Milk Quality Management

A practical Guide for Farmers

Milk, and cheese, are the most important source of income for most farmers in Transylvania. But there is a crisis now for small-scale farmers because of the low price for milk, especially cow milk. This brochure is designed as a simple guide to help dairy farmers make more money from milk production.

Farmers face two problems: the stricter rules about milk hygiene that will soon come into force as a result of accession to the European Union, and the fact that it is becoming more difficult for small producers to sell milk. These problems are linked. Processors WILL come to villages to collect milk, and WILL offer a better price per litre, if there is enough GOOD QUALITY MILK to collect.

This brochure is a step-by-step guide to solving some of the hygiene problems that occur and that can be simply solved. We believe that a combination of milk hygiene training for farmers, combined with good equipment to store and test the milk, will solve the problem for dairy farmers and will enable them to survive in the new conditions of the EU.

Promoting sustainable production for small-scale farming communities in a Natura 2000 landscape in Transylvania

Romania's small-scale farming communities are important in Europe today, for nature conservation, as a model of sustainable farming, and as part of Europe's cultural diversity.

Fundatia ADEPT works with rural communities in Transylvania to protect their unique landscape, while taking advantage of it to increase local incomes and prosperity. ADEPT is now working in cooperation with the Norwegian NGO Norges Vel, whose mission is to develop viable local communities in Norway and other countries, in a project funded by Innovation Norway (Norwegian government) and Orange Romania. Through this programme we will help rural communities to bring local benefits from the traditional land management.

The project, "Promoting sustainable production for small-scale farming communities in a Natura 2000 landscape in Transylvania", will provide training for farmers of the Tarnava Mare area in milk hygiene, in organic farming, in forming producer groups, and in marketing their products including through farmers markets and through well-equipped milk collection points we will establish in several villages in the area. These are all ways in which farmers can increase their income from agriculture.

We hope that Romania's farmers find this booklet useful. We are here to help you. If you are interested to discuss milk hygiene courses, organic farming, producer groups or marketing assistance with an ADEPT specialist, please contact info@fundatia-adept.org, tel: 0748-2000 88, 0265 711635, fax 0365 814076.

The importance of Milk Quality

Why milk quality testing? Because the key to the market is quality. To appreciate quality and to make quality the base for a fair price, it needs two parties and the good will of two parties: the producer and the buyer. Good quality does not warranty automatically a good price. But without proven quality, there is no chance at all for a good price.
The ADEPT project

Our Milk testing equipment - we do the test - and you know

BioLumix - Aparatul care numară germenii
Poate analiza 32 de probe simultan în maxim 4 ore şi permite arhivarea datelor şi crearea unui istoric al analizelor. Acest aparat este indicat inclusiv în procedurile HACCP şi este portabil.

Eclipse 50 - Aparatul care determina contaminare cu antibiotice si inhibitori
Aparatul determina daca in laptele analizat sunt prezente antibiotice sau inhibitori. Utilitatea acestui indicator consta in aceea ca avertizeaza asupra riscului de a consuma lapte cu antibiotic. Problema consumului de lapte cu antibiotic este acela ca scade rezistența persoanelor la antibiotice. Analizele laptelui sunt efectuate în maxim 3 ore şi se pot efectua 96 de probe simultan. Aparatul este portabil şi foarte uşor de manevrat.

ADAM SCC - Aparatul care numară celulele somatice
Aparatul este portabil, iar analiza se poate face simultan pentru cele 4 mameloane, în timp real. Numarul de celule somatice da indicații despre sănătatea ugerului şi a animalului. Numărul maxim admis pentru un lapte conform este de 400.000 / ml. Un număr mare de celule somatice este un semnal al unei infecții.

Miris DMA - Aparatul care determina constituenti din lapte
Acest aparat realizează analiza conținutului în grăsime, proteină, lactoză, substantă uscată cât şi apa adaugată din lapte, în maxim 1 minut.

How to use this Guide - Information on the Left Page

The left page in this brochure is used to present important information and facts about quality milk production, divided into different chapters which present the main factors influencing milk quality.

On the right page a detailed check list allows you to assess to what extent you control and manage the influencing factors in the right way.

The assessment of your farm by using checklists and scoring will help you to objectively identify and tackle concrete problems.

How to work with the checklist:

- **for a self assessment of your own farm**
- **to determine the most necessary improvements**
- **to jointly work together with colleagues - four eyes see more than two**
- **to seek advice and collaboration from a farm advisor and a veterinarian: they can show you with their know-how ways to solve problems.**

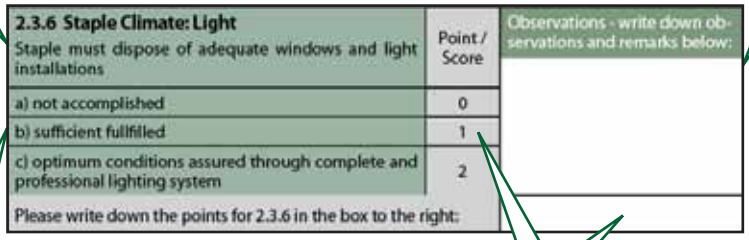
Fresh, good and healthy milk - best for the farmer, best for the consumer.

How to use this Guide - the Checklist on the Right Page

In the checklist you should honnestly choose the option describing the situation on your farm (a, b, or c) and sum up the corresponding points at the end of each chapter. Maximum possible score: 58 - If you reach this score, you have a extrodinarily good organized dairy farm!
You should at least reach 37 points, scoring minimum 1 point for each criteria. However you can also reach 37 points having 0 points for several criteria and 2 points for others.
ATTENTION: Check each chapter individually and spot out the „0-scores" - start there to improve (set priorities)!

This cell describes the requirements asked for the production of high quality milk. These requirements reflect latest EU Regulations in force and the national legislation as well as internationally agreed standards of good practices.

Use this free space to write down notes for your own records or those issues, which you want to discuss with the veterinary, with the agricultural advisor, with technical specialists of your milk collector.



2.3.6 Staple Climate: Light Staple must dispose of adequate windows and light installations	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) sufficient fullfilled	1	
c) optimum conditions assured through complete and professional lighting system	2	
Please write down the points for 2.3.6 in the box to the right:		

In most cases, the checklist will only ask you, whether you fulfill the requirements or not - a) or b). In some cases there appears the point c) with which you can gain extra points and which helps to make a difference betwen an average farm and a very good farm!

Write the points which you obtain for the respective issue in the field bottom right.

Result Checklist 2.3	
Please sum up the points from 2.3.1 to 2.3.7 in the box to the right	.....out of 9

NOTE: In the NOTES under the results of each chapter we give summarizing and practical tips.

Please sum up all the points of one chapter in this field. This will give you an immediate indication, where your farm is positioned between "unsufficient" and "very good".

