

SOP Milking

Traditional milking describes:

- Collection of cows for milking
- Preparation of milking machine
- Milking, including handling of fresh cows and cows treated with antibiotics
- Cleaning of milking machine and refrigerated tank

AMS Milking describes:

- Selection of NB-cows
- Observation and cleaning of milking equipment
- Starting up new cows
- Handling of cows treated with antibiotics

Washing stables and milking area describes:

- Use of proper equipment
- Correct ergonomics by washing
- Cleaning, disinfection and bedding

Storage of medicine

Organic SOP Milking (marked with 🍌) describes the requirements for

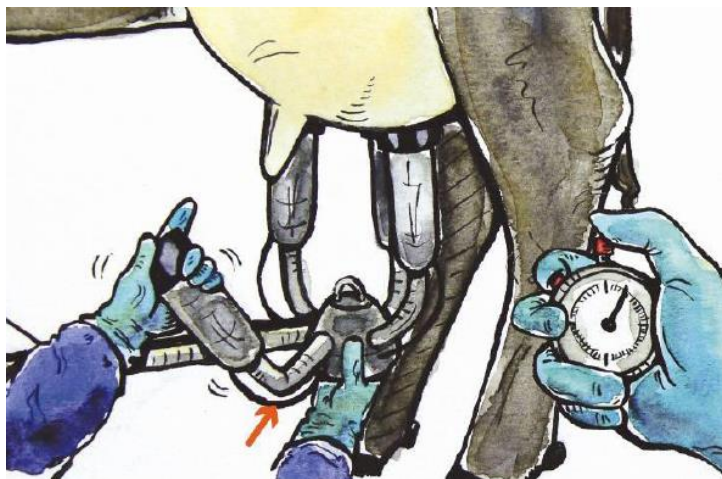
- Cleaning, disinfection and bedding
- Treatment
- Conversion period and
- Storage of medicine

All topics are illustrated with drawings and short texts that you can edit so it fits the conditions on your farm.





When you organize and implement a SOP on your farm, it is an advantage to involve a Lean-certified cattle adviser. You'll find them on www.arbejdsplan.kvaeg.dk. Experience shows that an introductory course with the help of an expert is fundamental for the output of SOP in the long run.

In the guide "Getting Started with SOP" (attached), there are some guidelines to consider before you begin to adapt SOP to your work procedures.



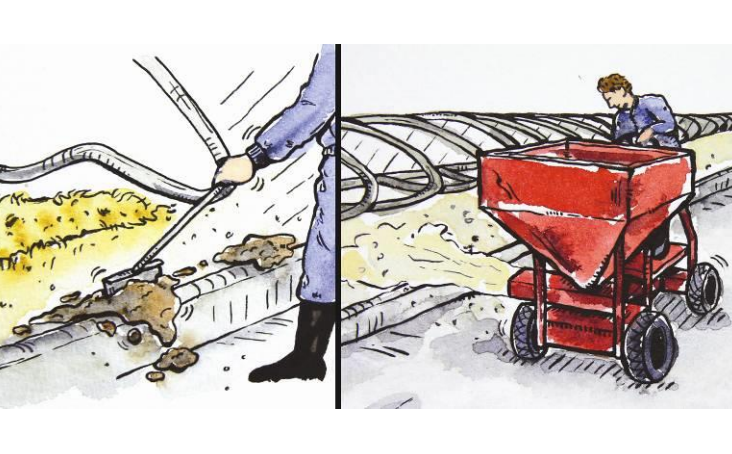

Enjoy your SOP.





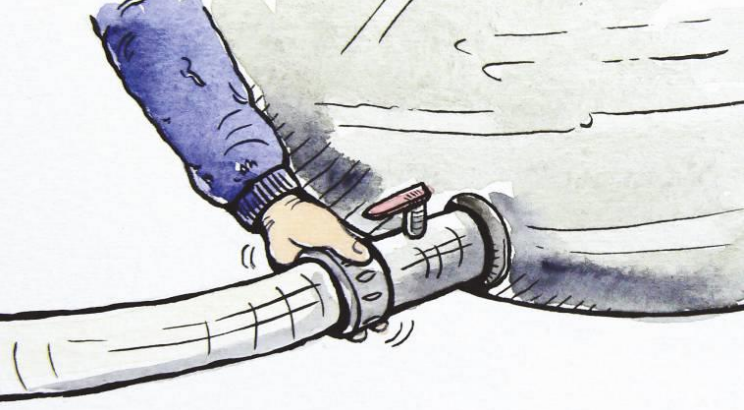
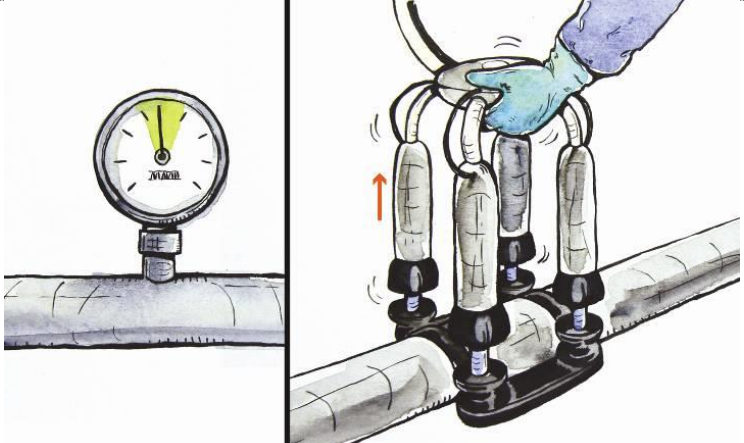
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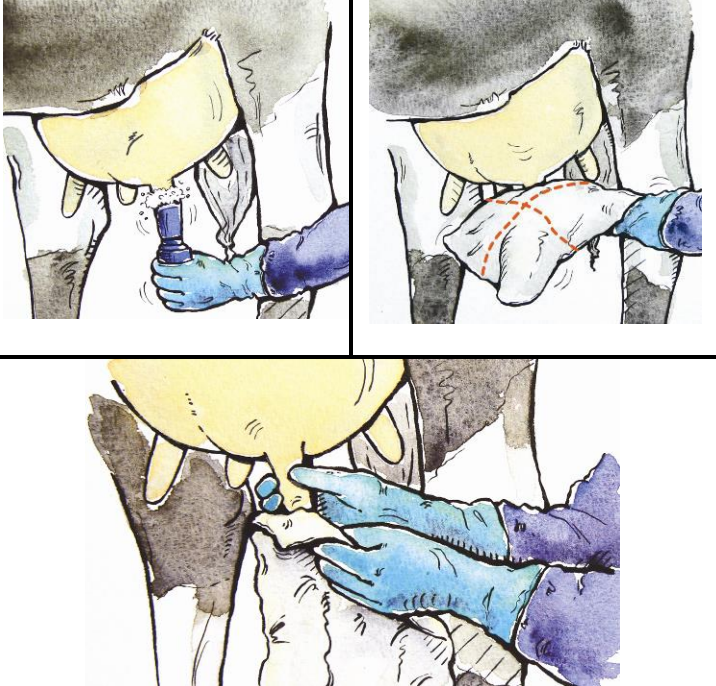

