy farmer is somewhat in question today. The demand for organic milk products, versus a surplus from more factory dairies coming online, places at risk ethical farmers who do not externalize costs on the environment, animal welfare, and farm workers' decent living.

The organic label doesn't just provide the last bastion for family-scale dairy farms. In fact, as illustrated in a report by the Union of Concerned Scientists, the economic value provided by organic dairy farms is *greater* than that of conventional farms.¹⁶⁵ In this respect, organic dairy is not just good for individual farmers who might otherwise be pushed out of the business; these organic dairies help support the overall rural economy.

most conventional grass-based family farms succumbed to the onslaught of industrialization.**

As early as 2005, USDA economists suggested that “[e]conomic forces may have pushed organic dairies to adapt their operations to be more like conventional dairies in terms of size, location, and the types of technologies used.”¹⁶⁶ This trend in 2005 was likely due to farmers pushing to produce as much milk as possible per cow.

The Race to the Bottom

Industrial-scale, conventional producers claim their model makes dairy products more affordable. They argue that market forces require intensive milk production

through the use of concentrated feed, prophylactic antibiotic use for calves, and a continuous cycle of livestock burnout to produce the dairy the country supposedly wants at the price they need. By utilizing a system based on monoculture, economies of scale, shortcuts in animal health, and government subsidies, conventional dairies produce milk at a price that allows them to sell it cheaply and still make a profit.

However, there is a cost to this cheap milk that far exceeds the price on the shelves. While these costs may not be borne by consumers at the checkout line, we all feel them at some point. These costs include local and worldwide environmental disasters, not limited to global climate change, water and air pollution from agrichemicals and manure waste, and the support of a system of monoculture that puts a reliable food system at risk. The conventional dairy status quo is also rife with animal and worker abuses.

The benefits of keeping dairy animals on pasture is a complex topic, especially when compared to the industrial alternative. Possibly one reason conventional agriculture is attractive to some producers is that it simplifies what is naturally a complex system of relationships among plants and animals. In addition, conventional dairying enables economies of scale that cannot be realized with truly grass-based production.

This simplification does not solve management problems. Instead, conventional farms replace the hassle and time needed to get cows out to pasture by feeding them stored forage and grains. This way, the operators do not have to move the animals as far or as often, saving a huge expense in labor and possibly in the need for more land. However, this grain-based diet comes with serious downsides for animal and environmental health, necessitating complex manure control systems and, in conventional production, antibiotics.

Dr. Darrell Emmick, the former State Grazing Land Management Specialist with the USDA Natural Resources Conservation Service in New York, speaks to the relationship between grazing ruminants and the plants they feed on as being very complex, and that these relationships are ignored by industrial agriculture. Dr. Emmick emphasizes that when the animals are content they are productive for a longer lifespan:

“In industrial-based animal management animals are thought of as little more than trivial machines, where we force them to live under circumstances that they don't really care about. We force them to eat foods they might not even like,

* As this report goes to press in early 2018, the largest buyers of organic farm milk in the United States, the CROPP Cooperative (Organic Valley) and WhiteWave (Horizon), are ratcheting down the prices they pay to farmers due to what they suggest is a minor surplus of organic fluid milk. Meanwhile, a group of large new industrial farms are poised to come online with additional production.

*whereas in behavior-based management we recognize these animals are not machines—they are living, breathing, feeling, and social creatures. They have likes and dislikes. They feel pain and discomfort and stress. They prefer familiar food to novel foods, mixed diets to monotonous diets, familiar environments to unfamiliar environments, and furthermore they prefer to be with their companions rather than strangers.*¹⁶⁷

While conventional systems seek to achieve efficiency and cost-saving methods, they ultimately lose part of the economic benefit by burning out their cattle at a younger age and having to invest in replacements. The only way most conventional dairies survive is by being massive and taking advantage of economies of scale and government subsidies in feed production.

More Milk—Fewer Farmers

Historically, organic dairy was defined by small family farms with a low number of animals. These family farms emphasized grass-based dairying and the welfare of the animals over milk production numbers. Organic dairy should, and often does, provide relief from the environmental, animal, and worker welfare concerns associated with conventional production.

As industrial mindsets come into organic dairy, authentic organic producers who started and grew a successful organic label have been harmed. Industrial players want a piece of the organic pie. Like their conventional farming brethren, they have the benefit of economies of scale on their side, and they have found their way into organics in increasing numbers. The scale of these producers has a simple effect on the market: their methods produce a lot of milk at a relatively low cost—allowing the dairies, and their marketing partners, to undercut ethical industry participants.

The sheer volume of the milk coming from one giant “organic” livestock factory can equate to the output of literally dozens of average-sized, organic family farms. Over time this flood of cheaper organic milk has the real potential of pushing family-scale farms out of business as the industrial players are able to undercut them on prices.

The reality of the situation is that, though it is being sold under the same label, industrial-organic milk games the system, exerts power over regulators, and in many documented instances does not meet the minimum organic standards. Evidence amassed over more than a decade of ongoing investigations suggests that large-scale “organic” dairy producers, such as Aurora Dairy in Colorado, are skirting the organic regulations with the assistance of lackluster enforcers.¹⁶⁸ Aurora store-brand milk is sold in Walmart and Costco.

INDUSTRY CONSOLIDATION

As with any capitalist market, the organic dairy market can be threatened by monopolization and supply control issues. Cornucopia instigated a fight against Groupe Danone’s acquisition of WhiteWave Foods for this reason—the merger would have combined the industry-leading brand of fluid organic milk, Horizon, with the largest brand of certified organic yogurt, Stonyfield (along with a number of more minor organic dairy brands).

Cornucopia, along with other organic dairy stakeholders, such as the Northeast Organic Dairy Producers Alliance, pushed to have the merger scrutinized for antitrust concerns.

The grassroots effort paid off in early 2017 when the Justice Department approved the acquisition of WhiteWave Foods, including its Horizon label, by France’s Groupe Danone. However, it was announced that, while the deal would be approved, Danone would be required to divest the Stonyfield brand to ensure that the organic dairy market was not unduly threatened by the deal. The Stonyfield label has since been sold to another French dairy giant, Lactalis.

How do these industrial-organic dairies undercut family farmers on price? Industrial organic dairies can sell their milk and realize a greater profit because they have lower costs per gallon. These cost savings come from economies of scale, but also from outright abuse of the organic regulations.

Examples of cost-cutting techniques are exactly those same abuses discussed elsewhere in this report, relating to production methods. For instance, these industrial dairies sell off their newborn calves in order to avoid feeding calves the organic milk they can instead sell at a premium to consumers. The calves then enter the conventional system where they are fed on milk replacers. Industrial dairies also push the meaning of the pasture regulations beyond reasonable interpretations: for instance, averaging the amount of dry matter intake from grazing of their heifers and dry cows with confined non-grazing lactating cows to make their total herd average for grazing meet the minimum requirements.

Industrial practices lead to the loss of independent dairy farms. As the industrial organic sector expands with new acquisitions and consolidations, family farms that produce ethical milk and dairy products will no longer be able to remain competitive and may be squeezed out of dairying altogether.

A Safe Harbor in Grass-Based Dairying

It is the rejection of industrial methods of feeding and confinement that has allowed many smaller organic producers to weather the changing organic market. In 2015, the price for organic grain was at an all-time high and resources were limited. Those producers who were pasture-based were less reliant on grain, and some did not have to purchase any of the expensive certified organic grain at all.

Essentially, these farmers convert sunlight (a free resource) into grass, which their cows then transform into milk. Though a cow who eats a diet close to 100% grass and forage will produce far less milk than a cow on a high-calorie grain diet, grass-fed cows are often healthier, live much longer, and require less medical attention. With a decreased need for replacements, selling calves and heifers becomes another valuable revenue stream for the grass-based dairy.

With interest among consumers rising, 100% grass dairy producers have access to premium-priced markets.

The distinctions between grass-based and grain-based dairying will become even more important as market forces change. The exponential growth of imported organic feed grains has forced prices for organic feed grain down.

Conventional milk prices are down. What happens if the price differential for organic milk is no longer palatable for the consumer? The farms that mirror conventional practices can likely survive in a lower-margin market. But are these organic dairies really organic, and will consumers be willing to pay for a niche product that does not provide the qualities they are seeking?

Uneasy Wholesale and Processing Partnerships

Though there are a few dairy brands that source directly from small family-scale dairy farms, the majority of brands buy their milk wholesale and then process it into finished products, or they procure “private label” packaged products with their brand and logo already affixed.

Despite what may seem like a similar business model on the surface, brands that buy their milk from multiple farms vary widely in their practices. Familiar labels that purchase milk from individual farmers include Organic Valley and Horizon. Organic Valley is the brand of the Wisconsin-based CROPP Cooperative that gives a voice to its farmer-members. Horizon is a label owned by the publically traded DanoneWave¹⁷⁰ (WhiteWave Foods, previously an operating division of the largest milk bottler in the country, Dean Foods, was acquired in 2017 by Groupe Danone of France¹⁷¹). Horizon buys milk from individu-

al farms under strict contracts. Cornucopia researchers have long estimated that at least half of Horizon’s milk comes from large CAFOs west of the Mississippi River.

