

Questions and Answers on the Consumption of Raw Milk

BfR FAQ of 13 April 2016

The number of dairy farms selling raw milk via raw milk vending machines is on the increase. Although raw milk vending machines display a notice stating "raw milk - boil before consumption", individual reports on outbreaks of food infections in connection with the consumption of raw milk suggest that consumers do not always follow this advice. The Federal Institute for Risk Assessment (BfR) points out that the consumption of raw milk is associated with health risks. Raw milk can be contaminated by bacteria that can cause illness. Some of the pathogens might be directly excreted by the animal via the mammary gland. Most of the pathogens enter the milk during the milking process due to inadequate hygiene, however. Particularly sensitive groups of the population such as children, pregnant women, elderly or sick persons should therefore refrain from consuming raw milk that has not been boiled beforehand. However, the consumption of non-boiled raw milk also carries an increased risk of food infection for healthy adults and these infections can result in minor to severe illness depending on the type of pathogen involved. The BfR has put together some questions and answers on the topic of raw milk.

What is raw milk?

Raw milk is the term used to describe untreated milk from cattle, sheep and goats that is sold to the consumer with its natural fat content without undergoing homogenisation and heat treatment (e.g. pasteurisation). The raw milk is sold either packed in retail outlets as so-called "certified raw milk" or directly by the milk producer via raw milk vending or other machines. If the raw milk is not certified raw milk from specially monitored dairy farms, the producer must display a notice to prevent raw milk from being consumed without having been heated beforehand.

What are the potential health risks of raw milk?

Raw milk is a sensitive foodstuff. Due to the fact that it is obtained directly from the animal in the milking parlour following a filtration stage but without further processing (pasteurisation), it can be contaminated with disease-causing bacteria like *Salmonella*, *Campylobacter* or enterohaemorrhagic *Escherichia coli* (EHEC). In some cases, these bacteria can cause serious illness.

Are there population groups that are particularly at risk?

In the case of infants, small children, older people and people with certain underlying illnesses (immunodeficiency), the infections can have particularly severe consequences. These risk groups should therefore also boil certified raw milk before consuming it. Non-certified raw milk should generally not be consumed unless it has been heated.

Does this risk also exist if the raw milk is sold via raw milk vending machines?

Raw milk vending machines keep raw milk cool and prevent growth of bacteria. However, disease-causing bacteria may already have entered the milk from the animal, above all during the milking process. Cooling itself does not reduce the number of bacteria, which means that the risk of infection is still present.

In the recent past, there have been occasional reports on disease outbreaks involving *Campylobacter* in connection with the sale of raw milk via vending machines. It is possible that sale via these kinds of machines results in changes in consumer behaviour, in that consumers drink the milk directly "on site" without the milk being heated beforehand.

How can consumers protect themselves against food infections caused by raw milk?

The only way people can protect themselves against infection when consuming raw milk is to boil the milk before drinking it or before using it to make other dishes containing milk that are not heated prior to consumption, such as homemade yoghurt. This is also why there are legal requirements stipulating that raw milk may not be sold without informing people that it is to be boiled before consumption. The exception to this rule are specially monitored dairy farms who have to meet special hygiene requirements that allow them to distribute so-called "certified raw milk". You can find more information (in German) on the avoidance of foodborne diseases in the information sheets of the BfR on

protection against food infections in the private household at

http://www.bfr.bund.de/cm/350/verbrauchertipps_schutz_vor_lebensmittelinfektionen_im_privathaushalt.pdf

and protection against foodborne *Campylobacter* infections at

<http://www.bfr.bund.de/cm/350/verbrauchertipps-schutz-vor-lebensmittelbedingten-infektionen-mit-campylobacter.pdf>

Is certified raw milk safe?

Certified raw milk is packaged raw milk from strictly controlled dairy farms which is available in retail outlets. Certified raw milk is governed by strict regulations in terms of production and treatment as well as microbiological testing. The packages must be labelled "Raw milk", but no warning is required that the milk should be boiled prior to consumption. Despite the strict controls and compliance with microbiological criteria, the possibility that disease pathogens responsible for foodborne infection may also be present in certified raw milk cannot be ruled out. It is to be assumed that the probability of a foodborne infection due to certified raw milk is lower than that due to raw milk from conventional farms.

How should certified raw milk be stored if it is to be consumed without being heated?

Certified raw milk must not be stored at temperatures above 8 °C. This information must be included on the carton, as must a use-by date. The use-by date indicates the time up to which highly perishable foodstuffs may be consumed. In the case of certified raw milk, the use-by date must be no later than 96 hours (in other words, four days) after the time of milking. Consumers should always comply with the storage instructions. Certified raw milk is to be boiled prior to consumption, if intended to be consumed by risk groups, e. g. small children,.

What are the legal regulations governing the sale of raw milk?

Unpackaged sale of raw milk is only permitted directly by the dairy farm ("milk from the farm" marketing). The sale of unpackaged raw milk to communal catering facilities like canteens or caterers is not permitted. Moreover, packaged raw milk (certified raw milk) may not be used in communal catering facilities (canteens, hospital kitchens, schools and childcare facilities) unless it has been boiled beforehand. Points of sale for raw milk must display a clearly visible notice stating "Raw milk - boil before consumption" informing customers about the safe handling of raw milk.

What can dairy farmers do to make raw milk safer?

Dairy farmers who sell raw milk directly to consumers should be aware that the sale of "milk from the farm" can also involve microbiological risks. The milk may contain pathogenic microorganisms like *Campylobacter*, enterohaemorrhagic *Escherichia coli* (EHEC) or Salmonella, for example. Agricultural businesses should therefore pay particular attention to the following:

- Optimisation of shed hygiene (bedding, drinking water)
- Compliance with milking hygiene rules
- Regular checks of the milking machine settings
- Conversion of the farm to a certified raw milk farm or heating of the milk prior to sale to consumers in the case of consumption directly "on site"

When conducting microbiological tests to detect *Campylobacter*, the BfR recommends testing of the milk filters rather than the milk itself in order to improve the efficiency of the detection process. Monitoring of milk-producing cows by testing faecal samples for pathogenic microorganisms and, where applicable, the selection of non-infected dairy cows for raw milk batches sold in vending machines can also help to minimise the health risk to consumers.