

POSITION PAPER ON THE DEBATE OVER RAW MILK SAFETY

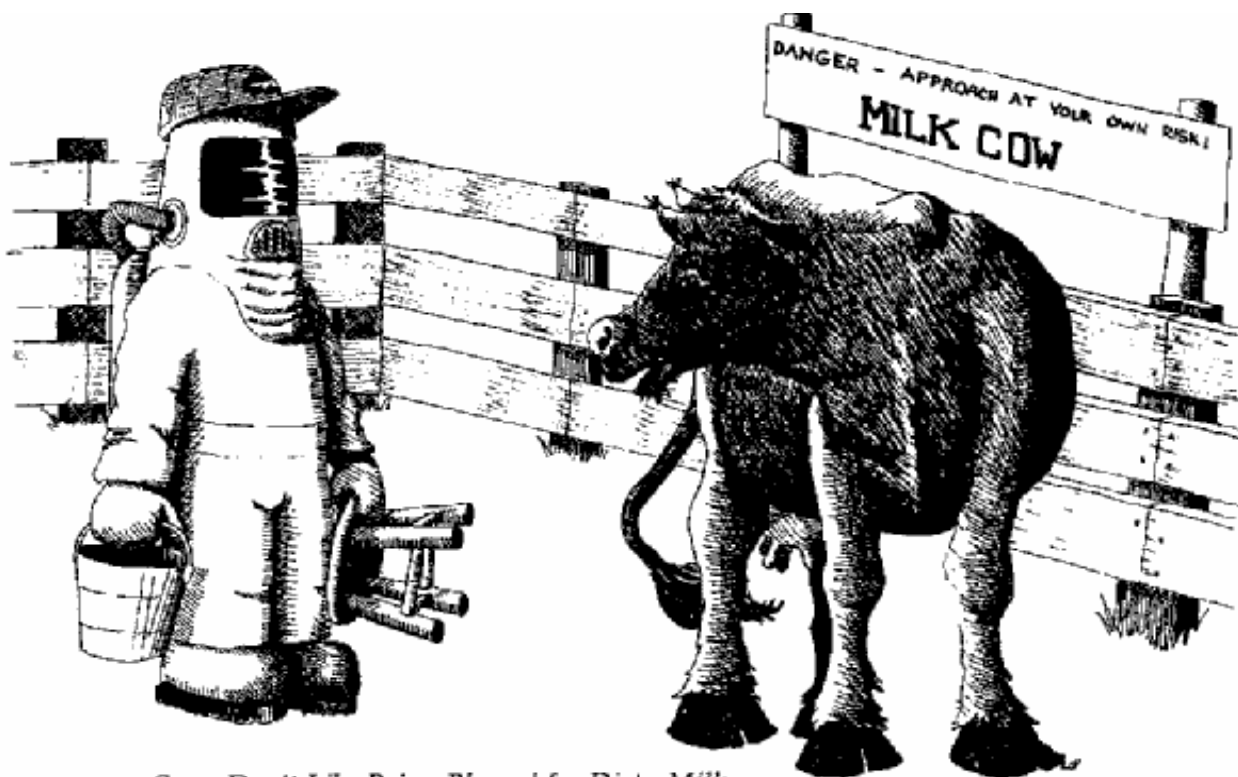
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***The opposite of dirty milk is not pasteurized milk.
The opposite of dirty milk is clean milk.***



Cows Don't Like Being Blamed for Dirty Milk.

Cows Don't Like Being Blamed for Dirty Milk

William Campbell Douglass, II, MD,
The Milk Book, Rhino Publishing, SA, 2003

Approximately 100 years ago, pasteurization was introduced as a way to combat tuberculosis, infant diarrhea and other diseases caused by poor animal nutrition and dirty production methods. However, today, thanks to advancements in science and technology, refrigerated trucks, stainless steel tanks, milking machines and inspection methods make it possible to produce local, safe, clean raw milk. Consumers of raw milk here in Ontario are asking that the laws surrounding the ban of raw milk be revised in order to reflect this 21st century reality.

Even before mandatory pasteurization laws were established, public health officials recognized that there were dramatic hygienic differences between the animal husbandry practices of grass-feeding and stall-feeding dairy cattle. According to a statement published in the *American Journal of Public Health* in 1928:

“Milk varies with the season and with the feeding of the cow...the public deserves to have the information that there is a great difference between the milk derived from pasture-fed cattle and that obtained in winter from stall-fed animals, unless particular attention is paid to their diet, and that dirty milk is a menace rather than a blessing.”¹

In 1938, under the Milk Act, the sale of raw milk was banned in Ontario. From the beginning, pasteurization laws were flawed as they were based upon the belief that all of the raw milk at the time was contributing to the spread of certain infectious disease. The law neglected to take into account that milk from properly monitored, healthy, grass-fed cows is inherently safe and therefore, would not likely contribute to the spread of infectious diseases. Since the bacterial count of raw milk from healthy grass-fed cows is low, it would not require pasteurization. On the other hand, milk from cows raised in a large industrial, indoor setting has an inherently high bacterial count and should, indeed, be pasteurized.

When produced under appropriate conditions, raw milk has about 1-3000 bacterium per milliliter whereas milk from a large-scale, conventional dairy operation is allowed to have up to 50,000 bacterium per milliliter. Creameries are allowed to have up to 200,000 bacterium per milliliter. It is important to note that pasteurization does not guarantee the destruction of several types of pathogenic bacteria. It is therefore more important for farmers to produce clean milk than for the dairy industry to use pasteurization as a band-aid solution to get dirty milk on supermarket shelves.

The view that raw milk contains dangerous pathogens is flawed. In nature, cows and humans produce food perfect enough to sustain life. If one follows the view that raw milk is a dangerous product, then human breast milk should also be forced into pasteurization.

Many officials are quick to blame raw milk for contributing to the spread of certain infectious diseases. What they neglect to consider is that because pasteurization does not eradicate certain pathogens, pasteurized dairy products are actually the cause of several foodborne illness outbreaks throughout North America.

The following slide lists several pathogens that can survive pasteurization:

Heat-Resistant Pathogens in Pasteurized Milk⁴⁶

- Johne's bacteria (paratuberculosis bacteria)— suspected of causing Crohn's disease, now routinely found in pasteurized milk (19% of samples tested).¹
- *B. Cereus* spores, Botulism spores and Protozoan parasites survive pasteurization.²
- *Listeria monocytogenes* and *E. coli* O157:H7 survive HTST pasteurization; various *Bacillus* and *Clostridium* species may also survive pasteurization.³
- Dormancy of heat-treated *E. Coli* can cause typical laboratory culture techniques to underestimate presence of *E. coli* in pasteurized milk 100-fold.⁴

1. *Appl & Environ Microbiol* 2002 May;68(5):2428-35

2. Elliott Ryser. Public Health Concerns. In: Marth E, Stelle J, eds. *Applied Dairy Microbiology*, New York, Marcel Dekker, 2001.

3. Binderova and Rysanek. *Veterinari Medicina*. 1999;44(10):301-308.

4. Gunasekera and others. *Appl Environ Microbiol*. 2002;68(4):1988-1993 (and references therein).

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The US Public Health Service reported that over a 22-year period, 1922-44 inclusive, "there was a total of 37,965 cases of all kinds of diseases traced to all varieties of milk and milk products, pasteurized and raw, with an average of 1,726 cases per year."^{2, 3} The majority of these illnesses were caused by pasteurized milk, not raw milk:

- In 1944, there were 1,449 milk-related cases; 1,019 cases were attributed to pasteurized milk and 430 were attributed to raw milk. There were 20 deaths—only one of which was attributed to the consumption of raw milk."⁴
- In 1945, there were 1,942 milk-related cases; 1,492 cases were attributed to pasteurized milk and 450 were attributed to raw milk.⁵

What is most disturbing about these numbers is that during this era (1922-1944), Canada and the United States were adopting mandatory pasteurization laws, claiming that pasteurization would render contaminated milk a safe product.

In between 1980-2005, based upon data from the Centres for Disease Control (CDC) in the United States, realmilk.com calculated that there were 19,531 illnesses attributed to the consumption of pasteurized milk and milk products - 10.7 times greater than the number of illnesses attributed to raw milk during the same period.⁶

Advocates for raw milk do recognize that there can be risks associated with the consumption of raw milk, especially when the cows are raised in large indoor operations (factory farms). We believe that the milk from factory-farmed cows should be pasteurized. As we have seen, unfortunately, pasteurization does not safeguard consumers as much as they believe.

