Danish Agriculture & Food Council
Pig Research Centre

Guidelines for DanBred AI stations June 2023

This set of guidelines is a supplement to current legislation and is observed by DanBred AI stations in Denmark. The guidelines are a sub-agreement to "Agreement on DanBred AI Station", and is laid down by the Danish Agriculture & Food Council Pig Research Centre, following recommendations of the AI Committee. The purpose is to assure customers of uniform, premium quality semen doses.

Temporary exemption of fixed duration from these guidelines may be granted by the Danish Agriculture & Food Council Pig Research Centre, in extraordinary, unforeseen circumstances, for instance if it becomes necessary to dilute semen doses to a lower sperm content than the standard content in case of a critical shortage of boars. Application for exemption is described in 'Elaboration of Guidelines for DanBred AI Stations' (only available in Danish).

The guidelines include:

Each chapter is revised annually by the Danish Agriculture & Food Council Pig Research Centre.
The AI companies are responsible for complying with the rules. Should an AI company wish to change procedures that deviate from these guidelines, the new procedures must be approved by the Danish Agriculture & Food Council Pig Research Centre prior to implementation.

There is an elaboration of the rules which clarifies the implementation of the rules.

AI companies and the supervising vet are governed by legislation in this area.

Chapter 1 Guidelines for breeding – AI boars	
01	**Scope**
01.1	Guidelines for breeding – AI boars lay down the guidelines for selection of boars for transfer to and culling from DanBred AI stations.
02	**Transfer and culling of boars on AI stations**
02.1	Boars for AI are selected by the Breeding & Genetics, Danish Agriculture & Food Council Pig Research Centre.
02.2	Transfer and use of AI boars in relation to breeders are governed by 'Guidelines for breeding'.
02.3	The demand for AI boars and the distribution between breed/crossbreed are determined by DanBred and the AI companies that routinely forward lists of orders for boars for AI to Breeding & Genetics, Danish Agriculture & Food Council Pig Research Centre.
02.4	AI boars are selected from the breeding herds or the test station on the basis of genetic index, pedigree and exterior condition.
02.5	Breeding & Genetics, Danish Agriculture & Food Council Pig Research Centre, can require that boars at DanBred AI stations be culled due to genetic defects. In such circumstances, Breeding & Genetics, Danish Agriculture & Food Council Pig Research Centre, may impose restrictions on the sale of individual boars.
02.6	On behalf of the AI companies, Breeding & Genetics, Danish Agriculture & Food Council Pig Research Centre, handles the communication to breeders in connection with transfer of boars to AI stations, including requests for potential AI candidates and finalization of

	contracts between breeders and AI companies for each boar transferred to AI.
03	**Supervision of breeding and registration on AI stations and quarantine facilities**
03.1	Final approvement of boars for AI is provided by a breeding advisor from Breeding & Genetics, Danish Agriculture & Food Council Pig Research Centre, or his/her deputy during examination of boars in the quarantine facility prior to transfer to the AI station.
03.2	During visits to the station, the breeding advisor from Breeding & Genetics, Danish Agriculture & Food Council Pig Research Centre, or his/her deputy may reject boars with unsatisfactory longevity/exterior and/or deviating genetic traits and demand that the sale of semen from these boars be stopped.
03.3	The AI companies are required to cull a rejected boar no later than one month after the boar was rejected.
03.4	The AI companies report dates for entry and exit for boars on AI stations or in quarantine facilities. Reports must take place minimum once a month.

Chapter 2 **Guidelines for management and biosecurity**	
01	**Biosecurity in quarantine facilities and on AI stations**
01.1	The herd area used for boars in quarantine facilities and AI stations must be approved by the supervising vet and be separated from the surroundings.
01.2	Minimum distance to other pig farms and biogas facilities as well as precautions to reduce the risk of airborne disease are determined by the Danish Agriculture & Food Council Pig Research Centre following recommendations of the AI Committee.
01.3	The herd area must be cleaned and disinfected prior to transfer of boars.
01.4	The herd area must be reapproved by the supervising vet once a year.
02	**Access**
02.1	Personel access must be kept to a minimum and all visits to the AI station must be approved by the supervising vet.
02.2	All personel access must take place through an entrance room approved by the supervising vet according to procedures laid down by the Danish Agriculture & Food Council Pig Research Centre following recommendations of the AI Committee.
02.3	People with access to the AI station must observe visit regulations and quarantine hours laid down by the Danish Agriculture & Food Council Pig Research Centre and sign a declaration confirming that these regulations have been observed.
02.4	Only staff are allowed to bring food, and foodstuffs must not contain or have been in contact with meat.
02.5	Distribution of semen from the AI station must take place separately from the herd area.
03	**Delivery of boars to and from the herd**
03.1	AI stations are only allowed receive boars from quarantine facilities with declared negative PRRS status. Transfer of boars to quarantine facilities from breeding farms with different health status is allowed provided the guidelines laid down by the Danish Agriculture & Food Council Pig Research Centre following recommendations of the AI Committee are observed.
03.2	Boars must be transported in vehicles that meet the requirements for an filtered SPF livestock trailer/truck and must be approved by the supervising veterinarian.
03.3	Facilities for delivering boars to and from the herd area must be approved by the supervising vet.
03.4	Facilities for delivering boars to and from the herd area must be cleaned and disinfected 24 hours at the latest after use, and adjoining outdoor areas must be disinfected once again, before use.
03.5	Drivers must observe minimum 12 hours of down-time from contact with pigs of lower health status and must wear clean overalls and clean, disinfected boots.

