Milk production and storage on the farm

Risks of milk contamination by pathogenic bacteria, mycotoxins, chemicals, residues of veterinary medicines incl. antibiotics

Teacheesy

Farmhouse and Artisan Cheese & Dairy Producers European Network

Erasmus+

PRIMARY PRODUCTION – IMPORTANT RISKS

The production and storage on the farm of raw milk is the first and very important step of the production of good quality and safe cheese and dairy products. Key elements to be observed and controlled permanently:

- **Health status of the animals:** some diseases are dangerous for humans
- **Veterinary medicines:** some substances pass in the milk
- **Forage and water:** can be a source of contamination of milk with pathogens, chemicals and toxins
- **Housing of animals, bedding areas, pastures, cleaning and ventilation:** proper implementation decreases the risk of contamination of the milk
- **Milking – very important process:** good hygiene of teats and milking machine, vessels and pipes, hands of milker, filter and storage of raw milk. Control of mastitis.

PRIMARY PRODUCTION - ZOONOSES

Some of animal diseases are transmissible and dangerous for humans (zoonoses). Milk and milk products can become a source of contamination.

- The European Food Safety Authority and the European Centre for Disease Prevention and Control reported 360'354 hospitalization of humans with 485 deaths due to 13 zoonoses in 2016 in 37 European countries.
- Another 4,786 food-borne and waterborne outbreaks have been reported for the year 2016 by 27 MS, caused by bacterial agents (33.9%), bacterial toxins (17.7%), viruses (9.8%), other causative agents (2.2%) and parasites (0.4%).
- **In the same time 25 624 people died in road accidents in the European Union (EU) in 2016***

- Official obligation of the farmer is to be sure the farm is brucellosis free or officially brucellosis free (for the three main dairy species).
- For cows, the farm must be officially tuberculosis free. For species that are sensitive to tuberculosis, the herd must be regularly tested within a surveillance plan framework approved by the competent authority.
- Where cows are also present, goats must be tested for tuberculosis.
- New animals, introduced in the farm should be disease free as well as other herds in contact

* http://ec.europa.eu/eurostat/web/products-eurostat-news/-/EDN-20171119-1?inheritRedirect=true

Table 2: Reported hospitalisation and case fatality rates due to zoonoses in confirmed human cases in the EU, 2016

Disease	Number of confirmed[a] human cases	Hospitalisation				Deaths			
		Status available (%)	Number of reporting MSs[b]	Reported hospitalised cases	Proportion hospitalised (%)	Outcome available (%)	Number of reporting MSs[b]	Reported deaths	Case fatality (%)
Campylobacteriosis	246,307	27.4	17	19,265	28.5	72.6	16	62	0.03
Salmonellosis	94,530	33.5	14	12,182	38.4	55.2	16	128	0.25
Yersiniosis	6,861	24.1	14	521	31.5	63.5	15	5	0.11
STEC infections	6,378	42.6	18	940	34.6	58.9	20	10	0.27
Listeriosis	2,536	38.8	18	962	97.7	60.1	20	247	16.2
Q-fever	1,057	NA[c]	NA	NA	NA	54.3	15	3	0.30
Tularaemia	1,056	12.3	11	130	54.6	15.8	12	0	0.0
Echinococcosis	772	26.2	14	119	58.9	25.4	13	1	0.51
Brucellosis	516	39.7	12	146	71.2	26.0	12	1	0.75
West Nile fever[a]	240	65.1	7	147	93.6	99.2	9	28	11.7
Trichinellosis	101	45.5	7	30	65.2	50.5	8	0	0.0
Rabies	0	NA[c]	NA	NA	NA	0.0	0	0	0.0

MS: Member State; STEC: Shiga toxin-producing *Escherichia coli*.
(a): Exception: West Nile fever in which the total number of cases was included.
(b): Not all countries observed cases for all diseases.
(c): NA: Not applicable as information is not collected for this disease.