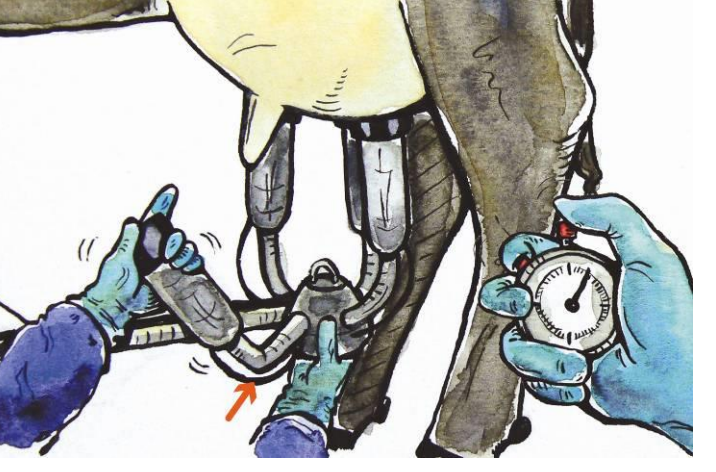
1. Milking - Prepare for milking

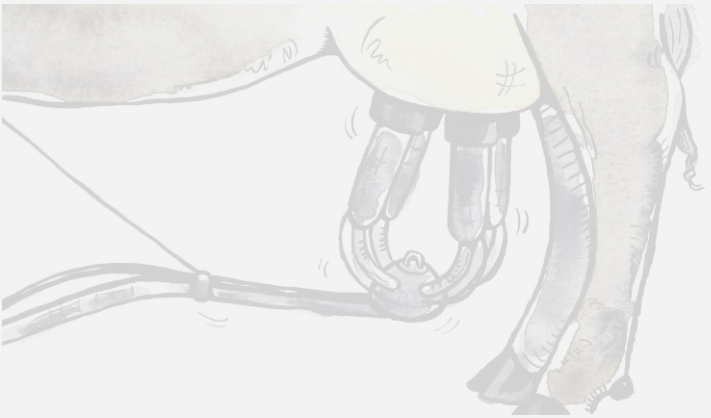
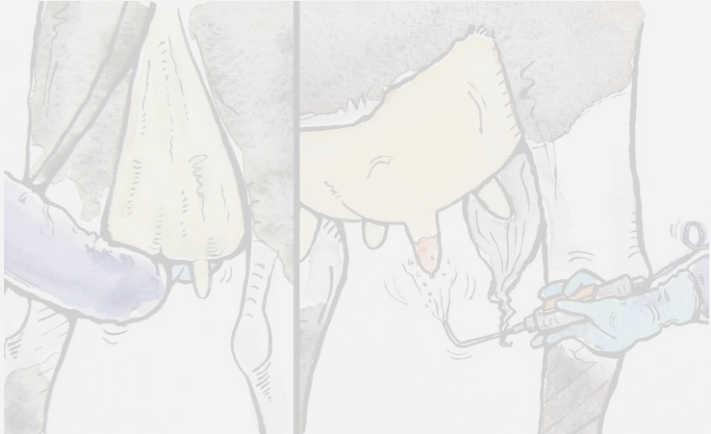
<p>1.1 Collect cows at _____ and at _____</p>	
<p>1.2 Note the number of the cow showing</p> <ul style="list-style-type: none">• Heat• Lameness• Vaginal flux• Diarrhoea• Other <p>on _____ (paper, board)</p>	
<p>1.3 Clean cubicles</p> <ul style="list-style-type: none">• Scrape cubicles• Spread bedding <p>use _____ kg</p>	
<p>1.4 Feed at _____ (hrs)</p> <p>Push feed at _____ (hrs)</p>	

2. Milking - Preparing milking machine




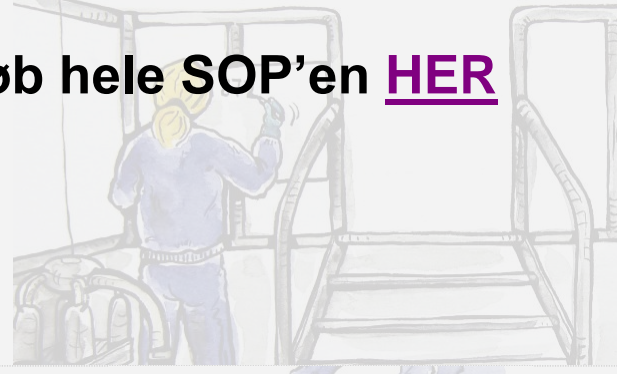

<p>2.1 Rinse with clean water</p> <p>Check, that the separator and the delivery line are empty</p>	
<p>2.2 Change milk filter</p>	
<p>2.3 Put milking machine in milking position</p> <ul style="list-style-type: none">• Check that delivery line is mounted on refrigerated tank• Turn shuttle valve to milking position	
<p>2.4 Start milking machine</p> <p>Check vacuumeter _____ kPa</p> <p>Release cluster assembly from washing position</p>	