In the past, there was a clear distinction between these two popular name-brands of organic dairy. In the beginning, Organic Valley’s milk supply only came from family-scale farms, while Horizon’s supply came from a mix of corporate-owned industrial dairies, independently owned CAFOs, and family-scale farms. Horizon continues that procurement model. Organic Valley has begun purchasing a percentage of their milk from its somewhat smaller-scale CAFOs in the Western states.

Wholesale buyers of organic milk and finished dairy products are attracted to purchasing from CAFO production because those operations can produce a product at a lower price than family-scale farms and it can still be labeled “organic.” It is also easier to work exclusively with one or two high-volume vendors than many small farms. Industrial organic processors rely on lax enforcement by USDA regulators and uninformed consumers to sell their products.

Brands have immense power over farmers. Often, only one or two brands purchase organic milk in a given geographic area. This gives dairy producers little control when it comes to how they make their living, especially when a surplus exists. If they cannot secure a contract with the milk buyers in their area, then they may be forced out of business. This gives buyers unbalanced contracting powers, a sad phenomenon because stable pricing and a competitive market are why some dairy farm families converted to organic in the first place.

Many dairy farmers do not have the capital, management expertise, labor, or desire to do their own direct marketing (selling to consumers from the farm) or processing (making yogurt, cheese, butter, or other dairy products). Many are not located near a population center, or with the right demographics, to make direct marketing viable. Without wholesale contracts, they can lose their businesses, their farms, and their way of life.

Consolidation Chills Competitive Markets

During the early 2000s there were more wholesale buyers for organic milk. The market was growing and it was easy for organic farmers to sell their milk at a competitive and escalating price, because there were often different milk buyers competing for farmer suppliers. In regions where healthy competition has historically existed (e.g., California, Wisconsin, and the Northeast), there has been upward pressure on pricing, benefitting farm families.

As dairy farms get bigger and processors and milk buyers consolidate, they appear more inclined to buy from CAFOs

INDUSTRY CONSOLIDATION

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than from family-scale dairies. In part, this is because the industrial practices of mega-dairies give them more consistent production; but it can also be less efficient for processors to contract with many small farms to fill up their smaller milk truck routes when one CAFO can result in a full semi-trailer load. It is the age-old distinction between quantity and quality. The organic dairy market is now primed to value quantity and low price over quality and a fair price to farmers. The result is that ethical family-scale dairies are at a competitive disadvantage.

As organic dairies get bigger in imitation of conventional agriculture, brands and processors are also consolidating.

Dean Foods is the largest U.S. dairy processor, with a long list of conventional brands under its purview.¹⁷² In late 2016, a joint venture was announced between the CROPP Cooperative and Dean Foods to market the Organic Valley brand.¹⁷³ When farmer-owned cooperatives partner with multibillion-dollar corporate agribusinesses, all too often the farmers lose control of their brand and business.

If Dean Foods only processes the product and takes responsibility for logistics, but the quality and production of the milk remains in the hands of the cooperative, this partnership could benefit both farmers and consumers. In reality, this kind of partnership often has far-reaching negative effects for organic stakeholders committed to

ethical organic food and farming. In addition, there are plenty of examples of farmers losing control, or even their equity, in cooperatives they have built.

Ultimately, the problem with consolidation of milk buyers is being magnified by the fact the organic regulations are not being enforced for large dairies. If the organic rules were being enforced, these big dairies would not be able to operate as they do, allowing a more competitive market for the small to mid-size dairies who are actually adhering to the federal requirements for organic milk.

Private-Label Brands and Transparency

Private-label brands (also known as store brands), result when a particular business, usually a retailer or distributor, contracts for production of finished, packaged products under their own label. Popular examples of this business model includes Safeway's "O Organics," Whole Foods' "365," and Trader Joe's private label. Many store-brand labels include both conventional and organic products. Other familiar businesses continue to expand into the organic market under their own private-label brands.

The inherent problem with private labels is that they lack transparency. Grocery chains or distributors are able to lower their prices because the source of their conventional and organic food changes depending on who offers the lowest price at the time. This lack of transparency contradicts the organic consumer's desire to understand where their food comes from and how it is produced. In 2006, when the Cornucopia's original Organic Dairy Report was published, more than 80% of the name-brand organic dairy marketers responded to our survey. Initially none of the private-label brands participated.

In this 2018 update, no private-label brands, including Whole Foods (who was the first private label brand to participate in the Cornucopia's original 2006 review), responded to the survey. These business are signaling their desire for secrecy. Based on federally-required dairy plant records, Cornucopia has been able to identify many of the factory farm suppliers of private-label "organic" milk.

Consumers can affect the quality of these private-labels by giving their favorite grocery chains feedback. It could be that a retail chain has good intentions, but may have been drawn in by inaccurate or misleading claims from their dairy providers. Additionally, some chains source their milk from reputable brands but, unfortunately, cling to their standard operating practice that they must keep all their sourcing secret. These retailers are forgoing a competitive advantage since the majority of all private-label brands are sourced from industrial dairies. Participating in Cornucopia's research would give them



When given accurate information instead of marketing hype, consumers have the power to enact change.

a competitive advantage, differentiating their ethical approach to organic sourcing, in the marketplace.*

Empowering Consumers and Wholesale Buyers

The organic consumer is a higher authority than the USDA, or even the federal courts, for a simple reason: consumer spending and pressure shapes the organic marketplace. If consumers demand a product that is produced to a certain standard, producers and brands will rush to fill that marketplace opportunity.

Unfortunately, the average consumer is unaware that products in the same category—organic dairy—are produced very differently, despite uniform federal standards for certification.

While it is generally true that an organic brand is always a far better choice than conventional, and while most organic dairy producers are ethical, there are some large, powerful players who are taking advantage of the lax regulatory environment at the USDA. These agribusiness giants don't want consumers to know that industrial practices such as confinement dairies—which are only

creating the illusion of proper grazing—have snuck into organic dairy.

Cornucopia's Organic Dairy Scorecard provides clear and accessible information about popular brands. Since its initial release in 2006, consumers and wholesale buyers have used the brand and farm ratings as a guide to help them vote in the marketplace for organic dairy products produced by businesses that respect their values. Their patronage also sends a powerful economic message, rewarding the true heroes in this industry and prodding those who require encouragement to change their management practices.

When given accurate information instead of marketing hype, consumers have the power to enact change. To effect this change, greater transparency among organic brands should be encouraged; without real transparency, true consumer choice in the marketplace is not possible. This report and Cornucopia's new Organic Dairy Scorecard enable all organic consumers to shape the market by supporting the highest quality dairy producers and preserving the integrity of the organic seal.†

Organic Dairy Scorecard

Cornucopia researched and rated organic dairy brands from across the country to create the Organic Dairy Scorecard. The ratings of dairy brands are based on a 19-question survey, developed with the input of industry experts, as well as unannounced site inspections, aerial photography, satellite imagery, the examination of regulatory documents, and extensive industry interviews. Brands received scores ranging from “one cow” (poor) to “five cows” (exemplary) based on their milk production or procurement practices.

The private-label brands choosing not to participate in the survey received a rating of one or two cows, based on industry sources and federal records regarding their procurement processes.

The top-rated brands are going well beyond the minimum legal requirements for organic certification set by the USDA.

* Cornucopia requests that brands disclose their sourcing, which is then confirmed in complete confidence. If a brand considers their supplier a trade secret, Cornucopia respects that. On the Cornucopia scorecard, this is reported to their customers as purchasing their milk from “a supplier of integrity” or similar language.

† The Cornucopia Institute has created industry reports and scorecards for other product sectors as well, including eggs, soy foods, snack bars, and more.

CORNUCOPIA'S ORGANIC DAIRY SCORECARD

5 COWS: TOP-RATED—BEYOND ORGANIC

This category of producers represents the “gold standard” in dairy production. Producers in this top tier manage diverse small-to-medium-scale family farms. They emphasize well-managed pasture. Pasture and other forage makes up the majority, sometimes even 100%, of their animals’ feed.

These brands generally sell locally or regionally under their farm’s name, mostly through farmers markets, food cooperatives, and independently owned food stores. Many of these brands also grow most of their own feed. The majority practice superior use of manure as fertilizer and naturally control crop pests and weeds through rotations and cover crops. These brands also have “closed herds”—raising their own replacements from the young animals born on the farm.

Top-rated producers deserve accolades for going *beyond organic*. Some long-time practitioners would argue that this is the essence of true organic farming.

4 COWS: EXCELLENT—COMMITMENT TO GRAZING

Producers in this category provide ample pasture for their animals and make a credible effort to encourage natural behaviors. These brands may get milk or feed from outside sources that are certified organic. If multiple farms produce the milk for a brand, the management has close oversight and control over the practices of those farms. Dairy products from these brands come from animals that have been raised organically, at least since the last third of gestation, even if animals were purchased off-farm.

3 COWS: VERY GOOD—COMPLYING WITH MINIMUM USDA STANDARDS

Brands with a 3-cow rating are meeting the standards to qualify for legal organic status. Many are good choices for consumers. All producers in this category appear committed to meeting at least the minimum pasture requirement. In this category, replacement animals may be purchased from outside sources, sometimes from conventional management where calves have received antibiotics and young cattle might have been fed conventional and/or GMO grains.

