

BACTOSCAN

Total bacteria come mainly from the milking machine itself and usually mean that the milking machine is dirty. However, the total bacteria downgrade can also be caused by other problems such as water quality and a type of mastitis. Your Dairy Company will indicate whether it is plant or animal related. There are two common methods for testing total bacterial:

Standard Plate Count

The bacteria are grown as colonies on a jelly known as agar. Once grown, the colonies are counted. This process takes about three days.

Bactoscan

The bactoscan separates the bacterial cells in a centrifuge and stains them. The bacteria in the raw milk sample are counted electronically. This process takes about six minutes. In New Zealand the bactoscan has largely replaced the Standard Plate Count for testing total bacteria.

Large numbers of bacteria may be found in the milk from mastitis cows with streptococcal mastitis. These can be sufficient to cause Bactoscan downgrades. To find out whether these bacteria are from dirty machines or mastitis cows, a sample is grown on a blood agar. A skilled technician is required to read the plates because only Streptococcus colonies are counted and special tests are sometimes required.

The required hygiene standard can quite easily be achieved by following sound practices. These include adequate cow preparation, following recommended procedures for milking machine cleaning, sanitising twice daily, cooling the milk promptly to 7°C, and holding it below this temperature in the milk tank. When milk is at a temperature of about 35°C bacterial numbers will double every half hour. In these conditions 1000 bacteria/ml will become 10,000 bacteria/ml in 1¾ hours, 100,000 bacteria/ml in 3½ hours, and 1,000,000 bacteria/ml in 5 hours. The rate at which bacteria multiply reduces as the temperature falls.

Control of Bacterial Contamination

1. Plant Cleanliness

- Immediately after milking, rinse the plant with plenty of clean cold water to remove the majority of milk residues. Use at least 10 litres/cluster for a jetter cleaning system and 20 litres/cluster for reverse flow.
- Clean and sanitise the milking plant after every milking.
- Clean and sanitise the milk tank after every collection. Milk tanks should be rinsed immediately after pick-up.
- Keep airlines free from milk, moisture and dust. Split liners can cause milk to enter into airlines.
- Inspect the plant at regular intervals to ensure no areas of build up occur.
- Use approved filter socks and change after every milking.
- Replace cracked or perished rubberware, split liners and check unions regularly.

2. Animal Preparation and Health

- Prepare cows adequately for milking. Remove soil and dung if present but don't over-wet the udder.
- Ensure that the water used for cow preparation and plant rinsing is not contaminated with bacteria.
- Keep the cow's teats in good condition and the cows free from infection.
- Where a grade is caused by cows with streptococcal mastitis releasing large numbers of bacteria into the milk, they must be identified and their milk withheld from the main supply.

3. Milking Practices

- During milking keep the area under the cows clean in case clusters fall or are kicked off during milking.
- Implement good milking practices; keep yourself clean, eg hands and clothing.

4. Milking Machine Maintenance

- Check that your primary cooling system is achieving 18°C milk temperatures for milk entering the milk tank. Also check that milk in the milk tank is being cooled to 7°C within three hours of the completion of milking. Primary and secondary cooling should be checked at least three times a season as effective cooling reduces bacteria multiplication.
- Maintain the milking machine in a state of good repair. Have your milking machine tested by an approved tester at least once a season.
- Keep the buildings, yards and surroundings clean and sanitary.

Article end.