3. Milking - of normally lactating cows

<p>3.1 Milk the cow's milk into tank ____ (4) days after calving</p> <p>Wipe teats and teat ends thoroughly</p> <ul style="list-style-type: none">• Use gloves• Pre-treat with _____• Use one cloth per cow• Wipe each teat with a clean part of the cloth	
<p>3.2 Foremilk 3-4 strong squirts from each teat into test cup</p> <p>If the milk contains blood or clots, or if the appearance has changed, milk the cow separately (see SOP 4), and contact _____ (manager, vet.)</p>	
<p>3.3 Interval of _____ (30) seconds</p> <p>Attach teat cups without false air intake</p>	

<p>3.4 Check for correct position of cluster assembly</p> <p>If the unit is kicked off, put it back on</p>	
<p>3.5 Examine that the udder is empty</p> <p>Apply teat dip/spray after milking</p>	
<p>3.6 Notes</p>	<p>Vil du vide mere – køb hele SOP'en HER</p>

4. Milking - of cows treated with antibiotics

4.1	Treated cows are marked with a RED strap on each hind leg	
4.2	Use separate milking machine and bucket with RED tag Rinse the cluster assembly with lukewarm water (40 °C) after milking	
4.3	Examine the udder for <ul style="list-style-type: none">• Swelling• Soreness• Heating• Low yield Note condition	
4.4	Note number and condition of milked cow on _____ (board) After the milking session: <ul style="list-style-type: none">• Check that all cows treated with antibiotics are noted	
4.5	Dump milk into _____ (slurry tank)	

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4.6 **After last separate milking and before milking into tank**

Foremilk 3-4 strong squirts from each teat into CMT-tester or into test cup

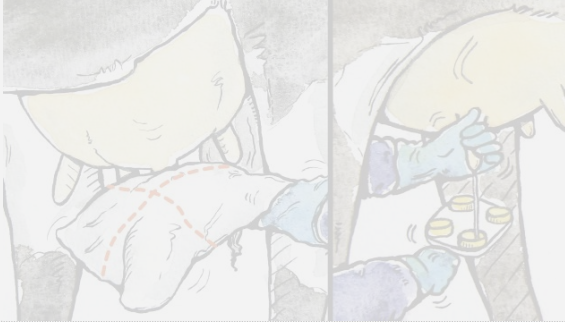
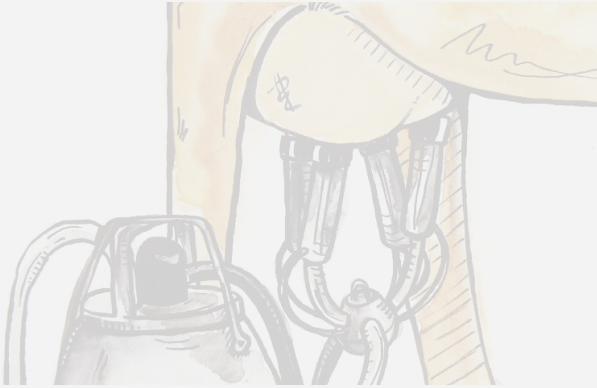
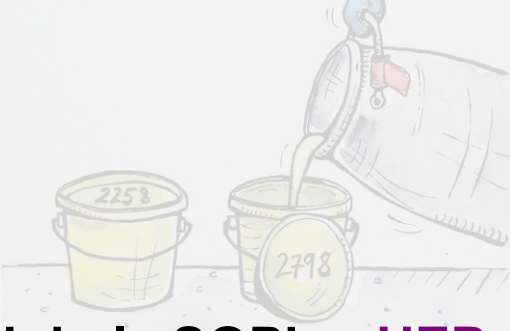

If the milk is unusual then extend the withdrawal of the milk

If the milk is normal, the red mark is removed and the milk goes into the tank





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5. Milking – fresh cows

5.1	<p>Fresh cows are marked with _____</p> <p>Start milking as described under SOP 3 "Milking – of normally lactating cows"</p>	
5.2	<p>Use separate milking machine and bucket with _____ tag</p> <p>By the first milking, milk approx. ____ (4) l</p> <p>By the second milking, milk approx. _____ l</p> <p>Rinse the cluster assembly with lukewarm water (40 °C) after milking</p>	
5.3	<p>Note cow number on the bucket</p> <p>Check status of Paratuberculosis</p> <p>If cow's status is Yellow or Red → dump milk</p>	
5.4	<p>Vil du vide mere – køb hele SOP'en HER</p> <p>Examine the udder for</p> <ul style="list-style-type: none">• Swelling• Soreness• Heating• Low yield <p>Note cow number and condition on _____ (board)</p> <p>Move the cow back into the calving area, during the first _____ (1-5) days after calving</p>	