1. Animal Identification and Registration

Animal identification, registration and keeping the farm register always up to date is obligatory for all milk producers in Europe according to EU reglementations. The individual identification of each animal is necessary, for animal breeding as well as for traceability in case of disease problems.
Animals have to be tagged with two ear tags according to the law in force. In case of loss, a replacement tag has to be applied. For each animal there must exist an individual passport.
Each animal breeder is obliged to keep a farm register. Any modification in the herd must be registered in the central / offical data base. (more details in law nr.72/2002 „legea zootehniei, cap. 2)

Ear Tags - What codes and numbers mean

To refresh your knowledge about ear tags. The code on Romanian eartags means:

RO --> stands for Romania
ANSV --> National Veterinary Sanitary Agency
42 --> county (one of 42 counties)
2 --> technical number

the five digits 00000 and 0659 is the animal identification number
At least one ear tag needs to have a machine readable bar code.

Animals need to be registered latest 7 days after their birth - with two sets of ear tags, one in each ear.

Farm Register

Which information has to be introduced in the farm register?

- Each animal of the herd must be introduced
- any drug and medicament applied and other treatments (type and quantity of drug applied, way of application, date of application, waiting times etc.)
- diseases affecting the safety of raw milk and processed products
- results of analysis and tests (milk, udder tissue, other) affecting in any way human health
- specific reports about examinations of animals and/or products of animal origin.

This list is based on the so called "EU Hygiene Pack" - an extensive set of regulations for animal health and food hygiene. (more details on http://ec.europa.eu/food/)

Checklist 1: Animal Identification and Registration

1.1 Animal Identification Animals are identified and registrated.	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) accomplished	1	
Please write down the points/score for 1.1 in the box to the right:		

1.2 Farm Register Farm register is always kept up to date	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) accomplished	1	
Please write down the points/score for 1.2 in the box to the right:		

1.3 Ear Tags Lost ear tags ar replaced immediately	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) accomplished	1	
Please write down the points/score for 1.3 in the box to the right:		

Result Checklist 1 - Animal I&R

Please sum up the points from 1.1 to 1.3 in the box to the right	

NOTE: Animal Identification and Registration is obligatory. The payment of primes and subsidies is based on correct identification and registration!

2.1 Animal Health - What you should know

The production of milk for human consumption is only allowed if the conditions presented in this chapter are fully respected.
The content presented on this page refers to the latest EU Regulations and the national legislation in force in Romania.

Raw Milk Production

Raw milk must be produced by animals:

- that are free of any sign of an infectious disease that can be transmitted through consumption of milk
- with a good healt state, without any signs of disease which could contaminate milk
- that do not suffer of discharge caused by genital organ diseases, do not suffer of stomach and intestine diseases with scours (diarrhoea) and fever and have no visible signs of udder inflammation
- that have no udder wounds that can affect milk negative
- that have not been treated with forbidden substances or undergone an unauthorized treatment (acc. to 92/23/EU)
- for wich the prescribed waiting times after the application of drugs and treatments have been respected.

This list is based on the so called "EU Hygiene Pack" - an extensive set of regulations for animal health and food hygiene. (more details on http://ec.europa.eu/food/)

Keeping animals separate

Major scope is to separate sick animals from cows producing milk for consumption.

Pen stall:
Separate boxes are sufficient, animals should be tied there.

Tie-stall:
A free place at the end of the the row is sufficient. Note: there must be at least one free place between the separated animal and the last animal in the row of the healthy animals.

Keeping sick animals separate, either in a separate box, or on a separate place in a tie stall helps to avoid transmission of diseases and contamination of milk. Keeping anmials separate does not mean quarantine.

Infectious and contagious diseases

TBC and Brucellosis free !

Any milk farm must be TBC and Brucellosis free. If this is not accomplished no milk for human consumption may be produced or sold.

Be also aware of:

Foot and mouth disease
The virus of foot and mouth disease is eliminated and spread through the milk already before the typical signs of the disease appear.

Salmonellosis
Milk gets infected by not respecting hygiene conditions at milking and the handling of milk through feces and diarrhoe from sick animals.

Stafilococus and Streptococus
Both microbes cause mastitits - they can be eliminated also after the clinical signs of the disesease has disappeared. Stafiloccocus can infect the milk also outside the udder, through air contact.

Other diseases

Turbarea
Leptospiroza
Listerioza
Pasteureloza
Variola ugerului
Micobacteriozele
Botulismul
Febra Q
Antraxul

Checklist 2.1: Animal Health

2.1.1 Brucellosis and Tuberculosis Official approval that the farm is brucellosis/TBC free	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) fulfilled, regular controls are made	1	
Please write down the points/score for 2.1.1 in the box to the right:		

2.1.2 Infectious and contagious diseases Cows which deliver milk for human nutrition have no indications of diseases that can be transmitted through consumption of milk on humans.	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) no clinical indications of disease	1	
c) contract with veterinarian for regular checks.	2	
Please write down the points/score for 2.1.2 in the box to the right:		

2.1.3 Other diseases Cows which deliver milk for human consumption have no identifiable indications of any disturbance of the general health state, do not suffer of discharge caused by genital organ diseases, do not suffer of stomach and intestine diseases with scours (diarrhoea) and fever. Sick animals are kept separately from the herd.	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Separate place for sick animals is available.	1	
Please write down the points/score for 2.1.3 in the box to the right:		

Result Checklist 2.1

Please sum up the points from 2.1.1 to 2.1.3 in the box to the right	**.....out of 4**

NOTE: These recommendations should be fully respected by any responsible milk producer. Animal health, your health and the consumer's health are the most important values we have!

2.2 Animal Health/Udder Health - What you should know

Indicator for udder health in a herd is the milk analysis on total count of somatic cells and germs through the dairy factory (minimum twice per month compulsory). If the values get close to or exceed the limits individual tests have to be carried out so that sick animals can be separated, treated or selected for slaughtering.

Udder Infections and Diseases

Mastitis are udder infections which can affect one or more quarters.

- In case of visible signs of the udder (red, swollen etc.) or if the milk quality changes (organoleptic signs) this is called **clinical mastitis.** This represents about 10 % of the udder diseases.
- Udder infections **without visible modifications** of udder and/or milk are called **subclinical mastitis**. This represents **about 90 % of the udder diseases**.

Adoption of EU Milk Quality Parameters

Parameters	Class A	Class B
Total germ count (TGC/ml) at 30 °C	≤ 100.000	≤ 1.000.000 - until 31 December 2008 ≤ 500.000 - from 1 January 2009 to 31 December 2009 ≤ 100.000 - from 1 January 2010
Somatic cell count (SCC/ml)	≤ 400.000	≤ 600.000 - until 31 December 2008 ≤ 400.000 - from 1 January 2009 to 31 December 2009
Freezing Point	≤ -0,515 °C	≤ -0,515 °C
Inhibitors	negative	negative

EU legislation on raw milk quality (EU nr.853/2004) has been adopted in Romanian legislation and will be fully introduced until 31 December 2009

Methods to diagnose subclinical udder infections

- Somatic Cell Count (SCC)
- California Mastitis Test (CMT)
- Electric Conductibility Test

SCC - an indicator for mastitis and losses

SCC in collected milk	Infected quarters %)	Loss in milk productiion (%)
200 000	6	0
500 000	16	6
1 000 000	32	18
1 500 000	48	29

SCC is in most cases an indicator for mastitis. SCC values of over 1 million can cause total losses of about one third of the whole milk production

Two main problem areas causing udder infectious diseases

1. Bad hygienic conditions

Lack of adequate hygienic conditions is a major cause for udder disesases. As important as a clean staple is a very careful and sysematic hygiene when milking!!