2 COWS: FAIR—COMPLIANCE WITH FEDERAL STANDARDS IS NOT CLEAR

These brands represent industrial-scale operations or others with outstanding questions regarding their compliance with USDA organic regulations. Private-label dairy products often fall into this category because they may be getting all, or some, of their milk from factory-farm sources. These brands may have a lack of control over their milk supply due to reduced oversight at the farms that supply their milk. None of the 2-cow rated brands was willing to participate in Cornucopia’s research.

1 COW: INDUSTRIAL ORGANICS

Brands with a 1-cow rating generally depend on industrial-scale dairy operations, some milking thousands of cows each, that almost universally skirt or misrepresent the pasture requirements. No producers in this category were willing to participate in Cornucopia’s study. Transparency is a hallmark of the organic food movement, and Cornucopia believes it is essential that producers remain open with their customers to maintain the confidence consumers have in the organic seal. At a minimum, these operations are not following the spirit of the organic label. Generally, private-label products fall into this category because of their lack of transparency and the fact that most get some of their milk from factory-farm sources.

Where Cornucopia’s investigation has found that producers may not be meeting the federally set minimum requirements for pasturing—allowing animals to exhibit their natural behaviors, or other elements of the organic requirements—a 1-cow rating has been applied. We have shared what information we have available on these operations and, when appropriate, have filed formal legal complaints with the USDA.

THE FUTURE OF ORGANIC DAIRY

THE FUTURE OF ORGANIC DAIRY lies in the hands of consumers.

The history of organic dairy shows how consumer influence has shaped the market for organic food (e.g., the powerful movement against rBGH in conventional milk that led to organic dairy's initial expansion).

Without growing demand, the industry will stagnate, and part of maintaining demand is maintaining consumer trust in everything an ethical organic label stands for.

Consumers have a vital economic impact on the direction any industry takes, both with their personal purchases and with the pressure they can place on big players in the food industry. This pressure can be based on purchasing trends, but it also relates to the often under-estimated power of customer feedback.

Consumers' opinions and changing needs affect the choices of big marketers such as Walmart and McDonald's. Large buyers like these represent a powerful economic force in the dairy industry. For better or worse, when these stores or restaurants start sourcing their products with certain animal welfare, environmental, or farm labor considerations, the industry *will* respond to those demands.¹⁷⁷ For example, McDonald's introduced its 10-year phase-out plan for gestation crates in their pork suppliers in 2012.¹⁷⁸ Though ten years is a long time, McDonald's move shows that what consumers condemned as cruel confinement made an impact on the pork industry's future.

Similar changes have occurred in the dairy industry as consumers become more aware of the problems inherent in conventional production, and the science on nutrition and environmental impact becomes more definite. As an example, many major marketers refuse milk from suppliers whose cattle have been treated with the controversial drug rBGH, due to consumer input.

Here are some of the key organic dairy industry issues to watch in the coming years:

Product differentiation. The organic dairy market is maturing, and niche markets are evolving, such as grass-fed. These niches provide consumers with high-quality products that are intended to signal differing production strategies. Consumers should inform themselves on what these marketing strategies really mean, being aware of how marketing tactics can be deceptive.* Greater awareness about animal welfare issues may also lead to greater differentiation between products.

Livestock welfare. The USDA continues to work on new rules addressing concerns regarding organic livestock welfare. At the publication of this report, the Trump administration has delayed publishing final rules the USDA released in 2016. These rules, should they be enacted in some final form, would mean some changes to how organic dairies (and other organic livestock operations) would need to operate going forward.¹⁷⁹ If implemented and whatever their final form, this rule will change the scope of how animals are treated under the organic label. As consumer understanding of animals increases, welfare will continue to be an evolving topic in the organic regulations.†

Changes to environmental regulation or enforcement. Environmental regulations, including the Clean Water Act, have serious implications for livestock factories. In the short-term, environmental regulations in different locales may affect investment decisions by corporate agribusinesses. It is possible that stricter environmental controls could have the beneficial effect of curtailing mega-dairies. Under the Trump administration, aggressive enforcement is unlikely to occur.

Livestock origin on organic dairies. The "origin of livestock" issue will continue to differentiate industrialized organics from true organic operations until definitive changes and enforcement are implemented. Without knowing whether or not livestock come from a conventional source, the consumer has less certainty about the background of the products they purchase. At the publi-

* A growing number of "organic-light" alternatives have already been introduced into the market, including grass-based conventional milk and other variations. So far, these products are being offered at a price point between conventional and organic.

† A major factor in the delays have been large, industrial-scale egg laying operations—that, due to their infrastructure, cannot provide the legally-mandated outdoor access for poultry—successfully putting pressure on Congress and the administration to derail new rulemaking that would clarify the existing mandates.

cation of this report, the Trump administration is no longer prioritizing a rule change to facilitate enforcement in the origin of livestock

Price competition and demand among niche markets. Different product demands—such as the expansion of the “100% grass-fed” market—are driving the market in new directions. Price drops in organic dairy could help bring new consumers to organics, though this will be at the cost of a thriving farmstead dairy population.

Imports of organic grain and dairy products. Current relatively high prices for organic grain drive imports to feed domestic cows and imports of organic dairy products from other countries (especially cheese).¹⁸⁰ These products are often cheaper than domestic commodities, but their organic authenticity is seriously in question. In the future, cheap “organic” imports into the U.S. may push American certified organic farmers out of the market.

After documented cases of fraud, as evidenced in a series of investigative articles by the Washington Post in 2017, and a critical audit report indicating lax oversight of imports by the Office of Inspector General, the USDA has started to move more aggressively on monitoring potentially fraudulent grain coming into this country. If integrity is restored to the organic feed industry, that could tighten up supply and raise prices, either squeezing the margins on farms further (although that is not sustainable) and/or raising prices to the consumer.

Lobbying power. Individuals and groups have enormous power over the organic market and can override economic trends. As industrial agribusinesses continue to shoulder into organic dairy, their voices will likely play a key role in how the regulatory environment and market evolves over the next ten to twenty years.¹⁸¹

Large dairy brands can come into compliance with the organic regulations. They can ensure that the animals supplying their milk have adequate outdoor access, fresh grass, sunshine, and the chance to exhibit their natural behaviors. They can procure their milk directly from family-scale farmers who generally abide by both the spirit and letter of the law, or cooperatives that represent their interests.

If all organic milk were produced in compliance with the rules, all organic milk would then have superior nutritive qualities and consumers could have justified faith in the organic seal. However, if enforcement of existing laws continues to be a problem, then consumers will need to continue to consult Cornucopia’s Organic Dairy Scorecard to assure the authenticity of their organic dairy products and to support the most ethical farms and brands and help shape the market for the better with their purchasing.

Conclusion: Stand Up For Organic Integrity

Current federal organic regulations clearly state that organic dairy producers must grant their cows outdoor access and access to pasture and require a minimum percentage of a cow’s diet be obtained from pasture. The intent of the regulations is that organic dairying works toward becoming a closed system operating in a sustainable manner.

High-integrity organic dairy comes from producers and brands who adhere to these defining principles:

Legitimate pasture access means cows are out on healthy pasture for the entire grazing season. Cows that are confined most of the day in feedlots cannot meet the organic standard: that each animal receives a minimum of 30% of their dry matter intake from pasture is key (and minimal). Cornucopia maintains that those farms that average their dry matter intake for the entire herd, including heifers and dry cows, are violating the organic regulations.

Dairy animals should receive more than the required minimum of their diet from pasture. Most of the health benefits associated with organic dairy are related to how much fresh green forage the animal gets. Grazing also increases welfare outcomes, because the animals are free to move about, get plenty of exercise, and socialize in the fresh air, and the natural diet helps prevent many diseases and conditions associated with grain feeding.

Organic animals are prohibited from being cycled in and out of organic production. Allowing dairy producers to cycle transitioned conventional animals rather than raising their own young stock organically from birth, goes against the intent of the organic standards. Cornucopia supports the plan to clarify the organic standards by requiring strict control of the origin of livestock (banning conventional heifers for replacement or expansion).

Transparency is important through all levels of the marketplace. One of the hallmarks of industrial agriculture is the need to operate behind closed doors. Legitimate organic farms are the opposite: they want their consumers to know about their production practices because these practices support animal welfare, as well as human and environmental health.

Now that industrial agribusiness has pushed into organic dairy, consumers have the difficult job of determining whether their organic dairy products come from a high integrity source. This report and its accompanying scorecard are intended to help consumers and wholesale buyers easily navigate the complicated issues in the organic dairy marketplace today.

The Organic Dairy Scorecard rates brands based on criteria that are important to industry stakeholders, including grazing on pasture, cattle welfare, adherence to organic principles, and how respectfully the actual farmers supplying the milk are treated. Consumers are encouraged to vote in the marketplace by purchasing the most ethically produced, highly rated brands.