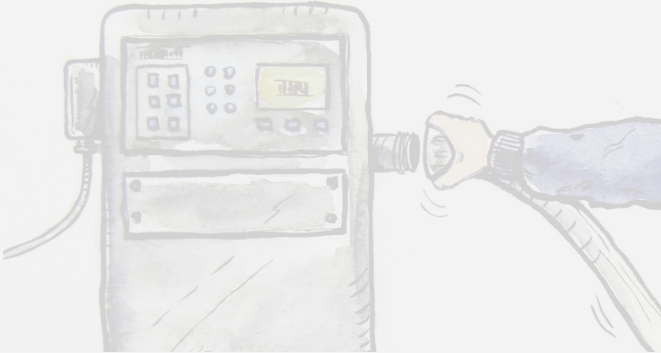
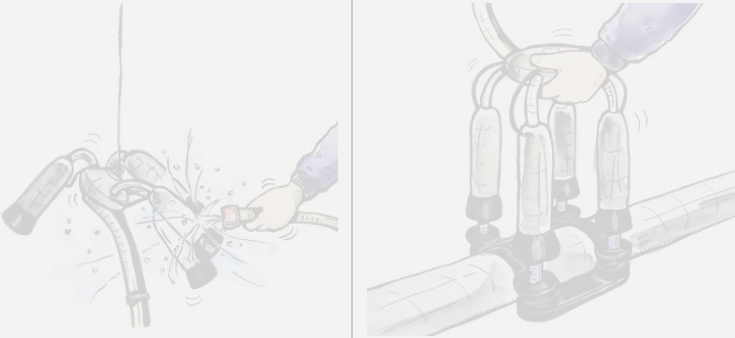
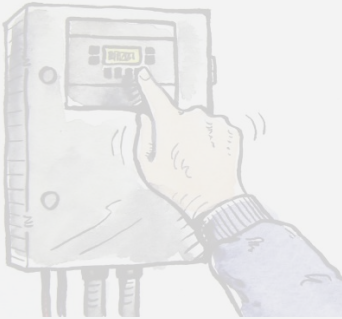

6. Milking - Marking cows

<p>6.1 Mark the cows before treatment</p> <p>Always put RED straps on each hind leg</p> <p>Mark treated glands with _____ (colour)</p>	
<p>6.2 _____ (manager, vet) carries out treatment</p> <p>Register treatment and time of withdrawal of milk</p> <p>_____ (pc/board)</p>	

Used symbols/marks	Meaning	Actions
Red marks/straps	Treated cows	Withdraw milk
	Fresh cows	Withdraw milk
	Three teats	Use plug
	Restless	
	High SCC	
	Para tuberculosis	
	Slow milking	Extra carefully start of milking
	CMT test	

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7. Milking – Wash the milking system

<p>7.1</p>	<h3>Prepare for wash</h3> <ul style="list-style-type: none">• Empty milk from system• Release delivery line from cooling tank and mount on cleaning unit <p>_____ milk filter (remove, change)</p>	
<p>7.2</p>	<h3>Clean cluster assembly on the outside</h3> <p>Mount milking unit on washing units</p> <p>Put shuttle valve into washing position</p>	
<p>7.3</p>	<h3>Start washing unit by</h3> <p>_____ (pressing "on-button")</p> <p>Check that the machine is washing and that the milking units are mounted correctly on washing units</p>	
<p>7.4</p>	<h3>Daily cleaning</h3> <p>Flush at low pressure, e.g. 5.5 bars and with large amount of water, e.g. 65 litres per minute</p> <h3>Periodical cleaning</h3> <p>Spray equipment with foam agent and let it work for 20-60 minutes before washing at low pressure</p>	

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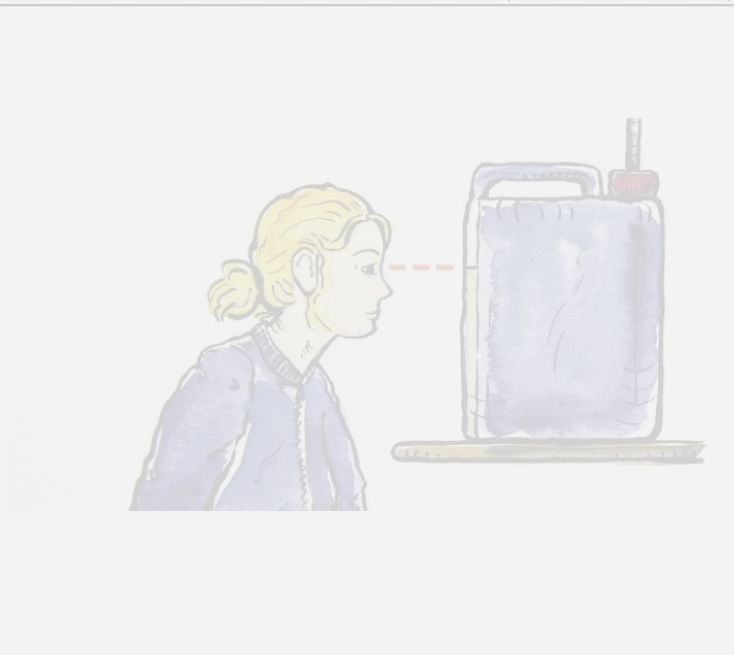
7.5 **Check-up on the volume of cleaning agents** _____
(daily)

