

LEVELING THE FIELD – ISSUE BRIEF #5

Milking the System:

How Corporate Power Impacts Dairy Producers, Consumers and Communities— And How We Can Regain Control Over Our Dairy Supply

This issue brief is the last in a series called *Leveling the Field*. Earlier briefs have taken a bird's-eye view of the many challenges facing livestock producers and workers, agricultural communities, and food consumers in the United States. We've looked at how a small group of very large companies—companies like Tyson, Smithfield, and Cargill—is shaping our food system in the interest of profits rather than environmental or community health, nutritional well-being, or long-term sustainability. We've also looked at the ways that communities and organizations are responding to these challenges: improving the system we have while building new alternatives that bypass big corporate players.

This issue brief will take a more in-depth look at one livestock-based product in the food system: milk. Dairy products are a major component of many of our diets. Unless we buy our milk, cheese, or yogurt from a local farm, though, we may not have a very good sense of how these products get from farm to fridge—not just who produces milk, but what happens to it as it moves through the supply chain and how it affects the environment and other factors along the way.



Dairy CAFO. Photo: factoryfarm.org

We've probably all heard the story about the child who, when asked where milk comes from, responds "from the grocery store!" Trying to explain to that child where milk *actually* comes from is far more complicated a task than we might imagine. Yes, it comes from a cow; but from there, most milk is shipped to a regional dairy cooperative and pasteurized; priced using an arcane federal formula based on cheddar cheese sales at the Chicago Mercantile Exchange; sold to a processing company with which the co-op holds a long-term contract; processed into any number of different products

(at which time it may be mixed with an imported "dairy derivative" called milk protein concentrate that is not approved by the FDA as a safe food substance); sold to retailers who may also hold long-term contracts with the processing company; marked up in price; and finally bought by that child's family. Whew! Along the way, large-scale milk production leaves a stream of manure, air pollution, antibiotic residues, and growth hormones in its wake.

There's no question that the U.S. dairy industry is complex. If we want to improve it, though, we have to understand it. Below, we'll review the process of dairy production, looking at exactly how milk gets from cow to carton and who benefits most from the production and sale of dairy products. We'll end by providing some hopeful examples of the ways that small and mid-sized dairy producers, consumers, and innovative businesses are working to build a new system.

Milk production: A slippery slope to health and environmental problems

Our milk supply has changed rapidly over the last twenty years. Until the early 1990s, the milk industry was dominated by small- and mid-sized regional dairy companies; most consumers could be reasonably certain

that their milk came from close to home. Managing land for feed production, water for the cows, and manure storage and use on local operations required extensive knowledge and intensive management by farm families.

Today, the U.S. dairy industry looks quite different. Low milk prices have driven out many of the smaller dairies and large operations in the West now dominate milk production. Much of the feed they use is produced in the Midwest and shipped across the country. Mechanization has replaced a lot of the labor required on dairy operations. California recently surpassed Wisconsin, the iconic dairy state, as the No. 1 dairy producer in the nation; over 20% of all U.S. milk comes from California, most from the San Joaquin Valley in the central part of the state. Pennsylvania and New York are still major players in the dairy market, but western states like Idaho and New Mexico are increasing their milk production rapidly.¹

This is just one example of the paradoxical logic of industrial agriculture: dairies are concentrating in areas where water supplies are extremely stressed. Industrial dairy operations use more than 150 gallons of water per cow every day.² In California's Central Valley, dairies may house as many as 10,000 cows each. The Colorado River and the Ogallala Aquifer are two major water sources for the dairies of the Southwest, and both are being rapidly depleted.



Cows in a Missouri CAFO. Photo: factoryfarm.org

As the size of dairies has grown, manure management has become a big problem. The large confined operations house thousands of cows in enclosed barns. Manure from the barns—each dairy cow produces almost 44,000 pounds of manure per year³—is flushed out and stored in lagoons several acres in size. Some of the manure is spread or sprayed on fields as fertilizer, but many dairies lack sufficient land to spread all of the manure that thousands of cows generate. As a result, the manure either sits in the lagoon, where it may leach into the soil or groundwater over time, or it is applied to the land at rates much higher than appropriate.

