

SSOPs are written protocols that are specified in a food safety plan that define the procedures to be followed to achieve a specific goal or process. A SSOP may define temperatures, type of cleaning agent, various steps or practices to be used and the order of the procedure to be used.

Milking conditions

1. Ensure that milkers are well trained to follow milking protocols exactly. Milkers need to be confident in all aspects of the procedure, know how to trouble shoot and make decisions when necessary. See detailed milking procedure page 2.
2. Cows' udders, first strippings of milk and in-line milk filter are closely inspected at every milking. Milk is only added to the bulk tank, if it passes the inspection criteria.
3. Milkers wear disposable, food safe nitrile gloves and wash hands before, during and after milking.
4. Milking equipment is clean and well maintained. Before and after every milking the procedures for rinsing, washing and sanitizing are followed carefully. CIP is monitored to ensure proper functioning.
5. Rubber gaskets and other parts are inspected regularly and replaced as needed. Rubber teat cup liners are replaced every 6 months. Plastic Milk hose is approved for raw milk service and replaced annually.
6. Vacuum pump is always topped up with oil. Vacuum pressure is adjusted to 13.5 psi maximum (reads 14 psi on the dial).
7. A spare pulsator is kept on hand, ready to exchange and use.
8. Milkers wear clean clothes and have their hair covered or hair tied back.

Milking procedure:

Rinse:

- Before milking time, the automatic timer will have run the “cold sanitize” chlorine rinse. The timer will be in the OFF position after the “cold sanitize”.
- To rinse away any remaining chlorine, you will start a clean water rinse cycle.
- Flush the cow platform with water, the wet concrete will be easier to clean later.

Pipeline washer:

1. With toggle switch in “wash” position, carefully advance timer on the pipeline washer to the start of “warm 1st rinse” until you hear water starts running into the sink.

This cycle takes 7 minutes, make sure to notice (hear) the end of the rinse cycle*.

2. Empty the two buckets below the window.
3. Rinse cloths with very hot water. Set them out in the milking parlour in a bucket of very hot water (70 degree Celsius). Set out second bucket of water with detergent for used cloths.
4. While waiting for the rinse cycle to end, measure out food for each cow according to the current feed schedule.
5. Put the food for cows 1 and 2 into the mangers.
6. ***When you hear that the vacuum pump stopped, turn pipeline washer toggle switch to OFF. Advance timer to the end of cold sanitizing cycle to OFF, turn large grey wash valve OFF.**
7. Empty the 2 buckets below the window again and rinse. They will collect milk for the calves after milking when the vacuum system is shut down.

In the milking parlor:

1. Close white wash valves,
2. Unlock claw valves,
3. Turn valves on top of the weigh jars to “12 o’clock” position.
4. Open sampling valves at the bottom of the weigh jars to drain water out, then close again.
5. Open filter assembly and drain water out of milk hose, check that there is no water in the plastic lines.
6. Take off jetter cups one at a time.

In the milk room:

1. Move pipeline from wash position to milking position to direct milk into the cooling tank. Loosen clamp at the double elbow. Take off clamp at the sink. Remove gasket and swing milk line over the fridge to the cooling tank.
2. Take drop pipe out of the sink, check for cleanliness, set into the opening in the lid of the cooling tank. The opening in the lid needs to be inline with the milk line at about 2 o'clock position when facing the front of the tank. The lid needs to be pushed down tightly enough, but not all the way.
3. Assemble drop pipe, gasket and clamp, when tightening clamp, aim to direct milk flow towards the centre of the tank. Tighten clamp at the double elbow.
4. Put on **clean gloves**, or wash your gloved hands before inserting **clean filter socks** into the in-line filters at the weigh jars.

Before turning the pipeline washer to "milk", double check these points:

(this check list is written on the pipeline washer)

- Is the drop pipe in the tank?
- Is the butterfly valve of the tank closed?
- Is the large wash valve at the sink closed?
- Are the filters in?
- Is the food in the mangers?

Now that everything is ready and set for milking....

1. Turn pipeline washer to “milk”, pull up claw valves to stop the suction.
2. Before letting the first two cows in, make sure that their food is in the mangers, that the front gate is closed and the back gate is open.
3. Let the cows through the gate in the correct order. The more dominant cow always has to go in front to prevent bullying during milking. **See current feed schedule for milking order.**
 - If necessary, use headlocks to manage the cows in the barn before letting them come into the milking parlour for milking. Take your time.
4. Let in cow 1 and 2, observing their gait and attitude, make a note of any observations other than normal behaviour.
5. Latch the barn gate; gently latch the back gate behind the second cow.