Raw milk consumers represent a niche market – a small (estimates show anywhere between 1-3% of the population), yet growing, group of people who want the freedom to choose raw milk from local family farmers using hygienic and humane agricultural practices to raise their animals. Since 1938, we have made tremendous progress in the area of science and technology. We are simply asking that government officials recognize these scientific and technological advancements and work with raw milk farmers and consumers so that we can have the freedom to access the food we so choose. Before we can have the freedom to choose raw milk, the government must revise the 70-year-old Milk Act, which bans the sale of raw milk.

When the law prohibiting the sale of raw milk is revised to suit our needs, the government can then properly monitor the sale of raw milk, ensuring consumer safety.

SWILL MILK THE REAL CAUSE OF CONTAMINATED RAW MILK

Beginning in the 1820s or 1830s, distillery and brewery owners created a market for the “grain mash” (“distillery slop”, “brewer’s grain”) left from the distilling or brewing process by selling it to dairies as cattle feed. Since feeding cattle distillery slop or brewer’s grain increased milk yields, it became a very popular practice. Cows being fed this refuse got no exercise and lived in filthy conditions. The thin blue substance produced by these dairies was known as “swill” milk and was of very poor quality. In order to give it a more attractive appearance or improve its flavor, swill milk was often doctored with additives (starch, plaster, chalk, eggs, annatto, molasses, salt, various kinds of gums or brains of different animals); soda was added to correct any acidity which might arise from fermentation.^{7, 8} The adulteration of milk is reputed to be one of the biggest food frauds of all time.

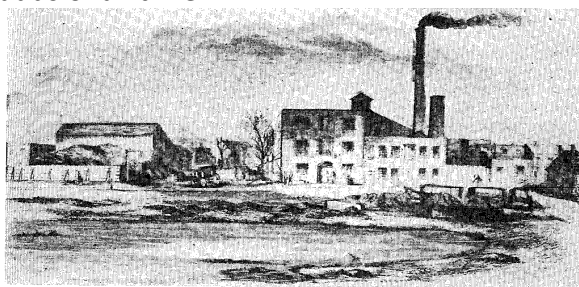


FIG. 2.1. Drawing of swill milk dairy barns, *Frank Leslie's Illustrated Newspaper*, May 8, 1858. From New York City Department of Health Milk Commission, *Is Loose Milk a Health Hazard?* New York: Department of Health, 1931.

Swill Milk Barns, May 8, 1858⁹



Gooderham + Worts Distillery/Dairy, Toronto, 1850s

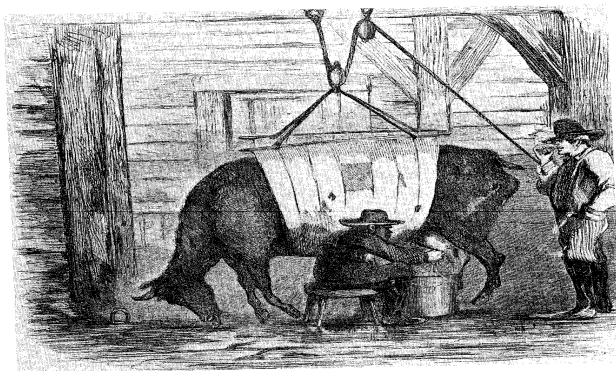


FIG. 4.1. Drawing of a dying cow being milked in a swill barn, Frank Leslie's Illustrated Newspaper. From Giblin, *Milk: The Fight for Purity*.



Milking a Dying Cow in a Swill Barn, 1850s¹⁰

Current Day Dying Cow¹¹

The following image is advertisement acknowledging the difference between swill milk and milk from grass-fed cows, July 11, 1840.¹²

PURE & WHOLESOME MILK,

JAMAICA MILK DAIRY.

The inhabitants of New-York and Brooklyn are respectfully informed, that an extensive Dairy, for the supply of pure milk, has been recently established as above. The cows are fed upon the most nutritious grasses, meal, and roots, without any addition whatever of *distillery slops*, or any other unwholesome food; and the utmost care and vigilance will be exercised for the delivery, at the dwellings of subscribers, of the milk fresh and unadulterated.

Every arrangement which can in any degree promote the health of the animals, and the supply of wholesome, cleanly, and rich milk, has been made; and the establishment is with confidence submitted for the patronage of families, and especially of parents.

Families will be punctually supplied, at their residences, at *six cents a quart*, by leaving their names with the several distributors, or at the office in New-York, at No. 225 Pearl-street, (entrance on Platt-street.) Boxes, for the reception of orders or complaints, are placed at the stores of Messrs. W. B. Windle & Son, No. 56 Maiden-lane, and No. 597 Broadway, at the office of the New-York Observer, No. 142 Nassau-street, at Messrs. Tracy, Gould & Co.'s, No. 27 Wall-street, at the office of the Greenwich Insurance Company, No. 306 Hudson-street, and at the Fulton and South Ferry Houses, Brooklyn.

July 11, 1840.

"The cows are fed upon the most nutritious grasses, meal, and roots, without any addition whatsoever of distillery slops or any other unwholesome food..."



FIG. 5.2. 1840s advertisement from a Brooklyn dairy featuring the milkmaid and cow motif. © Collection of the New-York Historical Society.

The following four articles about contaminated swill milk reported in the New York Times are attached. The first article entitled *Bad Milk* was published in 1874:¹³

BAD MILK.

April 30, 1874, Wednesday
Page 4, 589 words

The City of Brooklyn has lately been the scene of a number of "exposures" of a pernicious system of adulterating, and even poisoning, milk. Reports prepared with evident care give us some idea of the extent of this nefarious practice. [END OF FIRST PARAGRAPH]



 E-MAIL
 SAVE

In 1884, another scathing *New York Times* article entitled, *Brewery Stock Farms; Too Much Like the Swill Milk Dairies. A Menace to Health and Life in the City—How the Animals are Fattened—The Brewers' Large Profits*, continues to expose the many health problems associated with swill milk:¹⁴

BREWERY STOCK FARMS; TOO MUCH LIKE THE SWILL MILK DAIRIES. A MENACE TO HEALTH AND LIFE IN THE CITY--HOW THE ANIMALS ARE FATTENED--THE BREWERS' LARGE PROFITS.

October 25, 1884, Wednesday
Page 2, 1855 words

"Thrown away? No, Sir! Nothing is allowed to go to waste in breweries nowadays. Competition is too great." The speaker was a prominent brewer, stout, ruddy, and wearing the look of a man to whom fortune had been very kind. "That 'stuff,' as you call it, is 'spent grain,' that is, the malt after it has been used for making ale or beer. [END OF FIRST PARAGRAPH]



 E-MAIL
 SAVE

Yet another incriminating article about swill milk, *Swill Milk Destroyed; Visiting Filthy Cow Stables in Blissville*, appeared in the New York Times in 1887:¹⁵

SWILL MILK DESTROYED.; VISITING FILTHY COW STABLES IN BLISSVILLE.

May 1, 1887, Wednesday
Page 3, 392 words

Dr. Cyrus Edson, of the Health Department, received information recently from State Dairy Commissioner Brown that there were a number of cow stables in Blissville, Long Island, that needed looking after, as they were in very bad sanitary condition, and the cows were fed... [END OF FIRST PARAGRAPH]

 E-MAIL
 SAVE

And, in 1912, the *New York Times* is still writing damning articles about "bad milk" in the city:¹⁶

PRODS HEALTH BOARD ON BAD MILK REPORT; The New York Milk Committee, Through Chairman Williams, Again Calls for Action.

September 6, 1912, Friday
Page 6, 1405 words

Because of the refusal of Dr. Walter Bensel, Sanitary Superintendent of the Board of Health and head of the department in Commissioner Lederle's absence, to take seriously the report of its investigators as to the quality of milk sold in restaurants, hotels, lunchrooms, and soda fountains, the New York Milk Committee has addressed to the board another letter on the subject, signed by Stephen G. Williams, Chairman. [END OF FIRST PARAGRAPH]

 E-MAIL
 SAVE

In the late 1800s - early 1900s, two camps existed amongst consumers of dairy products – those who preferred “certified raw milk” (raw milk from grass fed cows, certified as safe by physicians) and those who preferred pasteurized milk. During this era, there was a high infant mortality rate. “Preventable infanticide!” became a plea for reform.¹⁷ One theory behind the high infant mortality rate included the belief that the deaths were due to contaminated raw milk. Since a great deal of the contaminated raw milk came from the swill dairies in large urban centres, where cows were being fed a very unnatural diet of distillery slop or brewer’s grain, this was true. Pasteurizing swill milk did seem to contribute to the reduction in infant deaths. Unfortunately, however, pasteurization did not stop the swill dairies from producing a dangerous product to begin with.