Manure is high in nitrogen and phosphorus—nutrients fundamental to plant growth—but in high concentrations, these nutrients contaminate soil, leach into groundwater and rivers, and cause dangerous algae blooms that deprive marine life of oxygen. If nitrogen gets into wells or other drinking water sources and is consumed

in high concentrations, it can cause a fatal disease called blue baby syndrome, in which a baby's blood becomes unable to carry sufficient oxygen, or other dangerous health problems. In areas like the San Joaquin Valley, nutrient contamination of ground and surface water is a significant concern to residents. Unfortunately, these communities tend to be poor in both income and political power, so many of the problems go unaddressed.

Large quantities of manure become an even bigger problem when the manure contains antibiotic residues and other undesirable elements. In order to keep cows from becoming sick when packed into confinement barns, producers are encouraged to feed the cows low ("sub-therapeutic") levels of antibiotics. Some 70% of antibiotics used in the United States are fed to animals who are not sick.⁴ Many cows—54% of those in large dairy operations—are also injected with a growth hormone called rBGH that increases the amount of milk they produce.⁵ rBGH increases the incidence of mastitis, a bacterial udder infection, which must be treated with still more antibiotics. Antibiotic residues are then excreted in cow manure along with other contaminants and find their way into ground or surface water.⁶

Members of the scientific community have expressed concern that the residues will increase antibiotic resistance and put human health at risk. Doctors report a growing number of illnesses that no longer respond to antibiotic treatment.⁷ The American Medical Association now opposes the use of antibiotics in farm animals that are not sick.⁸

Air pollution is yet another negative consequence of industrial dairy production. When cows are concentrated in one area, the dust, odor, and gases they produce are concentrated as well. Dust and toxic gases such as ammonia and hydrogen sulfide cause respiratory problems such as bronchitis and asthma, flu-like symptoms,⁹ or nervous system impairment¹⁰ in local residents and workers. Dust particles from dairies, pollution from farm equipment, and pesticides used in crop production have combined into a toxic cocktail for children in California's Central Valley: one out of every six children in the region suffers from asthma.¹¹



A manure sprayer sends particulates into the air. Photo: factoryfarm.org

Industrial dairy production is not a sustainable system, and in the long run it makes neither economic nor ecological sense. Industrial dairies, particularly those in the West, drain water resources and require long-distance feed shipments. They foist health and environmental burdens on workers, communities,

and public services by polluting the air and water resources. They erode the effectiveness of antibiotics needed to treat serious human illnesses. And growth hormones and confinement conditions raise serious animal welfare concerns.

Dairy marketing: Powerful players, paltry prices

Co-op control

It's difficult for an individual farmer to produce enough milk to market it independently. The infrastructure needed to pasteurize and process milk is quite costly. It's also hard for consumers to differentiate between one kind of milk and another; that makes niche marketing a challenge for dairy producers who do not have direct relationships with their customers. To get around these problems, dairy farms have traditionally pooled their milk in regional co-ops that market milk for the entire group. Today, many co-ops sign long-term contracts with dairy processors, something that individual producers could never do alone. 83% of milk produced in the U.S. is now marketed through dairy cooperatives.¹²

There are very real benefits to producers from marketing through a co-op. It makes economic sense for them to work together rather than try to market their milk independently. But surprisingly, the major dairy co-ops that exist today seem to be making life worse rather than better for dairy farmers.

