

Hygiene tips for good semen quality

Following clear procedures for collection and handling can minimise risk of contaminating semen doses for AI. by Professor Karl-Fritz Weitze

Good semen quality is of fundamental importance for a successful insemination programme — and that starts with good hygiene. A good semen dose contains no bacteria or only a few. In other words, the lower the contamination of the semen dose, the higher the quality.

also be unwanted effects on the sow or gilts because, when high numbers of pathogenic bacteria are found in semen, genital infections can occur in the female and result in impaired fertility.

A particularly high risk is that bacteria become resistant to an included antibiotic. But a change of antibiotics should always be considered as the last option, due to the

of the ejaculate and of semen doses is to maintain a clean work environment at the insemination centre or in an on-farm AI system. The following tips will help you to achieve good hygiene management.

■ **Prior to collection:** A routine cleaning of pens is important. Boars should be kept in a dry environment with a relative

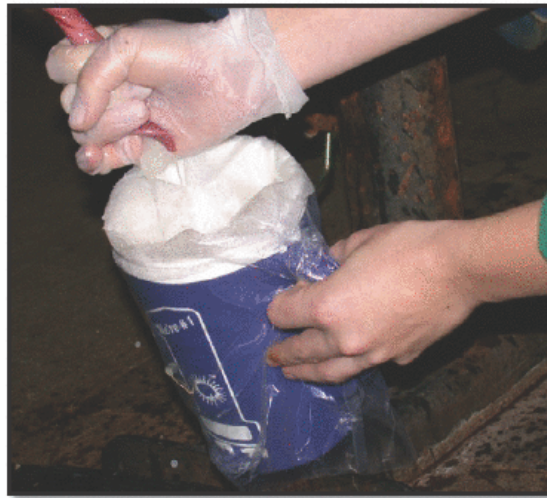
humidity below 70 percent (the optimal is 50 percent). When washing pens and boars, remember that bacteria love warmth and moisture, so proper drying is as indispensable as cleanliness. The preputial hair should be cut and the prepuce should be empty, clean and dry before starting the semen collection. If the preputial diverticulum is dilated with fluid, which is always highly contaminated,

then this fluid must be carefully squeezed out by hand before starting the semen collection.

■ **Hands off:** Collection cups must be prepared in a clean and dry room. At first, hands must be carefully washed and dried. The use of disposable materials (collection bags, gloves) is essential. Using collection bags with integrated filters (US-bag) provides the optimal level of hygiene.



▲ Collect semen in a clean and dry pen, using disposable materials. Photos courtesy of Mntitüb, Germany.



▲ Ideally with gloved collection, the semen travels directly from the urethral opening into the collecting vessel without touching the glove.

Where a semen portion contains bacteria, the consequence is reduced survival and a shorter shelf life for the sperm cells. Even the death of all sperm cells within two or three days is possible. Under certain circumstances there may

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risk of producing multi-resistant germs.

Therefore, it is absolutely necessary to maintain the maximum level of hygiene, to perform controls periodically and to improve semen processing continuously.

Hygienic conditions are ensured by minimising germ introduction, emphasising total cleanliness during all work phases (especially in areas with higher risks) and undertaking routine checks of risk areas. The only way to prevent contamination

Never touch surfaces that will eventually come in contact with semen!

■ **Double glove method:** After emptying the prepuce completely (preferably prior to mounting), the prepuce opening has to be dried with a paper towel. As soon as the boar has mounted and begun to show “search movements,” the external glove is removed. It is important to know that from this point on, everything that comes in contact with the glove ends up in the collected semen. The penis should be held only with the inner glove. Any contact with the prepuce must be avoided.

■ **During collection:** The penis should be held in a position that prevents any liquid from the prepuce or the penis shaft to drop into the semen container. It is also helpful to extend the little finger, in order to divert prepuccial liquid that is trickling down the penis onto the floor. Ideally, the tip of the penis juts out slightly beyond the fist and the semen is allowed to squirt directly from the urethral opening into the collecting vessel without touching the glove.

■ **Fractionating:** Although the germ content can usually be reduced by collecting only the sperm-rich fraction of the ejaculate, a loss of sperm is unavoidable and this fraction is more sensitive towards temperature changes before extending. Therefore, it is recommended to collect the whole ejaculate, afterwards discarding the first (clear pre-secretion) and last parts of the ejaculate (mainly gel fraction), as they contain the highest level of contamination.

■ **Semen protection:** Contamination of semen after collection must be avoided by all means. If a US-bag is used for semen collection, the perforation line has to sit on the edge of the container and the outside pulled downwards. The filter must be carefully removed. Under no circumstances should dust enter the collection vessel.

■ **Collection area:** At the end of a semen-collecting day, the collection area has to be cleaned thoroughly. Where numerous semen collections are performed, such that dummy and floor area become very dirty, additional cleaning must also be carried out between collections. It is essential that the semen collection room is disinfected efficiently once a week. Make sure that

surfaces are also cleaned mechanically (high-pressure cleaner, brushes).

■ **Laboratory:** Hygiene is as important in the laboratory as during collection and transportation of the ejaculate. Above all, the introduction of contaminating germs into the laboratory, whether by supplies or people, has to be eliminated. Nobody should be allowed to walk from the boar pens or collecting room to the laboratory. If necessary, the barn staff must shower

and change clothes before entering the clean laboratory area.

Inside the laboratory, all objects that come in contact with semen or extender have the potential to transfer germs. Risk objects are pipette tips, extender containers, bags, semen filling hoses, glassware and thermometers. Humid and warm areas, such as water baths, are particularly exposed. The proper preparation and handling of water used for the extender is essential. Particular attention must be

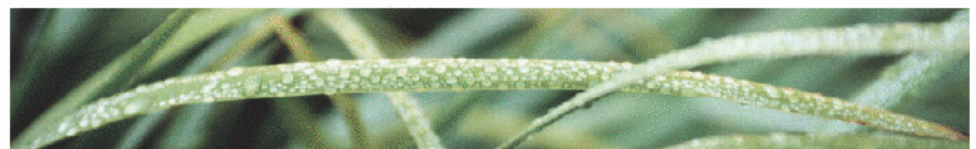


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paid to the water purification system itself and to all tubes and containers used in handling water.

The laboratory (work surfaces, sinks, surfaces of water baths, heating stages, microscopes, incubators, extender containers, filling machines, etc.) should be cleaned daily. A 70 percent isopropyl alcohol solution is recommended as it evaporates without leaving any residues. The floor must be wiped every day and

treated with a disinfectant once a week. If re-usable material is used in the laboratory, it should be autoclave-proof. It is also recommended to use a high-temperature dishwasher, followed by manual rinsing with a 70 percent isopropyl alcohol solution. The regular use of ultraviolet rays overnight helps to reduce the number of bacteria within the laboratory.

Monthly or quarterly bacteriological tests are recommended for insemination



▲ Careful transfer of the collection bag into the laboratory is needed to avoid contamination.

laboratories. Swabs should be taken from the incubators, collection vessels, undiluted ejaculate, freshly prepared extender and/or extended semen and other objects that could have direct or indirect contact with semen.

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