When replacing container

- Use nitrile gloves
- Wear eye protection

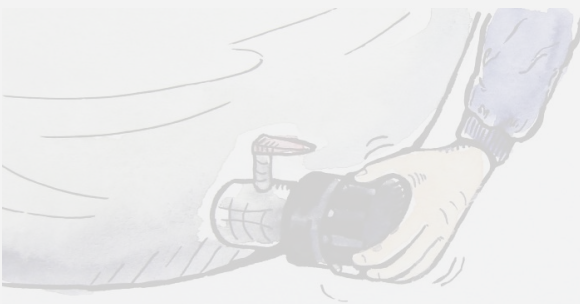
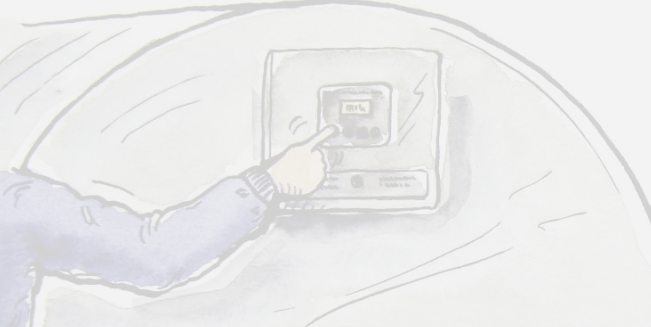
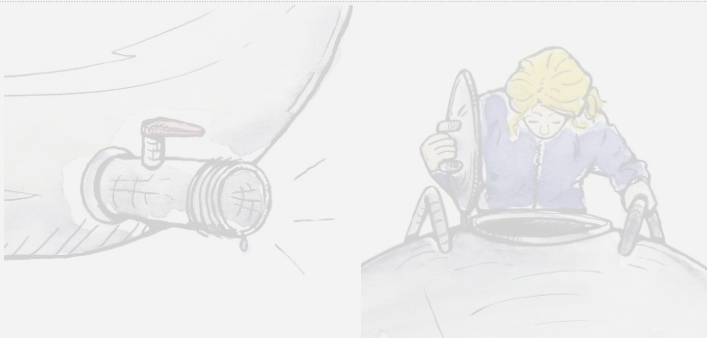
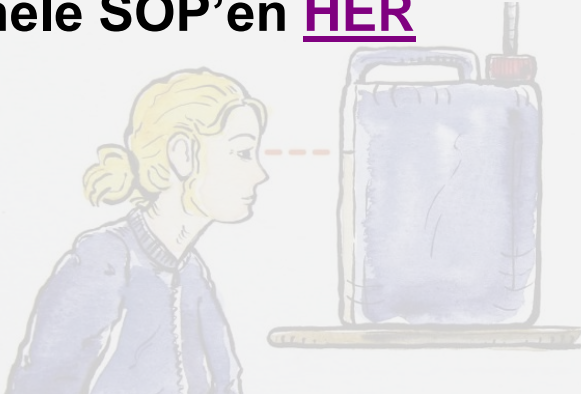
Never mix acids and chlorine products.

Replace the safety data sheet in the folder when new supply of detergent is delivered.



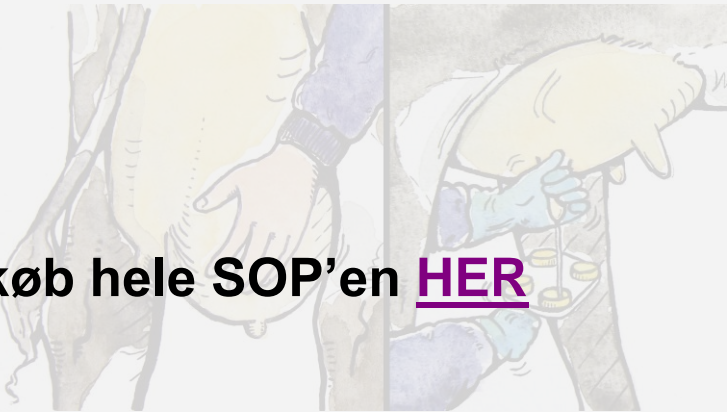


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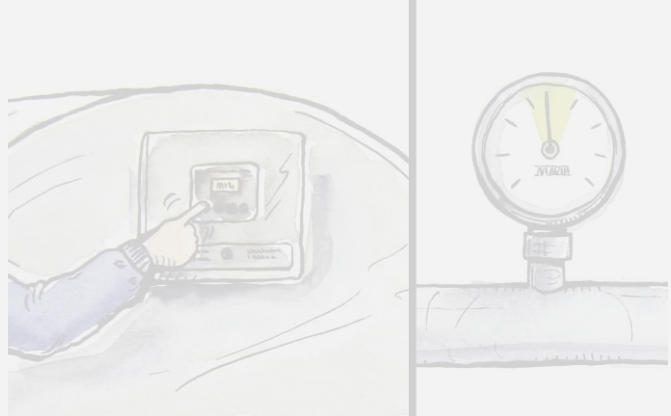

8. Milking - Wash the cooling tank

<p>8.1</p>	<p>Prepare the cooling tank</p> <ul style="list-style-type: none">• Put on wash cover• Set shuttle valve in washing position	
<p>8.2</p>	<p>Start washing unit by</p> <p>_____ (pressing "on-button")</p> <p>Check that the washing unit is operating</p>	
<p>8.3</p>	<p>After the wash, check that the cooling tank is clean, clear of water and free of coating.</p> <p>If not, contact _____ (manager)</p>	
<p>8.4</p>	<p>Check-up on the volume of cleaning agents</p> <p>_____ (when washing)</p> <p>When replacing container</p> <ul style="list-style-type: none">• Use nitrile gloves• Wear eye protection <p>Never mix acids and chlorine products.</p> <p>Replace the safety data sheet in the folder when new supply of detergent is delivered.</p>	<p>Vil du vide mere – køb hele SOP'en HER</p> 

9. AMS Milking - Find NB-cows

<p>9.1 Go through the list of</p> <ul style="list-style-type: none">• NB-cows• Cows milked more than _____ (12-16) hours ago• Cows milked insufficiently more than _____ (12-16) hours ago <p>Collect these cows for milking</p>	
<p>9.2 Check calving area and separation area for cows that need to be milked</p>	
<p>9.3 On _____ (mondays), go through the list of cows treated 3 weeks ago</p> <p>Check for swelling/asymmetry</p> <p>Judge milk by appearance Vil du vide mere – køb hele SOP'en HER If the appearance of the milk has changed, put the cow to milk separation and contact _____ (manager)</p>	
<p>9.4 Other actions</p> <p>Check feed alarms every _____ (morning)</p>	