Who owns the organic label? It has long been the premise of The Cornucopia Institute that *we all do*. With ethical production practices being challenged by industrial organics, it is time for consumers and wholesale buyers to speak up. Your dollar in the dairy aisle buys more than the product on the shelf, and your voice in regulatory debates is vital to our government's democratic process.

Transparency in our food systems is necessary to support the production of food that is beneficial for human, live-

stock, and environmental health. When producers hide or attempt to obscure their activities from organic certifiers and the public, it is an indication they are not upholding the promise of organic agriculture. The organic label is unique; it arose from farmers and consumers demanding a set of federal standards that could be enforced and backed by a rigorous and transparent system. Unfortunately, the intent of Congress and organic stakeholders, has been betrayed by a corrupted regulatory system.

The dairy report and scorecard are an attempt for all of us to "take the law into our own hands." We are the final certifiers. It takes a little bit more time and effort to identify the most trustworthy and ethical organic brands. This effort will pay dividends in terms of the safety and nutrition of the food for your family, and as a byproduct, you will be protecting the livelihoods of the organic farming movement's highest-quality and most vulnerable practitioners.

Appendix 1: The Cornucopia Institute: Organic Industry Watchdog

The Cornucopia Institute is a farm policy research group. As a tax-exempt public charity, one of Cornucopia's primary goals is acting as a corporate and government watchdog by monitoring the organic regulatory system, and industry practices, and empowering organic stakeholders to uphold organic integrity through research and education.

Cornucopia's goal is to empower consumers and wholesale buyers to make informed choices in the marketplace, choices that in turn support the livelihoods of authentic organic family-scale farmers.

The restoration of factory-farm "organic" dairies was the first issue Cornucopia focused upon following its founding in 2004, after industrial agriculture began moving into organics. When Cornucopia found "organic" milk cows living in industrial-scale confinement conditions, with zero access to pasture, the nascent organization saw a clear need for regulatory, legal, and marketplace action. Cornucopia has since worked tirelessly to bring to light the economic injustices perpetuated by these industrialized dairies.

Appendix 2: Terms Used in Organic Agriculture

In the context of this report, *organic certification* refers to a "labeling term for food or other agricultural products that have been produced using... practices that support the cycling of on-farm resources, promote ecological balance, and conserve biodiversity in accordance with the USDA organic regulations."¹⁸²

The *National Organic Program* (NOP) is part of USDA's Agricultural Marketing Service (AMS). This government body has regulatory oversight responsibilities for the USDA's organic standards and the accreditation of organic certifying agents. The NOP also has authority to take appropriate legal action to enforce the organic standards and thus protect the integrity of the USDA organic standards, from farm to market, around the world.¹⁸³ The *National Organic Standards Board* (NOSB) is an expert, volunteer advisory board made up of organic stakeholders.¹⁸⁴

A *family farm* is what consumers tend to think of when they picture a farm. Though a multi-generational model is a common occurrence in small organic producers, not every "family farm" represents a biological family's farm ownership; it could be represented by an individual or on-farm co-op. The Food and Agricultural Organization (FAO) of the United Nations determined that, almost universally, the term "family farm" is understood to indicate one where there is family labor and on-farm management of the operation.¹⁸⁵ FOA also found that the term is frequently used to encompass environmental, social, and cultural objectives that go beyond the size and orientation of the farm itself. The Cornucopia Institute finds this discussion illustrative and sees the role of family farms as

encompassing these perspectives when the public thinks about food security and rural development. FAO went on to recommend the following definition: "*Family Farming is a means of organizing agricultural, forestry, fisheries, pastoral and aquaculture production which is managed and operated by a family and predominantly reliant on family labour, both women's and men's. The family and the farm are linked, coevolve and combine economic, environmental, reproductive, social and cultural functions.*"¹⁸⁶

Through Cornucopia's research, we have found that family farms often provide the most ethical examples of sound organic production. However, we maintain that size is not the determinant: ethics is the determinant. While industrial practices are often equated with large operations, there does not need to be a correlation between size and practices. Though they may not be "family farms," there are examples of large organic producers that exemplify organic integrity.

An *organic dairy* is a dairy that is certified as organic by one of the certifying agencies accredited by the NOP. In general, an organic dairy is one where the feed is produced without the use of conventional pesticides and herbicides, where cows graze on pasture for at least a portion of their diet, and where no antibiotics, growth hormones or other drugs prohibited under the NOP standards are administered to the livestock.

The *conservation of natural resources* concerns the organic label's attempt to encourage, and sometimes require, practices that foster cycling of resources, promote

ecological balance, and conserve wild biodiversity. Ideally, organic systems “*seek to mirror nature by maintaining biodiversity on the farm and using methods that support conservation of natural resources.*”¹⁸⁷ These practices are essential in organic production, because maintaining soil and crop quality (including the grass crop needed to feed dairy cows) without synthetic fertilizers requires specific tactics that also happen to sustain natural resources.

Regenerative agriculture is a farming system that emphasizes recycling nutrients, building up and rejuvenating depleted soils, enhancing biodiversity, and overall improving the health of the land. One of the goals of regenerative agriculture is to use the soil as a valuable carbon

sink to help mitigate climate change. Organic agriculture often goes hand-in-hand with principles of regenerative agriculture.

Sustainable agriculture is the production of agricultural products “using farming techniques that protect the environment, public health, human communities, and animal welfare.”¹⁸⁸ The essential idea of sustainable agriculture is to produce healthy food without compromising the ability of future generations to do the same. It is in this way that regenerative agriculture and sustainable agriculture are often intertwined concepts, as improvement of used-up land is sometimes a necessary part of sustainable production.

Appendix 3: Third-Party Labeling

Third-party labels for animal welfare, fair trade, and other production and procurement practices are a growing market and are sometimes seen alongside the organic label. The breadth and specifics of each third-party label vary widely. Some third-party labels represent authentic animal welfare labeling, while others are actually funded by the industry, promoting the status quo in conventional, confinement livestock agriculture. These labels are intentionally misleading.

It is important for consumers to be very cautious concerning the third-party labels they allow to influence their purchasing decisions. The organic label is the only one backed by federal oversight. While third-party labels remain a valuable tool for consumer choice, it is important to consider what kind of oversight the label has for its clients and what the standards actually mean in the real world. If an industrial-scale farm is certified with a “humane” label, that label empowers big agriculture to capture niche markets once supplied by more ethical farms, placing those truly ethical and humane farms at a competitive disadvantage.

It is difficult to know if a food label is accurate or even true, and illustrations of cows grazing or even smiling on dairy labels only serves to muddy this understanding further. Fortunately, some of the terms and claims used on food labels are legally defined and their use regulated against misleading consumers. For those third-party labels that are independently audited, it is difficult to know whether those claims used on food labels are truly verified. The *Food Labels Exposed* guide produced by A Greener World¹⁸⁹ does a good job of demystifying the labels you may see on the shelf, and whether they speak to how an animal was raised or to claims of sustainability the product makes. The *New York Times* also came out with an article in early 2017 that addressed third-party animal welfare labels.¹⁹⁰ Regardless, consumers may wish to request further information from the supplier to ensure that the label really does describe the product.

The following descriptions and commentary of common third-party labels is not exhaustive and focuses on labels that address livestock production methods. Many other third party labels exist and new labels can enter the marketplace at any time. Other labels that may be found on the dairy scorecard but are not listed in detail in this section include Salmon Safe, Wildlife Friendly, Predator Friendly, and more.

Animal Welfare Approved

The Animal Welfare Approved[®] third party label has standards for dairy cattle and calves¹⁹¹ and also has standards for dairy goats and sheep. The Cornucopia Institute has great confidence in this nonprofit’s approach and we view their certification as incorporating the highest standards in the industry.

In general, the Animal Welfare Approved[®] standards are as follows:

- The Animal Welfare Approved label emphasizes a philosophy that animals should be allowed to perform all their natural behaviors.
- Each farm must be an independent farm where a family or individual owns all the animals and is engaged in the day-to-day management of the animals.
- Dairy cattle breeds must be chosen with consideration of their ability to thrive in the prevailing climatic conditions of the farm, in pasture-based, free range, outdoor systems.
- Raising calves in individual isolation is prohibited.
- Continuous outdoor pasture access is required for all animals, with a recommendation that rotational grazing be used for pasture management.
- Non-point pollution and other local environmental standards must be met.

- Minimum requirement of roughage for lactating dairy cows is 60% long fiber roughage/forage on a daily dry matter basis.
- Tail docking and dehorning is prohibited but disbudding of very young calves is allowed (though not recommended).

Certified Humane by Humane Farm Animal Care

“The Certified Humane[®] program¹⁹² was developed to certify products from animals of farms that adhere to these standards. Upon satisfactory application and inspection, farmers and ranchers will be certified and may use the Certified Humane Raised and Handled[®] logo.

Program participants are inspected and monitored by Humane Farm Animal Care annually. Charges levied are to cover inspections and program costs which include promotional materials to help promote the products of the producers that are Certified Humane[®]”

In general, the Certified Humane[®] standards are as follows:

- Dairy cows must not be treated with rBST or fed antibiotics, or substances deliberately to boost growth, feed efficiency, or milk production.
- No requirements for pasture-based feed system, but dairy systems which house cattle year-round without access to the outdoors (pasture or exercise lot) are prohibited. Note that this would not prohibit outdoor “feed lots.”
- Cattle can be confined while they are being fed, and the standards also state that the cattle must have free access to nutritious food each day, except when directed by an attending veterinarian.