How safe is your food?

ecdc

efsa
European Food Safety Authority

Source and number of outbreaks* in the European Union in 2015

The most common food-borne diseases in the European Union

Campylobacter

2014	236 818 reported cases
2015	229 213 reported cases

Outbreaks	
2014	2015
29	25

Salmonella

2014	92 007 reported cases
2015	94 625 reported cases

Outbreaks**	
2014	2015
225	184

Listeria

2014	2 242 reported cases
2015	2 206 reported cases

Outbreaks	
2014	2015
6	5

Only use milk from animals in good state of health and which are free from Tuberculosis and Brucellosis!

Poor quality of forage can be a source of contamination for animals and milk with bacteria, fungi and mycotoxins

Example of bad practice: hay stored in wet conditions – fungi developed on the surface.

PRIMARY PRODUCTION – MILKING

Hand milking in sheep farm. Good hygiene of hands, animals and vessels and filtering of the milk frequently are key elements. In the case of outdoor milking where water is not available, hand-gel or wipes can be used. However, hands should be sanitized by washing with soap and water at the next opportunity.

PRIMARY PRODUCTION – MILKING

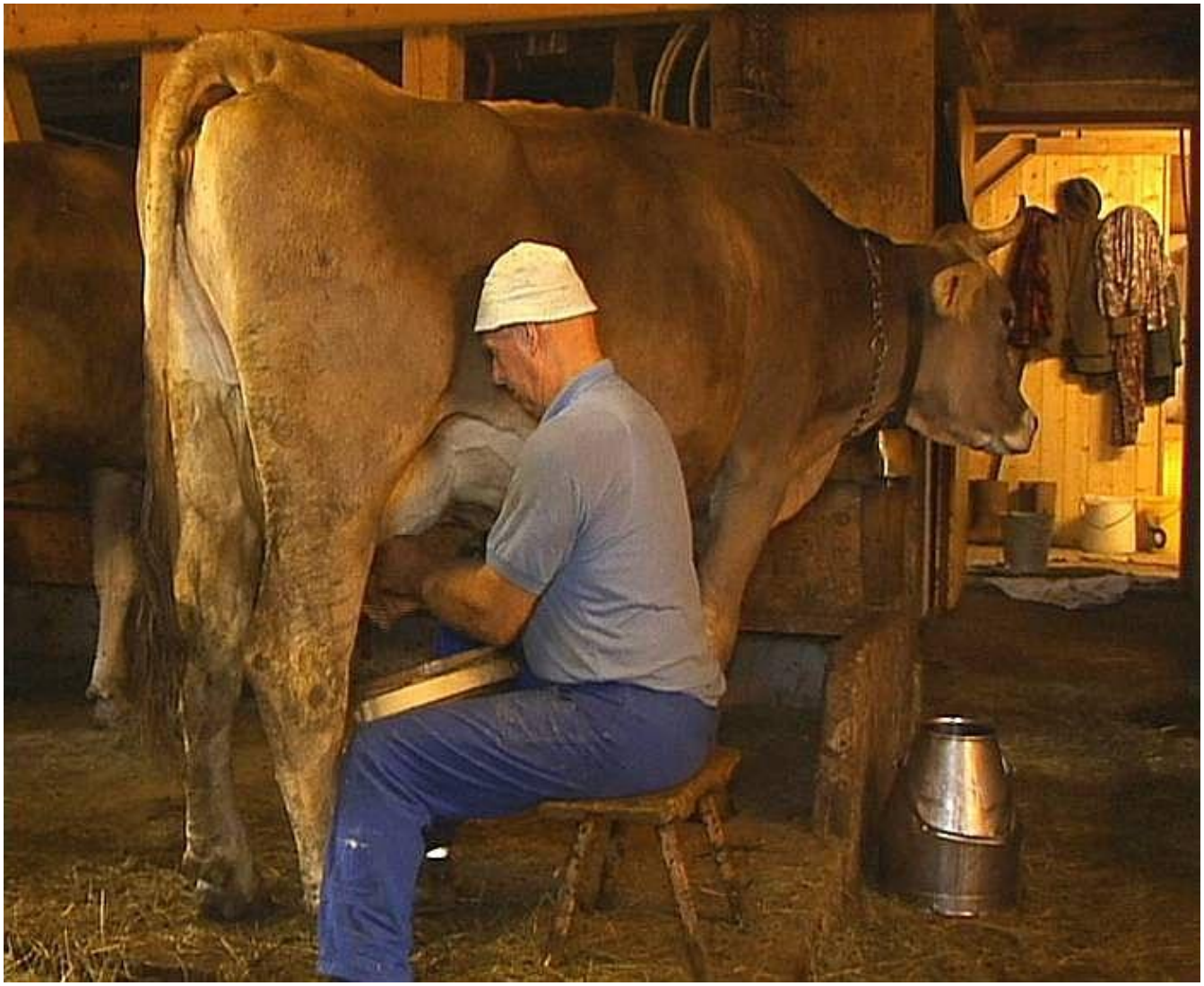
Hand milking in sheep farm. Proper cleaning and storage of milking equipment – example of good practice.

