
Handling Raw Milk From A Food Safety Perspective

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Allow Me To Introduce Myself

- Graduate of UF
 - Bachelors in Psychology
 - Masters in Health Education and Behavior
- Health education field since 2006; began with UF/IFAS Extension in 2011
- Currently work in nutrition, wellness, and food systems
 - Food safety education and certification (ServSafe, SafeStaff, general)
 - Nutrition and wellness education

Objectives

- Define milk, raw milk, pasteurization, and homogenization
- Risks of consuming raw milk in the US
- Popularity of raw milk in the US
- Common myths and facts
- Florida law concerning sale of raw milk to the public
- Safe handling, milking, and storage
- Testing for quality and safety
- Other marketing opportunities

What Is Milk?

- A fluid secreted by mammary glands for nourishment of young and consists of casein, albumin, milk sugar, and inorganic salts
- Popular sources: cow, sheep, goat, water buffalo, camel
- Important food source for humans
 - Provides carbs, fats, proteins, and nutrients (Ca, P, Vitamins A, D and B)
 - Dairy food group, important for our overall health
 - Pasteurized and homogenized
- Milk composition varies by herd, breed, animal, feed, seasons, geography
- Goat milk in general
 - Consumers becoming aware of potential health benefits
 - Higher protein content, lower allergens, lower cholesterol concentrations

What Is Raw Milk?

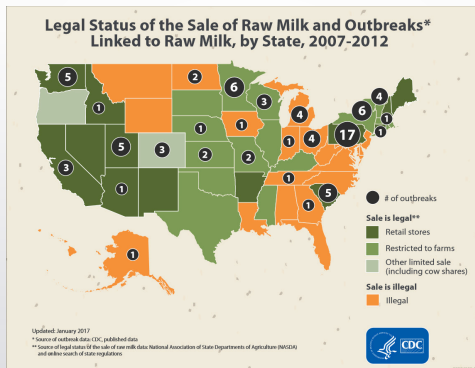
- Milk that has not been pasteurized and not homogenized
 - Pasteurization: process of heating for an amount of time
 - Homogenization: process of separating milkfat from liquid
- Popular local sources: cow, goat, sheep

What Are The Risks?

- Raw milk may be contaminated with bacteria that can cause illness
 - Most common: Brucella, Campylobacter, Cryptosporidium, E. coli, Listeria, and Salmonella
 - 2007-2012: 81 outbreaks caused 979 illnesses and 73 hospitalizations
 - Almost 59% of cases linked to children under 5 years of age
- Outbreaks linked to raw milk tend to cause more severe illness
 - E. coli – HUS (kidney failure)
- Majority of outbreaks connected to raw milk occur in states where it is legal
- Almost 70% of all illnesses linked to raw dairy, even though only 1%-3% of population consumes raw dairy products

CDC
Real Raw Milk Facts

Legal Status of the Sale of Raw Milk and Outbreaks*
Linked to Raw Milk, by State, 2007-2012



Why Is Raw Milk So Popular?

- Many claims link raw milk to improved health
 - Such as reduced allergies, lactose intolerance, and asthma in children and adults
 - Three studies show some positive effects, but all were done with children raised on farms
 - Lower rates of allergies, asthma, etc. linked more to farming lifestyle than raw milk consumption

Myths

- Raw milk is healthier and more nutritious than pasteurized milk
- Pasteurization kills good bacteria and changes the nutritional benefits
- If animals are raised in sanitary conditions or on humane farms, the milk is safer and cleaner
- Raw milk that is tested and shows a negative result means that it is clean of bacteria
- Growing up drinking raw milk means it is always safe to drink raw milk
- People who are lactose intolerant can drink raw milk without getting sick
- Raw milk is safe and healthy for babies

What Does The Law Say?

- Before pasteurization, many illnesses and deaths related to milk and milk products
- According to 2017 Florida Statutes 502.091
 - No raw milk sales to public
 - Milk and milk products must be pasteurized
 - Cheese from raw milk possible under certain conditions
- Can be sold as pet food or for pet consumption
- To sell milk and milk products, see FDACS applications
 - Distributor, Producer, Manufacturer

Safe Handling, Milking, and Storage

- Clean facility and hands
- Equipment maintenance, repair, and replacement
- Animal health
 - Mastitis/Udder health
 - Inflammation of the mammary gland caused by bacteria
 - Decreased milk production and quality
 - **Subclinical** (appears healthy but elevated somatic cell count/WBC) and **Clinical** (noticeable abnormalities)
- Refrigeration
- Pasteurization

Off The Grid News
eXtension

Testing for Quality and Safety

- Testing can be done at food or milk testing labs
- Test for microbial load of bacteria, somatic cell count, and coliforms
- Animal, facility, and handler cleanliness lowers risk, but doesn't eliminate it

Milk	Test	Maximum Limit
Prepasteurized milk for Grade A use	Total bacteria	Individual producer not to exceed 100,000/ml ¹
		Commingled not to exceed 300,000/ml ²
	Somatic cell count	Individual producer not to exceed 750,000/ml
	Drugs	No positive test on drug residue detection
Grade A pasteurized milk	Total Bacteria	20,000/ml
	Coliforms	Not to exceed 10/ml
Raw milk ³	Total bacteria	30,000/ml
	Somatic cell count	Not to exceed 750,000/ml
	Drugs	No positive test on drug residue detection

Microbial Standards for Milk, FDA Pasteurized Milk Ordinance 2009

Other Potential Marketing Opportunities

- Soap
- Lip balm
- Lotion
- Face wash
- Bath salts
- Hair mask
- Pet products

Resources

- Sale of Raw Milk and Outbreaks Linked to Raw Milk, by State (CDC, 2015)
- Two Milks: Pasteurized and Raw. Real Raw Milk Facts Hot Topics www.realrawmilkfacts.com
- Raw Milk Questions and Answers (CDC, 2017)
- Florida Statutes: Title XXIII, Chapter 502.091 www.leg.state.fl.us/statutes
- Florida Department of Agriculture www.freshfromflorida.com
- Milk Microbiology www.milkfacts.info
- Larocque, L. (2015). *How to Handle Raw Milk...And Even Make it Last Longer*. Off the Grid News. June 2015.
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Contact

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Questions?