American Humane Certified by the American Humane Association

American Humane Certified[™]¹⁹³ has been criticized because its standards are low—often set at or near those already placed on conventional livestock production. In fact, American Humane seems to cater to industrial-style agriculture in many respects. The New York Times article on animal welfare labeling was particularly critical of this label, stating: “[w]hile other certifying groups require complete compliance with their standards, American Humane requires only that its clients achieve 85% of the total points possible for award during an audit (although they are asked to comply fully at some point).”¹⁹⁴

Though the following constitute some of their “standards,” these standards may not be met by everyone carrying their label. Consumers should be wary of this labeling scheme and be willing to ask more questions.

WILL A2 MILK BECOME THE NEW “GRASSFED” IN THE MARKETPLACE?

There is some new buzz in the dairy marketplace about A2 milk. Like “grassfed milk” was a few years ago, A2 milk is of growing interest to consumers. What is A2 milk? Essentially, this milk has a slightly different genetics, impacting beta-casein proteins in their milk. Certain “colored” breeds of cattle are more likely to carry the gene variant that produces A2 beta-casein milk, including Jerseys and Guernseys. This variant of beta-casein may not have some of the disadvantages of A1 beta-casein, but the science is not definitive on that point.

Ironically, all milk used to be A2, until a genetic mutation affected some European cattle thousands of years ago.¹⁹⁹ Cattle in Africa, India, and other areas of Asia still produce predominantly A2 beta-casein. However, dairy with the A1 beta-casein makes up the majority of milk in the US and Europe. The predominant breed of cattle used in commercial milk production is Holstein (which can also produce A2 milk if selected for).

Recent studies seem to suggest that for some people A2 milk is more digestible.²⁰⁰ Among groups that are self-diagnosed as lactose intolerant, symptoms were shown to improve when A2 milk was consumed compared to consumption of the more common mix of A1 and A2 milk.²⁰¹ A2 milk is lauded by some individuals as a solution to their lactose intolerance.

For those interested in finding A2 milk, you may have to look beyond your supermarket shelves. While some cattle breeds are more likely to produce the A2 variant, genetic testing is the fool-proof way to ensure the product is free of A1 milk. Check with your local farmstead dairies to see if they provide this option. One brand has commercialized this sector, the A2 Milk Company.²⁰² However, this brand is conventional milk with all the potential downsides in terms of agrichemical and drug residues (in addition to animal welfare and environmental concerns).

In general, the American Humane Certified[™] standards are as follows:

- All cattle, regardless of housing, must be provided with voluntary access to pasture or areas to exercise that are not floored in concrete. The access must be “voluntary” for at least 4 hours daily, weather and climate providing. Note that this would not prohibit outdoor “feed lots.”
- Cattle can be restrained (i.e., tethered or stanchioned) while being fed, but not for more than 4 hours.

- All facilities must provide shelter, shade, and wind-breaks to allow the animals to thermo-regulate.
- Willful acts of abuse, poor body condition scores, or lameness in a large percentage of the dairy animals are not tolerated.
- An employee code of conduct record and employee training is required.

Food Alliance Certified by Food Alliance

The Food Alliance Certified¹⁹⁵ dairy producers must meet “standards for safe and fair working conditions, soil and water conservation, and protection of wildlife habitat” under their Whole Farm/Ranch Criteria¹⁹⁶ and operate in compliance with the appropriate “Dairy Criteria”¹⁹⁷ the group has listed on their site. To have dairy production certified by Food Alliance, an operation must score an average of 3 out of 4 overall in the relevant sections of the criteria they lay out.

In general, the Food Alliance standards are as follows:

- No set level for minimum pasture, but pasture rotation is encouraged.
- Low levels of animal confinement, growing feed on-farm, and holistic methods of disease and pest control for livestock and pasturage are encouraged and awarded, but not required.
- Elements of sustainability, including considerations for riparian zones, water runoff, etc., are all considered within the evaluation standards.

Certified Biodynamic from Demeter

Biodynamic farming has an independent certification system managed worldwide by Demeter International¹⁹⁸ and in the United States by Demeter USA. The Cornucopia Institute views biodynamic certification as highly-creditable. It is considered “organic and then some” by proponents, though someone can be certified biodynamic without being certified organic. This label does offer dual, USDA organic certification through their Stellar subsidiary.

Biodynamic certification requires a production system that is minimally dependent on imported materials from off the farm which, in turn, requires a diversified farm. Vegetable producers must have livestock as part of the system.

Biological diversity within the farm landscape is emphasized, and Demeter requires that a minimum of 10% of the total farm acreage be set aside as a biodiversity preserve.

Access to free-range forage and the outdoors is required.

For dairy animals, a minimum of one-half of their feed must come from the farm, and the remainder must be Demeter certified (minimum of 80% of the total ration) or NOP-certified organic (no more than 20% of the ration).

Certification and labels for “100% Grass-fed” or “grass-fed” or “forage-raised”

The Food and Drug Administration does not regulate what a label stating “grass-fed” represents. In 2007, the USDA adopted a rule requiring that a “grass-fed” claim on a label meant a claim that that product was fed a 100% grass or forage-based diet.¹⁹⁹ However, the USDA allowed for a *voluntary* verification process, allowing producers to use some form of “grass-fed” claim without following the USDA’s standards. This inconsistency has resulted in products that claim to be “grass-fed” when the cow’s diet is heavily supplemented by grain or other non-grass feed, such as corn silage. In addition, some cattle marketed as “grass-fed” are raised on sensitive public lands (this is especially true in the West) on biomes that do not support heavy ruminant grazers (though those cattle are typically raised for beef, not dairy, the two industries are somewhat intertwined in terms of consumer perception). Several independent certifications exist for products that are truly “100% grass-fed,” and all organic dairy is required to include at least a percentage of their diet from pasture.

But buyers should beware of a “grass-fed” label: it signifies what animals are fed but doesn’t distinguish whether the milk product was produced on well-managed, climate-friendly ranches that are not overgrazed—and thus have vibrant soils, clean streams, and thriving native plant and wildlife biodiversity.

The term can also be misleading because some people refer to standard organic production as being “grass-fed.” This is in spite of some organic dairies incorporating as little as 30% of the cow’s ration during the grazing season from pasture. These claims compete with legitimate dairy products that are produced by cows on 100% forage-based diets (receiving no grain).

In January of 2016, the USDA, via the AMS, withdrew its previous “grass-fed” and “forage-fed” marketing verification programs for ruminant livestock and the meat products derived from those said livestock.²⁰⁴ The AMS was quick to assure others that the removal of these standards has no impact on a person’s ability to apply to the USDA’s Food Safety Inspection Service for a grass-fed claim on their label.²⁰⁵

The old standard stated that grass, forbs, and forage needed to be 99% or more of the energy source for the lifetime of a ruminant species after weaning in order to qualify as grass-fed. In the federal register notice, AMS backed up their decision by saying that another agency within

the USDA, the Food Safety Inspection Service (FSIS), has to approve meat labels, and that there was no guarantee FSIS would approve a USDA-verified “grass-fed” label.²⁰⁶

Throughout 2016 and 2017, a number of 100% pasture-based dairy foods marketers, including Organic Valley and Maple Hill Creamery, negotiated with the American Grassfed Association to develop and implement standards for organic dairy.²⁰⁷ Those negotiations broke down, resulting in some dairies banding together to develop their own internal industry standard.²⁰⁸ For those consumers seeking dairy products from ruminants fed 100% grass, this can be particularly important because of the health benefits perceived by consumers of grass-fed dairy products.

Even in industrial systems, most beef and dairy cattle receive pasture as a component of their diet for some of their lives. For beef cattle, that generally means for the first year or so before they are moved into a feedlot for fattening on corn and other high-energy rations.

In dairy, even in “factory farm conditions,” it is most economical to graze young heifers from weaning through approximately their second year of life. And “dry cows,” milk cows between lactations, are commonly grazed as well.

Calling these animals “grass-fed” is duplicitous at best. There are some third-party certifications currently in the market:

- **Certified Grassfed by AGW.** Certified Grassfed by A Greener World (AGW) is a program started by Animal Welfare approved. Along with requiring a 100% grass and forage diet, this label purports to include other welfare considerations, including rais-

ing the animals outdoors for their lifespan.²⁰⁹

- **American Grassfed Association.** This certifying agency defines grass-fed animals as “those that have eaten nothing but grass and forage from weaning to harvest, have not been raised in confinement, and have never been fed antibiotics or growth hormones.” This standard does allow supplemental feeding of non-GMO sugar products, such as molasses.²¹⁰ Their focus has been on meat products rather than dairy.
- **Pennsylvania Certified Organic.** 100% GrassFed Organic certification²¹¹ for producers currently certified or applying for USDA National Organic Program certification.
- **Some other organic certifying agencies also certify “grass-fed” operations.** For example, the Northeast Organic Farming Association of New York (NOFA-NY) offers an additional certification for “100% Grass-Fed,” outside of the NOP’s certification program. Their program is open to all ruminant livestock operations that are currently certified organic by NOFA-NY.²¹²

Certified Naturally Grown

This label states that a product is “tailored for direct-market farmers producing food for their local communities. These farmers often find the NOP’s heavier paperwork requirements are not a good fit for their small-scale operations. CNG enables them to get credit for their practices while offering accountability to their customers.”²¹³ This nonprofit endorses farmers with livestock standards that are based on the NOP’s standard, with a few specific modifications.²¹⁴ Farms are verified by a farmer’s peers, however, rather than by government or third-party inspectors.

