



Importance of Correct Semen Storage

In order to achieve optimal results, it is important that best practice techniques are used for the storage, transport and handling of freshly delivered semen.

A recent study published by University of Guelph evaluated the semen fridges on 28 Canadian piggeries. Astonishingly, 36% of semen fridges examined showed inappropriate storage temperatures. These were mainly due to producer errors such as adding warm semen to fridges, poor fridge unit maintenance and poor temperature control. In Australia, we have also observed similar findings on some piggeries, with huge variations between the top and bottom of fridges as well as temperature gauges not being reflective of actual temperatures in units.

The Pork Storks Quality System delivers semen with an effective fertilizing life of up to 6 days. In conjunction with most leading semen processing systems, Pork Storks recommend that to ensure optimal results semen should be used in the first 4 days post-collection. Correct storage of semen on-farm is critical to achieve this storage time. Sub-standard storage conditions will shorten the life of semen.

Semen is cooled and stored at 15-19 °C to decrease the metabolic rate of the sperm. If semen is stored >20 °C then sperm will retain a high metabolic rate with rapid energy consumption and by-product production which results in a short shelf-life. Temperature fluctuations will also impact on stored semen quality with every 2 °C fluctuation in semen temperature outside normal storage range reduces the expected shelf-life by 24 hours.

Semen storage on-farm

Optimal storage on-farm requires a reliable semen fridge.

The important components that a semen fridge must have to ensure safe semen storage include:

- The ability to store semen at 17 °C with a variance in fridge air temperature of ± 2 °C.
- The ability to maintain this temperature at extremes of ambient temperatures from -5 °C to 60 °C
- The ability to maintain a consistent temperature throughout the whole fridge.
- The ability to hold all doses, with sufficient space to allow adequate airflow around individual silver packs. Stacking packs on top of each other results in temperature variation between packs in the middle, versus those on the outside.

This temperature stability will not be achieved by fridges which do not have the ability to heat - ie fridges which cool only. Fridges which fail under severe ambient conditions are usually converted bar fridges which have just had a different thermostat inserted.

It is unacceptable to have a semen fridge that is outside the desired range of 15-19 °C for more than 30 minutes and also if the temperature fluctuates by ≥ 2 °C for more than 30 minutes.

Eskies - Stable temperatures are rarely achieved if semen is stored in a polystyrene esky.

Temperature instabilities reduce semen life and damage sperm structure. This prevents fertilization occurring.

Inadequate fridges often generate higher temperatures near the heater, with lower temperatures at places distant from the heater. Effective fridges have fans to distribute the air and maintain constant temperatures throughout the fridge.

Fridge Preparation

If your semen fridge has a temperature probe store this probe in a glass of water (or old semen pack with semen) in the centre of the fridge. Alternatively use a laboratory thermometer in a glass of water. A min/max thermometer will record the air temperature in your semen fridge but will not mimic semen temperature.

Semen should not be placed into a semen fridge until the fridge temperature has stabilized. Many converted fridges will initially overheat until the threshold which activates their cooling mechanism is reached. It is important to ensure that the fridge has been turned on for 30-60 minutes prior to placing semen packs in, depending upon fridge model.

It is also important not to add warm semen to your semen fridge if you have already cooled semen in there as this will increase the air temperature of your semen fridge which consequently will have a negative impact on the quality of the cooled semen. Pork Storks semen will be delivered in the temperature range of 15-19°C and the semen fridge should be at a similar temperature.

Monitor your semen fridge by routinely inspecting them for damaged parts (replace immediately) and clean them regularly to prevent dust from building up around the air-circulation system.

Semen use

Semen can be used on the day of collection and delivery.

Semen should be rotated twice daily. This ensures equal distribution of semen throughout the nutrient-rich diluent. Semen is provided in silver bags to facilitate this process on farm.

Inadequate rotation causes reduced motility and an increase in sperm deaths. This, in turn, reduces both the number of effective sperm and the shelf life of the product.

Semen should be transported in the Silver Bags, in an insulated container, from the semen fridge to the insemination area or DMA. Silver bags should only be opened immediately prior to semen use.

Semen can be inseminated at any temperature between 15 °C and 36 °C. However, it must only be warmed slowly over a 15-30 minute period. Sudden changes in semen temperature will result in shock, causing damage to the cell wall and a subsequent inability to fertilise the egg.

Any semen that has been removed from the semen fridge and is not to be used, should be returned to the semen fridge within 2 hours, but must again be a similar temperature to the semen fridge. Temperature shock will cause damage to sperm.

Pork Storks can test your semen storage units

If you would like a member of the Pork Storks team to assess your semen storage practices, please call our Technical team. Pork Storks can perform tests that can measure temperature changes within your fridge, as well as by the use of data loggers can measure how effective your fridge is during different ambient temperatures. This service is complementary service to all customers.

Further details on storage of semen can be obtained by contacting
the Pork Storks' Technical Team on 1800 647 744.