



جهاز أبوظبي للرقابة الغذائية  
ABU DHABI FOOD CONTROL AUTHORITY

**CODE OF PRACTICE**

**No. (25)/2013**

# **Artificial Insemination**

**Endorsed by BOD**

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## 1. Introduction

The main value of Artificial Insemination (AI) is in its application to livestock improvement and to control venereal diseases that may occur in natural breeding. The practical possibility of being able to store frozen semen almost indefinitely gives scope for the maximum possible use of the best sires. The successful use of commercial (AI) requires a high standard of technical efficiency at the (AI) centre. The use of a very small number of bulls on a very wide scale does give opportunity for widespread dissemination of harmful genes and spread of infectious agents should not be overlooked. Vigilant tracking of each consignment of imported frozen semen is required to ensure their freedom from reproductive and other infectious diseases.

Bovine semen imported to the United Arab Emirates must comply with the import requirements of Ministry of Environment and Water (MOEW).

## 2. Scope

These are general requirements of veterinary facilities to deliver Artificial Insemination (AI) services for cattle. This code of practice aims to lay down general guidelines for the requirements that are recommended to be met in veterinary facilities operating in the Emirate of Abu Dhabi.

## 3. Definitions

### Artificial Insemination (AI)

The introduction of semen into the vagina or uterus by mechanical or instrumental means rather than by sexual intercourse. The procedure is planned to coincide with the expected time of ovulation so that fertilization can occur.

### (AI) gun

An instrument used for artificial insemination and embryo transfer. It has a very narrow diameter stainless steel plunger with a knob handle. The plunger is fitted into a plastic straw from which the semen or embryo is expelled.

### Fertility

The ability to conceive and become pregnant through normal sexual activity or (AI).

### Heat (Estrus)

The periodic state of sexual excitement in the female of most mammals, excluding humans, that immediately precedes ovulation and during which the female is most receptive to mating.

## 4. General Requirements that must be Available in (AI) Facilities

The (AI) center shall maintain, by means of a formalized system of monitoring and control (which can be verified by documentary evidence) adequate permanent veterinary supervision of the artificial insemination service through an approved veterinarian to ensure good veterinary practices and procedures are used throughout the insemination service provided by the center. Proper storage and handling of semen by all staff is vital to ensure its fertility. Precautions should be taken by all persons engaged by the license holder to prevent the introduction/ transmission, of infectious/ contagious animal diseases onto premises visited by them. Adequate resources and facilities must be provided by the license holder to enable the approved veterinarian to carry out his/ her duties.

The (AI) Centre is responsible for all semen in its possession or in the possession of all persons engaged by the license holder at all times up to and including the point of insemination. All technicians engaged by the center perform their duties consistent with the highest possible standards in the following areas:

- a) Traceability, and records which enable verification
- b) Maintenance of optimum animal health
- c) Hygiene
- d) Animal welfare
- e) Fertility

## 5. The (AI) Centre Shall Ensure that

- a) All technicians (except registered veterinarians) engaged by the (AI) Centre to practice the artificial insemination of cattle must hold a provisional or full Veterinary technicians license and operate within the conditions of that license to the satisfaction of the authority.
- b) The (AI) Centre must supply semen only to those licensed Veterinary doctors and technicians belonging to ADFCA
- c) Each technician who uses the semen for Artificial insemination will record the details of the cow for which it is used, details of the farm and owner.

If the semen is procured then ADFCA should ensure that it is purchased from a reliable source and ensure the quality of semen. The details and performance of the bull also should be maintained by the centre for verification by any farm owner.

## 6. Standard Operating Procedures for (AI) Technicians

### a) Semen Handling

1. Keep the liquid Nitrogen container with semen straws in a location that allows seeing into the neck tube of the container, and ease in withdrawing & replenishment of semen and liquid nitrogen. The surrounding should be well ventilated, dry and dust free.
2. Clean (AI) gun, scissors and other accessories whenever they get soiled or at least once a week

with hot water and air dry them. Sanitize the (AI) gun and the scissor with Isopropyl alcohol after drying. The (AI) Gun piston and the scissors should be wiped clean with water after each insemination. Surgical spirit and soaps are lethal to semen, hence should not be used to clean equipments.