Another reason for the high rates of infant deaths during this era involved the use of artificial feeding formulas. According to Professor Harvey Levenstein, author of *Revolution at the Table*, by 1905, the high rates of infant mortality were due to the increase in the popularity of feeding babies artificial formulas.¹⁸

Certified raw milk was considered the solution to the high infant mortality rates, but since it was more expensive than pasteurized milk, only the wealthy could afford it. Since pasteurized milk was less expensive than certified raw milk, the sale of pasteurized milk dramatically surpassed the sale of certified raw milk. The sale of certified raw milk reached its peak in 1910 – only between 0.5 and 1 percent of milk sold in major American cities was certified raw milk.¹⁹

People believed that pasteurization was responsible for the reduction in infant mortality rates. What they neglected to take into account was that pasteurization was not the only reason why there was a decrease in infant deaths. At the time that pasteurization was introduced, other factors including economic growth, improved nutrition, new sanitary measures (the flush toilet, hand washing, chlorination and filtration of city water), and advances in knowledge about infant care all contributed to this decline in infant mortality.

If raw milk was so dangerous, why, then, did medical doctors and hospitals recommend it for the sick and the young?



“THERE IS NO SUBSTITUTE FOR FRESH MILK”

For Infant Feeding and Nursing Mothers

SPECIFY CERTIFIED MILK

Certified Milk is natural fresh milk delivered to the home just as it is drawn from healthy, tuberculin-tested cows.

Properly balanced rations which are fed the cows insure a milk rich in all the elements necessary to the growth and health of the child.

Each cow is under State and Federal supervision while trained veterinarians watch over the health of the stock.

Physicians Regulate and Recommend Certified Milk.

AMERICAN ASSOCIATION of MEDICAL MILK COMMISSIONS, Inc.

HARRIS MOAK, M.D., Secretary

360 PARK PLACE BROOKLYN, N.Y.

TYPICAL ANALYSES	
Constituents	Per Cent
Fat	4.00
Protein	3.75
Sugar	4.26
Ash	.56
Water	87.40
Total	100.00

In the early 1900's milk was actually used as medicine:

- Dr. J.R. Crewe's "Milk Cure" was used at the Mayo clinic to successfully treat tuberculosis, cancer, weight loss, kidney disease, allergies, skin problems, urinary tract and prostate problems, chronic fatigue, and a whole host of other chronic conditions.²⁰
- As an effort to reduce infant mortality, pediatrician and Director of the Board of Health in Rochester, New York, George Goler, MD, switched from pasteurized milk to raw milk for the city. As the population of Rochester was growing, infant mortality rates declined considerably.²¹
- St. Vincent's hospital in Manhattan was very concerned about the high death rate among infants from gastroenteritis and switched from pasteurized to raw milk. The death rate in infants from gastroenteritis quickly fell by 94%, from a high of 89 in 1922 to less than 5 per year.²²
- The prestigious Hartford Hospital in Connecticut used only certified milk, most of it raw, "in the artificial feeding of infants, for expectant and nursing mothers, and for all other cases."²³

We cannot go back in time, but if small dairies had never existed, and we had continued to consume dairy products from small, local, grass-fed farms, the pasteurization of milk would probably never have been implemented. In India, raw milk has been a part of their culture for thousands of years – today, millions of people in India can drink the milk raw or, they can take it home and heat it themselves. In North America, we can buy raw meat, raw eggs, raw chicken and raw fish and most of us take these foods home and heat them ourselves. Permitting the sale of raw milk will not mean that millions of Ontario consumers will be forced into buying raw milk; it will, however, give thousands of conscientious Ontario consumers the freedom to choose raw milk from small, local, family farmers, over pasteurized milk.

RAW MILK GETS A BAD RAP

In his book, *The Untold Story of Milk*, Ron Schmid describes several historical accounts where milk is **assumed** guilty of spreading certain infectious diseases. In 1929, William Dodge Frost, PhD and Doctor of Public Health, wrote, "That milk is considered guilty until it is proved to be innocent does not seem a fair proposition."²⁴ Public health officials admit that it is difficult to identify the source of any foodborne illness and in many cases, they can only guess.

In a 2008 documentary, which aired on the CBC, *Michael Schmidt: Raw Milk Crusader*, public health official, Dr. Hazel Lynn, describes a case where raw milk is blamed without even testing the food. The legal system is reliant upon evidence in order to solve a case. How can public health officials declare the guilt of raw milk without a shred of evidence? What is even more disturbing is that, in the documentary, Dr. Lynn admitted that she **assumed** the guilt of raw milk without recognizing that other foods are potentially more dangerous (eggs, chicken,

fruits/vegetables, salads, hot dogs and deli meats). Public health officials' knee-jerk reaction (blaming raw milk in cases of foodborne illnesses even when there is no evidence) is as unfair as it is legally and scientifically invalid.

According to an analysis conducted by the Weston A. Price Foundation, there are approximately 500,000 raw milk drinkers in the US.²⁵ Every year, there are about 60 government reported illnesses from raw milk. In a population of 300,000,000 people, there are 76,000,000 foodborne illnesses from all sources in the US per year. The calculated risk of illness from drinking raw milk is approximately .012%. The overall rate of illness from all foods is 25%. Therefore, consumers are 2000 times more likely to contract illness from other foods than from raw milk.

Safety of Raw Milk Versus Pasteurized Milk II⁴⁴

- 60 government-reported illnesses from raw milk per year. This number is probably greatly exaggerated.
- About 500,000 raw milk drinkers in the US.
- Rate of illness from raw milk can be calculated at .012%. The actual percentage is probably much lower.
- 76,000,000 cases of food-borne illness from all sources in the US per year.
- Population about 300,000,000
- Rate of illness from all foods is 25%
- Thus, even using inflated government statistics on illness from raw milk, you are over 2000 times more likely to contract illness from other foods than from raw milk. PLUS, drinking raw milk protects you against illness from other foods!

www.realmilk.com

Even if raw milk were slightly more dangerous than pasteurized milk, it would still be much safer than many other common foods. Compared to other foods, raw and pasteurized dairy products combined are statistically much safer. The fear associated with dairy products in general is therefore unwarranted compared to, for example, salads.

Food-Borne Illnesses Associated with Milk¹⁷

A Comparison with Other Foods, 1997

Food	No. of Outbreaks	%	No. of Cases	%
Milk	2	0.4	23	0.2
Eggs	3	0.6	91	0.8
Chicken	9	1.8	256	2.1
Fruits/Vegetables	15	3.0	719	6.0
Salads	21	4.2	1104	9.2

**Milk, both pasteurized and raw,
has low rate of causing food-borne illness**

MMWR Mar 2, 2000:49(SS01):1-51

www.realmilk.com

Raw milk is often blamed for causing infection with *Listeria monocytogenes*, a deadly food pathogen that can cause severe illness and fetal death, premature birth or neonatal illness and

death. In a response to a Freedom of Information request, the CDC provided data on raw milk outbreaks over a 13-year period from 1993-2005.^{26, 27} In this report, the CDC listed no cases of foodborne illness from raw milk caused by *Listeria* during this time.

According to the *New England Journal of Medicine*, pasteurization does not guarantee the eradication of *Listeria monocytogenes* from contaminated milk.²⁸ Data from a 2003, USDA/FDA report reveals that consumers are 29 times more likely to contract *Listeria monocytogenes* from pasteurized milk than from raw milk.²⁹ In 2007, the FDA, USDA and CDC jointly released a “quantitative risk assessment” for foodborne *Listeria* which estimated that, on a per-serving basis:

- Deli meats were 10.8 times more likely to cause illness than raw milk.
- Hot dogs carry 9.2 times the per-serving risk for this disease as raw milk³⁰

In 2002, there were 2 listeriosis outbreaks related to the consumption of pasteurized cheeses in British Columbia (in February 2002, there were 48 reported cases; in September 2002, there were 82 reported cases).³¹ In September 2008, Ontario's Ivanhoe Cheese Inc. voluntarily recalled several varieties of cheese from Ivanhoe, Great Canadian and Iqbal due to fears that they were contaminated with *Listeria*.

According to David Waltner-Toews, professor of epidemiology at the University of Guelph, "Listeria is sufficiently widespread that if you're going to start looking for it, you're going to start finding it. I would say that there are a lot of foods out there with bacteria in them that may cause some discomfort."³²

It is far more difficult to control food safety in a large-scale food production facility than a small farming operation. Regardless of how these pasteurized dairy products were contaminated, there is a tremendous amount of things that can go wrong when food is produced in large quantities. Small farmers produce food at a small scale. They are proud of the food they produce and know that food safety is critical – after all, if a consumer is buying food from a small family farm, the consumer knows the exact source of the food they are buying, therefore the farmer has even more motivation to produce safe food. In all likelihood, the farmer is feeding this food to his/her family as well. It only makes sense that he/she would want to produce the safest food possible.