The role of co-ops in the production chain that brings milk from the farm to our kitchens is confusing, but important to understand. One key piece of information is that the number of dairy co-ops has declined rapidly in recent years; it fell by 48% between 1980 and 1997, from 435 to 226.¹³ By the late 1990s, over 65% of the milk in the U.S. passed through one of twenty large dairy cooperatives. The trend has only accelerated since then. Dairy Farmers of America (DFA), the largest co-op in the country, was created out of a merger of four regional cooperatives in 1998. DFA has an estimated 24,000 farmer-members and controls nearly 35% of the nation's fluid milk supply.¹⁴

Although DFA is a cooperative, its size and market power mean that management decisions do not always reflect the interests of the co-op's farmer-members (or, for that matter, the interests of U.S. dairy farmers generally). For example, DFA owns a for-profit dairy company called Borden. Much of the cheese sold under the Borden name is imported from other countries—so ironically, a DFA-owned company is undermining the market position of

Government intervention in commodity markets

In the 1920s and 30s, some economists and policymakers recognized that commodity markets—markets for products like milk, corn, and cotton, where one farmer's product cannot be differentiated from another's if they're mixed together—behave differently than other markets. There are thousands or millions of individual producers, none of whom can affect the price of milk just by deciding to independently produce more or less. As a result, when prices fall, dairy and other commodity producers generally do not respond by reducing production. Instead, they continue to produce at the same or higher rates in order to maximize income despite low prices and to spread their fixed costs—cows, barns, equipment they owe money on—over as much output as possible. The combined result of lots of producers all producing more is overproduction and still lower prices. The tendency of commodity markets toward overproduction and low prices was the rationale behind government intervention in these markets in the first half of the 20th century. As these policies have been dismantled, production has risen and prices have fallen, leaving family farmers in the lurch.

the co-op's own domestic producers. DFA has also acquired market power by signing long-term contracts to be the exclusive supplier to big dairy processing companies. Because it collects such a large volume of milk and controls a national milk-shipping infrastructure, it can quickly funnel milk to processors in new areas, undercutting the market for local independent co-ops and forcing them out of business. (This trend is similar to one taking place in the supermarket sector; see Issue Brief #3 for more information.) Their producers must then either join DFA or exit the industry.¹⁵

In part, the power of marketing co-ops like DFA comes from the structure of federal milk laws. Beginning in the early 1930s, policymakers set a minimum price—called a **price floor**—that dairy processors must pay for milk and other dairy products. The price floor essentially guarantees dairy farmers a “minimum wage” for their production. While the prices vary from region to region, fluid milk always receives the highest price from processors, while cheese and butter receive lower prices.¹⁶

Under what are called **federal milk marketing orders**, producers selling to processors from within a certain region are considered in the same marketing pool. Producers in that pool receive a “blended” price for their milk from processors, an average of the fluid milk, cheese and butter prices dictated in the marketing order. The system benefits dairy farmers in the sense that they do not have to compete for the more lucrative fluid milk markets; everyone pools his or her milk and gets the same price for it regardless of what it is ultimately used for.

The trouble begins when powerful co-ops like DFA start to sign exclusive long-term contracts with processors. Imagine you are a dairy farmer in a region where Dean Foods, the nation’s largest dairy processing company, is the only processor buying fluid milk (a likely scenario if you live in New England, where Dean controls 70% of the fluid milk market). Dean must pay the co-ops it buys from the blended price dictated by the federal milk marketing order

for that region—in our example, the New England regional order. You want to sell to Dean because the Northeast regional order price will be higher than what you could get selling your milk to a smaller processor making cheese or butter. But DFA holds a long-term exclusive contract with Dean. That means that to access the marketing order, you must join DFA. Unfortunately, if DFA is your only option, you will have to take what they offer you—including paying high fees for membership. Newspaper articles and dairy industry literature accuse DFA and Dean Foods of collaborating to create a monopoly over milk pricing and supply in order to stifle independent competition.¹⁷

This scenario is not hypothetical. In a 2001 survey of eleven dairy regions by the Government Accountability Office, researchers found that in each regional market, the four largest cooperatives controlled between 64% and 97% of the milk supply.¹⁸ The table below illustrates the concentration of the milk supply in the hands of a small number of cooperatives for the markets surveyed.