Appendix 4: The Organic Dairy Production Survey

The initial step in our rating system was to send the following survey to all certified organic dairy marketers who had products available at retail:

The Cornucopia Institute Organic Dairy Production Survey

Please return this survey by mail or electronically. Contact Jason Cole at cole@cornucopia.org or 608-637-8278 with any questions or to request an electronic copy to fill out. You are encouraged to manipulate the spacing on this document as needed (or add additional pages, if you are completing this in hard-copy form; please indicate what question you are answering in added pages).

Some questions request additional documentation to verify the answers given in the survey below. The Cornucopia Institute respects your confidential and proprietary information. Any proprietary information, background documents, producer contact information, and any samples of newsletters or other written farm standards will be held in strict confidence and not shared with the public or outside entities.

Many of the questions ask for information about your five largest farms. All the questions in this survey may not apply to you. For example, if you contract for 100% of your milk supply or finished packaged products (as with a private label) you only need to answer questions relating to your type of business. In addition, not all the questions will impact your ultimate score but instead will provide the consumer with further individual feedback about their favorite dairy brands.

You may also distribute this survey to your individual farmers-suppliers. If all your producers answer the survey it will improve your overall score (affording you bonus points). We would be happy to distribute a similar survey, edited specifically for your producers, on request.

1. Ownership Structure: Please describe the ownership structure of your organization. In addition, please disclose, as per SEC filing requirements, any major shareholders with stakes exceeding 5% if you are a corporation, partnership, or LLC.

2. Milk Supply:

- a) Please describe, with specifics, where you obtain your milk supply, or finished products if you contract for production. If your supply comes from different sources (company-owned farms, independent producers, cooperative suppliers, open-market milk), please specify percentages or pounds of milk from each source for 2015.

b) Do you have standards/requirements, over and above USDA organic regulations, that your farm(s) and/or other suppliers follow? If so, what are those standards and how do you monitor compliance?

3. Organic Production: Please specify if you market *only* certified organic dairy or *both* organic and conventional dairy products.

4. Size of Farms: Please provide the number of farms supplying milk in each size category, as delineated by the number of milk cows (0–49, 50–99, 100–199, 200–499, 500–999, 1000–4999, 5000+ cows).

5. Large Farms: Please supply full contact information, number of cows, pounds of milk produced, and the organic certifier for your five largest farms.

6. Organic Certification:

- a) *Timing.* How long have you been certified organic?

- b) *Certifier.* What accredited certifier(s) performs your certification? Please specify certifier of both your farm(s), processing, and products. If there is more than one certifier please describe which products are certified by which organizations.

7. Other Labels and Standards: Please specify if your farm(s)/brand is third-party certified (as identified on your packaging) by any organizations other than USDA Certified Organic (e.g., Animal Welfare Approved, Certified Humane, Food Alliance, Biodynamic, Salmon Safe, Wildlife Friendly, Certified Naturally Grown, and others).

8. Grass-fed: Do you advertise any of your products as “100% Grass Fed,” “Grass Fed,” or with a label indicating a grain-free diet for lactating cows (or any other statements related to pasture/grazing/etc.)?

If you do, what are your grass-fed standards or requirements and how do you ensure compliance to those standards or requirements?

9. Soy: Some consumers are interested in a soy-free ration. Are any of your dairy products produced without soy? If so, do you advertise any of your products as “Soy Free” or similar marketing claims? *Note: This answer is for informational purposes only and will not affect scoring.*

10. Pasture:

- a) *Season.* Please state the average *start* and *end* times for your pasture season for each of your five largest farms.

- b) *Pasture acreage available.* For your five largest farms, please specify the acreage of pasture available for each operation (and please specify if hay is cut on any of this pasture).
- c) *Number of days.* For your five largest farms, how many days on average are the cows out on pasture? For each of these farms, what percentage of dry matter intake do these cows receive during the pasture season?
- d) *Pasture management.* Describe how the pastures are managed by your five largest farms.
- e) *Exemptions.* During the pasture season, when do you allow cows to be confined and why?
- f) *Dry Matter Intake.* What is your average DMI% for the grazing season?

11. Times Milked: On your five largest farms, how many times per day are the cows milked? Please specify if this number changes depending on the season or stage of production, and/or if you have special milking procedures (for example: free-milking using robotics).

12. Cull Rate:

- a) On your five largest farms, how many cows were sent to slaughter in 2015? If there were any mitigating circumstances (for example: a planned downsizing, or culling for Johne's disease control), please feel free to elaborate.
- b) On your five largest farms, what is the culling rate for animals that have to be removed from the herd for health reasons in 2015?
- c) **Death loss percentage.** What is your annual death loss percentage (annually or over the life of the herd) on your five largest farms? What are the most common causes of death? What do you do with dead livestock?

13. Replacement Heifers: On your five largest farms:

- a) *Replacements.* Do you:
 - i. Raise all your own replacement cattle (closed herd);
 - ii. Have your replacement cattle custom raised; or
 - iii. Purchase replacement cattle (please specify source).

- b) *Purchases.* Please supply the average yearly number of replacement cattle (heifers and cows) purchased on your five largest farms.

- c) *Commercial Heifers.* Does your organization allow purchasing cattle from conventional farms if they are managed organically one year prior to milking? (This is currently allowed by the USDA for some farms, depending on how the producer transitioned.)

14. Calves: Please describe any creative, nonstandard procedures used for raising calves on your five largest farms. *For example: are they raised exclusively in group housing, kept with their mothers in the pasture or with some other methodology?*

15. Antibiotic Use: Does your brand allow antibiotic and other pharmaceutical treatments of calves, young stock, or cows, on the farms, as long as they are managed organically for one year before being brought into organic production?

16. Hormone Treatments: Other than the production-enhancing hormones (BGH/BST), which are prohibited from use in organics, are any therapeutic hormones used on the farms supplying your milk or on your heifers if raised elsewhere? Please specify.

17. Farm Support: Do representatives of your company visit each farm, or do you exclusively depend on the independent third-party certification process or some other third party?

a) If your personnel visit the farms, how many times per year? What do they check for?

18. Procurement of Ingredients/Components: Does your operation buy dairy ingredients or products?

- a) If yes, please indicate which of the following dairy products your operation purchases and from whom.
- i. powder
 - ii. whey concentrate
 - iii. milk protein concentrate
 - iv. cheese
 - v. butterfat
 - vi. buttermilk
 - vii. other component (please specify)
- b) Are any of the above ingredients imported? If so, please specify the countries involved, the supplier and the certifier(s).

19. Marketing area: Please let us know where consumers can find your products available at retail.

Thank you for completing our questionnaire!

Note: Please specify what documents you can make available, or what other methodology can be used, to help verify the information you supply for each question.

If your company is a publicly traded corporation or a cooperative, please supply your most recent annual report. If a new individual or corporation has acquired over 50% equity in your organization during the past 24 months, please supply the most recent annual reports from both organizations.

Farm or Business Name: _____

Brand Name: _____

Farm Owner or Officer's Name: _____

Title: _____

Signature: _____ **Date:** _____

Signatory must be a corporate officer, general manager or owner. Emails of electronic documents from one of these individuals will be accepted in lieu of a signature.

Please return to: The Cornucopia Institute, P.O. Box 126, Cornucopia, Wisconsin 54827 or fax (866-861-2214); or scan and email to Jason Cole at cole@cornucopia.org; or fill out form electronically and email to Jason Cole at cole@cornucopia.org.

Appendix 5: Dairy Survey Cover Letter

The survey above was sent to the owner or CEO along with the cover letter below:

Thank you for producing high-quality and nutritious foods. We appreciate your hard work and commitment to organics.

Consumers expect the organic label to signify ecological stewardship, humane animal welfare, and economic justice for family farmers. Unfortunately, lax enforcement by the USDA allows for the production of “organic” dairy products while paying only lip service to the spirit of the organic regulations. This is a betrayal of consumer trust and places ethical dairy producers, and their marketing partners, at a competitive disadvantage.

The Cornucopia Institute is an independent, non-profit farm policy research organization, providing widespread public education on and promotion of organics and related issues. Based in Wisconsin, we are credited with having more certified organic farmer-members than any similar organization. Our research on organic food and farming issues has been accessed by millions of consumers.

In 2006, our research on the subject led to a published report titled ***Maintaining the Integrity of Organic Milk***. The *New York Times* covered the release of the Report in an exclusive article. In conjunction with the report, we published the original Organic Dairy Brand Scorecard, rating brands of organic dairy products based on key criteria associated with the best organic management practices. These resources can still be found on our website (www.cornucopia.org).