2. Wrong use and bad condition of milking equipment

The photo on the left shows the result of a not correctly used milking machine. The dangers and the distrcutive effects of not regularly maintained equipment (vaccum to high, pulse not correct, state of liner not good) cannot be emphasized strong enough!! This is a major cause for udder infectious diseases!!

Checklist 2.2 Animal Health - Udder Health

2.2.1 Wounds No recognizable wounds / infections at udder.	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Cows with wounds at udder are milked separately, milk is not delivered / consumed.	1	
Please write down the points for 2.2.1 in the box to the right:		

2.2.2 Minimum 2 liters per day Cows with less than 2 litres per day are not milked	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Cows with less than 2 litres per day are not milked	1	
Please write down the points for 2.2.2 in the box to the right:		

2.2.3 Analysis / Individual Somatic Cell Count Suspicious animals are individually tested for mastitis, individual cell count is carried out if necessary	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) "Schalmtest" or similar test - individual somatic cell count is made in case of suspicion / indications of mastitis on a regular base	1	
c) contract with veterinarian / regular control and checks	2	
Please write down the points for 2.2.3 in the box to the right:		

2.2.4 Selection Chronically udder diseased animals and therapy resistand animals are eliminated	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) fulfilled	1	
Please write down the points for 2.2.4 in the box to the right:		

Result Checklist 2.2

Please sum up the points from 2.2.1 to 2.2.4 in the box to the right	**.....out of 5**

NOTE: Not fulfilling the EU parameters on milk quality means at the moment loss of income (lower price). Starting from 1st January 2010 non EU conform milk cannot be sold to dairy processors any longer.

2.3: Animal Welfare - What you should know

Cow comfort in the staple is a precondition for high milk production and profitability. The practical experiences in the last years show considerable increases in production through systematically improving and increasing cow comfort. Surveys have shown higher productivity - increases of 1000-2000 kg and in some cases even up to 3000 kg milk per cow, reduced culling rates and improved fertility.

Nature - the best stable of all

Grazing on pasture is for sure the most pleasant and the most natural for cows. This should be offered to the cows wherever possible.

Key criteria to be considered for a good stall microclimate

The „Five Freedoms"

The Farm Animal Welfare Council (UK; www.fawc.org.uk) asks five freedoms for animals:

1. **Freedom from hunger and thirst** - access to fresh water and diet for full health and vigour
2. **Freedom from discomfort** - an appropriate environment with shelter and comfortable rest area
3. **Freedom from pain** - prevention or rapid treatment
4. **Freedom to express normal behaviour** - adequate space and facilities, company of the animal's own kind
5. **Freedom from fear and distress** - conditions and treatment which avoid mental sufferings.

Water

A cow needs about 4 liters of water per liter of milk produced - resulting in 50 to 150 liters of water per day - ideally with a a temperature of 12^0 to 14^0 C.

Pen stall is closest to the needs of cows, which are explicit herd animals. Often productivity of pen cows is higher and less udder traumas occur.

In ties stalls it is very important to provide enough space. The spaces should be cleaned two to four times per day.

Stand Dimensions Pen stall

Optimum dimensions per animal for pen stall		
Weight	**Stand width**	**Stand length**
400 kg	100 cm	210 cm
500 kg	115 cm	220 cm
600 kg	125 cm	230 cm
700 kg	135 cm	240 cm
800 kg	145 cm	250 cm

Stand Dimensions Tie-stall

Optimum dimensions per animal for tie-stall		
Weight	**Stand width**	**Stand length**
400 kg	100 cm	145 cm
500 kg	115 cm	155 cm
600 kg	125 cm	165 cm
700 kg	135 cm	175 cm
800 kg	145 cm	185 cm

Checklist 2.3: Animal Welfare

2.3.1 Quality of Cow stand The stands are dry and clean	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Stands are dry and clean, litter is of good quality	1	
Please write down the points for 2.3.1 in the box to the right:		

2.3.2 Size of Cow stand The stands comply with the norms.	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) at least 6 m^2 per cow (min 1.3 m broad and 2,5 m long	1	
Please write down the points for 2.3.2 in the box to the right:		

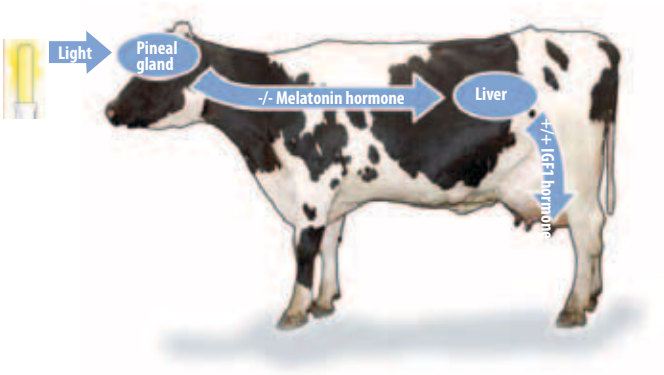
2.3.3 Mobility / Pasture Space for walking or pasturing should be possible	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Pen stall or area for walking exist or pasturing (at least summer pasture) is offered	1	
Please write down the points for 2.3.3 in the box to the right:		

2.3.4 Water supply Drinking water supply is in order. Suffcient drinking troughs exist.	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Tie-stall: self service drinking trough for each stand. Enough water inflow. Pen stall: sufficient drinking troughs exist and are clean and in a good condition.	1	
Please write down the points for 2.3.4 in the box to the right:		

2.3 Animal Welfare - What you should know

Cow comfort is more than a temporary fashion - it is the base for high milk production. Modern dairy management and stable construction respect the natural needs and patterns of behaviour of cows and assure thus that cows feel well during all phases in production and provide high productivity.
A low stress environment with maximum comfort combined with efficient production technology are the key elements for profitable milk production.

Light



Latest research is showing, that good light conditions contribute positively to the productivity - light reduces the production of the hormon melatonin, which then stimulates the IGF 1 Hormon, which has a positive effect on milk production.

http://www.delaval.com/Products/CowComfort-and-farm-supply/Illumination/

Temperature and Air Ventilation

Cows feel best at a temperature between 5^0 to 10^0 C. If it is guaranteed that food is not frozen and sufficient water is available, then cows can resist even temperatures of -15^0 to -20^0 C. More critical is high temperature - cows cannot sweat and thus adapt to hot temperature. Therefore adequate air circulation must be assured when the temperature is high.