Since foodborne illnesses are on the rise, it is becoming abundantly clear that a multi-national, large-scale food system is not safe. Common sense dictates that a safe food supply is a local food supply. In order to solve the problems we are seeing with foodborne illnesses, government officials and scientists should be spending more time and money studying the benefits of producing food on small, local, family farms.

PASTEURIZATION DOES NOT GURANTEE SAFE MILK!

Pasteurization is simply an excuse to produce dirty milk. Consumers and government officials are wrong to assume that pasteurization renders milk a “safe” product. Since several pathogens can survive pasteurization, the process does not fully protect the consumer.

Approximately, 100,000 Canadians are diagnosed with Crohn’s disease. In a session of the International Association for Food Protection, Dr. Jay Ellingson presented data that the milk we drink is contaminated with Johne’s bacteria, an organism that has been implicated as a suspected cause of Crohn’s disease.³³

Estimates of herds contaminated with at least one Johne’s positive cow:

- 37 per cent of the herds in Ontario
- 49 per cent of the herds in Canada³⁴

According to Dr. John Kellar of the Canadian Food Inspection Agency (CFIA), "If you had 10 animals infected and you applied the test, you might expect to pick out four of them, the other six would walk away and you wouldn't know they were infected."³⁵ The CFIA admits that the test to determine the presence of Johne's disease in milk is not very accurate.³⁶ As reported in the magazine, Ontario Farmer, "...Johne's is...so widespread that the cost of introducing an eradication program, and compensating farmers for slaughtering Johne's positive animals "would be unbelievably high," said CFIA veterinarian, Jim Clark."³⁷

Since pasteurization does not fully protect the consumer, then neither does the law. Therefore, the law is inherently flawed. If consumers choose to drink pasteurized milk from factory-farmed cows, that is their choice, but they do so at their own risk. Below is a list of 5 outbreaks from infections due to *Yersinia enterocolitica* and *C. jejuni* in the United States. Later, we will see more examples of outbreaks from *Salmonella* and *Listeria* in pasteurized dairy products.

- In 1976, 1 outbreak, *Yersinia enterocolitica* in 36 children, 16 of whom had appendectomies due to pasteurized chocolate milk.³⁸
- In 1982, 172 cases of *Yersinia enterocolitica* in several states from milk produced in Memphis TN.^{39 40}
- In 1995, one outbreak of *Yersinia enterocolitica* in 10 children, 3 hospitalized due to post pasteurization contamination.⁴¹
- In 2005, one outbreak of 200 cases of *C. jejuni* in Colorado prison.⁴²
- In 2006, one outbreak of 1592 cases (52 confirmed) of *C. jejuni* infections in California.⁴³

In the event that anyone is wondering why the data collected is almost all coming from the United States, I have yet to find any government agency in Canada that collects surveillance reports for foodborne illness outbreaks relative to specific foods. In a conversation with David

Waltner-Toews, professor of epidemiology at the University of Guelph, on November 4, 2008, who told me that he has to use US data as the Canadian data is unavailable. Below are references to a few stories describing tainted pasteurized dairy products – just because the Canadian government does not collect the data, does not mean that the problem does not exist in our country as well.

In the Provincial Health Officer's Annual Report, *Food Health and Well-Being* (2005), "BC had two outbreaks of *Yersiniosis*, one in 1998, which affected 74 people, and one in 1999, which affected 47 people. Although in both cases the contaminated food was never definitively confirmed, in the first outbreak, there was a strong association with homogenized milk, and in the second, dry fermented salami (Public Health Agency of Canada, 1999, 2000)."⁴⁴ [It is interesting that they left out the word, "pasteurized" – if the milk was homogenized, then, in all likelihood, it was also pasteurized.]

In Alberta, 16 people fell ill and one was hospitalized with *E. coli* after drinking milk shakes at a popular drive-in restaurant in Calgary.⁴⁵

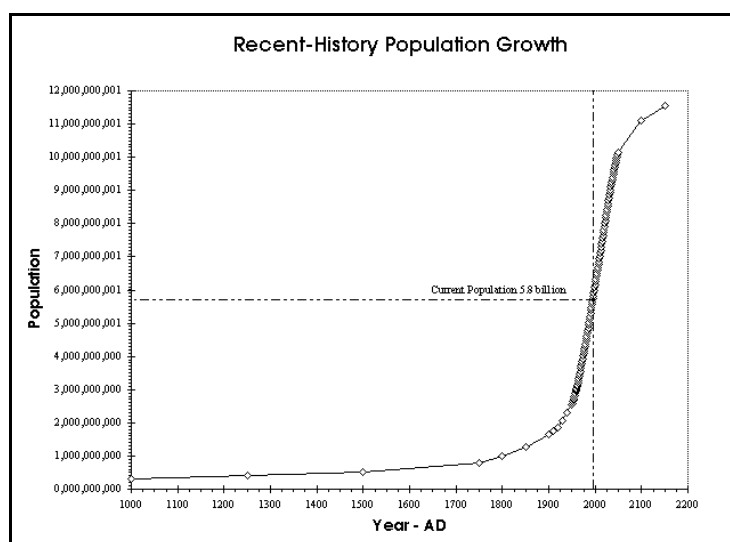
In February 2005, the Canadian Food Inspection Agency and Natrel warned that their Sealtest brand 1% chocolate milk may be contaminated with a chemical sanitizer.⁴⁶ There were multiple adverse reactions by people consuming the milk and one 29-year old man was hospitalized.

On October 21, 2008, the *Windsor Star* reported that a man and his children fell seriously ill after consuming store-bought milk that was laced with metal and possibly other foreign substances.⁴⁷ The company involved, Agropur Cooperative, Inc., refused to divulge detailed information about what was in the milk. After lab reports were completed, the product was withdrawn from store shelves but the public was not notified. Due to a pending lawsuit, the Canadian Food Inspection Agency said that federal privacy regulations prevented the agency from revealing the lab results.

Samuel S. Epstein, M.D. is professor emeritus of Environmental and Occupational Medicine at the University of Illinois School of Public Health, and Chairman of the Cancer Prevention Coalition. He has published approximately 260 peer-reviewed articles, and authored or co-authored 11 books including the book, *What's in Your Milk* (2006). According to Dr. Epstein, Canada is illegally importing 25% of its dairy products from the United States – milk from cows that could have been injected with rBST, a drug which, for reasons of safety, has never been approved in Canada! Government regulations are supposed to be protecting certain foods, including dairy products, from imports. Why are these government regulations **not** being enforced? Government officials are not only jeopardizing the livelihoods of our farmers, they are also jeopardizing our health. The Ontario government is attacking Michael Schmidt because they believe his milk is unsafe, but they are allowing rBST-tainted dairy products into Canada. There is something terribly wrong with this picture!

RAW MILK WRONGLY BLAMED FOR SPREADING DISEASES – THE REAL CAUSE IS UNHYGIENIC AGRICULTURAL PRACTICES

The population explosion, which took place approximately 100 years ago, coincided with dramatic urban growth and the reduction in rural populations (resulting in the loss of traditional, small family farms).



Agricultural policies had to change in order to feed millions of people clustered together in small geographic areas. One consequence of our population explosion has been the creation of factory farms, buildings with hundreds, if not thousands of animals tightly clustered together, deprived of the opportunity to enjoy the health benefits of grazing on open pastures.



CROWDED CITIES = CROWDED FACTORY FARMS

Animals raised in the very unhygienic environment of factory farms are often very sick, requiring large amounts of antibiotics in order to keep them alive. Just because small family farms have practically disappeared does not mean that consumers should be deprived of the opportunity to buy artisanal food from the few small farms left in the country. The food in our

grocery stores comes from a few large, multi-national companies. All mass-produced food is designed to travel long distances and sit on store shelves for extended periods of time; consequently, environmentally-aware, health conscious consumers are forced to buy foods which they know are unsafe. In essence, the Milk Act discriminates against conscientious consumers – individuals who are interested in sustainable living, "green" ecological initiatives.