3. Measure the liquid nitrogen level of the containers weekly with the help of measuring scale provided with liquid nitrogen container. Maintain the record of measurements to monitor its evaporation rate. Replenish the liquid nitrogen when needed.
4. Use small liquid nitrogen container to carry the semen straws to the field. Maintain the liquid nitrogen level above the straw level.
5. Carry the required semen doses in the liquid nitrogen container to farmer's / farm supervisor's door step. Never carry semen straws in pocket / thermos-flask / polythene bags filled with water / ice etc.
6. Maintain an accurate semen inventory to lessen the risk of semen exposure.
7. Always attach the paper tag provided with each goblet to the requisite canister of the container to identify the type of semen in each canister.

### **b) General Procedures**

1. Keep the premises of the (AI) Centre clean and maintain all equipment and material properly along with properly tagged canisters with complete description of semen.
2. Always respond to calls made by the farmers / farm supervisors. In case there is likelihood of any delay, inform them about expected time of visit.
3. Keep the (AI) kit clean and before leaving the (AI) centre, check that the (AI) kit has the following items:
  - 3.1 Scissors
  - 3.2 Thermometer
  - 3.3 Thawing Tray (Kidney tray)
  - 3.4 Forceps
  - 3.5 (AI) sheaths
  - 3.6 (AI) Gun with container (Universal Gun)
  - 3.7 Full arm Disposable gloves
  - 3.8 Clean paper towel
  - 3.9 Thermos-flask with hot water
  - 3.10 Apron
  - 3.11 Cryocan with desired semen straws
  - 3.12 Lubricating gel
4. Always keep the container with proper quantity of liquid nitrogen.

### **c) Insemination Technique**

After reaching the farm:

1. Identify cow and check past breeding records and history.
2. Examine the animal externally and ascertain that animal is in heat. The best sign of heat is clear, transparent, viscous and ropy vaginal discharge.
3. Wash hands.
4. Proceed with preparation of gun only after per rectal examination of genitalia ensuring that the cow is in proper heat and it does not have any condition that may impede its fertility, like endometritis.
5. Have plastic gloves, sheath, gun, scissors, forceps, tissue paper, and clean towel ready before thawing semen.
6. Pour hot water from flask in the thawing tray and adjust temperature of water in the tray to 37 degree centigrade by adding cold or hot water.
7. Remove semen from the cryocan with forceps and not with hands.
8. Before holding the straw by the forceps, cool its tips for few seconds. While taking out, raise the canister just high enough – not above the frost line. Remove the straw within 10 seconds.
9. Shake straw to remove excess nitrogen and quickly plunge it into thawing tray containing warm water at 37° C for 40-45 seconds and ensure that the straw is fully immersed in a horizontal position or otherwise cotton plug mat blow off.
10. Ensure that insemination gun and sheath also have temperature around 37 degree centigrade and not extremely hot or cold.
11. Take out straw from tray and wipe the straw with clean towel.
12. After thawing AI should be performed as early as possible.
13. Before loading the straw in the gun, ascertain that air space in the straw is at the laboratory seal end.
14. Load the straw into the gun and make a clean cut at a right angle with a straight and sharp scissors just below the laboratory seal.
15. Take out the sheath by holding bottom of the sheath corner of the sheath packet and place the sheath on the gun and secure the sheath firmly with o-ring lock.
16. Wear shoulder length plastic glove, preferably on left hand and hold the gun with right hand.
17. Ask farmer/ farm supervisor to restrain the animal and hold the tail properly. Speak to the animal and make her calm down.
18. Lubricate the gloves with suitable lubricant before proceeding to rectum.
19. Gently put the gloved hand into the rectum by forming a cone with fingers.
20. Clean the rectum by removing the fecal material without ballooning.
21. Clean vulva with water and wipe with tissue paper.
22. Ask farmer/ farm supervisor to help spread the vulva.
23. Never allow gun's tip to touch external coat or anus / vulva of the animal.
24. Insert insemination gun at approximately 30-degree angle till the gun reaches the fornix vagina to avoid entry of gun into the urethral opening/ urinary bladder.