Share of Milk Delivered by the Four Largest Dairy Cooperatives in Selected Markets for the Month of December, 1997-1999				
Selected market area	Federal Milk Marketing Order	Market share of top four cooperatives (percent)		
		December 1997	December 1998	December 1999
Atlanta, GA	Southeast	61.5	69.9	71.5
Boston, MA	New England	68.5	70.4	69.6
Charlotte, NC	Carolina	77.6	79.5	85.2
Cincinnati, OH	Ohio Valley	61.6	63.9	63.8
Dallas, TX	Texas	96.5	98.2	97.1
Milwaukee, WI	Chicago Regional	63.1	62.7	64.7
Minneapolis, MN	Upper Midwest	59.3	57.0	63.5
New Orleans, LA	Southeast	61.5	69.9	71.5
Salt Lake City, UT	Great Basin	85.4	89.0	93.2
Seattle, WA	Pacific Northwest	84.8	84.2	85.0
Washington, DC	Middle Atlantic	77.1	77.0	76.8
Average for the 11 markets		72.4	74.7	76.5

Source: GAO 2001

Falling prices

As noted above, the prices that farmers receive for fluid milk and dairy products are set by Congress in the federal milk marketing order for the producers’ region. When it was first conceived in the 1930s, federal milk policy attempted to provide fair, equitable income to dairy producers, much like a minimum wage. Federal supply

management policies were also instituted to address the tendency towards chronic oversupply in milk and other commodity markets (see box on p.3).¹⁹

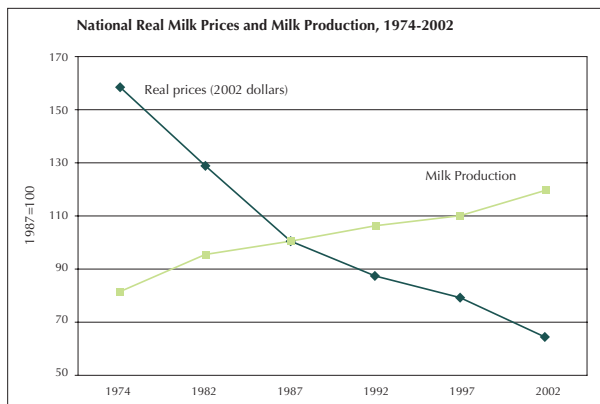
However, beginning with the passage of the Agriculture and Food Act of 1981, Congress lowered milk price

support levels, effectively ending the era of “minimum wage” pricing for milk producers. Milk prices have declined in real terms since then.

Milk producers’ livelihoods have been further harmed as dairy processing companies have gotten larger and more powerful. Congress determines the prices that producers receive in marketing orders by using a complex formula based on the price of cheddar cheese blocks traded on the Chicago Mercantile Exchange (CME). CME cheese trades are dominated by a small number of very large dairy companies that can influence that price by holding or selling cheese at strategic moments. The government’s General Accounting Office (GAO) recently concluded an investigation of the CME which found it prone to market manipulation and price fixing.

And yet because dairy producers have invested so much personally and financially in their operations, they tend

not to decrease production when prices fall. As explained above, they respond by maintaining or increasing production in order to squeeze as much income out of their operations as possible. The result has been falling prices and rising production, as shown in this graph.

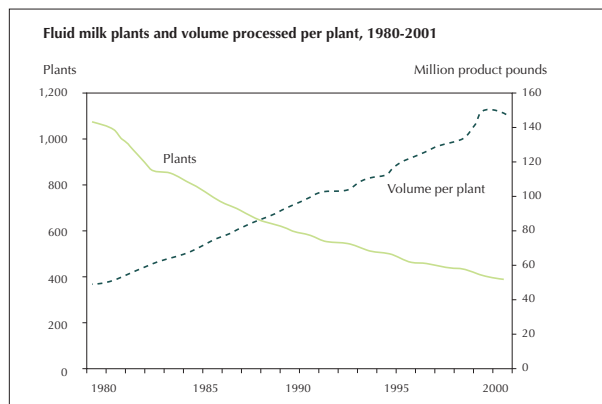


Source: USDA/ERS Dairy Yearbook (1975-2003)

Dairy processing

Industry consolidation

Any time producers have only one option for marketing their milk, they become vulnerable to manipulation by powerful companies. The power of a small number of players in the dairy industry also makes consumers vulnerable to higher prices and poorer quality milk.