Litter / Floor / Ground - Clean, Dry and Soft!

Clean, dry and warm, these criteria are very important that cows feel well, that they lie down for about 12 hrs per day for ruminating. The surface of the floor must not be rough, otherwise, due to the rythmic movements when ruminating, skin traumas can occur. Minimum two times per day should be mucked out, ideally four times per day (in case of automatic manure removal.)

If cows would have the choice, they would rest on a dry, sunny, and „soft" place, like here on this photo - they would avoid humid, hard and stony and cold places to rest and to ruminate.

Checklist 2.3: Animal Welfare

2.3.5 Staple Climate: Air Ventilation Staple must dispose of adequate installations and mechanisms to condition the air (winter and summer)	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) sufficient fullfilled	1	
c) optimum conditions assured through big ventilation openings and/or complete ventilation system	2	
Please write down the points for2.3.5 in the box to the right:		

2.3.6 Staple Climate: Light Staple must dispose of adequate windows and light installations	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) sufficient fullfilled	1	
c) optimum conditions assured through complete and professional lighting system	2	
Please write down the points for 2.3.6 in the box to the right:		

2.3.7 Pest Control Staple, food storage and area around the staple are kept clean and don't offer favourable conditions for mice and rats.	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Staple, food storage and area around staple are kept clean	1	
Please write down the points for 2.3.7 in the box to the right:		

Result Checklist 2.3

Please sum up the points from 2.3.1 to 2.3.7 in the box to the right	**.....out of 9**

NOTE: Reaching high score in animal welfare does not only show, that you care for your animals and respect them as living creatures with their own right, but you will also have a higher productivity and a considerably reduced need for drugs, treatments and veterinarian assistance!

3.1 Milk Production - Milking Conditions

Without considering factors linked to animal health and welfare, the following factors are determining milk quality with regard to good, professional practice and management of milk production. The milking place, the milking machine, the milking equipment and the cooling facilities have to be controlled and maintained permanently. Milk cooling has to be made in a separate room.

Desinfection and Hygiene - EU Regulations

1. Milking equipment and milk storage / cooling / processing rooms must be positioned and constructed in such a way, that the risk of milk contamination is minimized.
2. The milk storing room must be protected from pests, must be separated from the staple and must be equipped with an adequate cooling facility.
3. Surfaces and equipment in direct contact with milk must be easy to clean and to desinfect and be properly maintained. This demands plain, washable and non toxic surfaces.
4. After use these surfaces must be cleaned and desinfected if necessary. After each use or, in case of short intervals between emptying and filling, after several cycles, however in any case once per working day the containers, tanks and tube systems need to be cleaned and desinfected.

This list is based on the so called "EU Hygiene Pack" - an extensive set of regulations for animal health and food hygiene. (more details on http://ec.europa.eu/food/)

Keeping the Milking Place clean

Milking must always take place under the cleanest possible conditions. In case of the tie-stall it must be assured, that the stand and the hallway are clean.

All materials coming in direct contact with milk and other equipment and installations for milking must be made of non corrosive material, which can be easily cleaned after each milking.

Today it is very easy to paint walls with special color which makes it possible to clean the surface regularly with water. A high pressure jet cleaner should be standard nowadays on each farm.

Another variant is to tile the walls, and to apply a special strata on the floor. There exist many possibilties - the general rule is, to make it simple, functional and practical.

Checklist 3.1: Milk Production - Milking Conditions

3.1.1 Milking Place Milking Place is positioned in sufficient distance from toilettes and dung depozit	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Milking box: area is separated from staple Tie-stall: no toilette, no dung depozit, no liquid manure storage in direct connection	1	
c) completely separate milking house	2	
Please write down the points for 3.1.1 in the box to the right:		

3.1.2 Construction - Conditions for regular cleaning Walls, floors, installations, doors and coatings can easily be cleaned and desinfected. Surfaces of equipment entering in direct contact with milk are made of non-corroding and plane material, that can easily be cleaned and desinfected.	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Walls and floors are tiled or especially coated (e.g. washable color) and are clean. Installations and equipment have non-corroding, plane surface and are clean. Tie-stalls: Stand is clean.	1	
Please write down the points for 3.1.2 in the box to the right:		

3.1.3 Water Outlet Water outlet for the drainage of occuring waste water and liquid manure exists	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Tie-stalls: drainage / outlet for liquid manure and installation for regular manure removal exist. Milking stand: running water and water outlet exist.	1	
Please write down the points for 3.1.3 in the box to the right:		

3.1 Milk Production - Hand Milking

Milking cows by hand can be as hygienic and satisfactory as milking machines and is often more gentle to the udder. However, precautions must be taken to get the healthiest milk. If the correct milking procedures are followed, the cows can give more milk; and if you are selling your milk, there will always be a ready buyer.

How to get the cleanest milk when milking by hand

- The persons milking the cows should be clean, healthy and free of infectious diseases.
- Do not use a cloth to clean the udder and teats because it is unhygienic and can cause problems such as mastitis.
- Keep the cows free of dirt. Groom the cows regularly to remove loose hair and dirt and prevent their hindquarters from becoming matted with manure and mud.
- Wash your hands before milking.
- Do not dip your hands into the milk because this can spread diseases.
- Detect and treat all cows showing signs of udder infection.
- Pour the milk into a container through a fine metal gauze strainer or muslin. Tie the muslin so that dirt cannot bypass it.
- Tie the cow's hind legs so that the tail does not swish around.
- Keep the milk refrigerated or in a cool place after milking.

Attention - incorrect hand milking can harm your cows' health!!

- A milker can damage a cow's teats.
- Dirty milking conditions can cause mastitis.
- Too slow milking action can cause mastitis.
- All milk must be expressed if the cow does not suckle the calf..

The right milking procedures - make them a daily routine!

The correct and best milking method is with the whole hand. The teat is held in the hand and the milk is expressed with the fingers, just as a calf takes the whole teat in its mouth and expresses the milk with its tongue. With this method no lubricating ointment is necessary. Remember: the best hand milker never pulls or stretches the teat.

- Milking should be done at **regular times**, if possible by the same person and at intervals of 12 hours.
- **Avoid noise** in the dairy because it will have a negative influence on the release of milk.
- Get proper training in the correct procedures and have patience with the cows.
- Milk cows with dry hands and **never use milk to lubricate the cow's teats**. Use a milking salve if needed.
- Always test the first milk to come out for mastitis (ask your agricultural extension officer how to do this).
- Wash dirty udders and teats by hand under running water. If they are clean, massage the udders for about 1 minute.
- **Complete milking in 5 to 7 minutes** because the cow will stop giving milk after that.
- After milking, if the cow's calf does not suckle, use a teat dip to prevent mastitis.
- Supervise the milking process and **maintain the same routine in every milking**. This will get the cows used to the process and will also reduce stress, which will result in a successful dairy operation.

