

**2015 REPORT TO THE NATURAL RESOURCES, AGRICULTURE &
ENVIRONMENT INTERIM COMMITTEE and the HEALTH & HUMAN SERVICES
INTERIM COMMITTEES**

Prepared by the Utah Department of Agriculture and Food and the Utah Department of Health

UNPASTEURIZED MILK-ASSOCIATED DISEASES IN UTAH

I. Purpose and Summary:

The Utah Code, Title 4-3-14(7) required the Utah Department of Agriculture and Food (UDAF) and the Utah Department of Health (UDOH) to report to the Natural Resources, Agriculture and Environment Interim Committee and the Health and Human Services Interim Committee in 2008 and 2009. The report was to communicate health problems in Utah resulting from the sale of unpasteurized, or raw, whole milk at self-owned retail stores. Although no longer required, this report will continue to be produced annually on the illness associated with the production of unpasteurized milk. Unpasteurized milk consumption continues to be associated with severe illness and even, though rare, death in Utah.

II. Background and Overview

The Utah Department of Agriculture and Food, with the concurrence of the Utah Department of Health and the U.S. Food and Drug Administration (FDA), strongly advises against the consumption of raw milk. Contrary to many misbeliefs and misinformation, pasteurized milk does not lose any of its nutritional value nor are there any deleterious compounds formed as a result of pasteurization.

Unpasteurized (raw) milk consumption is a recognized risk factor for diarrheal illnesses due to bacteria such as *Campylobacter*, *Salmonella*, and Shiga toxin-producing *E. coli* (STEC) including *E. coli* O157:H7. Other diseases potentially transmitted through unpasteurized milk include brucellosis, *S. aureus* infection, tuberculosis, Q fever, listeriosis, yersiniosis, toxoplasmosis, and rabies.

Physicians, laboratories, and other entities that identify these infections are required to report them to their local health department or UDOH. Public health investigators then interview cases for food, travel, water, and animal exposure history, as well as other risk factors to

determine a possible source of illness. In addition to consumption of unpasteurized milk and products made with raw milk, other common risk factors for diarrheal illnesses include eating improperly cooked animal products or foods contaminated by animal products, drinking untreated water, handling livestock, contact with reptiles and amphibians, and household or close contact with someone who has diarrheal illness.

III. Utah Dairy Act

The UDAF currently has four different dairy farm permits:

1. Sell Grade A unpasteurized milk to a Grade A plant for pasteurization, then sold as fluid milk (Title 4-3-10(2)).
2. Sell Manufacturing Grade milk to a plant for pasteurization, then manufacture dairy products (e.g. cheese, ice cream) (Title-4-3-10(2)).
3. Sell unpasteurized milk, must be bottled and sold on the premises (Title 4-3-14(2)).
4. Sell unpasteurized milk, may be bottled and sold at retail establishment off premises (Title 4-3-14(3)).

The last two permits are the only legal means by which unpasteurized milk may be sold for human consumption in Utah. In 2007, the Utah Legislature approved an expansion to the means by which unpasteurized milk may be sold in Utah. This expansion allowed authorized dairies to transport their unpasteurized milk to an off-site retail store owned and operated by the dairy (permit listed as 4 above) and sell it to the public.

III-a. Herd Sharing

Since the passage of HB 104 during the 2015 legislative session, UDAF has received 8 registrations for a herd share. A list of “registrants” is available upon request.

As indicated in UCA 4-3-1-3 (1) A producer who is in a cow-share program, as defined in Section 4-3-1, shall notify the department of the herd-share program and include in the notification:(a) the producer's name; and (b) a valid, current address of the farm on which the milk producing hoofed mammal in the herd-share program is located. (2) Upon receipt, the department shall keep a notification of a cow-share program.

Nevertheless, UDAF has reason to believe there may be numerous, unregistered, “herd-sharing operations” occurring throughout the state.