10. AMS Milking - Observe milking system

<p>10.1</p>	<p>Observe one normal milking on _____(1) robot every morning</p> <p>Check:</p> <ul style="list-style-type: none">• Preparation• Attachment• Detachment• Post dipping <p>In case of failures, contact _____ (manager)</p>	
<p>10.2</p>	<p>Check every _____ (morning and evening)</p> <ul style="list-style-type: none">• That temperature on the milk tank is below ____ (4.6) °C• That vacuum level is _____ kPa	
<p>10.3</p>	<p>Check that milk separator is operating (check valves) every _____ (Monday)</p> <p>If possible, attach milk line close to the valve to test, that no milk will pass the milk tank during separation</p>	
<p>10.4</p>	<p>Other observations</p> <p>Check oil level of vacuum pump every _____ (month)</p>	

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11. AMS Milking – Cleaning the AMS

11.1	<p>Clean/remove lime from sensor every _____ (morning, noon, afternoon, evening)</p> <p>Check laser sharpness with a piece of white paper</p>	
11.2	<p>Clean milking system _____ (at 7.00, 14.00 and 21.00 hrs.)</p> <p>Replace filter _____ (before and after cleaning)</p>	
11.3	<p>Check-up on the volume of cleaning agents _____ (every morning)</p> <p>Check that washing water is above _____⁽⁴²⁾ °C (temperature at the end of the wash)</p> <p>Never mix acids and chlorine products.</p> <p>Vil du vide mere – køb hele SOP'en HER</p> <p>Replace the safety data sheet in the folder when new supply of detergent is delivered.</p>	

11.4 **Every _____ (morning), clean by flushing and brushing**

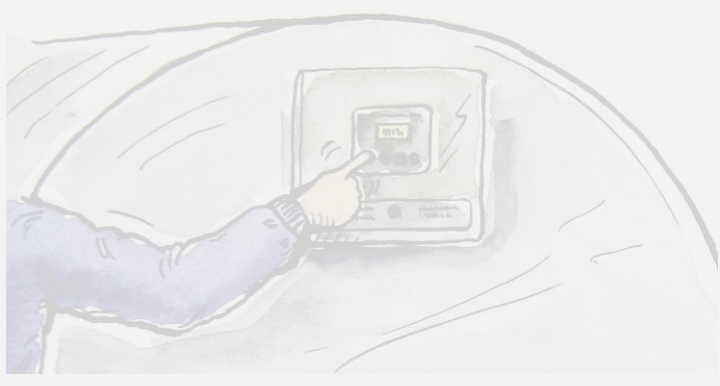


- Hoses
- Teat cups/air holes
- Start-milking unit
- Feeding trough
- Floor in milk robot and milk room

On Lely, mount recently cleaned brushes. Dismounted brushes must be cleaned and disinfected



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12. AMS milking – Wash the cooling tank

12.1	<p>Start washing unit after milk collection by _____ (pressing "on-button")</p> <p>Check that the washing unit is operating</p>	
12.2	<p>After wash, check that the cooling tank is clear of water, clean and free of coating</p> <p>If not, contact _____ (manager)</p>	
12.3	<p>Check-up on the volume of cleaning agents _____ (when washing)</p> <p>When replacing container</p> <ul style="list-style-type: none">• Use nitrile gloves• Wear eye protection <p>Vil du vide mere – køb hele SOP'en HER</p> <p>Never mix acids and chlorine products.</p> <p>Replace the safety data sheet in the folder when new supply of detergent is delivered.</p>	

13. AMS Milking – Cows treated with antibiotics

<p>13.1 Print a list of cows for milk separation every _____ (morning)</p> <p>Check that the list includes all cows treated with antibiotics</p>	
<p>13.2 _____ (manager) has to register cow number and length of withdrawal on PC before treating the cow</p> <p>Be aware that there must be local flushing of the robot after milking cows treated with antibiotics</p>	
<p>13.3 _____ (manager) has to mark cows with a red strap on _____ (leg and tail)</p> <p>_____ (manager, vet) has to carry out treatment</p> <p>Register _____ (board, "Dyreregistrering", livestock records)</p>	
<p>13.4 _____ (morning and evening)</p> <p>Examine udders of separated cows for</p> <ul style="list-style-type: none">• swelling• soreness• heat• low yield <p>Note condition on _____ (board)</p>	

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13.5 **After latest separate milking and before milking into tank**

Start by milking 3-4 strong squirts from each teat into CMT tester or into test cup




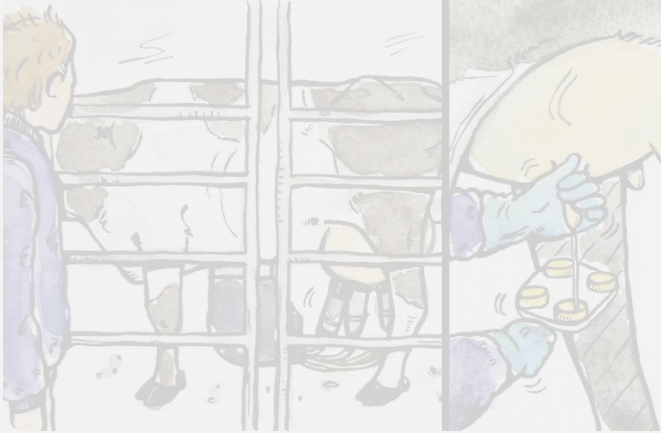
If the appearance of the milk has changed, continue milk separation

If the milk is normal, remove **red** straps and give permission to milk into tank on the PC



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14. AMS Milking – Starting-up a new cow





14.1	Add cow Put cow on "active" for milking	
14.2	State milking parameters <ul style="list-style-type: none">• Visiting frequency• Reattachment• Missing teats• Teat placement• Separating milk• _____• _____	
14.3	Start-up of feeding Start volume ____ kg/day End volume ____ kg/day Start-up period ____ days	
14.4	Let the cow enter the robot and check mounting of teat cups Attach manually, if necessary Before milking into tank Start by milking 3-4 strong squirts from each teat into CMT tester or into test cup	