Checklist 3.1: Milk Production - Hand Milking

3.1.4 Before milking - preparation Milking Place is prepared, milker is prepared, cow is prepared.	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) accomplished: cow is cleaned, cow's tail is tied, all necessary equipment is there, all personal hygienic measures have been followed, udder is cleaned correctly.	1	
c) each cow is treated individually, based on careful observation of the animal's behaviour and reactions.	2	
Please write down the points for 3.1.1 in the box to the right:		

3.1.5 Milking Correct milking technique applied	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) accomplished: first milk is separated and checked on mastitis, teats are not pulled or strectched, milking is done in 5- 7 min.	1	
c) Daily routine of milking is developped, cows are not stessed in milking time, each cow is treated individually.	2	
Please write down the points for 3.1.2 in the box to the right:		

3.1.6 After milking Milk is processed correctly after milking and all measures are taken to minimize number of germs.	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) accomplished: thouroughly cleaned equipment is used, correct filters are used, milk is brought to the cooling tank directly after milking.	1	
Please write down the points for 3.1.3 in the box to the right:		

3.1 Milk Production - The 12 Golden Rules

With good milking routines and adequate milking equipment, the risk of new mastitis cases will be significantly lowered. One recommendation: Develop for yourself working routines, which you will follow - make these routines become a habit!

Before Milking - Rules 1 to 4

1. Check regulary udder health

Review regularly all udder health and milk quality information provided by the dairy plant. Do on farm testing if you have suspicions (California Milk Test - CMT)

2. Keep always the milking order

Milk first calf heifers, fresh cows next and then the main herd. Milk sick cows last and then wash and sanitize the milking system.

3. Always do pre milking

Remove 2-3 squirts of foremilk and examine it. Foremilking helps to detect and prevent abnormal milk from entering the tank.

4. Clean teats carefully

Clean each teat and teat end using approved materials. Wipe each teat dry using single service paper or cloth towels, one per cow. Launder cloth towels effectively and dry them before reusing.

During Milking - Rules 5 to 8

5. Always control vacuum

Always check the vacuum level at the start of each milking. Check also pulsation.

6. After stimulation apply immediately the milking equipment

Within 60-90 seconds of all teat preparation procedures, milking units need to be attached. Adjust milking cluster so that it is properly balanced front to back, side to side with no twisting.

7. Avoid blind milking

When the udder has been emptied satisfactorily, the milking unit needs to be removed.

8. Ensure proper removal of cluster

Shut off vacuum. WAIT AND DO NOT remove the unit before vacuum has not declined completely. Air entry around the liner mouthpiece can cause mastitis.

After Milking - Rules 9 to 12

9. After milking immediately dimp teats

Sanitize immediately each teat with an approved post milking teat dip or spray.

10. Instantaneously after milking clean the milking equipment

After each use, either manually or automatically rinse and clean all system components using appropriate products at the proper temperature. Allow the system to drain dry.

11. Cool adequately (see page 24)

Check cooling temperatures to be certain the proper temperatures are being reached during and after each milking (see also page 24)

12. Check regularly the results (quantity, quality, input, output)

Review all milk quality, milk composition, and milking center performance information regularly and compare it to historical data.

Checklist 3.1: Milk Production - Milking Conditions

3.1.7 Milking Place - Working conditions Milking Place is sufficiently illuminated and ventilated	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Checking and verifying of foremilking can be done easily. Ventilation (also through windows) can be controlled.	1	
c) Very good light conditions. Very good air conditions also with closed door.	2	
Please write down the points for 3.1.4 in the box to the right:		

3.1.8 WaterSupply Sufficient and adequate supply of water (drinking water quality) at the milking place is assured. Milking personnel cleans hands and forearm before milking and repeats this if necessary.	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) running water available in adequate conditions	1	
Please write down the pointsfor 3.1.3 in the box to the right:		

Result Checklist 3.1

Please sum up the points from 3.1.1 to 3.1.5 in the box to the right	**.....out of 12**

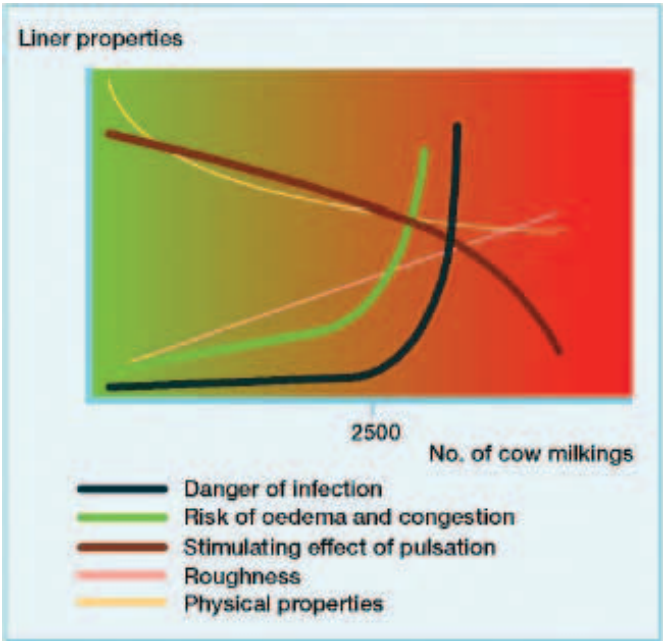
NOTE: Good technical conditions, well developped working routines and a iron daily discipline will help you to reduce the number of germs in your milk. Clean milk is better paid. Clean conditions keep your animals healthy. A clean working place keeps yourself in a better mood!

3.2 Milk Production - Equipment + Storage

The milking machine liner is the only part of the milking equipment that is in direct contact with the animal. The quality and characteristics of the liner greatly influence milking performance and animal health. It is extremely important to use the best possible liner type and to make sure you do not milk with old, worn liners.

Liners - key elements for proper milking

Overused liners - reduced cleanability and increased risk of infections



The increasing roughness of the liners inner surfaces creates problems in keeping these surfaces free of bacteria. The surface cracks and chaps as well as the deposits, enable, bacteria to survive the cleaning and sanitizing procedure since the antibacterial action of any disinfection compound can be retarded or actually inhibited by the presence of residual material.

Overuse of liners damages material

The massage force of overused liners is reduced in comparison to good liners. „The blood and lymph flow supporting effect" of pulsating liners is reduced. The teat canal can not open wide enough to allow high milk flow from the teats.
Overused liners cause impeded milking of individual cows, and consequently the whole herd. Worn out liners are often the reason for increased strippings and decreased total yield. For these reasons overused liners reduce the milking performance of cows, milkers and milking parlours.

Replace liners after 2500 milkings!!