IV. Raw Milk Products

Raw milk products are regulated differently than raw milk. Raw milk products include items such as yogurt, cottage cheese, cheeses, whipping cream, cheese curds, sour cream and similar items produced from raw milk. Raw milk products are not allowed to be sold in Utah, except for raw milk brick cheese.

Utah Administrative Code R70-330, the Raw Milk Rule, states that “Raw milk brick cheese held at 35°F for at least 60 days may be sold at retail stores or for wholesale distribution, at locations other than the premise where the milk was produced.” (R70-330-5F) As long as raw milk brick cheese is prepared as stated, and is prepared at a facility permitted and inspected by UDAF, it may be sold legally at any retail facility.

The Rule further states that “All milk products made from raw milk including, but not limited to: cottage cheese, buttermilk, sour cream, yogurt, heavy whipping cream, half and half, butter and ice cream shall not be allowed for sale in Utah.” (R70-330-5G). These products are risky because they have not been pasteurized and they undergo more complex processing than the raw milk they are made from. For example, in the “Mr. Cheese” *Salmonella Newport* outbreak mentioned in Section VII of this report, cheese was made from raw, unpasteurized milk; rather than being immediately cooled and aged as raw milk cheese intended for consumption would be, the milk was processed at room temperature into cheese blocks that were sold to consumers without being held for 60 days.

V. Health Problems Associated With or Resulting From the Sale of Unpasteurized Whole Milk at Self-Owned Retail Stores.

From 2005-2014 UDOH 409 cases of enteric diseases (*Campylobacter*, *Salmonella*, and STEC) have been associated with the consumption of unpasteurized milk. *Campylobacter* is the illness most often associated with raw milk consumption and it accounts for 89% (364/409) of Utah’s raw milk illnesses. Approximately half of these cases, where information was available, (168/319) reported the known source of unpasteurized milk as a dairy or dairy-owned retail store. A regulated dairy in Ogden was responsible for 68% (114/168) of the cases. There were 151 cases of illness that came from non-regulated sources; 90 from family farms, 32 cases reported unregulated dairies, and 29 cases reported drinking milk from an out of state dairy. The

other 90 cases could not recall the dairy name, or refused to answer the question when interviewed.

During the same ten year period, 14.3% of people in Utah with campylobacteriosis for whom data were available (including outbreak-related cases) reported having consumed unpasteurized milk or unpasteurized milk products. Consumption of unpasteurized milk was reported in 2.1% of cases with Shiga toxin-producing *E. coli*; and in 2.9% of those with salmonellosis (see section VIII).

Although a low percentage of ill persons report consuming unpasteurized milk annually, there are several factors that may contribute to the under-reporting of raw milk consumption.

These factors include: 1) research has demonstrated that infections with enteric organisms are incompletely diagnosed and reported to public health; 2) patrons of these stores might decline to provide information about the source of their milk in order to protect that source from public health or similar action; and 3) identification of exposure to unpasteurized milk and of the sources of that milk depend on investigations conducted by Utah's local health department (LHD) investigators, and inadequate local public health resources often limit the timeliness and completeness of those investigations.

V. a. List of Active Raw for Retail Dairies in Utah, 2015

Throughout the 2015 calendar year, UDAF has had several inquiries from individuals wanting to start Raw for Retail (RFR) dairy farms in the following locations: Delta, Fillmore, Kanab, La Sal, Porterville, Provo and Spring City, just to name a few. Of these inquiries, three (3) new RFR cow dairies have met the requirements of the raw milk rule and are now in operation.