PRIMARY PRODUCTION – MILKING

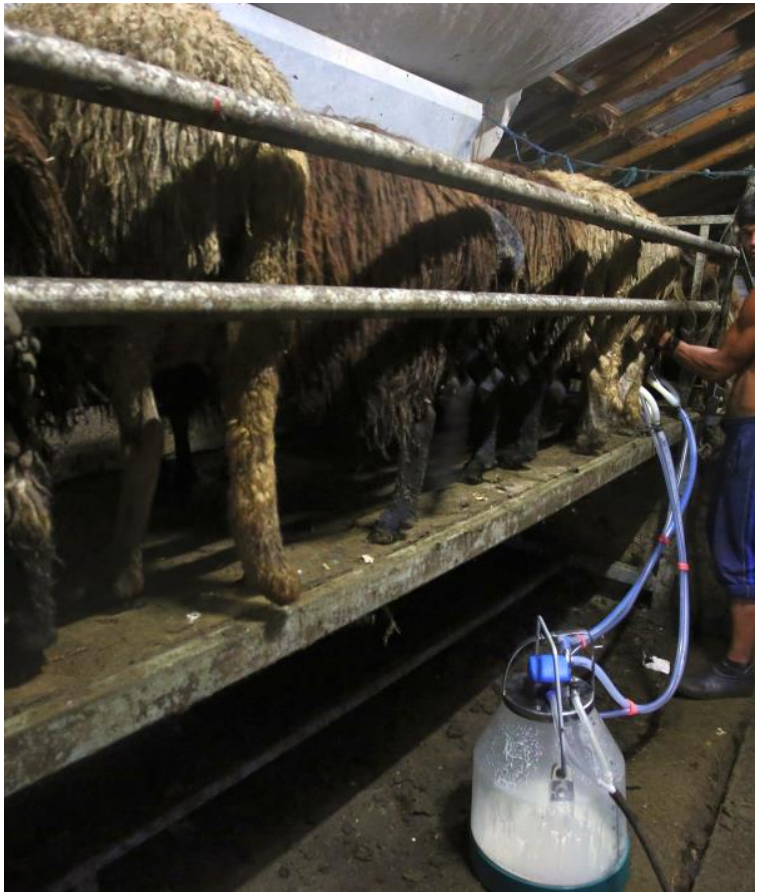
Hand milking in goat farm. Good hygiene during the milking and storage of raw milk is maintained.