Cow cleaning procedure and udder preparation:

1. Assess what cleaning needs to be done.
2. If the cow is dry and looks clean, brush udder, belly and inside of hind legs with a soft brush to remove dust and loose hair. Pay special attention to the bottom of the udder, between and around the teats.
3. Brush the far side of the udder in the same way, even though you cannot see it.
4. **If necessary see additional cleaning methods on page 7**
5. Feel the udder for any abnormalities, swelling or heat.
6. If necessary rinse cow platform again to flush away any hair or debris.
7. Use one cloth out of the hot water, drain and squeeze well, skin-test for temperature, wipe teats and check cloth.
8. Place used cloths in the separate bucket with water and detergent. Repeat as necessary. If the cloth is dirty, put outside in the laundry bucket.
9. If the teat was dirty, use the udder wash / pre-dip and wipe again with a fresh cloth.

10. Use the strip cup with the black lid and squeeze 4 to 6 streams of milk from each teat, observe the milk running over the black surface, it should be clear and free of any abnormalities.
11. In case you notice any lumps in the milk, continue stripping until the milk is clear, make a note on the calendar which quarter of the udder produced the lumps. Close the valve at the bottom of the weigh jar and keep the milk from this cow separate.
12. After pre-stripping all 4 teats, use another cloth to wipe teats again. Pay special attention to the teat openings. Repeat if necessary, until the cloth remains white. When the cloth remains white and the teat openings appear clean, it's time to start milking right away.

Milking procedure:

1. Remove claw from the hook and turn upside down, suction is cut off by the teat cups draping down. Take care not to vacuum up any hair or dust off the cow, your clothing or any other place. Keep the inflations off the floor and away from the cow's hooves at all times.
2. Attach to the teats one at a time, watching that each teat inserts straight.
3. Place air hose and milk line into the hook; adjust the position so that inflations hang straight down. Make sure large teats are inserted far enough, small teats not too far.
4. Start timer to make sure the milking machine does not stay on the cow more than 5 minutes, in certain cases maximum of 7 minutes. Average milking speed is 2 litres per minute.

Repeat the same procedure with 2nd cow.

1. Watch the flow of milk and feel the udders to make sure all quarters are emptying out evenly.
2. Only if necessary, massage quarters to empty out better, pull down lightly on the teat cup, "machine stripping".
3. Once the flow of milk has receded, look at the timer and read the volume of milk on the weigh jar. (Leaving the machine on the cow after milk flow has stopped can be harmful.)
4. Pull the claw towards you horizontally, pull out claw valve up to stop the suction, remove machine slowly and carefully.
 - a. Push the claw valve to let milk in milk hose and filter flow into the weigh jar.
 - b. **Inspect inline filter, only if clean, let the milk flow to the receiver jar.**

5. **If the filter is not clean**, don't send the milk into the bulk tank, keep separate and use for calves or chickens, **see trouble shooting page X**.
6. To send milk to the receiver jar, turn the valve at the top of the weigh jar to "9 o'clock" and turn sampling valve to wash position. Once the weigh jar is empty, turn back to "12 o'clock", push the claw valve down to let remaining milk flow into the overhead milk line.

Repeat with second cow.

1. Manually empty the receiver jar to let all milk flow into the cooling tank.
2. Hand-strip each teat to double check that all quarters were milked out completely.
3. Post-dip each teat with Iodine teat dip.
4. Let the cows out. Set up gates for the next 2 cows.
5. Flush the cow platform.
6. Put the food for cows 3 and 4 into the mangers.
7. Let in cows 3 and 4, repeat the procedure.

If you used the headlocks to manage the other cows in the barn, remember to open them after you let in the last cow.

Additional cleaning methods

In the event that the cow enters the milking parlour and she does not appear clean and dry, use the following methods:

- If there is any dry manure on the coat, use round shedding blades to remove.
- If there is any wet manure on the cow, use single shedding blade to remove.
- If there is any dry manure on the udder, remove with shedding blade, then plastic scrubber or coarse brush.
- If the manure is close to the teats or doesn't come off easily and completely, use hose as described below.
- If there is a small spot of manure on the teats, use a separate rag with warm water and hand soap, lather and wash the teats thoroughly, pay attention to the teat openings. Wipe away soap with a clean wet cloth. **Dry the udder, use the udder wash / pre-dip and continue with the regular cleaning procedure.**
- If there is wet manure on the udder:
 1. Attach hose to tap and wash udder with warm water and shampoo. Pay special attention to the crevice in the centre of the udder.
 2. Rinse away shampoo with warm water.
 3. Repeat until bottom of udder and teats are clean all around.
 4. Dry thoroughly with a fresh towel.
 5. **Once the cow is clean and dry, proceed as described on page 4, use udder wash / pre-dip and continue with the regular cleaning procedure.**

After Milking:

1. Put any cloths that have manure on them in laundry buckets outside.
2. Rinse out cloths and bucket with very hot water. Soak cloths in very hot water (70 degree Celsius) with chlorinated alkaline detergent and cover with a lid.
3. Use towels from the laundry to wipe up any water or milk off the floor in the milk room.
4. Use the Swiffer to sweep off tile floor out the door, close milk room door. Sweep milking parlour with the broom.
5. Flush the floor of the milking platform with water.