Dairy Name	Location
Raw Milk Cow Dairies	
Anderson Family Farm	Huntington, UT
Heber Valley Milk	Heber, UT
(New) MilkStan Dairy	Delta, UT
Redmond Heritage Farms LLC	Redmond, UT
Retail Location - Real Foods Market	Salt Lake City, UT
Retail Location - Real Foods Market	Orem, UT
Retail Location - Real Foods Market	Heber, UT

Retail Location - Real Foods Market	St. George, UT
(New) Rose Family Farm	Porterville, UT
(New) Merry Go Dairy (now a herd share)	Fillmore, UT

Raw Milk Goat/Sheep Dairies

Drake Family Farm	West Jordan, UT
Green Gate Dairy	Goshen, UT
Sweet Deseret Farm	Pleasant View, UT

VI. Prevention and Collaboration

The UDAF and the UDOH have implemented a procedure for timely investigation and sharing of information between the two agencies regarding these cases. The goal of our response is to rapidly discontinue public access to contaminated unpasteurized milk, should evidence of such contamination be detected. Currently, UDAF notifies UDOH of any dairy that has a coliform count greater than one. UDOH then notifies the LHD with investigatory jurisdiction over that dairy. This allows several agencies to be notified early on of any potential risk of exposure.

Increased collaboration has led directly to improved services. For example, in June 2014, an outbreak of campylobacter jejuni with PFGE pattern UTDBDS16.944 was identified and investigated. This outbreak included 99 cases with onset dates ranging from 5/9/2014 to 11/6/2014. Symptoms ranged from mild stomachache and diarrhea to hospitalization and even one death. This outbreak required UDAF to inspect the farm on three separate occasions. Upon the first inspection, nothing was noted as being problematic to the farm. Raw milk bulk tank samples were taken from the farm in Weber County, and results were acceptable for coliform count and somatic cell count. During the second inspection, a cooling issue was discovered showing that the raw milk was not being cooled to proper temperature. This issue was noted and the farmer informed UDAF that it was fixed by the following week. Once again, the samples taken during the second inspection passed the tests for coliform and somatic cell count. On the third inspection in late July 2014, raw milk samples were tested specifically for campylobacter. The samples tested positive for *C. jejuni* and were later PFGE matched to the human isolates. On August 6, 2014 the dairy had its permit to sell raw milk suspended until it could prove that their milk was free of campylobacter. After much testing and cleaning of the dairy, UDAF reinstated the permit to sell raw milk on October 1. Within two weeks, additional cases

matching the outbreak pattern were identified. UDAF officially and permanently revoked the permit for this dairy to sell raw milk on December 1, 2014. This outbreak was the largest raw milk associated outbreak in Utah’s history with nearly 100 known cases, 10 hospitalizations, and one death.

VII. Summary of Unpasteurized Milk Associated Outbreaks In Utah, 2005-2014.

From 2005-2014 there were 27 outbreaks identified to be associated with raw milk consumption in Utah. As a result of these investigations, 359 were identified. UDAF assisted multiple dairies with returning to compliance and correcting issues in a timely manner. There were an average of three outbreaks per year, with 13 cases per outbreak, and most of them were due to *Campylobacter* infection. The CDC estimates that enteric diseases are under-reported by a factor of 30. Using this estimate, each of these small outbreaks affects approximately 390 people. During this ten year period, cases reported to have consumed milk from at least 57 different locations, not including family/friend owned dairies.

Table. 1 Raw Milk Outbreak Summaries 2005-2014.

Year	Organism	Number Ill	Local Health Department	Description
2005	Campylobacter	11	Bear River	Church gathering where cookies and raw milk were served.
	Campylobacter	7	Southwest	Cases drank raw milk from an Arizona dairy.
	Campylobacter	3	Central	A veterinary technician class visited a dairy and consumed raw milk.
2006	Campylobacter	2	Southwest	Cases drank raw milk from an Arizona dairy.
2007	Campylobacter	26	Utah County	This outbreak involved both raw cow and goats milk.
2008	Campylobacter	4	Weber-Morgan	Cases drank raw milk from a licensed Weber County dairy.
2009	Campylobacter	3	Bear River	Cases drank raw milk from a friend's cow.
	Campylobacter	3	Central	Cases drank raw milk obtained from an unknown dairy in Delta, Utah
	Campylobacter	14	Bear River	Cases drank raw milk obtained from a friend.