Now, we are updating the dairy report and scorecard to empower consumers and wholesale buyers **with the ability to make informed decisions**. Your completion of the attached questionnaire is a vital piece to maintaining transparency and trust in the organic label! In addition, your participation in our research will reflect well on your brand’s integrity.

To ensure the accuracy of this survey, we are requesting that the responses be signed by an owner, general manager, or corporate officer. If using email, we ask that the completed questionnaire be sent from the aforementioned authority’s address. If requested, we can also email a copy of the questionnaire in an electronic format where it can be easily modified.

The Cornucopia Institute will respect your confidential and proprietary information and will hold any such information in strict confidence.

If you have any questions or need additional background information, please contact us, and we will be happy to assist you.

Kindly,



Marie Burcham, J.D.
The Cornucopia Institute
PO Box 126
Cornucopia, WI 54827

Appendix 6: Organic Dairy Scorecard Ratings—Assumptions

Ownership Structure

Cornucopia considered each dairy brand’s ownership structure. We collected this information because ownership structure relates to the control and verification of marketing claims. In practical effect, a farmer who lives and works on their dairy is going to have more control over their supply than a corporate officer coordinating purchasing from dozens or hundreds of individual farms. This is also true of brands that blindly accept the claims of their suppliers of raw milk, or finished products as with private-label brands from other organizations.

The majority of the dairy brands that voluntarily participated in our study are independent and family-owned and produce all of the dairy products they market under their brand. The next highest rated ownership category is family-owned businesses that produce some dairy products themselves and buy raw milk from other family farmers to supplement their own production.

1. Ownership structure	
100	Farmstead dairy (owned and operated by farm family)
90	Farmer-owned cooperative (or similar)
80	Family-owned business—close ties/partnership with farmers
70	Corporate/investor owned—deep roots/ties with farmers
60	Investor-owned corporations and LLCs
25-50	Investor-owned corporation with questionable track record
0-25	Any ownership structure with history as “bad actor.”
0	No answer

Milk Supply

A brand’s milk supply is a primary driver in how much control the brand has in conforming to the marketing claims they make in public and to the standards they have articulated in their survey to Cornucopia. Cornucopia finds that brands with strong control over the quality of their raw milk are more likely to produce ethical products. In this respect, hands-on brands that either participate in milk production or have a strong review process and internal standards garner a higher rating.

2. Milk supply	
100	Farmstead dairy—100% of milk from farm.
95	Farmstead dairy—buys additional milk from neighbors
90	Cooperative /multiple farms—own patrons
80	50% own patrons plus a highly rated supplier
70	Purchases outside milk from highly rated suppliers
50	Purchases outside milk without direct control
0-30	Purchases some percentage of milk from “open market”
0-30	Purchases some percentage of milk from confinement dairies (depending on percentage)
0	No answer

Organic Production

Brands that focus exclusively on organic production are generally more dedicated to organic integrity. They truly have “skin in the game.” If the organic label is untrustworthy in the eyes of the consumer, these dedicated brands could lose big. Cornucopia asks for this information to determine a brand’s “commitment to organics.”

“Split” operations have to juggle keeping organic and conventional products separate. The practice of organic and conventional production taking place on the same farm is not forbidden under the organic standards. It’s a weakness in the USDA standards.

3. Organic production	
100	100% organic farm(s), brand does not market conventional
70	Brand markets both organic and conventional dairy products that come from organic-only or conventional-only operations
60	Company markets only organic, even though the dairy farms may have both organic and non-organic
40	Split operations with organic and conventional dairy production on different properties
20	Split operations with organic and conventional dairy on same property
0	No answer

Farm Size

In this set of questions, brands were asked to give information regarding their largest farm suppliers. This data was used to fact check other answers, including whether a farm’s pasture would be adequate to support the number of cattle.

4-5. Size of farms/large farms
This information was provided so that Cornucopia could fact-check the brand’s other answers. This goes to the brand’s transparency score.

Organic Certifier

Cornucopia takes into account a brand’s certifier because some have a better track record than others. Certifier scores reflect their treatment of operations that are skirting the law. Certifier policies are also taken into account. In general, Cornucopia gives certifiers the benefit of the doubt until the certifier is caught in some wrongdoing (for example: certifying operations that have been found to be operating illegally).

6. Organic certification	Certifier
100	Baystate Organic Certifiers
100	Organic Alliance International
100	Maine Organic Farmer’s and Gardener’s Association (MOFGA)
100	Maryland Dept. of Agriculture
100	Midwest Organic Services Association (MOSA)
100	Montana Dept. of Agriculture
100	Nature’s International Certification Services (NICS)
100	New Jersey Department of Agriculture
100	Northeast Organic Farming Association (NOFA)
100	Ohio Ecological Food and Farming Association
100	Oklahoma Agriculture Department
100	Organic Crop Improvement Association
100	Stellar Certification Services
100	Utah Dept. of Agriculture
100	Vermont Organic Farmers (VOF)
100	Washington Dept. of Agriculture
100	Marin Organic Certified Agriculture (MOCA)
100	Organic Certifiers
100	International Certification Services (ICS)
100	EcoCert ICO
100	A Bee Organic Certified
100	Global Culture

6. Organic certification Certifier (continued)	
100	Organic Certifiers
100	New Mexico Dept. of Agriculture
100	OneCert
85	Pennsylvania Certified Organic (PCO)
85	New Hampshire Dept. of Agriculture
85	Natural Food Certifiers
85	Quality Certification Services (QCS)
85	Iowa Department of Agriculture
75	Colorado Department of Agriculture
75	Texas Department of Agriculture
75	California Certified Organic Farmers (CCOF)
75	Quality Assurance International (QAI)
75	Global Organic Alliance
75	Oregon Tilth Certified Organic (OTCO)
0	No Answer

Other Labels and Standards

The USDA organic label is the only federally backed label that verifies how a product was made. While the USDA organic label is important, some third party labels do provide reliable information about a product that the organic label may or may not cover. As already discussed in this report, some of these third-party labels can be misleading. For example, a “Non-GMO” label is redundant if alongside the organic seal, because all organic products are required to be produced without using GMOs or ingredients that were produced with GMOs.

Our rating system is based on the third-party label standards and especially on their oversight. Consumers will find that those labels Cornucopia rates highly add something above and beyond organic certification.

7. Other labels and standards	
100	Animal Welfare Approved, Biodynamic Certified (Demeter Association)
90	Certified Naturally Grown
80	Salmon Safe, Wildlife Friendly, Predator Friendly, PCO 100% Grassfed Certification
60	Certified Humane (HFAC), Food Alliance Certified; American Grassfed Certified
40	American Humane Certified (AHA), Global Animal Partnership, Non-GMO Project verified
0	None, no answer

Grass-Fed

As discussed in this report, the market for “grass-fed” dairy is blossoming. All organic dairy cows are required to spend some time on grass, so many organic dairy products advertise as “grass-fed” even if they are not 100% grass-fed. Top scores are given to those brands that have some outside verification that they are truly “100% grass-fed” (note that “100% grass-fed” may still mean these animals eat stored hay or other forage in the winter, along with non-grain supplements).

8. Grass-Fed	
100	100% grass-fed with independent verification of standards or independent requirements and practices that ensure compliance
90	100% grass-fed farmstead dairy with individual standards
50-80	Markets “Grass-fed” or “pasture-raised” and/or has over 50% DMI from pasture during the grazing season (feeds some grain)
40	Confirmed that the brand meets minimum organic standards for grazing
0	No answer

Soy-Free

Because soy is a common allergen, many consumers are interested in products that are soy-free. Other consumers (as an example, those who follow a diet recommended by the Weston A. Price Foundation) also try to eliminate soy from their diets. This information is provided for consumer benefit without any associated rating. Some dairies feed soy as a protein source. If a brand is 100% grass-fed, it is assumed that brand is also “soy free,” even if they do not advertise as such.

9. Soy-free ration

Added for additional information to consumers.

Pasture Access

In general, the best animal welfare and pasture quality occurs when you see dairies that allot at least one acre per cow or more (that designation will vary for goat and sheep dairies, given the difference in animal size). In areas that grow exceptionally good grass, two or more cows per acre can possibly be accommodated with excellent management, so location is factored in as part of the scoring equation (as is irrigation for pasture, where necessary).

How a farm grazes their cattle also affects the quality of their milk. For example, many dairies use rotational grazing practices, where larger pastures are split into smaller subsections. These sections are then grazed until the grass is at a certain point, and then the cows are moved to a fresh strip or paddock and the old acreage is allowed to “rest” and regrow. This ecologically sound practice not only prevents environmental degradation but also produces milk with superior nutritional components.

Cornucopia stands by the principle that larger farms can graze their cows just as well as small farmstead dairies, given the desire to do so and the requisite management expertise. However, in practical terms it is difficult to graze large numbers of cows.

10. Pasture

Rating is based on the following criteria: a) policies requiring pasture in addition to USDA regulations, (b) enforcement/oversight, (c) amount of acreage available per cow on the brand’s largest farms, (d) average days cows are on pasture per year, (e) permissible exemptions.