PRIMARY PRODUCTION – MILKING

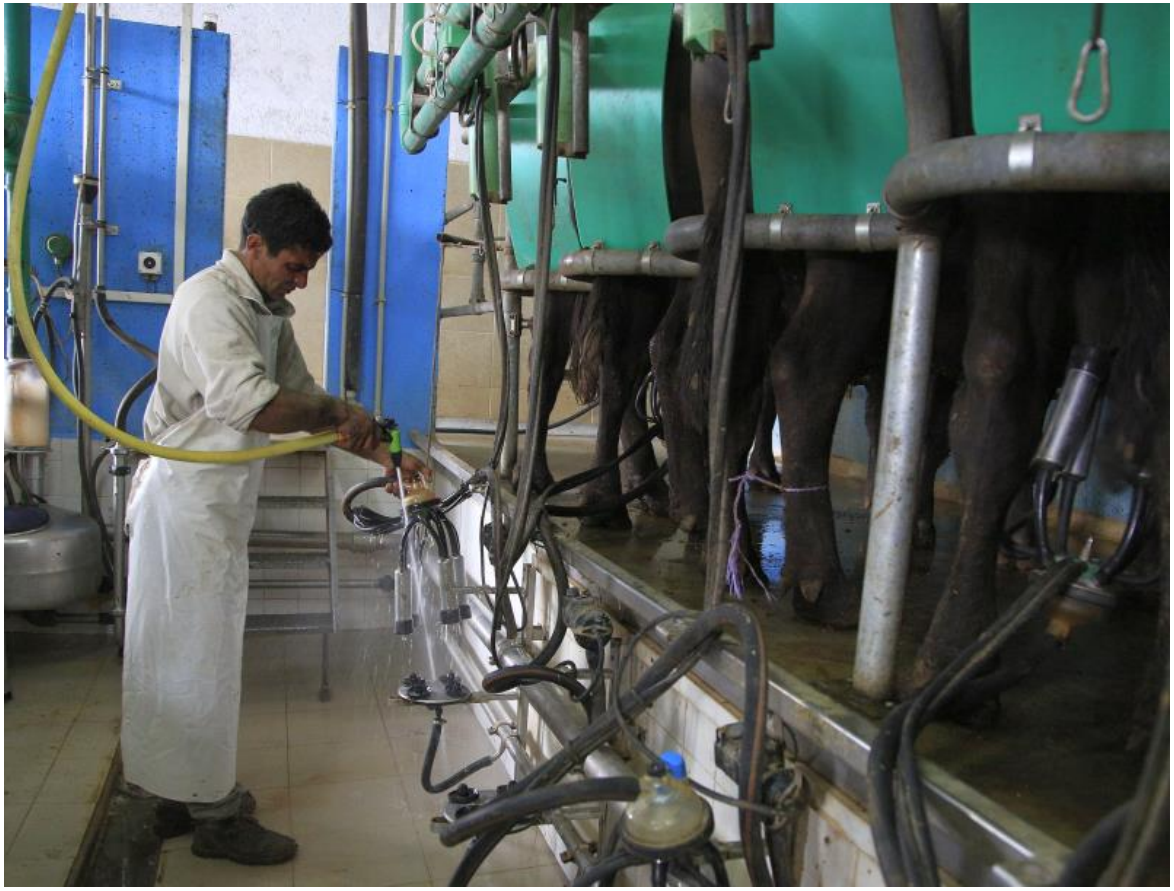
Hand milking in cow farm. Example of good hygiene practices.



Milking machines - hygiene issues



Example of bad practice – poor hygiene in a sheep farm



Example of good practice – good hygiene of milking equipment in a buffalo farm

Milking machines - hygiene issues

Example of bad practices – "hidden" places of the milking equipment to be checked after cleaning

PRIMARY PRODUCTION – FILTRATION AND COOLING

Example of good practice – filtering of sheep milk into the cooling tank right after milking

Example of bad practice - the display of temperature of the milk in the cooling tank should be repaired. Real temperature is 2^0 C.

PRIMARY PRODUCTION – FILTRATION AND COOLING

Example of bad practices – poor hygiene in the milk storage room.
On the left picture – forage preparation in the milk storage room.