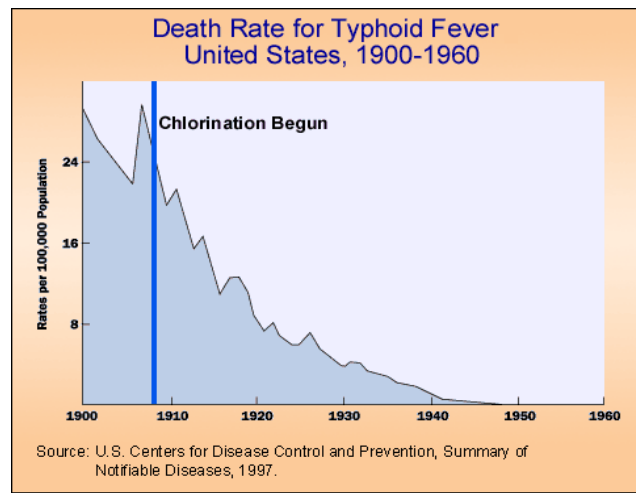
Another term for conscientious consumers is LOHAS, Lifestyles of Health and Sustainability, a consumer group which spent about \$300 billion in the United States in 2006. Currently, one in four American adults is part of the LOHAS group, but with a growth rate of about 1% per year, over the next ten years, number of LOHAS consumers are expected to grow to be half of the American population. Conscientious consumers tend to be aware of the environmental and ecological risks associated with factory farming and prefer to support farms using more ecological and sustainable agricultural practices. Not all conscientious consumers are interested in buying raw milk, but millions of people are learning more everyday about the unhygienic practices of factory food and are looking for "greener" alternatives. In Ontario, the law banning the sale of raw milk is profoundly unfair as it actually prevents conscientious consumers from buying a product that is ecologically more sound than its factory-farmed counterpart.

Based upon what we learned about the hazards of swill milk in the 19th century, we have known for some time now that factory-farmed animals can contribute to the spread of infectious diseases.

Cows are blamed for spreading tuberculosis; however, in his book, written in 1941, *The American and His Food*, Richard Osborn Cummings writes that stall-fed cows were far more likely to develop tuberculosis than grass-fed cows:

- ...inspection of herds for tuberculosis found that only about 1 percent of herds that spent most of their time out of doors were infected.
- Herds that spent most of their time in stables had a significantly higher degree of infection.⁴⁸

Public Health officials often attribute the reduction of the spread of typhoid fever to the introduction of pasteurization of milk; however, according to the Centres for Disease Control, during the early 1900s, a dramatic decrease in the spread of typhoid was associated with the chlorination of our water supply.



According to Jerry Bertoldo, PhD, DVM of Cornell University, the typhoid fever bacteria, *Salmonella typhi*, is transmitted from human to human only (no animal carries this bacteria) and is responsible for the clinical syndrome known as typhoid fever. Transmission involves ingestion of the bacteria via fecal contamination of food, water or hands.⁴⁹



1939 Conceptual illustration showing various ways that typhoid bacteria can get into a water well (center).⁵⁰ [Note the absence of cows in the image.]

According to the *Medical Times* in 1882⁵¹, typhoid was being spread through extremely unhygienic agricultural practices:

ON TYPHOID FEVER EPIDEMICS.

For several months past there have been cases of typhoid fever in Port Jervis, N. Y., and recently the number has largely increased. In consequence of this epidemic, Dr. A. P. MacDonald, who was called to treat a large number of cases, instituted an investigation into its causes, which resulted in the conclusion that the milk from a certain dairy was the responsible agent.

In corroboration of this theory, the circumstance was mentioned that during the last few months there have been several typhoid cases upon the dairy premises. Dr. MacDonald bases his opinion upon the following quotation from "Roberts' Theory and Practice," etc., Vol. I., p. 143:

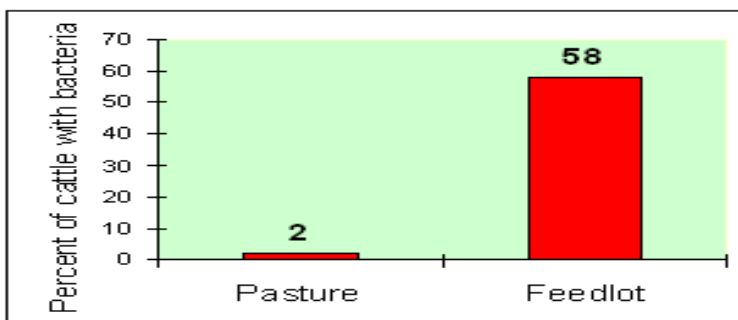
"It has also been clearly proved that milk is not uncommonly the vehicle by which the typhoid poison reaches the system, either in consequence of water containing it being mixed with the milk, or used in washing milk-cans; or from this article of diet becoming tainted in some way with the excreta of patients suffering from the fever. The opinion has been advanced that typhoid may be communicated through drinking the milk of cows fed on soil containing much sewage matter; or from eating flesh of animals suffering from this disease."

Dr. F. W. Seward, of Goshen, writes that—

"Recently I have had three cases of typhoid fever in the family of a farmer, in the persons of a son and two domestics. Search for the source of the infection developed the following: The well which supplied water to the dairy cattle was located in the barnyard. Noticing that the water became 'a little foul,' as the farmer termed it, he concluded to sink the well a little deeper, after cleaning it. To accomplish this, the son and one of the 'hired help' went into the well, cleaned it out, and began the work of 'sinking.' Diligent pumping from above kept the well sufficiently dry while the men below worked, but the son noticed a strong vein of water constantly flowing in at the bottom which was so foul, so impregnated with the drainage from the yard and manure heap above, that it actually sickened him, and compelled the men to desist from their work. This farmer has been sending milk direct to New York City for years, while during this time his cattle have been drinking water strongly tinged with the washings from the manure heap.

Studies show that factory-farmed cattle have 300 times more pathogenic bacteria in their digestive tracts than cattle that are allowed to openly graze in pastures.⁵² The following data shows the differences in pathogens found in grass-fed animals versus factory-farmed animals.

- 1) Australians discovered that raising cattle on pasture reduced their risk of carrying a bacteria called "campylobacter." Fifty-eight percent of the cattle raised in a feedlot carried the bacteria, but only two percent of those raised and finished on pasture.



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Bailey, G. D., B. A. Vanselow, *et al.* (2003). "A study of the foodborne pathogens: Campylobacter, Listeria and Yersinia, in faeces from slaughter-age cattle and sheep in Australia." *Commun Dis Intell* 27(2): 249-51.

- 2) Dutch researchers found much lower rates of *Salmonella* infections in dairy herds and cows with access to pasture.

Vaessen MA et al. *Tijdschr Diergeneeskde* 1998;123(11):349-51

- 3) According to Swedish researchers, calves on pasture may be less exposed to *E. coli*.

Jonsson, M.E. et al. "Persistence of Verocytotoxin-Producing *Escherichia Coli* O157:H7 in Calves Kept on Pasture and in Calves Kept Indoors" *Int. J Food Microbiol* 66, 1-2 (2001): 55-61.

- 4) Fecal shedding of *E. coli* O157:H7 by cows and calves continued over the 7 weeks that they were in the calving pens. Five weeks after they were moved onto a native grass pasture, all the calves and all but one cow had ceased shedding *E. coli*.

(i) **Health Canada, Animal Diseases Research Institute**, Lethbridge, Alberta, T1J 3Z4, CANADA

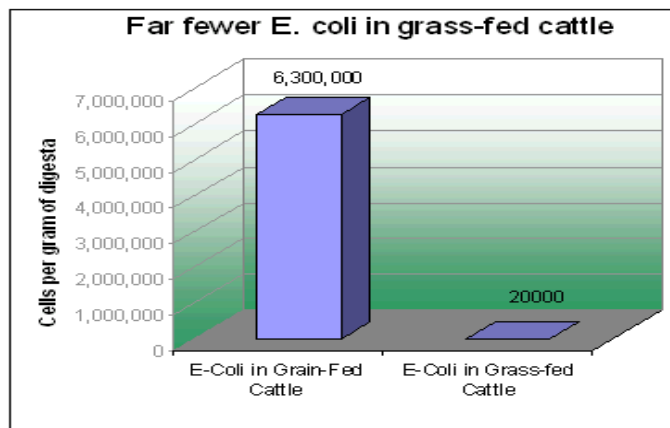
(ii) **The Canadian Food Inspection Agency**, Animal Diseases Research Institute, Lethbridge, Alberta, T1J 3Z4, CANADA

(iii) **Health Canada, Laboratory Centre for Enteric and Zoonotic Diseases**, Guelph, Ontario, N1G 3W4, CANADA

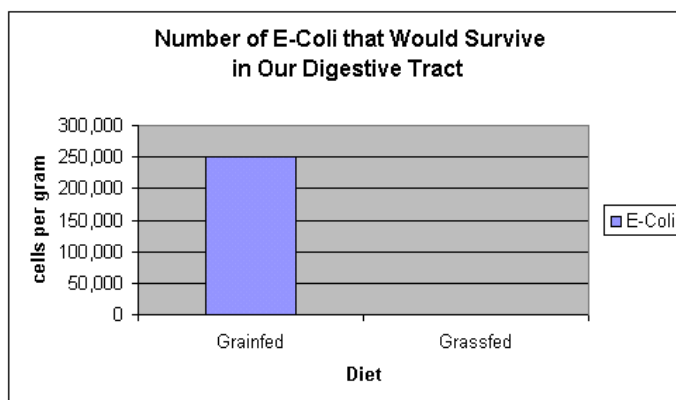
Escherichia coli O157:H7 infection in cows and calves in a beef cattle herd in Alberta, Canada
 GANNON V. P. J. (1) GRAHAM T. A. (1) KING R. (2) MICHEL P. (3) READ S. (3) ZIEBELL K. (3) JOHNSON R. P. (3)
Epidemiology and infection (Epidemiol. infect.) ISSN 0950-2688 CODEN EPINEU
 2002, vol. 129, no1, pp. 163-172 [10 page(s) (article)] (51 ref.)
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=retrieve&db=pubmed&list_uids=12211584&dopt=Abstract

- 5) Grain feeding cattle encourages the growth of *E. coli*, whereas grass feeding does not. Even if a human were to consume *E. coli* from a grass-fed cow, it would not survive in the digestive tract.

