



Advice on purchasing Frozen Semen

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In last month's issue we discussed the incorporation of frozen semen into canine breeding programs. The quality of frozen semen is the most significant factor affecting pregnancy rates, with poorly frozen semen the most common cause of failure to achieve pregnancy. The purchasing of frozen semen can therefore be a stressful decision that significantly influences the end result, especially when considering the complexity and expense of this task. The following guidelines aim to assist you in purchasing (and importing) doses of frozen canine semen containing an adequate number of high-quality sperm.

Semen Assessment

Assessment of the semen quality should be performed continuously throughout the entire freezing process. This means that at the initial fresh collection, and at each step in the freezing process, a small sample of semen should be removed and assessed under the microscope. Sperm are produced in the second, sperm rich fraction.

Assessment should include:

- **Motility** (%): How many of the sperm (as a %) are moving, or 'motile'
- **Concentration** (sperm/ml): How many sperm are in each millilitre of liquid
- **Morphology** (% normal): What percentage of cells display normal shapes ('morphology') and what abnormalities in shape are present.
- **Cytology**: Describes if there are any other cells aside from sperm in the ejaculate (e.g. red blood cells, inflammatory cells)

These findings should be provided in a semen report which you can request prior to committing to the purchase of the frozen semen. A **good** semen sample will have a parameters as follows:

Parameter	Initial sample (fresh)	Post thaw sample (frozen-thawed)
Motility	>85%	>55%
Morphology	>80% normal	>80% normal
Cytology	Minimal or nil other cells	Minimal or nil other cells

Unfortunately, what is reported is not always representative of what we see. It is not uncommon to thaw frozen semen with significantly poorer characteristics than what was reported by the person who froze the semen. This is extremely disappointing and always heart breaking for the owner of the bitch who has put in considerable time and significant expense to purchase and/or import the semen to Australia. However, having a report gives the bitch owner and purchaser a record of what they believe was purchased, in case compensation, replacement or reimbursement of the frozen semen needs to be discussed at a later date.

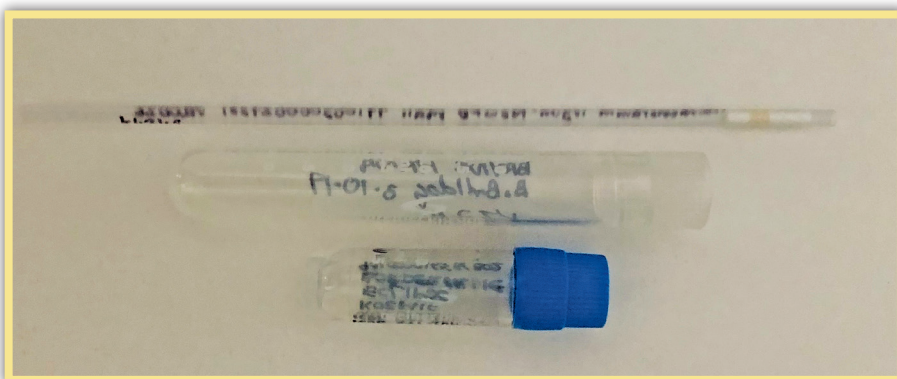
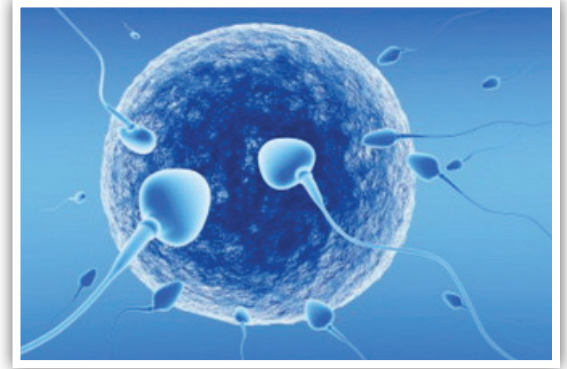


Image (left):
Examples of straws and vials in which semen can be frozen.

Image (opposite page bottom):
The second, sperm rich fraction should be white in colour and contains the sperm cells.



Thaw Media

Thaw media is a simple extender, usually containing the base chemicals of the freezing extender being used. For some freezing techniques, especially those that freeze in pellets, it is saline that the frozen semen is thawed in. It is important to understand, that in most situations thaw media is not essential for thawing semen and won't make sub-standard semen great semen, nor does it change the fertility of the semen; there are no magical "accelerants". However, you should check with the providers of the frozen semen if using a thaw media is essential. Thaw media can be advantageous as it will increase the dose volume; larger volumes can facilitate sperm transport in the uterus so if a thaw media is provided we will always endeavour to import it and use it.

What is an insemination dose?

It is generally accepted internationally that the minimum number of frozen-thawed sperm per insemination dose is 100 million progressively motile sperm. Unfortunately, unlike many other species, there is little objective scientific research in this area of canine reproduction as large-scale fertility trials are not possible. Determination of the optimal number of frozen-thawed canine sperm to use for AI has therefore been determined from analysis of retrospective breeding databases. Furthermore, there is enormous variation in fertility and 'freezability' between individual dogs as the selection pressure for fertility is low. This variation is not only related to inherent individual factors but also breed, age, health and how often a dog has been used at stud.

If possible, we recommend purchasing two AI doses per heat/breeding (i.e. **200 million motile frozen thawed sperm** rather than 100 million motile frozen-thawed sperm). In our personal experience, and that of others, particularly in Europe, this results in significantly higher pregnancy rates and litter sizes. Unfortunately, this is often not economically feasible as a stud fee arrangement is often sold as a 'dose' and most canine AI doses are frozen as 100 million sperm. Although litters have been produced with only 20 – 50 million frozen sperm, this does not happen "commonly" and is inadvisable when purchasing frozen semen.

Additionally, it is advisable to purchase a whole ejaculate rather than a dose of semen if possible:

One ejaculate can provide between 5 and 10 AI doses. Limiting ourselves to a single AI dose, when the costs involved in importing frozen semen from overseas, monitoring a bitch for ovulation timing and ultimately carrying out an intrauterine insemination are significant, is not ideal. Therefore, if you are able to negotiate the purchase of an 'ejaculate,' rather than an AI dose, this will give you much greater control over the number of sperm inseminated per bitch. Stud fees can then easily be determined after AI or after pups are born and should not be linked to a minimum sperm number per AI dose.

Contact your reproduction veterinarian:

Prior to committing to the purchase of frozen semen, a semen report should be provided by the stud owner. Provision of this report to VRC, or your reproduction veterinarian, will allow for confirmation of semen quality. It is also important to investigate the fertility history of the dog – has he produced puppies via fresh AI or natural matings, and has his frozen semen produced litters?