2010	Campylobacter	13	Southwest	Cases drank raw milk and ate raw milk cheese curds purchased at a dairy in Arizona.
	Campylobacter	5	Weber-Morgan	Cases drank raw milk from a licensed Weber County dairy.
	Campylobacter	4	Weber-Morgan	Cases drank raw milk from a licensed Weber County dairy..
	Campylobacter	5	Bear River	Raw milk was obtained from a friend.
	Campylobacter	3	Weber-Morgan	Cases drank raw milk from a licensed Weber County dairy.
	Salmonella	10	Central	Cases drank raw milk from a licensed dairy in Central Utah with multiple stores throughout the state.
2011	Campylobacter	19	Utah County	Cases occurred throughout Utah. Cases drank raw milk, but the source of the raw milk was not identified.
	Salmonella	46	State Lab	Cases were associated with queso fresco made from contaminated raw milk. The distributor was given a cease and desist letter by UDAF.
2012	Campylobacter	8	Wasatch	Cases drank raw milk from a licensed dairy.
	Campylobacter	4	Weber-Morgan	Cases drank raw milk from a licensed Weber County dairy.
	Campylobacter	12	Weber-Morgan	Cases drank raw milk from a licensed Weber County dairy.
	Campylobacter	2	Southwest	Cases ate raw milk cheese curds purchased at a dairy in Arizona.
2013	Campylobacter	24	Weber-Morgan	Cases drank raw milk from a licensed Weber County dairy.
	Campylobacter	5	Weber-Morgan	Cases drank raw milk from a licensed Weber County dairy.
	Salmonella	2	Weber-Morgan	Cases drank raw milk from a licensed Weber County dairy.
	Campylobacter	4	Southwest	Cases drank raw milk and ate raw milk cheese curds purchased at a dairy in Arizona.
2014	Campylobacter	21	Central	Cases drank raw milk from a licensed dairy in Central Utah with multiple stores throughout the state.

Campylobacter

99

Weber-Morgan

Utah's largest outbreak of campylobacter, the dairy's permit to sell raw milk was permanently revoked in December 2014.

VIII. All Illnesses Associated with Unpasteurized Milk Consumption

Table 2: Percent of cases of campylobacteriosis, Shiga toxin-producing *E. coli* (STEC) infection, and salmonellosis who reported consuming unpasteurized (raw) milk or unpasteurized milk products, State of Utah, 2005-2014.

Year	Campylobacteriosis	STEC	Salmonellosis
2005	23.7	2.8	3.0
2006	18.4	2.7	1.9
2007	36.6	0.0	5.8
2008	9.8	3.7	1.6
2009	8.9	1.0	1.5
2010	10.8	1.4	4.8
2011	8.4	0.0	3.0
2012	8.7	3.0	1.4
2013	12.4	4.3	1.4
2014	21.5	3.8	1.9
2005-2014	14.3	2.1	2.9

Campylobacter: Number and percentage of cases of campylobacteriosis who reported consuming unpasteurized (raw) milk or unpasteurized milk products, State of Utah, 2005-2014. **Table 3.**

Year	Raw Milk	Answered*	%
2005	37	156	23.7
2006	25	136	18.4
2007	59	161	36.6
2008	21	214	9.8
2009	22	248	8.9
2010	38	352	10.8
2011	33	392	8.4
2012	39	446	8.7
2013	53	428	12.4
2014	109	507	21.5

2005-2014	436	3040	14.3
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*Answered: Number of cases for whom a response was available (excludes lost to follow-ups).