Diez-Gonzalez, F., et al. (1998). "Grain-feeding and the dissemination of acid-resistant *Escherichia coli* from Cattle." *Science* 281, 1666-8.



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Health Canada and the Canadian Food Inspection Agency know that there are vast differences between animals that are grass-fed versus animals that are grain-fed. They have conducted their own research showing that *E. coli* practically disappears when cows are out on pasture. Conscientious consumers are familiar with the differences between grass-fed and grain-fed cows and have consciously chosen to buy raw milk from small family farms where cows have the opportunity to graze on open pastures. Any law that interferes with a consumer's opportunity to buy raw milk from small family farms is depriving conscientious consumers of their personal freedoms.

FOODBORNE ILLNESSES ARE ON THE RISE

Over the last several decades, the multi-national food companies have effectively taken control of our food supply. Since the incidence of foodborne illnesses is on the rise, it has become abundantly clear that they are not able to produce safe foods.

There are 76,000,000 cases of food-borne illness from all sources in the US per year. Several foods are involved in the increase in foodborne illnesses, including common foods such as leafy greens.

- In 2008, the Centres for Disease Control (CDC) analyzed 10,000 foodborne diseases reported between 1973 and 2006. They concluded that the proportion of all foodborne disease outbreaks from leafy greens increased 60 per cent in the US between 1996 and 2005. The majority of these cases - 60 per cent - were linked to norovirus, a form of gastroenteritis, while ten per cent were linked to *Salmonella* and nine per cent to *E. coli*.⁵³
- In 2007, Centres for Disease Control (CDC) data show increases in *E.coli*, *Salmonella* and *Vibrio*:

The Centres for Disease Control and Prevention's latest report shows that infections from *E. coli* O157:H7, *Salmonella*, and *Vibrio* are all on the rise. *E. coli* cases reported to CDC's FoodNet rose 50 percent since 2004, and *Vibrio*, another potentially deadly pathogen in shellfish, rose a whopping 78 percent since FoodNet began (1996-1998).⁵⁴

- In Canada, there has also been an increase in foodborne illnesses:

In an article reported by the *Ottawa Citizen*, "Up to 13 million Canadians, more than 40 per cent of the population, will suffer from food-borne illnesses this year, an epidemic that medical experts say costs up to \$1.3 billion annually in lost productivity and medical expenses....Paul Sockett, director of foodborne, waterborne and zoonotic infections at the Public Health Agency of Canada, says a rise in the number of cases involving foodborne illnesses is a strong signal of the need for change."⁵⁵

Over the last several decades, in order to feed millions of people newly clustered together in large urban centres, the food industry has moved towards the use of large, industrial factory farms. Not only are the animals themselves contributing to the increase in foodborne illnesses, their contaminated manure is also spreading disease as it is being used as a fertilizer on several crops throughout North America. In other words, unhygienic agricultural practices have contributed to the increased incidence of many of the foodborne illnesses we see today. If the food industry gets its way, most, if not all, of our food could be irradiated in order to destroy foodborne illnesses. Like pasteurization, irradiation will be a "band-aid" solution for an unclean, unsafe, food system.

Small, local, organic farms are using hygienic agricultural practices and would not likely contribute to the spread of infectious diseases. Unfortunately, the Milk Act does not account for the vast differences between the two agricultural practices. Governments should be doing everything they can to encourage the production of locally produced foods, which are inherently safer than foods provided by the multi-national food companies. In the 1930s, officials could not have known about the risks that would come with a vertically controlled, near monopolistic food system. Now that we more fully understand the risks associated with factory farming and the benefits of pasturing animals, the law banning the sale of raw milk needs to be revised.

DOUBLE STANDARD FOR PASTEURIZED MILK

If pasteurized milk is contaminated, officials do not ask for a permanent ban. There may be a recall or a brief delay in supply, but business goes on as usual. Consumers can buy other foods which can carry pathogens - raw meat, raw chicken, raw eggs, raw fish, raw oysters, raw spinach, raw lettuce and other foods. If individuals undercook these foods or eat them raw, and they contract a foodborne illness, we never hear of government officials imposing a permanent ban on them. Why is that? If we were to follow the same logic as their ban on raw milk, then they, too, should be banned.

Double Standard for Pasteurized Milk

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- Feb 24, 2006, Wal-Mart in Vidalia Georgia pulls pasteurized milk from shelves due to foul odor.
Foodconsumer.org 28 Feb 06
- At least one child seriously sick, not reported in news release. Private communication.
- Voluntary recall announced Feb 27, three days later – no sense of urgency.
- Wal-Mart applauded by Commissioner Tommy Irvin.
- No government recalls; no warnings to the public to avoid drinking pasteurized milk.

Risky Behaviors? More Double Standards 41

- FDA calls drinking raw milk “risky behavior.”
- 1999 FDA Survey, 19,356 adults, 8 states. Am J Prev Med April 16(3):312-221
 - 50% consumed uncooked eggs
 - 20% consumed pink hamburgers
 - 8% consumed raw oysters
 - 1% consumed raw milk
- 2008 Study of 4548 young college students. J Am Dietetic Assoc 108:549-552
 - 53% consumed raw cookie dough
 - 33% consumed eggs with runny yolks
 - 29% consumed raw sprouts
 - 11% consumed raw oysters, clams or mussels
 - 7% consumed rare hamburger
 - Did not report raw milk consumption
- None of the common “risky behaviors” has prominence on FDA’s website for food safety, but raw milk does.
- No pasteurization requirement for common “risky behavior” foods.

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WHY IS THE CANADIAN FOOD INSPECTION AGENCY **NEGLECTING** TO WARN CONSUMERS ABOUT PASTEURIZED MILK AS A SOURCE OF SALMONELLA OR LISTERIA?

On their website, the Canadian Food Inspection Agency is utilizing selective and suspect reporting against unpasteurized dairy products. Pasteurized milk is a source of *Salmonella*. Nevertheless, on their website, the Canadian Food Inspection Agency **neglects** to include pasteurized dairy products on its list of foods where *Salmonella* has been found:

Where has *Salmonella* been found?

Food can become contaminated with *Salmonella* during the slaughter and processing of an animal, when food is handled by a person infected with *Salmonella*, or by cross-contamination from the environment (birds/frogs passing by) or unsanitary food handling practices. The following foods listed below have been responsible for foodborne illnesses:

- raw and undercooked meat (especially poultry)
- raw fruits and vegetables (especially sprouts and cantaloupes) and their juices, e.g. apple or orange juice
- raw or undercooked eggs
- **unpasteurized** dairy products, like raw milk and raw milk cheeses, cream-filled deserts and toppings
- pet treats
- fish and shrimp
- sauces and salad dressings
- dried gelatine, peanut butter, cocoa and chocolate

Canadian Food Inspection Agency

<http://www.inspection.gc.ca/english/fssa/concen/cause/salmonellae.shtml>

Accessed November 6, 2008

On their website, the CDC writes that “Pasteurization, or heat treatment, of milk is an important milestone in public health that contributed to dramatic declines in many infectious

diseases. Despite the important public health gains achieved, outbreaks associated with pasteurized milk continue to occur. We describe a recent outbreak associated with pasteurized milk....We reviewed the published literature and identified 12 outbreaks in the United States between 1960 and 2000 that were associated with pasteurized milk (Table). Of the 12 outbreaks, seven were caused by contamination after pasteurization, and five were caused by *Salmonella*.”⁵⁶