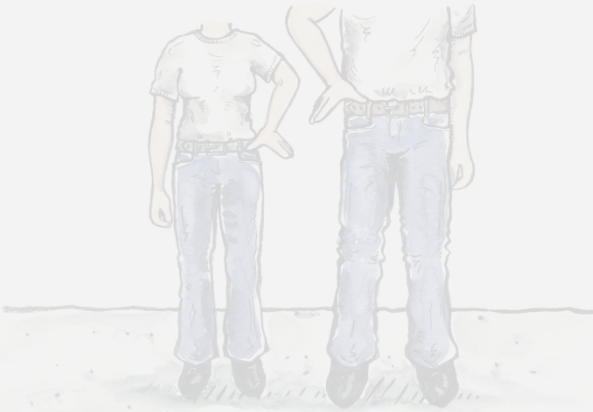
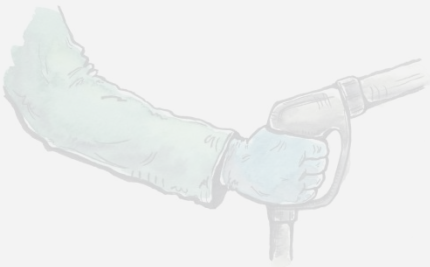


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15. Washing stables and milking areas

The best way of washing milking areas and milking parlours daily is by using a flush hose. A high-pressure washer will attach aerosols with manure, feedstuf and milk to the milking equipment after cleaning. A flush hose with clean water may be used without wearing a respirator and with a minimum of strain on your joints.

High-pressure washing is hard work, and to avoid injuries this demands high-quality equipment and knowledge.



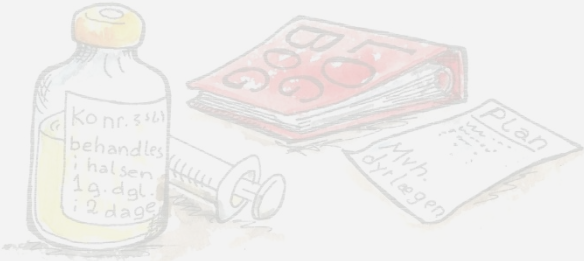

<p>15.1</p>	<p>Relieve your joints</p> <p>Support your working arm against your body.</p> <p>In case you keep your elbow 30 cm from your body, the strain on your joints will double.</p> <p>It is practical to use both your left and right hand. Frequent switching between left and right hand will relieve the pressure.</p>		
<p>15.2</p>	<p>Keep straight lines in the body and limbs</p> <p>Keep shoulder, knee and wrist in a "middle position".</p> <p>Avoid bending and twisting of the spine and hands.</p>	 <p>Vil du vide mere – køb hele SOP'en HER</p>	
<p>15.3</p>	<p>Stand with some space between your feet</p> <p>Spread your weight on both legs. This gives a good body balance.</p> <p>Move your legs often to avoid twisting your back.</p>		

<p>15.4</p>	<p>Equipment Get lances in various lengths.</p> <p>People do not have the same height. Distance between hip and object for washing determines the best length of the lance.</p> <p>Change length of the lance when the height of the object for washing changes. This will give your muscles a short break.</p>	
<p>15.5</p>	<p>Warning Do not strip handles.</p> <p>Buy a comfortable easy-hold handle. You may combine different brands to secure the best tool.</p>	
<p>15.6</p>	<p>High-pressure washing</p> <p>Use personal protective equipment, such as</p> <ul style="list-style-type: none">• Safety boots with non-slip soles• Rainwear• Gloves• Headgear• FFP3SL or P3SL respirator filter <p>Vil du vide mere – køb hele SOP'en HER</p>	
<p>15.7</p>	<p>Cleaning and disinfection</p> <p>Warning: Do not distribute chemicals at pressure above 70 bars without using protective equipment.</p> <p>Study the user manual (APB) to check which personal protective equipment to use.</p>	

<p>15.8.</p>	<p>Cleaning cubicles and bedding Lying area should be clean and have dry bedding.</p> <p>The bedding should be able to take shape of the animals body</p>	 An illustration showing two cows lying in a cubicle. The cubicle is filled with bedding, and the cows are lying on it. The bedding is shown to conform to the shape of the cows' bodies. The floor of the cubicle is made of slats, and there is some manure on the floor.
<p>15.9</p>	<p>Bed cubicles with rear edge</p> <p>The bed is filled to the rear edge and the bedding is equally spread out</p>	 An illustration showing a cow lying in a cubicle. The bedding is filled to the rear edge of the cubicle and is spread out evenly. The floor of the cubicle is made of slats, and there is some manure on the floor.

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16. Storage of medicine

<p>16.1</p>	<p>Safe storage</p> <p>Medicine should be kept in a closed/locked closet/room according to the quality program on the farm</p>	
<p>16.2</p>	<p>Correct label</p> <p>Ensure correct label on all medications (clear identification of the animal/animals that need treatment)</p>	
<p>16.3</p>	<p>Treatment manual</p> <p>By delivery or prescription of medication there must always be professionally well-founded treatment guidelines from the vet and a well-defined time frame</p>	
<p>16.4</p>	<p>Preventive treatment with antibiotics may not be made</p> <p>Vaccines are not included.</p> <p>Keep a vaccination plan, which is signed by the vet.</p> <p>If the treatment plan is signed by the vet: Possible to provide the animals with vitamins.</p>	

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16.5	Disposal Dispose packaging and drug residues at the end of term, according to health agreement
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Organic requirements - overview

Organic SOP milking describes the organic requirements for washing, cleaning and bedding, treatment, conversion periode and storage of medicine in organic farms. That ensures the organic requirements are established in the work procedures for milking the livestock.

When you are going to organize and implement SOP on your farm, the suggestions for placing the requirements are noted in parentheses. The Organic SOP is supplementary and should be put in as an extra SOP.