Shiga toxin-producing *E. coli* (STEC): Number and percentage of cases of STEC illness who reported consuming unpasteurized (raw) milk or unpasteurized milk products, State of Utah, 2005-2014. **Table 4.**

Year	Raw Milk	Answered*	%
2005	1	36	2.8
2006	3	113	2.7
2007	0	59	0.0
2008	2	54	3.7
2009	1	99	1.0
2010	1	70	1.4
2011	0	132	0.0
2012	3	99	3.0
2013	3	70	4.3
2014	3	80	3.8
2005-2014	17	812	2.1

*Answered: Number of cases for whom a response was available (excludes lost to follow-ups).

Salmonella: Number and percentage of cases of salmonellosis who reported consuming unpasteurized (raw) milk or unpasteurized milk products, State of Utah, 2005-2014. **Table 5.**

Year	Raw Milk	Answered*	%
2005	5	164	3.0
2006	3	154	1.9
2007	9	156	5.8
2008	4	247	1.6
2009	4	270	1.5
2010	14	313	4.5
2011	17	293	5.8
2012	3	215	1.4
2013	4	281	1.4
2014	6	311	1.9
2005-2014	69	2404	2.9

*Answered: Number of cases for whom a response was available (excludes lost to follow-ups).

2015 Food Borne Illnesses

So far this calendar year there have been four reported incidents of food borne illness associated with the consumption of raw milk, involving as many as 15-20 individuals. Although separate incidents, many appear to be occurring in Sanpete County.

April 2015 – A case of *Salmonella* was reported to Salt Lake Valley Health Department. In this case, a 5 year old SLC girl was given raw milk by her grandmother who she was visiting in Spring City, UT. Upon investigation, the grandmother refused to provide any information about the farm where the milk was obtained except that it was purchased from a farmer in Fairview, Utah, who allegedly sells raw milk to neighbors.

Although the illness affected several other individuals who also consumed the raw milk, only the 5 year old was taken to the doctor for diagnosis and medical treatment.

“My daughter initially got sick Tuesday night 4/7 with a very high fever 104.6 and maintained her fever until Friday when she started having severe diarrhea. Saturday we noticed blood in her diarrhea as well as in her vomit. She was seen on 4/10 and 4/11 by pediatricians for her symptoms. A stool culture was obtained and we received the results the following Monday. She continued to have diarrhea and abdominal cramping with lower fever until 4/16.”

- Mothers Quote from the “I Got Sick” Website.

June 2015 – An incident of *Salmonella* occurred and reported on the “I Got Sick” website. A 20 year old woman became ill after consuming ice cream derived from raw milk. This incident occurred in Fairview UT., while visiting relatives in May. Upon interview, the patient indicated that others in the group also became ill, however, never sought medical attention.

Investigational Summary: In both incidents, the patients refused to disclose the source of where the raw milk was obtained. At this time, UDAF is investigating two dairy operations that may be selling raw milk illegally.

October 2015 – Salt Lake County An incident of *Salmonella Newport* occurred and reported to Salt Lake Valley Health Department, involving one confirmed case (thirty year old female) and two ill family members who haven’t been tested. The family purchased raw milk from someone participating in a herd share.

October 2015 – Utah County

In a separate incident, a young boy was diagnosed with *Salmonella Newport*.

A telephone call to patient's mother; She said the patient had visited his dad in Fountain Green 10/14-10/19. They have chickens and other farm animals. They also drank raw milk. She said her other son that went to see his dad also became sick but got better without being seen by a doctor or tested. She also said there are 7- 8 other kids living in the household with the dad who also became sick. – Cindy Burnett, UDOH Epidemiologist,

A joint investigation between the Utah Department of Agriculture and Food and the Utah Department of Health has determined that a small CSA facility located in Fountain Green, UT, has been obtaining raw, unpasteurized milk from a grade A dairy farm located in Fairview, UT. The CSA has been bottling and redistributing the raw milk throughout Utah and Salt Lake Counties in exchange for donations. The CSA and grade A dairy farm were issued Cease and Desist letters on November 18th and November 24th, 2015 respectively.