Date	Location (ref)	Pathogen	Setting	Total no. ill (confirmed)	Mechanism of contamination
Nov 1966	Florida (8)	<i>Shigella flexneri</i> type 2	Community	97 (97)	After pasteurization
Jul-Aug 1975	Louisiana (9)	<i>Salmonella</i> Newport	Military base/community	49 (49)	Unknown
Sep-Oct 1976	New York (10)	<i>Yersinia enterocolitica</i> O:8	School	38 (38)	After pasteurization
Oct 1978	Arizona (11)	<i>S. Typhimurium</i>	Community	23 (23)	After pasteurization
Jun-Jul 1982	Tennessee, Arkansas, Mississippi (12)	<i>Y. enterocolitica</i> O:13, 18	Community	172 (172)	Unknown
Jun-Aug 1983	Massachusetts (13)	<i>Listeria monocytogenes</i> 4b; phage type 2425A	Community	49 (40)	Unknown
Apr 1984	Kentucky (14)	<i>S. Typhimurium</i>	Convent	16 (16)	Inadequate pasteurization
Mar-Apr 1985	Illinois (1)	<i>S. Typhimurium</i>	Community	>150,000 (>16,000)	After pasteurization
Mar-Apr 1986	Vermont (15)	<i>Campylobacter jejuni</i> O:2, 36	School	33 (8)	Inadequate pasteurization
Jul 1994	Illinois (2)	<i>L. monocytogenes</i> 1/2b	Picnic	45 (11)	After pasteurization
Oct 1995	Vermont, New Hampshire (3)	<i>Y. enterocolitica</i> O:8	Community	10 (10)	After pasteurization
Mar-Apr 2000	Pennsylvania, New Jersey	<i>S. Typhimurium</i> , phage type 21, R-type AKSSuT	Community	93 (38)	After pasteurization

Based upon data from the CDC table, there were two outbreaks of *Listeria* from pasteurized milk in the United States – one outbreak in 1983 and another in 1994. In 2007, *Listeria monocytogenes* was found in pasteurized milk resulting in 4 reported illnesses with 3 deaths in Massachusetts.⁵⁷ Therefore, *Listeria* can definitely be found in pasteurized milk. *Listeria* can also be found in pasteurized cheeses. In 1984, an outbreak of *Salmonella typhimurium* from pasteurized cheese sickened several hundred people in Canada.⁵⁸ In 1985, 142 cases and 47 deaths traced to pasteurized Mexican-style cheese contaminated with *Listeria monocytogenes* in the United States.⁵⁹ Nevertheless, on their website, the Canadian Food Inspection Agency cites pasteurized dairy products as a safer alternative to raw dairy products and **neglects** to include pasteurized dairy products as a food to avoid:

Foods to Avoid:	Safer alternatives:
Hot dogs, especially straight from the package without further heating. The fluid within hot dog packages may contain more <i>Listeria</i> than the hot dogs. Avoid spreading fluid from packages onto other foods, cutting boards, utensils, dishes and food preparation surfaces. Wash your hands after handling hot dogs.	Hot dogs reheated until steaming hot
Non-dried deli-meats	Dried and salted deli-meats such as salami and pepperoni, as they generally do not support the growth of <i>Listeria</i> . In addition, you can reduce your risk by reheating deli-meats until steaming hot.
Soft and semi-soft cheeses such as feta, Brie, Camembert and blue-veined cheese if they are made from unpasteurized milk	Pasteurized milk and milk products including cheeses made from pasteurized milk
Refrigerated pâté and meat spreads	Canned or shelf-stable pâté and meat spreads
Refrigerated smoked seafood and fish	Cooked refrigerated smoked seafood and fish. Canned or shelf-stable smoked seafood and fish.
Raw or undercooked meat, poultry and fish	Thoroughly cooked meat, poultry and fish

Canadian Food Inspection Agency

<http://www.inspection.gc.ca/english/fssa/concen/cause/listeriae.shtml>

Accessed November 6, 2008

THE PROPAGANDA CAMPAIGN TO BAN RAW MILK (CIRCA 1900)

According to Ron Schmid, author of *The Untold Story of Milk*, “Powerful commercial interests applied...pressure on politicians and newspapers to extol the virtues of pasteurization and downplay the disadvantages.”⁶⁰ The following four images are examples of how the media “glamorized” pasteurized milk while “demonizing” raw milk:



FIG. 4.2. Educational placard from the Philadelphia Milk Show, 1911. From Rosenau, *The Milk Question*.

POSTER PROMOTING PASTEURIZED MILK, 1911⁶¹



FIG. 6.1. Frontispiece, Belcher, *Clean Milk*.

POSITIVE MEDIA IMAGE OF PASTEURIZED MILK, Circa 1903⁶²

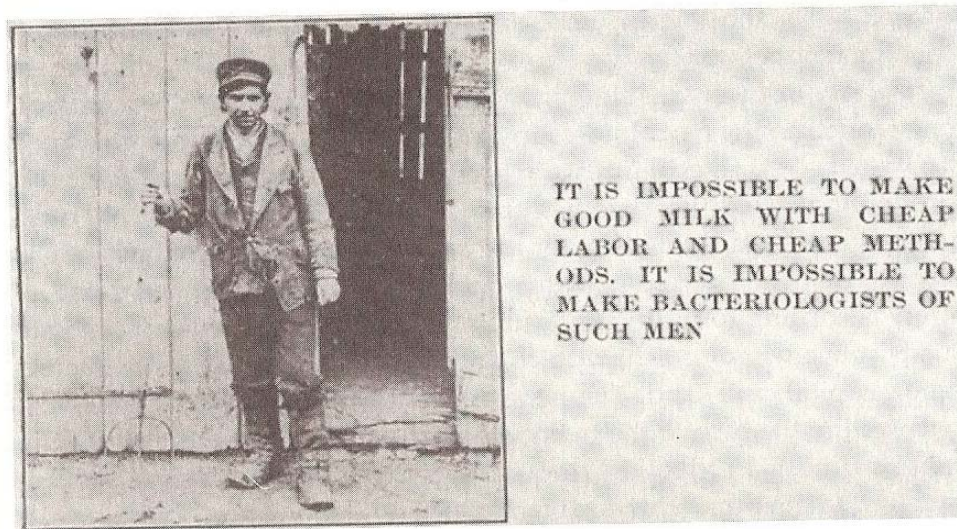


FIG. 6.2. Illustration of a "nonscientific" farmer/farmworker. From Rosenau, *The Milk Question*.

NEGATIVE MEDIA IMAGE OF RAW MILK, 1912⁶³

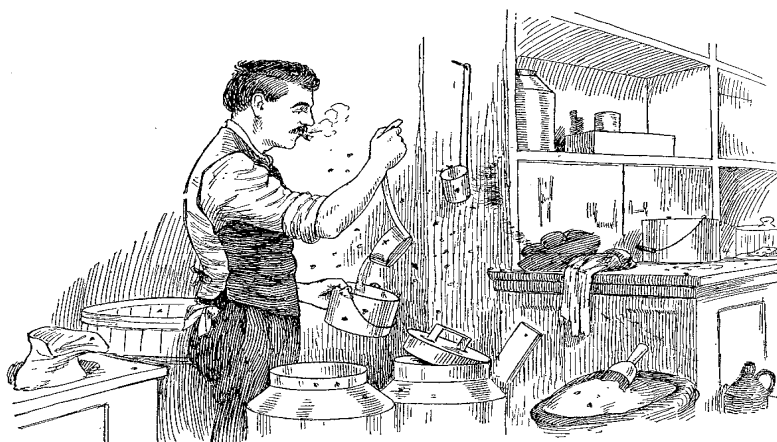


Fig 300. — Notice the opportunities shown in this picture for dirt and bacteria to gain entrance to the milk cans.

NEGATIVE MEDIA IMAGE OF RAW MIK, 1935⁶⁴

BUILT-IN PROTECTIVE SYSTEMS IN RAW MILK

Pasteurization reduces or destroys the built-in protective systems in raw milk. When pathogens such as *E. coli*, *Salmonella* or *Listeria* are added to raw milk, they cannot grow. On the other hand, when these same pathogens are added to pasteurized milk, they flourish. In a letter to the Colorado Department of Public Health, Mark McAfee, President Organic Pastures Dairy, a company that sells raw milk in California, writes, "Organic Pastures contracted with BSK labs in Fresno to perform multiple challenge and recovery tests on our raw milk and raw colostrum. When...pathogens were added to....organic raw milk they would not grow. In fact they died off."⁶⁵ The slide below shows that *Campylobacter* decreases in both chilled and body temperature raw milk.

Pathogens Can Multiply in Pasteurized Milk and Other Foods but Not in Raw Milk

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- *Campylobacter* in chilled raw milk (4° C):
Day 0 = 13,000,000/ml
Day 9 = less than 10/ml¹
- *Campylobacter* in body temperature raw milk (37° C):
Bovine strains decreased by 100 cells/ml in 48 hrs.
Poultry strains decreased by 10,000 cells/ml in 48 hrs.²
- Note that the protective components work more quickly to reduce levels of pathogens in warm milk than in chilled milk.