17. Requirements for bedding, organic cows

<p>17.1 (15.10)</p> 	<h4>Amount of bedding in cubicles</h4> <p>At least 5 cm of bedding on concrete or rubbermats.</p> <p>Mattresses - at least 5 cm including bedding.</p>	
<p>17.2 (15.11)</p> 	<h4>Cow and calf must go together in a day and night after calving</h4> <p>Exemption is possible by participation in the reorganization of para-tuberculosis or Salmonella Dublin</p>	

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17.3 (15.11)	Approved products for cleaning and disinfection of pens and equipment etc.	<ul style="list-style-type: none"> • Potassium and sodium soap • Water and steam • Milk of lime • Lime • Quicklime • Sodium hypochlorite (e.g. as liquid bleach) • Caustic soda (sodium hydroxide) • Caustic potash • Hydrogen peroxide • Natural essences of plants • Citric, peracetic acid, formic, lactic, oxalic and acetic acid • Alcohol • Nitric acid (dairy equipment) • Phosphoric acid (dairy equipment) • Formaldehyde • Cleaning and disinfection products for teats and milking facilities (all approved in the Danish Veterinary and Food Administration) • Sodium carbonate
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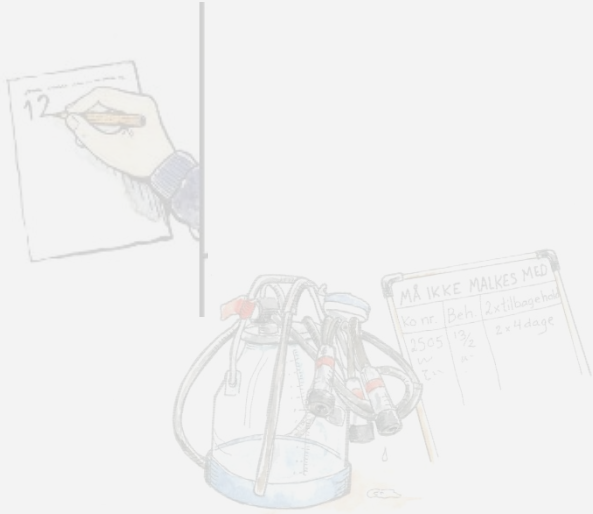



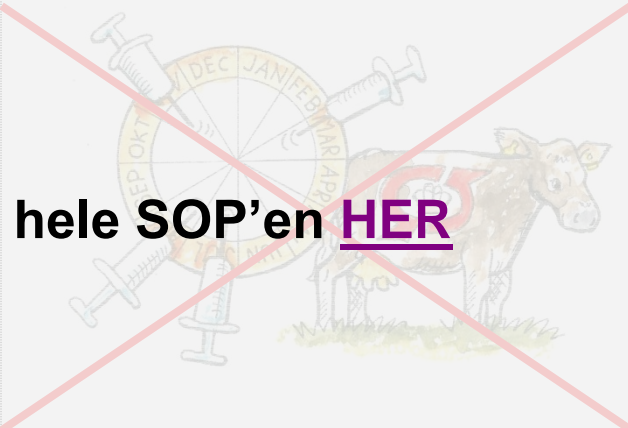
(Active substances, not trade names)







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18. Withdrawal, conversion and storage of medicine






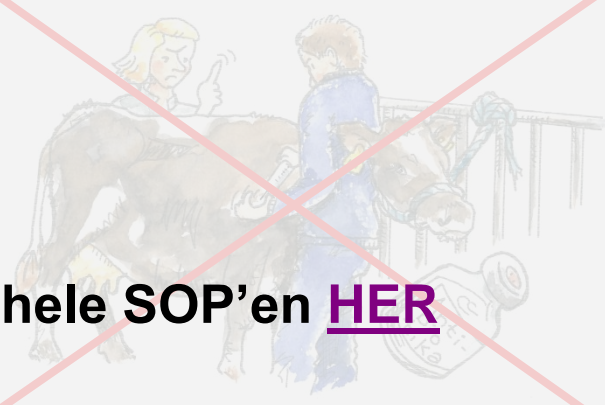



<p>18.1</p> 	<p>Double withdrawal-period of milk from cows under treatment</p> <p>2 times the withdrawal-period of the milk from cows under treatment</p> <p>Write the length of withdrawal on</p> <ul style="list-style-type: none">• Withdrawal note/label• Livestock records (lies in) <p>_____</p>	
<p>18.2</p> 	<p>Treated animals should be registered and marked</p>	
<p>18.3</p> 	<p>Max 3 treatments per cow per year</p> <p>More than 3 treatments of the animal within 12 months results in a 6 month withdrawal period</p> <p>Vil du vide mere – køb hele SOP'en HER</p>	

<p>18.4 (16)</p> 	<p>Conversion periode</p> <p>Conversion of milk – 6 month</p> <p>Conversion of meat – 1 year</p>	
<p>18.5 (16.6)</p> 	<p>Disposal</p> <p>Dispose packaging and medication residues immediately after the treatment period.</p>	

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19. Treatment, organic animals

<p>19.1 (16)</p> 	<p>Treatment</p> <p>Treatment with antibiotics and painkillers is to be performed by the veterinarian</p>	
<p>19.2 (16.5)</p> 	<p>Preventive treatment with medicine may not be carried out.</p> <p>(Applies also internal teat sealing)</p> <p>Vaccines are not included. Keep a vaccination plan, which is signed by the vet.</p> <p>If the treatment plan is signed by the vet: Possible to provide the animals with vitamins.</p>	
<p>19.3 (16)</p> 	<p>Additional treatment by the farmer with antibiotics is prohibited for animals over 6 months.</p> <p>(according to Industry agreement for organic cattle)</p>	
<p>19.4 (16)</p> 	<p>You can, by yourself, treat with:</p> <ul style="list-style-type: none">• Phytotherapeutic products and trace elements, notified to the National Health Service of Denmark• Homoeopathic products, notified to the National Health Service of Denmark• Non-prescription products for external use• Products that consist only of feed materials which are permitted in organic production (must be GMO-free)	

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