Source: GAO 2001

Nationwide, DFA holds a long-term contract with Dean Foods, the nation’s largest milk processor and the world’s second largest (behind only Nestlé). DFA supplies milk to most of the Dean plants around the country. Land O’ Lakes, previously DFA’s closest co-op rival, sold its fluid milk business to Dean in 2000, securing a long-term contract to supply the raw milk. University of Missouri researchers Bill Heffernan and Mary Hendrickson note that “Although this arrangement provides market access for the farmer members, it also represents a major structural change for dairy farmers in the region

because they no longer have management control over the processing stage.”²⁰

Land O’ Lakes also shared access to its well-known brand name—which many consumers associated with farmer-ownership—with Dean, an investor-owned corporation.²¹

Top Three Dairy Companies:

1. Dean Foods
2. Kraft Foods
3. Land O’ Lakes

The most recent statistics show Dean controlling between 30% and 40% of the national milk supply—some 2 billion gallons of milk per year.²² Dean also controls 70% of all U.S. organic milk and 90% of soy milk.²³ Dean controls not just its own name brand but brands including AltaDena, Berkeley Farms, Borden, Garelick, Land O’ Lakes, Lehigh Valley, Mayfield, Oak Farms, Shenandoah’s Pride, Verifine, Horizon Organic, Organic Cow of Vermont, Silk soymilk, and several dozen others.

When one company holds this amount of power over the nation’s dairy supply, it may manipulate the production and processing of milk in ways that undermine sustainability in the food system. Horizon, the organic milk company owned by Dean, has been accused of maintaining factory farm-style conditions on its organic operations. In a complaint lodged against Horizon with the USDA by the Cornucopia Institute, the institute states that “[Horizon’s operations in] Idaho and California... differ little from conventional confinement dairies other than having their high-producing cows fed certified organic feed.

Real organic farms have made great financial investments in converting to pasture-based production—enhancing the nutritional properties of the milk and for enhancing animal health—while it appears that these large corporate-dominated enterprises are happy just to pay lip service to required organic ethics.” The institute also notes that labor conditions on some Horizon dairy operations appear abusive. One producer was charged by his non-unionized workers for denying breaks, overtime pay, and other basic labor rights. The producer settled out of court.²⁴

Product manipulation: What’s really in your milk?

The small number of companies that control the U.S. milk supply are under no obligation to source their milk from U.S. producers; their priority is profit. As the companies grow larger, their supply chains stretch into foreign countries that can produce milk more cheaply. Many of the companies that dominate U.S. dairy—including Kraft—have begun to import Milk Protein Concentrate (MPC) and use it as a substitute for milk from U.S. producers. MPC is a dried dairy byproduct left when water buffalo, yak, sheep, and other animal milk is processed. New Zealand and India are two major sources of the MPCs imported into the United States. MPCs are not approved as a food ingredient by the U.S. Food and Drug Administration.²⁵

And yet many companies use MPCs in the cheese, frozen desserts, and other dairy products they sell to consumers. You need look no further than the back of a package of Kraft Singles to see that MPCs are fully incorporated into our dairy supply. In yet another case of feeble enforcement, FDA has looked the other way, and through its inaction exposed consumers to products it has not ruled safe to eat.²⁶

In an attempt to preempt any possible FDA action on the issue, big dairy processors have pushed hard on