One milking means milking of one cow - if you have 10 cows and milk them two times per day, you will have 20 "milkings". Professionals recommend, to replace liners every 6 months!

http://www.delaval.com/Products/Service-and-parts/Liners/Ageing_of_liners/Ageing_of_liners_influences_milking_hygiene.htm

Checklist 3.2: Milk Production - Equipment + Storage

3.2.1 Regular Equipment Maintenance Milking AND cooling equipment are regularly maintained and controlled by technical servic personnel	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Generally good maintenance, to be mentioned pump. Liners indicate a regular replacement of consumables / wearing parts. (to be replaced every 2500 milkings)	1	
c) Additionally to regular replacement of consumables / wearing parts there exists technical inspection report of authorized personnel not older than year.	2	
Please write down the points for 3.2.1 in the box to the right:		

3.2.2 Cleaning and Desinfection All milking AND cooling equipment are cleaned, desinfected and flushed with water of drinking quality after each use.	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Flushing installation exists. Regular cleaning and desinfection with certified substances, sufficient flushing after desinfection.	1	
c) Monthly control and documentation of cleaning and desinfection (e.g. temperature, concentration of desinfection substance, time of flushing etc.)	2	
Please write down the points for 3.2.2 in the box to the right:		

3.2.3 Milk treatment after milking After milking the milk is transported to a clean milk storage room. If the milk is not given away within two hours after milking, it must be cooled down to 8°C (daily delivery) or to 6°C (not daily delivery)	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) cooling facilities exist. Cooling temperature is adjusted correctly	1	
c) a control unit for coninuous recording of cooling temperature exists and is used	2	
Please write down the points for 3.2.3 in the box to the right:		

3.2 Milk Production - Equipment + Storage

Contamination of milk on the whole chain from production to consumption is mainly caused by man, often due to ignorance and carelessness. Respecting strictly the hygienic rules and and supervising and controlling the sanitary conditions are of utmost importance for good quality milk. Contaminated milk causes losses and endangers health of consumers.

Water - the base for any cleaning work!!

Water is the key element for the cleaning result! It carries cleaning agents and heat, and exerts mechanical action on the surfaces to be cleaned. With the help of cleaning agents, heat and turbulent water, soil adhered to surfaces in the milking plant is suspended or dissolved, which makes it easy to remove. This removal is an important step towards the successful cleaning of the milking plant.

Water must be clean (drinking water quality)

Hard Water must be decalcificated

Hot Water supports the cleaning process considerably

Mechanical Force

Soil that has firmly adhered to surfaces in the milking plant, needs to be exposed to a mechanical force in order to be loosened. This force is usually exerted by circulating water in the plant, but could also take place through scrubbing or spraying. Both the milking plant and the cooling tank can be cleaned with one or both of these methods.

Four key factors for cleaning

Contact Time

Contact time means that the water, heat and cleaning agents must have sufficient time to perform the cleaning. The time needed varies depending on cleaning method.

Detergents

Detergents can be either alkaline or acid. Often an alkaline detergent is used as the main detergent. Acid detergents are then used, e.g. once a week, in order to remove milkstone. Disinfectents are used to kill microbes. Often disinfectants consist of chlorine or chlorine compounds.

Temperature / Heat

The role of heat is to improve the ability of dissolving and emulsifying different materials. Detergents are more easily dissolved when the water is warm. It is also important that warm water is used in the removal of fatty materials.

http://www.delaval.com/Dairy_Knowledge/EfficientCleaning/What_Is_Cleaning.htm

Checklist 3.2: Milk Production - Equipment + Storage

3.2.4 Milk Storage Room Milk storage room is a closed room, in adequate distance to the stall, protected against vermin and pests.	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Separately constructed from stall, dung platform and toilettes. A door toward stall is allowed.	1	
c) Additional protection equipment / installations against insects, flies etc. (e.g. fly-screen in windows)	2	
Please write down the points for 3.2.4 in the box to the right:		

3.2.5 Milk Storage Room - Water Supply Sufficient supply with water of drinking water quality is assured	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Running water available (according to drinking water legislation)	1	
c) Warm water and washbasin available	2	
Please write down the points for 3.2.5 in the box to the right:		

3.2.6 Cleaning Conditions of Milk Storage Room Milk storage room can be cleaned and desinfeced easily and adequate water outlets exist.	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Floor and walls are tiled or treated with special, washable color and are clean. Outlet exists.	1	
c) Extraordinary good layout and conditions	2	
Please write down the points for 3.2.6 in the box to the right:		

3.2.7 Milk Storage Room - Lighting and Ventilation Milk storage room is lighted and ventilated suffciently	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Suffiently lighted. No bad smell can be detected. At least one opening/window for ventilation exists	1	
c) Cooling unit separate from milk storage room. Room is lighted very good.	2	
Please write down the points for 3.2.7 in the box to the right:		

3.2 Milk Production - Equipment + Storage

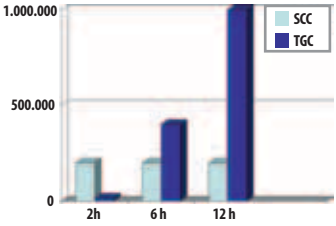
Developing correct, effective and practical cleaning routines is absolutely necessary. The specific conditions for each farm are different, however the basic rules are the same. Plan and develop carefully, best by consulting a technical adviser of your choice, your own individual cleaning system and cleaning routines. Once developed, use it. Check regularly at critical points whether your system is still reliable and modify if necessary. The most important is: Once you have developed a functioning working system - you can always adapt it to new situations; if you don't have a functioning system, you will permanently fight aginst the germs - and often loose!

Milk Filtering

Milk must be filtered at least once before entering the cooling tank.
Through filtering impurities and sediments are separated befor cooling the milk.
Filtering can help to collect information about and to control:
- hygienic quality of milk
- efficiency of udder cleaning and desinfection before milking
- clinical mastitis.

It is no longer allowed to use textile material for filtering.
Milk should be filtered warm so that the fat globuli can pass through the filter.
Filtering increases the cooling efficiency.

Milk Cooling



Somatic Cell Count (SCC) is not affected by cooling - the cells are dead.
But **Total Germ Count (TGC) is exploding without cooling** - germs are alive and they reproduce exponentially in warm temperature. Low temperatur stops reproduction of germs.

Delivery / Transport

Recommended cooling temperatures
- milk reaching the client (processing facility) in less than 3 hours after milking does not need to be cooled on the farm
- Milk reaching the client within 4 to 12 hours has to be cooled on 10 - 12 ^{0}C
- milk delivery once a day: must be cooled on 6 - 8 ^{0}C
- milk delivery every two days: must be cooled on 2 - 4 ^{0}C.