03.6	Boars may be loaded via direct delivery, via a loading area or a loading lock, where it is ensured that boars cannot return to the herd area and where driver or staff do not set foot in either herd area or vehicle.
03.7	Carcasses for the incineration plant must be stored as far away from the herd area as possible – and minimum 50 m away – until pick up. Carcasses must be securely covered.
04	**Feed, bedding and cleaning**
04.1	Feed and bedding must not have been in contact with other pigs or be transported in a vehicle formerly used for transport of pigs.
04.2	Attics and closed barn facilities used for storage of bedding must be considered part of the herd area if they are in any way integrated with pig facilities.
04.3	Delivery of feed and bedding must comply with the procedures and quarantine periods laid down by the Danish Agriculture & Food Council Pig Research Centre following recommendations of the AI Committee.
04.4	Cleaning of pens must as far as possible be done using a fully automatic scraper device or manure plant.
04.5	Manual cleaning of pens must follow the procedures laid down by the Danish Agriculture & Food Council Pig Research Centre following recommendations of the AI Committee.
04.6	The foretanks (ante-tanks) used for backwashing must not contain: a) Equipment used in other pig herds. b) Manure or manure products that have been in contact with equipment used in other pig herds.
04.7	If agreements are made regarding delivery of manure for biogas facilities, the procedure must be approved by the supervising vet prior to the first delivery.
05	**Introduction of pen equipment, drugs, tools, other animal species etc.**
05.1	Only clean and disinfected equipment, utensils, tools, vehicles, instruments, other technical remedies and drug vials etc. can be introduced to the herd area. If the remedies in question have been used in other pigs herds, they must be stored in quarantine for minimum 12 hours before introduction to the herd.
05.2	The herd area must be protected from entry of other animal species.
05.3	Slurry flies delivered by a producer approved by the Health Status Management can be introduced directly into the herd. A list of suppliers approved by the Health Status Management is available at: www.spfsus.dk
05.4	The herd area must be as protected as possible from invasion of mice and rats. Rodents, if observed, must be actively exterminated. The protection must be carried out by an approved professional pest control company.
06	**Control of infectious diseases**
06.1	Boars must not be transferred from quarantine facilities to an AI station without permission from the supervising vet of the AI station, who must ensure that the requirements of the applicable legislation are met.
06.2	Boars must be free of mange, lice and dysentery.
06.3	People with access to AI stations and quarantine facilities must observe order of visit and down-time periods laid down by the Danish Agriculture & Food Council Pig Research Centre following recommendations of the AI Committee.
06.4	Prior to transfer to the AI station, boars must undergo a vaccination programme laid down by the Danish Agriculture & Food Council Pig Research Centre following recommendations of the AI Committee.
06.5	The Danish Agriculture & Food Council Pig Research Centre determines the approved analysis methods and laboratories for PRRS monitoring.
06.6	Boars accommodated in quarantine facilities must be examined for antibodies against PRRS upon entry to the quarantine facilities.
06.7	Boars accommodated in quarantine facilities must be examined for PRRS virus and antibodies against PRRS before transfer to the AI station.