Dean products dominate the dairy case. Photo: Cornucopia Institute

lawmakers to grant legal approval to MPCs. In 2005, they attempted to have the FDA’s official definition of Class I fluid milk changed to allow for the accommodation of MPCs. That same year, the industry petitioned to change the legal definition of ice cream to allow it to include “any safe and suitable milk-derived ingredients.”²⁷

The losers under this arrangement are numerous. U.S. dairy farmers lose out when an influx of cheap imported MPCs reduces demand for U.S. milk and causes domestic prices to fall still lower. Consumers lose out when they eat a product that has not been recognized as safe by the main government agency charged with protecting their health. And taxpayers lose when U.S. budget dollars are allocated to prop up rural economies that flounder because they have been abandoned by the companies that used to purchase U.S. agricultural products.²⁸

The U.S. dairy industry does not work for small and mid-sized dairy producers, worker welfare, the rural environment, animal wellbeing, or consumer health and safety. Thankfully, alternative options are emerging, as are ways we can get involved in building and protecting a better system. Let’s look at a few examples.

Building alternatives: A new structure for the dairy industry

Invest in Smaller Cooperatives and Independent Producers

Building infrastructure to support a new dairy production system in the United States will take time. Thankfully, many producers, businesses, and communities are already hard at work building this new system. Smaller dairy cooperatives have pooled resources to open and run their own processing facilities, avoiding the fate of many other producers who are forced to sell to large milk co-ops on unfavorable terms. These cooperatives often sell their dairy products directly to consumers under their own brand name.²⁹ Consumers can support them by seeking out smaller-name labels from local and regional dairies in the dairy case. If there are none

available, ask your grocer to explore local dairy options. It helps if you can do some research beforehand and bring specific names to the grocer. If you live in an area without a local dairy processor, ask your grocer to stock Organic Valley products; Organic Valley is a smaller cooperative that sources from regional producers but is available nationally.

Individual dairy producers have also found success starting dairy processing facilities on their farms. These producers market milk and dairy products like cheese and yogurt at farm stands and farmers markets.

Consumers can connect directly with dairy farmers through web resources like Local Harvest (www.localharvest.org). Local milk may be more expensive, but if you are in a position to afford it, you will reap rewards in the form of a more vibrant, economically stable community.

Take action on food and farm policy

The current Farm Bill made it into the mainstream media for the first time, and with it came growing public awareness that farm policy is relevant not just to farmers, but to everyone who eats. Dairy is a major sector touched by the Farm Bill. While the legislation has already been debated, organizations and concerned consumers will need to stay active to make sure the bill—which leaves much to be desired as far as local food systems are concerned—is implemented in the best way possible. There are also opportunities to influence policy even after the Farm Bill is passed.

One sticky issue in this Farm Bill is a program called Country of Origin Labeling, or COOL. COOL requires meat, vegetables, fish, milk, and other minimally-processed foods to be labeled with the country where they were produced, helping consumers shop in line with their values. COOL was included in the 2002 Farm Bill but was not implemented, except for seafood. Thanks to family farm and consumer advocates, Congress has included full COOL implementation in this Farm Bill. You can help make sure that it is carried out by linking up with the organizations on p.8. With foreign additives finding their way into our dairy, we deserve to know where it is produced.



Calf on a family farm dairy. Photo: Elanor Starmer

Beyond the Farm Bill, there are a number of actions we can all take to make our dairy supply safer and to create a more fair market for small and mid-sized producers. Consumer advocacy is urgently needed to protect cows and consumers alike from rBGH, the growth hormone used to increase milk production. In a dangerous trend, state legislatures are being pressured by the giant biotech company Monsanto to consider regulations and legislation that would bar dairy processors from advertising “no rBGH” on their labels. This regulation was overturned in Pennsylvania, but other states are