Checklist 3.2: Milk Production - Equipment + Storage

3.2.8 Exclusive Use for Milk and Milk Hygiene Any equipment and substances not directly necessary in the milk storage room shall not be kept there. Cleaning and desinfection equipment and substances not used directly in milk production shall be stored in a separate place.	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Cleaning and desinfection equipment and substances are stored in a special cupboard	1	
c) Cleaning and desinfection equipment and substances are stored in a separate room.	2	
Please write down the points for 3.2.8 in the box to the right:		

3.2.9 Access Road Milk collection truck can access milk storage room via solid and fixed road and platform	Point / Score	Observations - write down observations and remarks below:
a) road not fixed, muddy, bad condition	0	
b) road fixed with crushed stones	1	
c) good road and platform, pavement (asphalt, beton)	2	
Please write down the points for 3.2.9 in the box to the right:		

3.2.10 Pump Tube Connection Storing tank can be accessed by a connection tube of maximum 6 meters length	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) internal pipe system up to the conncection point with the external pump tube must be integrated in the daily cleaning and desinfection routine	1	
c) no extension from storing tank to connection point with external pumping tube needed, pumping tube is connected directly to the storing tank	2	
Please write down the points for 3.2.10 in the box to the right:		

Result Checklist 3.2 -Equipment + Storage

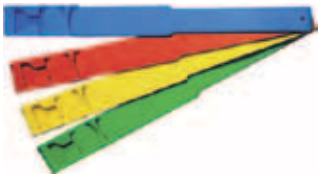
Please sum up the points from 3.2.1 to 3.2.10 in the box to the right	**.....out of 20**

3.3 Milk Production - Staff and Treatment

EU-Regulations say that „the milking has to happen in perfect hygienic conditions". The personnel in charge with animal care and with milking have to create and to assure these conditions - do not forget that they should be informed, trained and continuously supported to always have the necessary knowledge and attitude for this task.

Good Milking Practices

Always control foremilk carefully. First and immediate signs for mastitis can be identified through the organoleptic control (smell, consistency, color).



Foot bands are cheap and an effective means to avoid milking by accident sick or treated cows.

Good personal hygiene is a basic condition from the start.

a) avoid the contact of material / equipment from one animal to another, in order not to spread germs & infections.

b) the milk of each animal has to be controlled on organoleptic and physical-chemical signs (look, smell, taste). Milk with suspicious signs may not be used for consumption.

c) animals which have received drugs and have undergone a treatment can transfer residual substance through milk. They must be marked good visible - by the help of a foot band or a similar marking sign.

d) immediately after milking the milk has to be brought to a clean place so that contamination of milk, also through microbes in the air, is excluded.

e) good personal hygiene of the milking personnel is a basic condition from the start.

Checklist 3.3: Milk Production - Staff and Treatment

3.3.1 Clothes Milking personnel is wearing clean and washable outer wear during milking	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Clean and washable outer wear (e.g. milking skirt or dedicated milking clothes) exists and is used	1	
c) Additional hygienic measures, e.g milking gloves, exist and are used.	2	
Please write down the points for 3.3.1 in the box to the right:		

3.3.2 Udder Cleaning Udder must be clean before milking starts	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) clean udder cloths are available and are used.	1	
Please write down the points for 3.3.2 in the box to the right:		

3.3.3 Colostrum Check The first milk spouts of each dug are milked separately in order to verify the right milk quality of each animal (colostrum check)	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) colostrum check is executed	1	
c) colostrum cup/can is available and is used	2	
Please write down the points for 3.3.3 in the box to the right:		

3.3.4 Separate Milking of Problem Cows Cows which do not give milk of sufficient good quality are milked separately	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) cows are milked separately, e.g. in a special bucket.	1	
Please write down the points for 3.3.4 in the box to the right:		

Result Checklist 3.3 - Staff and Treatment

Please sum up the points from 3.3.1 to 3.3.4 in the box to the right	**.....out of 6**

NOTE: Care, attention and daily routines help to develop the right discipline and attitude to always respect the above mentioned procedures and guidelines. Following these rules costs no money, but you increase your earnings with it by avoiding losses, sickness and contaminated milk. The contaminated milk of only one cow can spoil the whole lot you have milked!

3.4 Milk Production - Milk Constituents

Milk is a very complex substance and has besides the basic elements fat, protein and water another 100 substances that can be detected and verified.
However fat and protein are the most important ones, there exist special conditions in order to produce special products:
Example Emmentaler:
Example Parmesan:
Example ???????????

Composition of cows milk

Main constituent	Range (%)	Mean (%)
Water	85.5 - 89.5	87.0
Total solids	10.5 - 14.5	13.0
Fat	2.5 - 6.0	4.0
Protein	2.9 - 5.0	3.4
Lactose	3.6 - 5.5	4.8
Minerals	0.6 - 0.9	0.8

As the table on the left shows, the composition of constituents of milk can vary in relatively great ranges. If we look only on fat, protein and lactose, there is a broad range possible.
The range of products that can be produced from milk is also quite large. And what is good for one type of products, is not necessarily good for another type of product.
For example, the farmers delivering milk for the famous "Emmentaler" cheese, are not allowed to feed their cows with silage or forage containing sugar.

The most important steps in processing milk

Fat and protein are the most important elements for further processing.

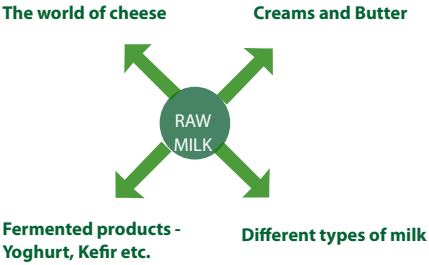
Usually, when processing milk, it is separated in the following main constituents:

Fat

Skim Milk

Casein (which is the most important protein)

Whey



Casein is easily separated from milk, either by acid precipitation or by adding rennin. In cheese-making most of the casein is recovered with the milk fat. Casein can also be recovered from skim milk as a separate product.

After the fat and casein have been removed from milk, one is left with whey, which contains the soluble milk salts, milk sugar and the remainder of the milk proteins. Like the proteins in eggs, whey proteins can be coagulated by heat. When coagulated, they can be recovered with caseins in the manufacture of acid-type cheeses.

Checklist 3.4: Milk Production - Milk Constituents

3.4.1??????? Milking personnel is wearing clean and washable outer wear during milking	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Clean and washable outer wear (e.g. milking skirt or dedicated milking clothes) exists and is used	1	
c) Additional hygienic measures, e.g milking gloves, exist and are used.	2	
Please write down the points for 3.3.1 in the box to the right:		

3.4.2 ??????? Udder must be clean before milking starts	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) clean udder cloths are available and are used.	1	
Please write down the points for 3.3.2 in the box to the right:		

3.4.3 ??????? The first milk spouts of each dug are milked separately in order to verify the right milk quality of each animal (colostrum check)	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) colostrum check is executed	1	
c) colostrum cup/can is available and is used	2	
Please write down the points for 3.3.3 in the box to the right:		

3.4.4 ???????? Cows which do not give milk of sufficient good quality are milked separately	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) cows are milked separately, e.g. in a special bucket.	1	
Please write down the points for 3.3.4 in the box to the right:		

4. Drugs and medicaments - What you should know

Special attention must be paid to the proper utilisation of drugs and medicaments in the production chain of food for human consumption. Consumers must be protected from consuming residues of drugs and medicaments. And, looking at the economic aspect, the smallest traces of some agents in the milk can spoil large quantities for processing in the industry (inhibitors).