25. Hold the cervix firmly through rectum and slightly stretch it forward to unfold the vaginal folds.
26. Gently and smoothly pass the gun through the vagina to the opening of the cervical canal.
27. Hold the external os of the cervix ahead of the gun's tip and negotiate vaginal folds and cervical rings to pass the gun through the cervix till the gun's tip reaches at internal os.
28. Feel the tip of the gun at internal os by gently moving the gun tip forward to ensure that the gun is in correct place (just at the internal os). Be certain the gun tip is not caught in a thin area between cervical rings or vaginal folds.
29. If the animal moves, STOP. Wait till the movement stops.
30. Hold the shoulder of the gun between your ring and middle fingers and push the gun piston with your thumb slowly (5 seconds) to deposit the semen just outside the internal os to allow semen to drain into the body of uterus. Gently remove the gun and check for abnormal discharge and a complete semen deposit.
31. Recheck semen ID – bull and batch number.
32. Properly dispose the sheath, gloves and tissue papers. Clean gun if needed.
33. Record breeding information in the specified (AI) register of cow.
34. Blood on the gun tip and on the gloves indicate that too much force was used to pass the gun – be gentle and patient with the animal.
35. Ask farmer/ farm supervisor to release the animal and let her calm down.

## **7. Post Insemination Advice to Farmer/ Farm Supervisor**

- a) Ask farmer/ farm supervisor to keep the animal under observation for next 12-24 hrs.
- b) Inform the farmer/ farm supervisor to save the animal from scrub bulls during the remaining part of present heat.
- c) If signs of heat persist even after 18-24 hrs, repeat (AI), otherwise observe for heat symptoms after 18-21 days and also after 36-42 days.
- d) If animal does not repeat heat at 18-21 days intervals for two consecutive times, check for pregnancy diagnosis after 2 months from the date of insemination.

## **8. Post Insemination follow-up By The Vet. Technician**

- a) Follow each and every animal inseminated after around 21 days to find out whether it has repeated heat.
- b) Follow each and every animal inseminated for pregnancy diagnosis after 2 months and record the date and result of pregnancy diagnosis in the register.
- c) Follow each and every pregnant animal and record calving details of the animals inseminated in the register.
- d) Maintain all records related to artificial insemination, pregnancy diagnosis, and calving.
- e) Advise farmer/ farm supervisor on proper heat detection, feeding, management and healthcare of animals.

## **9. Legal Status and Resources (For Private Sector)**

The (AI) service centre must, in the view of the Ministry (MOEW) UAE, be a legal personality within the emirates and possess the resources needed to provide a reliable and efficient quality artificial insemination service, in accordance with these conditions and in particular the license holder shall have:

- a) A satisfactory contractual arrangement for the period of validity of this license with an approved Semen Collection Centre(s) or approved Semen Storage Centre(s) in the emirates or abroad attached to one or more other licensed (AI) service organizations in the Emirates which will guarantee that it can, on an on-going basis and in its own right, fulfill all the related requirements in these Conditions;
- b) An adequate level of resources to deliver the quality service proposed in a manner which satisfies the concerned authority and ensures that records can be produced on request.
- c) A written contract in place with its licensed veterinary Technicians and approved veterinarian which ensures that the license holder can meet these license conditions. This documented arrangement must be agreed to and signed by the license holder and the technician.
- d) Satisfactory access on an on-going and secure basis to sufficient supplies of imported frozen semen from the countries which have been selected through an officially approved testing and evaluation program acceptable to the MOEW.

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