Thank you for your good work!

- **Heifers and fresh cows:** Milk them last, after the 'good old cows'.
- An inexperienced cow or a cow who just gave birth may be nervous during milking. Try to have a calming and reassuring influence on her. Don't rush, but move through the procedure as smoothly as possible so she is not in the milking parlour any longer than necessary. This is not the best time for 'show and tell' to members who may be dropping in; ask them to stand back and keep quiet, please.
- The cow may lift her tail in preparation to defecate. If you notice it, hold the floor scoop under her tail to catch the manure. Otherwise the manure will hit the ground and may splatter far and wide. If that happens, have a close look at the claw and hoses all around. Wipe away any spots of manure with a tissue or damp cloth. Put any dirty cloths into the laundry buckets outside.
- After removing the milking machine, inspect all teat cups, hoses and the weigh jar and wash as necessary.
- You may have to rinse off and wash the outside of the claw with the hose. Then wipe with a damp cloth.
- Scoop up manure and put in wheelbarrow. Then flush platform with plenty of water to avoid clogging the drain pipe.

Same principles apply if a cow kicks off the machine during milking.

- If the vacuum stops immediately and the filter is clean, the milk may still be used.
- If there is any chance the milk may have been contaminated or the filter is not spotless, pour the milk into buckets outside the barn. It can be used for calves or chickens or in the garden.

- If the udder is not completely emptied, the machine has to be attached again as soon as possible and the udder milked out.
- Keep colostrum separate as directed, use for feeding calves or put in buckets outside the barn.

Bottling milk (wear clean clothes and clean shoes, hair tied back)

After every 2 or 4 milkings, maximum 48 hours, all the milk in the tank needs to be bottled, the tank needs to be rinsed, washed and sanitized.

1. See if there are enough clean jars and lids to bottle all the milk in the tank. If not, pre-heat the dishwasher. Follow the instructions posted above the dishwasher.
2. Set up the bench, seat and cover plastic stool with fresh cloth. Take the plastic wrap off the spout on the tank. Use a fresh tissue to wipe away condensation.
3. Rinse all parts of the filler adaptor with hot water and assemble.
4. Check the temperature on the cooling tank and in both fridges. Count number of gallons left in both fridges and fill in the "bottling record".
5. Use only jars and lids from the wire rack that have gone through the high temperature dishwasher. Let them cool down, hot jars may break when filled with cold milk. Have a close look at each lid and jar before filling it. If there is any rust on a lid, put it in the recycling and use a new lid.
6. Fill the jars to the neck only, leaving some air space in each jar.
7. After every 5 or 6 gallons, label each lid with the date and place them in the fridges. Record the number of gallons bottled on the bottling record.
8. When the level of milk in the tank is below the agitator paddle, turn off tank. If the refrigeration starts up with too little milk in the tank, it will freeze to the bottom. If you turn the tank off too soon, the cream will separate from the milk.
9. When the tank is empty, rinse with cool to lukewarm water.

Cleaning the cooling tank (need to wear clean clothes, hair tied back)

- 1. Rinse.** As soon as the tank is empty, use the hose to rinse the tank with cool to lukewarm water. Use a fresh wet cloth to wipe away spots of milk on the lid, agitator and inside the tank. Use the hose to spray directly into the spout from the inside.
- 2. Wash.** Fill one of the stainless steel buckets with very hot water (70 degree Celsius). Add chlorinated alkaline detergent as directed on the label. Using the blue brushes, brush all parts of the tank, agitator and lid with the soapy water. Imagine the tank divided into quarters. Brush the wall and bottom of each quarter thoroughly. Brush inside the spout. Rinse away soapy water.
- 3. Sanitize.** Close the valve on the spout. Pour 10 litre bucket of iodine solution into the tank. Use the soft, white brush to wipe all parts of the tank, agitator and lid with the sanitizing solution. Drain back into the same bucket. Put bucket into the sink. Place drain bucket under spout and rinse the tank with warm water. Wipe away sanitizer from agitator and lid with clean cloth.
- 4. Disassemble filler adapter. Rinse, wash and sanitize all parts.** Set on the wire rack to dry, cover with stainless steel bucket.