1. *Applied and Environmental Microbiology*, 1982;44(5):1154-58

2. *Mikrobiyolji Bul*, 1987;21(3):200-5

Based upon the science in 1938, officials could not have known about the many different protective components of raw milk. Today, now that we know about the many protective systems in raw milk, we ask that the law surrounding the ban on raw milk be revised to reflect the new knowledge we have gained over the last 70 years.

Destruction of Built-In Safety Systems by Pasteurization

11

Component	Breast Milk	Raw Milk	Pasteurized Milk	UHT Milk	Infant Formula
B-lymphocytes	active	active	inactivated	inactivated	inactivated
Macrophages	active	active	inactivated	inactivated	inactivated
Neutrophils	active	active	inactivated	inactivated	inactivated
Lymphocytes	active	active	inactivated	inactivated	inactivated
IgA/IgG Antibodies	active	active	inactivated	inactivated	inactivated
B ₁₂ Binding Protein	active	active	inactivated	inactivated	inactivated
Bifidus Factor	active	active	inactivated	inactivated	inactivated
Medium-Chain Fatty Acids	active	active	reduced	reduced	reduced
Fibronectin	active	active	inactivated	inactivated	inactivated
Gamma-Interferon	active	active	inactivated	inactivated	inactivated
Lactoferrin	active	active	reduced	inactivated	inactivated
Lactoperoxidase	active	active	reduced	inactivated	inactivated
Lysozyme	active	active	reduced	inactivated	inactivated
Mucin A/Oligosaccharides	active	active	reduced	reduced	inactivated
Hormones & Growth Factors	active	active	reduced	reduced	Inactivated

1. *Scientific American*, December 1995.
 2. *The Lancet*, 17 NOV 1984;2(8412):1111-1113.

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Lactoperoxidase

- Uses small amounts of H₂O₂ and free radicals to seek out and destroy bad bacteria⁶⁶
- Found in all mammalian secretions—breast milk, tears, saliva, etc.^{67, 68}

Lactoferrin

- Plentiful in raw milk; effectiveness greatly reduced by pasteurization⁶⁹
- Steals iron away from pathogens and carries it through the gut wall into the blood stream; stimulates the immune system⁷⁰
- Kills wide range of pathogens; does not kill beneficial bacteria.⁷¹
- In a study involving mice bred to be susceptible to tuberculosis, treatment with lactoferrin significantly reduced the burden of tuberculosis organisms.⁷²
- FDA approved for use in anti-microbial spray to combat *E. coli* O157:H7 contamination in meat industry.⁷³

Other Bioactive Components I in Raw Milk – Components of Blood

- **Leukocytes**—Eat all foreign bacteria, yeast and molds (phagocytosis). Destroyed at 56C and by pumping milk. Produce H_2O_2 to activate the lacto-peroxidase system. Produce anaerobic CO_2 that blocks all aerobic microbes. Basis of immunity.
- **B-lymphocytes** – Kill foreign bacteria; call in other parts of the immune system^{74, 75}
- **Macrophages** – Engulf foreign proteins and bacteria⁷⁶
- **Neutrophils** – Kill infected cells; mobilize other parts of the immune system⁷⁷
- **T-lymphocytes** – Multiply if bad bacteria are present; produce immune-strengthening compounds⁷⁸
- **Immunoglobulins (IgM, IgA, IgG1, IgG2)**--Transfer of immunity from cow to calf/person in milk and especially colostrum⁷⁹
- **Antibodies**—Bind to foreign microbes and prevent them from migrating outside the gut; initiate immune response.

Coliforms in raw milk inhibit pathogen growth – coliforms are a sign of sterility (not an indicator of safety)

- Lactobacillus and staphylococcus produce bacteriocins against *L. Monocytogenes* and are sold as commercial starters to control *Listeria*.⁸⁰
- Staphylococci, Streptococci, Lactobacillis and *Ent. faecalis* in raw human milk inhibit pathogenic *Staph aureus*.⁸¹

HISTORY OF SAFE RAW MILK IN CALIFORNIA

The sale of raw milk is legal in the state of California where Claravale Farm has been selling raw milk commercially for 80 years. Their company provides an excellent example of a dairy that can successfully and safely produce and sell raw milk. According to their website, “no consumers of Claravale Farm milk have ever died or gotten sick from milk borne pathogens and no pathogens have ever been detected in the milk. Much of this safety record lies in the fact that we are a small dairy, use old-fashioned, time honored production methods, and handle the milk properly.”⁸²

Canada is the only G8 country with an outright ban on the sale of raw milk. Aside from Canada, all of the other G8 countries have systems in place to sell raw milk. We know that raw milk can be produced and sold safely in a modern age. The Ontario government could easily obtain data from the other G8 countries in order to learn how to implement a raw milk distribution system here.

21st CENTURY ADVANCEMENTS

Considering the many scientific and technological innovations we have made to date, the Milk Act is antiquated and therefore requires updating. Compared to 30-50 years ago, dairy farmers today can take advantage of many new advancements that contribute to a safe product:

- Managed rotational grazing, ensures healthy cows
- Understanding of and effective testing for all zoonoses (diseases that cross-infect from animals to humans)
- Understanding of how water-borne pathogens get into bulk milk and control measures.
- Effective cleaning systems
- Refrigerated bulk tanks
- Refrigerated transportation
- Easier and inexpensive milk testing techniques⁸³

Given the resistance from public health officials over the legal sale of raw milk, one has to wonder if it is possible that they are unaware of the advancements which have surfaced since the introduction of the Milk Act in 1938. Are they denying that we have made any progress at all in the areas of science and technology?

SCIENTISTS' REMARKS ABOUT RAW MILK

- 1) Art Hill, a University of Guelph food science professor, grew up on a farm and drank raw milk without any problems. Professor Hills says that people develop immunity over time to the bacteria in raw milk. He is not opposed to legalizing raw milk, as long as it has tested often and strictly monitored, and customers know the risks.⁸⁴
- 2) According to microbiologist Ron Hull, PhD: "Raw milk will definitely come; it is just a matter of time. The forces that are pushing for it will win because the people who are arguing against it are arguing out of ignorance or commercial reasons. It (raw milk) has to come because the scientific arguments aren't valid and never have been..."⁸⁵

THE INCREASE IN DEMAND FOR RAW MILK IS DRIVING AN INCREASE IN SUPPLY

Raw milk consumers are not going away. In fact, demand for raw milk is increasing. Given the current economic crisis, the government should be doing everything in its power to encourage, rather than deny, the growth of small businesses. According to a recent article in the *Boston Globe*,

- Dairies are selling more raw milk than they were five years ago, according to the Northeast Organic Farming Association, which says it receives calls weekly from consumers trying to find it.
- Massachusetts is among 28 states in which raw milk can be sold for human consumption, and in the past two years, the number of dairies licensed to sell it here has gone from 12 to 23.
- "I do believe it's a safe product," said Scott Soares, the Assistant Agricultural Commissioner, Massachusetts Department of Agricultural Resources.⁸⁶

Another way to resolve the “debate” over the safety of raw milk includes the involvement of the scientific community. Unfortunately, over the last few decades, the universities have been accepting enormous amounts of money from industry, compromising the quality of the research they produce. Biased science is not pure science. In fact, it is not science at all. Academia has a moral and ethical obligation to protect the virtues of science. According to David Ludwig, MD, PhD, "If a study is funded by the industry, it may be closer to advertising than science."⁸⁷ Jennifer Washburn, author of the book, *University Inc: The Corporate Corruption of Higher Education*, is a freelance journalist who is concerned about the influence that corporations have over the science performed at our universities. She says:

“Corporate funding of universities is growing and the money comes with strings attached. In return for this largesse, universities are acting more and more like for-profit patent factories, while professors are behaving more like businessmen. Secrecy is replacing the free flow of basic knowledge, university funds are shifting from the humanities to more commercially lucrative science labs, and the skill of teaching is valued less and less.”⁸⁸

If raw milk is as dangerous as our public health officials say, then they must do appropriate scientific research to back up their statements. For the science to be pure, the money to fund the study must come from the public and conducted in an environment which is not influenced by industry pressure or bias. The results of any up-to-date raw milk studies could reveal that, over the last 100 years, we have been wrong in our views on the dangers of raw milk and could justify the revision and updating of a patently unfair 70-year-old law.

RESOURCES

The Raw Truth About Milk, William Campbell Douglass II, MD, Rhino Publishing, 2007.

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