



# Shiga-toxin-producing *Escherichia coli* (STEC)

IDF Factsheet – October 2012

## What are they?

*Escherichia coli* are a group of mainly harmless bacteria that are widely distributed in the environment and colonise the intestinal tract of humans and animals. Their presence can be used as an indicator of hygiene and recent faecal contamination.

Within the *E. coli* group there is a small sub-group which are capable of producing shiga-toxin. These are called shiga-toxin producing *E. coli* (STEC) or verocytotoxigenic *E. coli* (VTEC). STEC that are considered to pose the greatest risk of severe illness are classified as enterohaemorrhagic *E. coli* (EHEC). *E. coli* can be differentiated by the presence of surface proteins or sugars known as O and H antigens. Certain O and H antigens (also known as serotypes) can be used to identify high risk STEC and EHEC. These high risk serotypes include O157: H7 and *E. coli* of the O-types O26, O45, O121, O145, O103, O91 and O111.

## What do they cause?

STEC have caused a number of large food-borne disease outbreaks. Symptoms vary according to the strain and the resistance of the individual to such illness. Shiga-toxin producing *E. coli* can potentially cause severe stomach cramps, vomiting, bloody diarrhoea and haemolytic uremic syndrome (HUS).

In most cases, recovery occurs within 5-7 days, but in approximately 10% of cases patients develop HUS, or kidney failure. Most people with HUS recover in a few weeks, but it may lead to severe complications and about 10% of people with HUS die.

## Who is vulnerable?

Very young children the elderly and the immunocompromised, are generally more susceptible to STEC infections than healthy older children and adults.



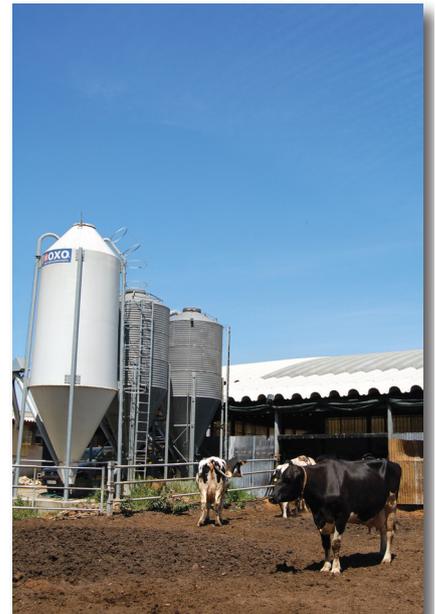


## Why is this relevant to dairy products?

**B**ecause animals may be natural healthy carriers of STEC, if good hygienic and agricultural practices at farm level, and especially during the milking process, are not adequately followed, milk can become contaminated. As with many other food categories, sporadic cases and rare outbreaks of disease associated with pathogenic STEC have been linked with dairy products, although these are uncommon.

## What is the dairy industry doing?

**T**he dairy industry is very aware of the potential for STEC contamination and takes steps to control the risk. In the processing industry, milk pasteurization is recommended, since pasteurization will eliminate pathogens including STEC. Good hygienic practices at the processing facility are also applied in order to prevent post-pasteurization contamination. At farm level, strict hygiene practices are followed during the production and transport of raw milk. Additional hygiene practices are implemented in the production of raw milk cheese and other dairy products.



## What can I do?

**A**lthough the possibility of infection cannot be eliminated entirely, knowledge and awareness surrounding the factors that are in your control can help to reduce the possibility of infection. These factors include:

- ◆ **Wash and dry hands:** If you live on or visit a farm or 'petting zoo', washing and drying your hands before and after handling any animals will reduce the spread of bacteria to food.
- ◆ **Know when to avoid unpasteurised milk products:** If you, or a member of your family, is in a high risk group (very young, elderly, pregnant, with a chronic disease or suppressed immune system), you should avoid drinking raw milk or eating dairy products made with raw milk.
- ◆ **Prevent cross-contamination:** Appropriate food storage, cleaning utensils and general hygiene in the kitchen will prevent cross-contamination of bacteria from the environment or from raw foods to cooked foods.



## International Dairy Federation

[www.fil-idf.org](http://www.fil-idf.org)

### References

Farrokh C, Jordan K, Auvray F, Glass K, Oppegaard H, Raynaud S, Thevenot D, Condron R, De Reu K, Govaris A, Heggum K, Heyndrickx M, Hummerjohann J, Lindsay D, Mischczycha S, Moussiégt S, Verstraete K, Cerf O. Review of Shiga-toxin-producing *Escherichia coli* (STEC) and their significance in dairy production. *Int J Food Microbiol.* 2012 Aug 14. [Epub ahead of print] PubMed PMID: 22939912.