Local Dairy: An Economic Driver

Perhaps the most widely recognized of the smaller national co-ops is Organic Valley, a dairy and meat cooperative based out of La Farge, WI. Organic Valley has grown markedly in recent years and now boasts around 700 members in 20 states—large in relation to many small co-ops, but still far smaller than the 24,000-member DFA. Over time, Organic Valley has purchased processing facilities for its milk, cheese, and other dairy products. In one example, the company purchased a creamery in Chaseburg, WI that had been in operation for decades but had closed as the industry consolidated in Wisconsin. The creamery had previously employed many of the town’s 302 residents. It was reopened by Organic Valley two years after its initial closure and re-staffed by locals with experience running the plant. The purchase by Organic Valley has had important economic effects for the town in addition to employment: the manager notes that it contributes significantly to the town’s tax base, estimating that it is responsible for 80% of the town’s payments on water and sewer facilities. The plant now produces some 20,000 pounds of butter a day for both the Organic Valley and Trader Joe’s labels, and sells cream to a local organic ice cream maker (Sayre 2005).

considering it. See the Food and Water Watch website for information on how to get active in your state.

Consumers also need to defend our milk supply from contamination with milk protein concentrates. The Food and Drug Administration (FDA) needs to hear our voices. Family Farm Defenders has excellent information on MPCs in the milk supply; see their website below. The FDA also needs to hear from us regarding its January 2008 decision that milk from cloned animals is safe for consumers. There is concern in the scientific community about the health problems suffered by cloned animals and questions about safety for consumers who consume products from clones.³⁰ In another shock to our food system, the FDA does not plan to label cloned food, meaning that consumers will have no way of knowing the origin of their meat and dairy. In an industry already dominated by a small number of companies, cloning will concentrate the power over livestock genetic resources into a few powerful hands. See the Food and Water Watch website for information on how to speak out against cloned milk and meat.

It’s easy to feel hopeless about the industrial food system, a system that seems to be spiraling out of control. But all around the country, organizations, individuals and communities are finding new, creative ways to build a healthier system that works for farmers, consumers, animals, and the environment. This series of issue briefs has highlighted only a small number of the innovative efforts out there. Check the resources listed here and in the other issue briefs and get involved. Community by community, local food systems can and will be built—with your help.

Resources: Take Action to Build a Safer, Fairer Dairy Industry!

Dairy policy resources

- **Food and Water Watch** has an excellent dairy section on its website that includes coverage of important dairy-related legislation in the Farm Bill and beyond. <http://foodandwaterwatch.org/food/dairy>
- **The National Family Farm Coalition's** website has additional information about dairy-related legislation, including ways to take action to ensure small- and mid-sized dairy farms a fair price for their milk. <http://nffc.net/issues/dairyissues.html>

Consumer action and information resources

- **The Cornucopia Institute** is an excellent source of information about the dairy industry, and its dairy scorecard will help you make the right choices when you buy milk. www.cornucopia.org
- **The Organic Consumers Association** has information on rBGH, buying guides for consumers, and other information about organic and sustainable foods. www.organicconsumers.org
- **Food and Water Watch's** website, listed above, includes information on how consumers can take action to keep our dairy supply safe from rBGH, cloned milk, and other technologies.
- **Family Farm Defenders** is a Wisconsin-based organization representing the interests of small- and mid-sized producers, particularly those raising dairy cows. Its website offers information on rBGH, Milk Protein Concentrate, and ways to build viable local food systems (and buy fairly traded domestic cheese!). www.familyfarmdefenders.org
- **The Milkweed** has been published since 1979 and continues to offer readers up-to-date information about the dairy industry, including insightful analysis of market power in dairy co-ops, manipulation of prices at the Chicago Mercantile Exchange, and other issues relevant to small farmers and consumers. Subscriptions and articles are available at <http://www.themilkweed.com>.

