

**STANDARDS OPERATING PROCEDURES
FOR
AI TECHNICIANS**



**GOVERNMENT OF INDIA
MINISTRY OF FISHERIES ANIMAL HUSBANDRY & DAIRYING
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STANDARD OPERATING PROCEDURES FOR A.I. TECHNICIANS

DATA ENTRY PROCEDURES:-

1. Animal should be tagged and verified and owners Adhaar and mobile number should be updated and verified.
2. Artificial insemination is to be conducted by duly qualified AI technician at the farmer's door step/veterinary hospitals/veterinary dispensary.
3. AI technician shall advise the livestock owner to download 1962 application at the time of AI so that the livestock owner can get alert support from time to time.
4. Only one AI per heat cycle will be considered for the purpose of calculation of incentives and conception rate.
5. AI technician shall perform pregnancy diagnosis (PD) within 45 to 90 days after AI performed.
6. Incentive to the AI technician for AI shall be released only after the PD data is uploaded on the NDLM portal.
7. All PD(+ve) marked animals shall be followed up-till calving on quarterly basis and upload the status on the portal if required, such as abortion, still birth, etc.
8. AI technician should enter calving details against every PD(+ve) and Register each Calf born by physical/virtual Tag. In case of virtual Tag the same shall be converted to physical tag within 180 days (Six months) period through Ear-tag change transaction in Bharat Pashudhan portal
9. AI technician has to enter dry off transactions at the end of milking cycle.

GENERAL PROCEDURES:-

- 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.
- Always respond to calls made by the farmers. In case there is likelihood of any delay, inform the farmer about expected time of visit.
- Keep the A.I. kit clean and before leaving the AI centre, check that the A.I. kit has the following items:
 - Straw cutter/ Scissors with sharp edges
 - Thermometer (good quality)
 - Thawing Flask
 - Forceps
 - Singly packed sheaths
 - AI Gun with container (Universal Gun)
 - Plastic gloves
 - Clean towel
 - Thermos-flask with hot water
 - Apron
 - 1.5 / 2/3 liter cryocan with desired semen straws
 - Gum Boots
- Be at the centre on the scheduled day and time of semen and liquid nitrogen delivery.
- Always keep the container with proper quantity of liquid nitrogen

INSEMINATION TECHNIQUE:-

- After reaching farmer's place, first identify cow/ buffalo and check past breeding records and history.
- Examine the animal externally and ascertain that animal is in heat. The best sign of heat is clear, transparent, viscous and ropy vaginal discharge.
- Wash hands.
- Proceed with preparation of gun only after per rectal examination of genitalia.

- Have plastic gloves, sheath, gun, scissors, forceps, tissue paper, and clean towel ready before thawing semen.
- 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.
- Remove semen from the cryocan with forceps and not with hands. 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.
- Shake straw to remove excess nitrogen and quickly plunge it into thawing tray containing warm water at 37 degree centigrade for 40-45 seconds in the horizontal position or otherwise cotton plug mat blow off.
- Ensure that insemination gun and sheath also have temperature around 37 degree centigrade and not extremely hot or cold.
- Take out straw from tray and wipe the straw with clean towel. After thawing A.I. should be performed as early as possible.
- Before loading the straw in the gun, ascertain that air space in the straw is at the laboratory seal end.
- 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.
- 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.
- Wear shoulder length plastic glove, preferably on left hand and hold the gun with right hand.
- Ask farmer to restrain the animal and hold the tail properly. Speak to the animal and make her calm down.
- Lubricate the gloves with liquid paraffin or any other suitable lubricant (bathing soap) before proceeding to rectum

- Gently put the gloved hand into the rectum by forming a cone with fingers.
- Clean the rectum by removing the fecal material without ballooning
- Clean vulva with water and wipe with tissue paper.
- Ask farmer to help spread the vulva.
- Never allow gun's tip to touch external coat or anus/ vulva of the animal.
- 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.
- Hold the cervix firmly through rectum and slightly stretch it forward to unfold the vaginal folds.
- Gently and smoothly pass the gun through the vagina to the opening of the cervical canal.
- 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.
- 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.
- If the animal moves, STOP. Wait till the movement stops.
- 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.
- Recheck semen ID – bull and batch number.
- Properly dispose off the sheath, gloves and tissue papers. Clean gun if needed.

- Upload breeding information in Bharat Pashudhan system
- 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.
- Ask farmer to release the animal and let her calm down.
- Provide the A.I. fee receipt to the farmers.

Post Insemination Advice to Farmer:-

- Ask farmer to keep the animal under observation for next 12-24 hrs.
- Inform the farmer to save the animal from scrub bulls during the remaining part of present heat.
- If signs of heat persist even after 18-24 hrs. call for repeat AI, otherwise observe for heat symptoms after 18-21 days and also after 36-42 days.
- If animal does not repeat heat at 18-21 days intervals for two consecutive times, call AI Technician for pregnancy diagnosis after 3 months from the date of insemination.

Post insemination follow-up by the AI Technician:-

- Follow each and every animal inseminated after around 21 days to find out whether it has repeated.
- Follow each and every animal inseminated for pregnancy diagnosis after 3 months and record the date and result of pregnancy diagnosis upload information on Bharat Pashudhan System
- Follow each and every pregnant animal and record calving details of the animals inseminated and upload details of calving on Bharat Pashudhan System

- Upload all records related to artificial insemination, pregnancy diagnosis, and calving and money transaction.
- Advise farmers on proper heat detection, feeding, management and healthcare of animals.

SEmen HANDLING:-

- Keep the liquid Nitrogen container 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.
- Clean AI gun, straw cutter 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.
- Maintain the liquid nitrogen level above the straw level in 1.5/2/ 3 litre capacity containers.
- Measure the liquid nitrogen level of 35 litre containers weekly with the help of measuring scale provided by the SIA. Maintain the record of measurements to monitor its evaporation rate.
- Carry the required semen doses in the liquid nitrogen container to farmer's door step. Never carry semen straws in pocket/ thermos-flask / polythene bags filled with water/ice etc.
- Maintain an accurate semen inventory to lessen the risk of semen exposure
- 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.