06.8	Only boars that are free of antibodies against PRRS and PRRS virus are transferred to AI stations.
06.9	AI stations are monitored weekly through blood sampling for PRRS virus using PCR and every other week also for antibodies against PRRS in a surveillance programme laid down by the Danish Agriculture & Food Council Pig Research Centre following recommendations of the AI Committee.
06.10	The Health Control Section and the supervising vet must be notified of the results of the surveillance samples within the deadlines laid down by the Danish Agriculture & Food Council Pig Research Centre following recommendations of the AI Committee.
06.11	All PRRS-positive samples/animals must be handled in accordance with the applicable legislation and trigger a scientific evaluation process of the action required. This evaluation is made by Health Control Section in cooperation with the supervising vet of the AI stations according to guidelines laid down by the Danish Agriculture & Food Council Pig Research Centre following recommendations of the AI Committee.
06.12	In case restrictions on sale of semen are introduced on an AI station, Health Control Section must be notified immediately and must, within an hour of receiving the lab results, release information of the restrictions and the reason behind the restrictions. This information is forwarded to the recipients listed by the AI Committee, including DanBred breeding farms and mulitipliers and veterinary practices.
06.13	Within 3 hours of receiving written notification of the restriction, the AI station must notify - in writing through a dedicated information system - customers who have received semen from the AI station in question within the last two weeks.
06.14	Minimum every six months, AI stations must update contact data on their customers, and minimum once a year AI stations must run a test of the quality of the information system. The Health Control Section must monitor the test and approve the result.
06.15	In case restrictions are introduced on a quarantine facility, the Health Control Section, the Department of Veterinary & Quality Services, the Danish Agriculture & Food Council must be notified immediately and must, within an hour of receiving the lab results, release information of the restrictions and the reason behind the restrictions. This information is forwarded to recipients determined by the AI Committee.
07	**Management of laboratories**
07.1	The lab area must be cordoned off from the surroundings. The outer door must be locked at all times. Other entry points must be protected from immediate access from outdoor areas.
07.2	People entering the lab must observe the same quarantine requirements that apply to access to the herd area. Before entering, clothes and footwear must be changed.
07.3	If moisture or semen is detected on a bag, the source is identified and removed. Contaminated bags are wiped with a wet cloth and staff ensures that everything is thoroughly cleaned. Staff must wear gloves when cleaning and wiping the doses.

Chapter 3 Production and quality control of the production of semen doses	
01	**Scope**
	These guidelines concern hygiene measures, semen examination, dilution, production method and quality control.
01.1	Sperm quality of all newly transferred boars is validated and approved before the boar is used in production. Furthermore, sperm motility in the first approved mount is subject to CASA analysis, and AI boars are subsequently ranked according to fertility. AI companies are notified of the 15% lowest ranked boars on a weekly basis and these boars are subsequently subject to further examination.
01.2	A sperm analysis made according to the guidelines for DanBred AI stations is not a guarantee of conception, but the analysis does provide information on sperm quality and allows for idenfitication of boars that are unsuitable for AI due to suspicion of reduced fertility.
01.3	Minimum once a week, AI companies must report a series of recordings to Databank for Pig Breeding that are used for analysis of the AI companies' performance and product quality and of the boar semen production and quality. Results are published at 'AI Rapportering'.
01.4	Staff in the facility receive training in semen collection and hygiene precautions (boar, phantom and collection) before being allowed to collect semen. Furthermore, hygiene courses are routinely completed by all employees.
01.5	The laboratory staff receive training before they start working independently. Training includes: • Routines for analysis of semen (motility, determination of concentration) • Production (all staff members must be familiar with the guidelines) • Hygiene and quality control, incl. test of the materials used.
01.6	The supervising vet audits the lab as required. The audit includes hygiene routines, staff understanding and compliance of guidelines, and analysis of sperm-toxic effects in the materials used.
01.7	EDTA diluent is used for dilution of semen, but a different diluent may be used for commercial semen, provided this diluent is tested and approved by the Danish Agriculture & Food Council Pig Research Centre.
01.8	The diluent must contain 112 µg amoxicillin per ml, 112 µg gentamicin per ml and 33 mg tylosin tatrate per litre. Content of amoxicillin, gentamicin and tylosin tatrate is listed as 'active matter'.
01.9	Sperm concentration, used for calculating semen dilution, is determined with the NucleoCounter SP-100 (SP-100).
01.10	The label on each semen dose displays the name of the AI station, the date of semen collection, boar breed, code or boar number.
01.11	All materials with which the semen comes into direct contact are routinely subject to analysis for sperm-toxic effects.
01.12	Sperm concentration, motility and germ count in the production of semen are rountinely subject to systematic monitoring.
01.13	Quality requirements in routine control of commercial semen doses stipulate that 95% of all doses must contain more than 1.75 billion sperm cells per dose, corrected for motility. The aim is that no doses contain fewer than 1.5 billion sperm cells per dose, corrected for motility. For name semen doses from Duroc, Landrace and Yorkshire boars, 95% of all doses must contain more than 2.1 billion sperm cells per dose, corrected for motility. The aim is that no semen doses contain fewer than 1.8 billion sperm cells per dose, corrected for motility.
01.14	The Danish Agriculture & Food Council Pig Research Centre routinely performs unannounced audits of sperm doses collected from the customers. Results are published at the Danish Agriculture & Food Council Pig Research Centre's website.