

ARTIFICIAL INSEMINATION WITH DanAvl SEMEN from Hatting A/S



1. Quality of DanAvl semen from Hatting A/S

Hatting collect and process the boar semen according to quality standards established by the Danish Pig Research Centre, SEGES. The semen quality depends on the individual boar, hygiene and temperature control of the process all the way from boar to sow, choice of extender (diluent), contact to materials, number of sperm cells per dose and the age of the semen at use (fresh semen).

Semen age: The production date and time is printed on the semen bag (Tappedato/tid:).

Semen collection: On the Hatting AI station each collection is checked immediately after collection for the following: Colour; smell; volume; motility; density.

Extender: Normally the semen is diluted with Tricell diluent.

Other extenders can be used according to individual agreement.

Control: Before the shipment Hatting takes one sample of each semen collection for control. This control sample will be kept on the Hatting AI station at 16-18° Celsius and will be reactivated 72 hours after collection in order to check the durability of the semen.

Semen dose: Each dose of DanAvl Duroc semen for production of slaughter pigs has a volume of 80 ml minimum and contains approximately 2 billion motile sperm cells. Each dose of semen from DanAvl Landrace and Yorkshire contains approx. 2.4 billion motile sperm cells.

Print on semen dose, examples:	Danish:	English:
	<p>Ornerace</p> <p>KS nr. / Blandingnr.</p> <p>Index / Gns. index</p> <p>Batch nr: 170726-0081</p> <p>Tappedato/tid: 25.07.17 ; 10:12</p> <p>Opbevares ved 16 - 18° C</p> <p>KS-stations EU-godk.-nr.: DK 0001351</p>	<p>Boar breed</p> <p>Boar number / Mix no.(code)</p> <p>Breeding index / avg. index</p> <p>Batch no: 170726-0081</p> <p>Collection time: 25.07.17 ; 10:12</p> <p>Store at (recommended): 16- 18° C</p> <p>AI station's EU approval no.: DK 0001351</p>

2. Shipment of DanAvl semen from Hatting A/S

Our general recommended is to store fresh boar semen between 16 -18° Celsius and sudden big changes in temperature should be avoided.

During transport, the ambient temperature may have fluctuations that make it impossible to keep the semen at 16-18 all the time. The recommendation of 16-18° Celsius is set with a safety margin of 1-2 degrees. If the temperature fluctuates beyond this, a marginal reduction in fertilization can be expected. Very high and very fluctuating temperatures will shorten the semen shelf life. Very low temperature will damage the sperm cells ability to fertilise.

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Shipments that cannot be kept in an electric climate controlled box all the way, the semen must be packed in an isolated box to keep the temperature stable. The type of isolated box and the use of climate elements (eg. ClimSel from climator.com) is provided according to individual agreement.

According to individual agreement we can place a temperature logger to register the temperature in the box during transportation.

3. Storage of the semen after arrival at your premises

Our general recommendation is to store fresh boar semen between 16 -18° Celsius in temperature-controlled facilities after arrival (climate box).

If kept at the recommended temperatures all the way from boar to sow, the doses can be used up to 72 hours after collection without substantial decline in fertility. Special for Duroc mixed semen of minimum 3 boars you can expect durability of 4 days without decline in results. That is our general recommendation based on our EDTA diluent (Kiev formula).

Other extenders may indicate longer shelf life according to their current product information.

See production date and time on the semen bag.

4. Control of the quality of the semen after arrival

After arrival at the farm, the semen motility can be assessed by a microscopic analysis. Especially if you suspect extreme temperature might have occurred during transportation. Examination of a few of the semen doses gives a good overall assessment. Choose doses at critical points in the package.

Watch Hatting instruction video for reactivating semen: https://www.youtube.com/watch?v=eg_p-e_uNuA

4.1 Necessary equipment

The following laboratory items are needed to evaluate the quality of the semen:

- Microscope (phase-contrast) at 200-400 magnification with a heating plate at approx. 37-39° Celsius.
- Object and cover glass.
- Water bath with thermostat.
- Thermometer.

4.2 Reactivating the semen

Before evaluation, the semen has to be preheated (reactivated) in a water bath:

- 2-4 ml of semen is poured into a small bottle. The bottle must be preheated to semen temperature (16-18° Celsius).
- The bottle with the semen sample is placed in the water bath (37-39° Celsius) for 5 minutes.
- Gently shake the sample and put it back in the water bath.
- Wait another 5 minutes and check the sample under the microscope.

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- Place a small drop (5-6 mm in diameter) of semen on the object glass with a straw. Place a cover glass on top of it (tilt it from one side to avoid air bubbles under the glass). The object glass must be placed on the heating plate at 37-39° Celsius in good time before to avoid that a cold object glass will shock the sperm cells and cause an underestimation of the semen quality.
- If the motility (movement) is too weak, then repeat the process until maximum movement has reached by placing the sample in the water bath in another 10 minutes.

4.3 Motility by microscopic analysis

The motility expresses percent of normal sperm cells, that is cells with normal morphology and forward moving. Table 1 specifies the expectation to fertility of the semen according to motility.

Table 1: Evaluation of Fertility of the Semen based on the Motility

Motile Sperm Cells	Semen Quality	Fertility
90 percent	Very good	Normal fertility is expected
80 percent	Good	
70-60 percent	Inferior	Reduced
20-40 percent	Poor	Very reduced
Below 20 percent	Totally unusable	The boar must be regarded as infertile

The semen from DanAvl boars delivered from Hatting A/S has a motility of at least 80 percent after collection evaluated on raw semen.

By reactivation, you shall expect a little lower motility (movement) than the evaluation of raw semen just after collection. The drop of motility depends on the duration and conditions during transportation and storage.

Evaluation of motility is very depending on the method and the person doing the evaluation. Motility can also be evaluated by CASA (Computer Assisted Semen Analysis) that eliminate most of the subjective human effect. But there are different CASA systems on the market that works on different hardware, software and protocols, which means results cannot be compared directly.

Hatting uses SpermVision from Mofa for CASA assessment. In our control program the first collections from the young Landrace and Yorkshire boars are measured by CASA after 72 hours. Older boars are controlled again for each 10th collection.

https://www.youtube.com/watch?v=eg_p-e_uNuA

5. Using DanAvl semen

Hatting A/S recommends to use the doses direct from the climate box. Therefore it is **not** necessary to preheat the semen doses before insemination.