DAHD

DAHD sets minimum standards for pig semen labs and insemination

DAHD's protocol for pig semen labs covers layout, NABL-validated equipment, semen tests, extenders, storage at 17 °C, boar disease tests and breeding boar choice.

THE DEPARTMENT OF Animal Husbandry and Dairying (DAHD), Ministry of Fisheries, Animal Husbandry and Dairying, put the "Minimum Standard Protocol for Semen Production and Standard Operating Procedures for Artificial Insemination using Liquid Semen in Pig" on its website on November 2, 2026. The 87-page document, printed by the Government of India Press, Minto Road, New Delhi, carries no date, number, legal basis or signature.

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Minimum Standard Protocol for Semen Production and Standard Operating Procedures for Artificial Insemination using Liquid Semen in Pig

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DAHD · November 2, 2026

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On the laboratory, it asks for a production lab kept apart from the cleaning area, an in-line workflow from "dirty" to "clean" areas, a room temperature of 20 to 22 °C with about 55% relative humidity, germicidal UV lights switched on at least 8 hours before work, fumigation twice a week and a weekly bacterial load test. It lists the equipment, from two dummy sows and a 120 to 150 liter BOD incubator to a laminar air flow unit and a microscope with a heated stage (it says phase contrast is best). Nine items "should be validated by NABL certified laboratories": the standard thermometer, water bath, weighing balance, BOD incubator, autoclave, hot air oven, slide warmer, micropipettes and pH meter. The manufacturer or supplier certifies the calibration of the laminar air flow unit, filling and sealing machine, photometer and triple distillation unit, and all processing equipment should be under annual maintenance contracts. A staffing table runs from 10 boars to more than 50, with one boar attendant per 10 boars.

Each ejaculate is checked for volume, color, odor, motility, concentration, morphology and acrosome integrity, with the hypo-osmotic swelling test (HOST) and plate-count microbiology. Motility "must be greater than 80%" for acceptable fertility, and ejaculates that miss the minimum thresholds are discarded. A dose holds at least 3 billion sperm in at least 80 ml, at no more than about 60 million cells per ml, and it lists short-term (1 to 3 days) and long-term (over 4 days) extenders, to be made with ultra purified water and a combination of penicillin, gentamicin and streptomycin. Doses are stored at 17 ± 2 °C, used within three days, and discarded if their temperature fluctuated by more than 3 °C; in transport, swings should not exceed 1 °C. At expiry a dose should still have more than 70% motile and more than 60% progressively motile sperm and less than 1 CFU/ml of bacteria, and the objective of monitoring is that 95% or more of tested doses meet the criteria, with at least every fourth ejaculate of each boar tested after production.

Boars should enter an AI center only if they meet the WOAH (OIE) Terrestrial Animal Health Code for nine diseases: porcine brucellosis, foot and mouth disease, Aujeszky's disease, teschovirus encephalomyelitis, transmissible gastroenteritis, swine vesicular disease, African swine fever, classical swine fever and porcine reproductive and respiratory syndrome. They are checked

within 30 days before quarantine, kept in quarantine for at least 28 days and tested negative at least 21 days after entry, and resident boars are tested at least once a year where the zone or country is not free of these diseases. Ideally, a quarantine shed sits at least 500 meters from the main farm, and the biosecurity section recommends a minimum quarantine period of 21 days for incoming stock. For high genetic merit (HGM) breeding boars, it lists origin from a specific disease-free herd among the factors to weigh, asks that they be seronegative for CSF, ASF, PCV, PPV, brucellosis, PRRS and pseudorabies (Aujeszky disease) and isolated for at least 45 to 60 days, prefers 90 kg body weight and a length of at least 100 cm (relaxed for Indian breeds), and says a boar should not be used for breeding before 28 to 30 weeks of age. Annexure IV lists the 15 registered pig breeds of India with their home tracts and accession numbers, citing nbagr.res.in.

Most of the text says what a laboratory "should" do, and it tells producers to follow locally applicable laws, such as the Indian Standard Code of Practice for pig housing and nutrition, even where these differ from its recommendations. It does not say from when it applies, who checks compliance, or whether semen stations need registration or certification. It says nothing on imported semen, extenders or equipment beyond naming several commercial extenders.

Issued by	Department of Animal Husbandry and Dairying, Ministry of Fisheries, Animal Husbandry and Dairying
Document	Minimum Standard Protocol for Semen Production and Standard Operating Procedures for Artificial Insemination using Liquid Semen in Pig
Dated	Undated; put on DAHD's website on November 2, 2026
Length	87 pages; 22 numbered sections, the last four of them annexures
Covers	Semen production laboratories and AI centers for pigs, and AI in pigs using liquid semen
Takes effect	Not stated
Equipment validated by NABL certified laboratories	Standard thermometer, water bath, weighing balance, BOD incubator, autoclave, hot air oven, slide warmer, micropipettes, pH meter
Laboratory room	20 to 22 °C, about 55% relative humidity
Dose	At least 3 billion sperm in at least 80 ml; no more than about 60 million cells per ml
Storage	17 ± 2 °C; use within three days; discard if temperature moved more than 3 °C
Transport	Goal of 17 ± 2 °C with fluctuations not above 1 °C; containers labeled "Live Semen Shipment"

Dose at expiry	Motile sperm above 70%, progressively motile above 60%, bacteria below 1 CFU/ml
Boar quarantine	At least 28 days; tests at least 21 days after entry, negative, for nine diseases under the WOAH Terrestrial Code
Resident boars	Tested at least annually where the zone or country is not free
HGM breeding boars	From a specific disease-free herd (a factor to weigh); seronegative for seven diseases; isolated at least 45 to 60 days; 90 kg and at least 100 cm long preferred; not used before 28 to 30 weeks
Registered pig breeds	15 (Annexure IV)

Table 15.4: minimum criteria for a semen dose at expiration date

Semen variable	Minimum criteria
Volume	< ±1 ml off target
No. of sperm cells / dose	< ±5% off target
Motile sperm cells	> 70%
Progressive motile sperm cells	> 60%
Loss of (progressive) motility per 24 hours	< 3%
Agglutination	< 20%
Abnormal sperm cells	< 20%
Cytoplasmic droplets (as part of abnormal cells)	< 20%
Bacterial contamination	< 1 CFU/ml

The minimum standard protocol and standard operating procedures (PDF, 3.4 MB)

Source: DAHD's own copy.

Checked against the official copy on November 7, 2026.

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