Number of Times Milked

It is standard practice for family-scale and organic dairies to milk their cows twice a day. Those dairies that milk three and four times a day are pushing their cows hard to maximize production. This production model requires feeding higher levels of grain and other feed concentrates and impacts how long cows can be outside, grazing on pasture. The welfare of a dairy animal is impacted when they are pushed for high production often resulting in short, stressed, and unhealthy lives.

11. Times milked

The standard is 2x a day; denote for consumers if non-standard.

100	One time per day
90	Two times per day (standard practice)
25	Three times per day
0	Four times per day or no answer

Cull or Death Rate

Although it is not common, healthy and productive cows can and do live beyond ten years of age. In intensive factory farm dairies, a cow’s life is truncated by the stress of a high-grain diet and intensive milk production. These industrial cows often only live to be 3 to 5 years old before they are culled (sent to slaughter).

One indication of an ethical and productive organic dairy is that they will have surplus young cattle to sell, rather than having to purchase replacements. To Cornucopia researchers, a high cull rate coupled with buying replacements from outside sources raises red flags. This combination could be an indication that the brand's farms are buying conventional heifers, taking advantage of the perceived "origin of livestock" problem. For this rating, Cornucopia took into account planned downsizing (which would make a brand's cull rate look higher than otherwise warranted) and other mitigating factors, including healthcare concerns.

12. Cull/death rate	
Rating is based on the health and longevity of a farm's cattle, taking into account the farm's slaughter rate/cull rate.	
100	Under 10% annually
75	Under 15% annually
15-60	Over 15%
0	Don't know or no answer

Replacement Cattle

A "closed herd" is one where the brand's farm(s) raise all their own replacement cattle. In short, the female calves born to the milking herd are used to replace lost or culled stock. This gives the farmer the most control over their stock and exhibits their dedication to organics. It also allows farmers to have close control over their herd genetics and assures a higher level of biosecurity.

Purchasing conventional animals and transitioning them to organic production is something Cornucopia downgrades.

13. Replacement Cattle	
100	Closed herd
90	All replacement animals managed organically from last third of gestation
0-50	Conventional animals purchased (depending on percentage of herd)
5	Calves sold at birth and conventional cattle purchased to replace via transitioning
0	No answer

Calves

Unique ways of managing calves or other young dairy animals include keeping them with their mothers for an extended period of time, using nurse cows, integrating calves in with the dairy herd, etc.

14. Calves	
80-100	Unique way of managing calves
70	Remove calf from mother shortly after birth (standard practice)
0	No answer

Antibiotic Use

In general, antibiotic use is prohibited in organic production. Any cows that need to receive antibiotics for their health must immediately be removed from the milking herd (and they are not allowed to return to the milking herd). However, some certifiers have permitted slight modifications to this prohibition (allowing young stock, prior to a year before being milked, to receive antibiotics). In our opinion this practice is not legal. Cornucopia is also interested in noting those brands that purchase conventional cattle as heifers and rotate them into organic production. These animals may have been lightly administered antibiotics as calves.

15. Antibiotic use

100	All antibiotic use prohibited
75	Not regulated by firm (default to some certifier standards where antibiotic use allowed during first year of life)
60	Milk withheld for one year before considering organic again
25	Commercial replacement cattle purchased—antibiotic use unknown
5	Calves are sold (to take advantage of loophole), and managed conventionally for first year of life
0	No answer

Hormone Usage

Growth hormones are not allowed for use in organic production. However, some reproductive hormones are allowed for therapeutic use. Oxytocin is currently allowed for “use in post-parturition therapeutic applications.”²¹⁵ In laymen terms, oxytocin is typically used to help cows recover from a difficult birth. Some dairies, however, do not ever use this hormone, even for therapeutic applications.

16. Hormone usage

It should be noted that hormones for increasing milk production (genetically engineered bovine growth hormone—rBGH/rBST) are prohibited in organic dairy production. Some farms choose to use therapeutic hormones during reproduction (oxytocin).	
100	No hormones used on farm
50	Hormones used therapeutically
0	No answer

Farm Support

The rating for “farm support” has everything to do with oversight. In the words of one farmstead producer, when asked for how often their farms are visited by company representatives: “We live here.” Characteristically, farmstead dairy producers are with their cows every day and personally supervise the production of the dairy products. Some organizations have a dedicated field staff, or the owner visits with the organic farmers regularly. Others might visit annually or exclusively depend on certification and inspectors (which do not typically verify proprietary standards over and above what the USDA mandates).

17. Farm support

100	Farmstead dairies (owner farms/lives on-site)
90	Cooperative/corporation that sets standards and has a staff that visits farms regularly (or similar situation)
80	Visits a minimum of once a year
60	Depends on trusted third-party for supervision
5	No direct supervision/no personal relationship with farm
0	No answer

Procurement of Dairy Ingredients/Components

Some products are produced using other dairy ingredients or components. For example, some yogurts might require milk powder in their formulation. Because other ingredients or components are part of the big picture in an organic dairy product, it is important to ensure they come from a high-quality organic source. After all, they represent, indirectly, milk production that may or may not be commensurate with the quality of the milk they produce themselves or purchase (to which the balance of these survey questions apply).

18. Procurement of Ingredients/Components

100	Full control—100% of dairy products come from within the organization
90	Outside purchases are confirmed from other highly rated dairy organizations
50	Dairy ingredients purchased from a number of different vendors, with less direct control

18. Procurement of Ingredients/Components (continued)

25	Purchases from anonymous suppliers—"open market"; purchases internationally
0-24	Purchases ingredients from confinement factory farms (depending on percentage) or imports
0	No answer

Marketing Area

The marketing area is provided for consumers to assist in finding highly rated brands. This information is included so that consumers can search by their state and also get details about which retailers may carry specific products.

19. Marketing area

Information about where consumers can find this brand's products available at retail.

Extra Credit

Extra credit opportunities emphasized brand transparency and willingness to open their inner-workings to investigators. Transparency is avoided by factory-organic brands and so can be one distinguishing factor between ethical and factory-organic brands.

Extra credit included producers sharing their organic systems plan (OSP). The OSP is a detailed description of the practices and procedures used by an organic operation to produce whatever organic goods they have. Operations must update their OSP annually or as changes occur (this document is supplied to the inspectors on an annual basis).

Worry of widespread fraud with grain imports has been circulating for over a decade in the organic farming community. A number of imports have been sold at low prices that domestic markets cannot compete with. In 2017, investigative reporters brought expanded exposure to the fraudulent grain imports issue. In other words, grain is being imported under the organic label that is not actually organic. This has widespread effects on organic livestock operations, including dairy.

We asked dairy brands that had already completed the survey the following follow-up questions with respect to imported feed;

Do you produce 100% of the feed for your dairy animals?

If you purchase feed do you have any procedures in place to assure that it is from 100% US production? Please explain your process.

Note that for the grain imports questions, extra credit was given such that it would not otherwise impact the overall scoring category (number of cows), though it would affect the brand's placing within that category.

18. Extra credit

Several questions were asked in addition to the original survey questions that would ultimately give producers "extra credit" points.

75	Provide full organic systems plan (OSP).
75	Provide the contact information and details about every farm supplier instead of just the five largest (if a brand with more than five supplier farms).
100	With respect to the concern of fraudulent grain imports, this dairy produces 100% of their own feed (including 100% grass fed).
80	This dairy gets all of their feed from domestic sources.
50	This dairy gets all of their feed from "open source" certified organic feed but were transparent enough to share that detail with us.
25	This dairy responded and purchases some imported feed and some domestic feed.
0	This dairy purchases only imported feed.

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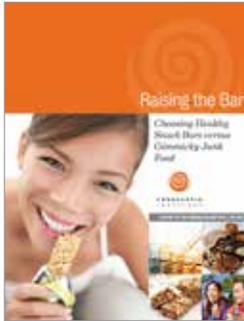
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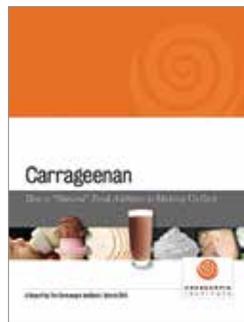
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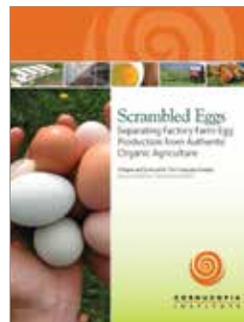
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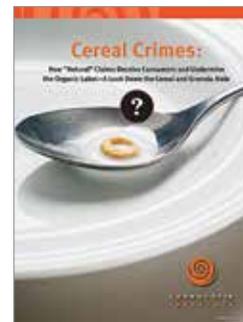
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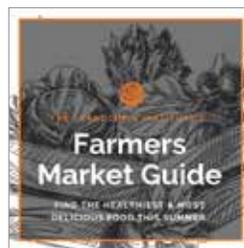
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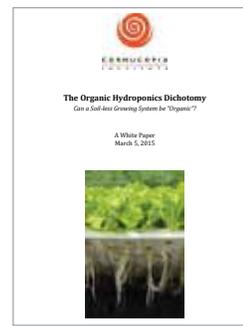
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