REFERENCES

- ¹ USDA/Economic Research Service (2005). Agricultural Census.
- ² Weida, W. (2000). "A Citizen's Guide to the Regional Economic and Environmental Effects of Large Concentrated Dairy Operations." Colorado Springs, CO: Colorado College and The Global Resource Center for the Environment.
- ³ EPA (2004). U.S. EPA Regional Administrator Recognizes Certified Dairy Producer in Lodi. E. P. Agency, EPA.
- ⁴ Wallinga, D. (2004). Concentrated Animal Feeding Operations: Health Risks from Water Pollution. Minneapolis: IATP.
- ⁵ Food and Water Watch (2007). Turning Farms into Factories. Washington, DC: Food and Water Watch.
- ⁶ Osterberg and Wallinga (2004), op. cit.
- ⁷ Keep Antibiotics Working (2007). Antibiotic Resistance: An Emerging Public Health Crisis. Washington, DC: KAW.
- ⁸ American Medical Association. Antimicrobial Use and Resistance. House of Delegates resolution 508 (A-01), June 2001. Available at www.keepantibioticsworking.com/library/uploadedfiles/American_Medical_Association_Resolution_508_-__.htm.
- ⁹ Cole, D., L. Todd, and S. Wing (2000). Concentrated Swine Feeding Operations and Public Health: A Review of Occupational and Community Health Effects. Environmental Health Perspectives 108(8): 685-699. See also Halverson, M. (2000). The price we pay for corporate hogs. Minneapolis: IATP.
- ¹⁰ Legator, M. S., et al. (2001). "Health Effects from Chronic Low-Level Exposure to Hydrogen Sulfide." *Archives of Environmental Health* 56(2): 123-131.
- ¹¹ Bedsworth, L. W. (2004). Clearing the Air in the San Joaquin Valley. Union of Concerned Scientists.
- ¹² GAO (2001). Dairy Industry: Information on Milk Prices and Changing Market Structure. Washington, DC: GAO.
- ¹³ Dobson, W., and P. Christ (2000). Structural Change in the U.S. Dairy Industry: Growth in Scale, Regional Shifts in Milk Production and Processing, and Internationalism. Madison: University of Wisconsin.
- ¹⁴ Hendrickson, M., W.D. Heffernan, et al. (2001). Consolidation in Food Retailing and Dairy: Implications for Farmers and Consumers in a Global Food System. Columbia, MO: National Farmers Union.
- ¹⁵ Miyakawa, H. (2004). Competitive Issues in the Dairy Industry. Washington, DC: American Anti-Trust Institute.
- ¹⁶ Blayney, D.P. and M.A. Normile (2004). Economic Effects of U.S. Dairy Policy and Alternative Approaches to Milk Pricing. U.S. Department of Agriculture, Report to Congress, July.
- ¹⁷ Dobson and Christ (2000), op. cit. See also Hendrickson and Heffernan (2001), op. cit. See also Brass, L. (2005). "Flood of outside milk into region has soured Southeast farmers on powerful national co-ops." Knox News.
- ¹⁸ GAO (2001), op. cit.
- ¹⁹ Blayney and Normile (2004), op. cit.
- ²⁰ Hendrickson and Heffernan (2001), op. cit., p. 11
- ²¹ Ibid.
- ²² Hendrickson and Heffernan (2001), op. cit.; Miyakawa (2004), op. cit.
- ²³ Family Farm Defenders (2007). <http://www.familyfarmdefenders.org>
- ²⁴ Kastel, M. (2005). Dean/Horizon Feedlot Dairy Accused of Masquerading as an Organic Farm. Wisconsin: The Cornucopia Institute.
- ²⁵ Family Farm Defenders (2007). Milk Protein Concentrate. Available at <http://www.familyfarmdefenders.org/pmwiki.php/MilkProteinConcentrate/MilkProteinConcentrate>
- ²⁶ Ibid; see also Guebert, A. (2005). "Not Milk." October 23. Available at <http://www.familyfarmdefenders.org/pmwiki.php/MPC/NotMilk>
- ²⁷ Ibid.
- ²⁸ Family Farm Defenders (2007), op. cit.
- ²⁹ Sayre, L. (2005). Rural Renewal. The New Farm.
- ³⁰ See, for example, Center for Food Safety, http://www.centerforfoodsafety.org/cloned_animals.cfm