Good practice rules for handling drugs on farm level

Udder treatment with antibiotica

Drugs must be stored in a safe place.

- drugs and medicaments must be stored properly in closed and safe deposit, which must also be protected against accidental access by children.
- you should use only properly and correctly labelled drugs and medicaments - the label shall contain information about: producer, name of the drug and the active pharmaceutical ingredient, lot number, way of application, composition, expiry date and waiting time after application.
- you should documentate properly the purchase of the drugs. Keep the veterinary prescription, the receit/invoice of purchase in a special file. You should keep this file for five years!
- you should properly document the application of the drug. Note the number, the type and the identity of the animals treated, note the name of the drug you used, the dates of application, the quantity given, the method of application, the resulting waiting time, the name of the person which has treated the animal(s).
- the respective waiting period after applying drugs and medicaments has to be respected strictly.
- mark the treated animals evidently by red ribbons around the leg or similarly visible markings so that it is always clear which animals are treated!
- separate strictly the milk from animals under treatment. Milk treated animals always last.
- as a general recommendation: seek a regular collaboration and advise from a veterinarian you trust - make a contract.

Result Checklist 4 - Drugs and Medicaments

Please sum up the points from 4.1 to 4.4 in the box to the right	**.....out of 7**

NOTE: keeping records is an obligation. Try to organise your documents and your files in such a way, that the work of writing down the records can be done easily. Maybe you install a table close to the place where you store and prepare the drugs for application - then you can note all details immediately after application and keep the records at the same place with the drugs.

Checklist 4: Drugs and medicaments

4.1 Inventory Inventory is regularly updated and all veterinarian application documents and receipts are filed	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) inventory exists. All updates are done in time. All documents and receipts are there.	1	
Please write down the points for 4.1 in the box to the right:		

4.2 Identification of treated animals A clear and ongoing system for identifying treated animals when milking is applied.	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Color tag or fetlock	1	
c) color tag and fetlock and additionally milking blockage (in automatized system with individual remote identifcation of each animal)	2	
Please write down the points for 4.2 in the box to the right:		

4.3 Delivery of milk after waiting period The milk of treated cows is only delivered after the obligatory waiting period (depending on drug). Using the inhibitor test is recommended	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Waiting period is respected	1	
c) Waiting period is respected and additionally inhibitor test is carried out	2	
Please write down the points for 4.3 in the box to the right:		

4.4 Milk of treated animals Separate processing of treated cows is guaranteed.	Point / Score	Observations - write down observations and remarks below:
a) not accomplished	0	
b) Separate bins / vessels for milk of treated animals	1	
c) Treated animals are milked as separate group at the end	2	
Please write down the points for 4.4 in the box to the right:		

5. Food and Feeding - What you should know

Experience has shown in a dramatical way (BSE) that a key element in the food safety chain is animal nutrition. For this reason the EU has adopted and implemented severe regulations concerning origin, production and trade with animal feed stuff. Romanian Legislation has adopted the EU regulations in „Lege Nr.72 from 16. January 2002 - Legea Zootehniei" addressing specifically also communal grassland and pastures.

The EU Regulation nr. 183/2005 from 12th of January 2005 - the food Hygiene Standards

In Annex I, the „good practice rules" for primary production are laid down.

1. Feed business operators responsible for primary production of feed shall ensure that operations are managed and carried out in such a way as to prevent, eliminate or minimise hazards with the potential to compromise feed safety.
2. Feed business operators shall ensure, as far as possible, that primary products produced, prepared, cleaned, packed, stored and transported under their responsibility are protected against contamination and spoilage.
3. Feed business operators shall meet the obligations set out in points 1 and 2 by complying with appropriate Community and national legislative provisions relating to the control of hazards, including:
   (a) measures to control hazardous contamination such as that arising from the air, soil, water, fertilisers, plant protection products, biocides, veterinary medicinal products and handling and disposal of waste, and
   (b) measures relating to plant health, animal health and the environment that have implications for feed safety, including programmes for the monitoring and control of zoonoses and zoonotic agents.
4. Where appropriate, feed business operators shall take adequate measures, in particular:
   (a) to keep clean and, where necessary after cleaning, to disinfect in an appropriate manner, facilities, equipment, containers, crates and vehicles used for producing, preparing, grading, packing, storing and transporting feed;(b) to ensure, where necessary, hygienic production, transport and storage conditions for, and the cleanliness of, feed;
   (c) to use clean water whenever necessary to prevent hazardous contamination;
   (d) to prevent, as far as possible, animals and pests from causing hazardous contamination;
   (e) to store and handle wastes and hazardous substances, separately and securely, so as to prevent hazardous contamination;
   (f) to ensure that packaging materials are not a source of hazardous contamination of feed;
   (g) to take account of the results of any relevant analyses carried out on samples taken from primary products or other samples relevant to feed safety.

The Romanian legislation „Lege Nr.72 from 16. January 2002 - Legea Zootehniei" has dedicated a large chapter to feeds and feed production.

6. Environment - What you should know

A major objective of the CAP is to protect and preserve environment. Livestock farms are especially concerned as dejections and manure can contribute to an ecxess of nitrate in soil and water. The regulatory framework goes back to 1991 (91/676/CEE). The relevant practices are formulated in the Code of Good Agricultural Practices

Code(s) of Good Agricultural Practice

The Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources lays down in the Annex II the "Rules of Good Agriculture Practice", which farmers should apply:

A. A code or codes of good agricultural practice with the objective of reducing pollution by nitrates and taking account of conditions in the different regions of the Community should certain provisions covering the following items, in so far as they are relevant:

1. periods when the land application of fertilizer is inappropriate
2. the land application of fertilizer to steeply sloping ground
3. the land application of fertilizer to water-saturated, flooded, frozen or snow-covered ground
4. the conditions for land application of fertilizer near water courses
5. the capacity and construction of storage vessels for livestock manures, including measures to prevent water pollution by run-off and seepage into the groundwater and surface water of liquids containing livestock manures and effluents from stored plant materials such as silage
6. procedures for the land application, including rate and uniformity of spreading, of both chemical fertilizer and livestock manure, that will maintain nutrient losses to water at an acceptable level.

B. Member States may also include in their code(s) of good agricultural practices the following items:

7. land use management, including the use of crop rotation systems and the proportion of the land area devoted to permanent crops relative to annual tillage crops
8. the maintenance of a minimum quantity of vegetation cover during (rainy) periods that will take up the nitrogen from the soil that could otherwise cause nitrate pollution of water
9. the establishment of fertilizer plans on a farm-by-farm basis and the keeping of records on fertilizer use
10. the prevention of water pollution from run-off and the downward water movement beyond the reach of crop roots in irrigation systems.

Healthy cows in a healthy and protected environment. Good management and permanently updated knowledge and information are key factors for farmers and help them to respect the environmental rules and at the same time to run their farms profitable.

Quality Management!

Quality Control!

Quality Milk!

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