

STANDARD OPERATING PROCEDURE
ON
ARTIFICIAL INSEMINATION



GENUS BREEDING {I} PVT LTD
(Trading as ABS India)

S.O.P ON ARTIFICIAL INSEMINATION

Points to remember:-

- Proper detection of oestrus is the key to success for getting optimum conception rate with Artificial Insemination(Fig 1 & 2)
- As far as possible all inseminations should be performed at the farmer's doorstep. Movement or shipment of animal at the time of oestrus will put undue stress and will compromise the chances of conception.
- Always confirm your availability to the farmer .Respond to calls made by him and intimate the tentative time of your visit. In case there is likelihood of any delay, inform the farmer about expected time of visit.
- After thawing, insemination should be done as early as possible.
- Maintain hygiene. Always use a new disposable sheath and a disposable sleeve to perform A.I
- A.I Technicians should have the following items in their inventory (Fig 3)
 - 35 /20 litre liquid nitrogen container for storage
 - 2/3 litre liquid nitrogen container for transportation
 - Stainless steel Scissors /Straw cutter
 - ABS Thaw monitor /Thermometer
 - S.S Kidney tray
 - Forceps (S.S 9" Long)
 - Disposable sheaths –Individually packed
 - Universal AI Gun with sheath lock arrangement
 - Shoulder length disposable gloves
 - Tissue paper
 - Thermos-flask with hot water
 - Apron

INSEMINATION TECHNIQUE:-

- ❖ Take the history of previous oestrous as well as previous calving/s before going through with the insemination process. This should include time elapsed since the commencement of symptoms ,details of previous oestrous, symptoms showed by the animal ,nature of discharge etc.
- ❖ Examine the animal externally and ascertain that animal is in heat. The best sign of heat is clear, transparent, viscous and ropy vaginal discharge.
- ❖ Restrain the animal properly in such a way that there is minimum space between its neck and the tether and it is allowed minimum space to move .Buffaloes may be restrained using a milkers knot applied on its fore limbs before going for insemination.
- ❖ Gun should be prepared only after per rectal examination of genitalia and ensuring that the animal is in the right phase of oestrus.
- ❖ Hot water from flask should be taken in the thawing tray and its temperature adjusted to 37 degree centigrade by adding cold or hot water. (Use ABS thaw monitor to ascertain correct water temperature)
- ❖ Canister should be marked regarding the type /bull/breed of semen using tag/flag .Remove semen from the liquid nitrogen container with nine inch long forceps and not with hands. While taking out, don't raise the canister above the frost line. Remove the straw within 10 seconds and replace the canister in its slot ASAP. (Fig 4,5)
- ❖ Give a mild jerk to the straw to remove excess nitrogen and quickly plunge it into thawing tray/Kidney tray containing warm water at 37 degree centigrade for 30-60 seconds in such a way that the complete straw is immersed in water at the same time .Failure to do this may lead to the cotton plug blowing off.
- ❖ Take out the straw and wipe dry with a tissue paper.
- ❖ 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/circular straw cutter just below the laboratory seal. In doing so care must be taken to cut it with a swift motion so that the cut edges are sharp. An oblique cut may lead to semen coming back into the sheath after insemination.
- ❖ 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 the gun lock.
- ❖ Wear shoulder length plastic glove, preferably on left hand and hold the gun with right hand. (For beginners this should be followed as a religion with the working hand being used to hold the gun)
- ❖ 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 .Use of caustic soaps should be avoided as this would irritate the rectal mucosa and the animal will become restless.
- ❖ Gently put the gloved hand into the rectum by forming a cone with fingers.
- ❖ Clean the rectum by removing the faecal material ensuring that the palm of the hand remains inside the rectum .Abrupt removal of the hand from the rectum will lead to ballooning because of air being sucked up inside the rectum
- ❖ Clean vulva 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 vaginal fornix 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.
- ❖ Push the gun piston with the 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.
- ❖ Check the gun /sheath for abnormal discharge, tinge of blood and semen backflow.
- ❖ Note the bull and the batch details from the straw in your diary/Insemination register.
- ❖ The farmer should also be communicated with the next heat date in case it fails to conceive
- ❖ Clean the gun with spirit / absolute alcohol. Do not wash the gun.
- ❖ **Care after insemination:-**
- ❖ Farmer should be advised to keep the animal under observation for the next 24 hrs for any oestrous signs. In case the animal is observed in oestrous it should immediately be communicated to the inseminator.

- ❖ In case where the animal is not reported to heat in two future cycles at 21 and 42 day respectively, it should be rectally examined for pregnancy .It is however advised that pregnancy diagnosis should be made no earlier than 90 days post insemination.

- ❖ The inseminated animal should not be stressed and should be given minimum ration 12 hrs post A.I

- ❖ **Points to remember :-**

- ❖ Avoid air/pocket thawing of the straw .Thawing protocol has been developed on the basis of a lot of research over a huge sample size. Any alteration in this will culminate into reduction in the conception rate.

- ❖ The liquid Nitrogen container should always be kept in a cool , shaded and well ventilated environment .

- ❖ Avoid blowing air into the liquid nitrogen container .Warm air from outside immediately condenses inside the vessel thus making it impossible to see inside the vessel.

- ❖ Replace the lid of the container after mopping it dry with a cloth/tissue paper. As soon as the lid is taken off the vessel, moisture starts to condense over it due to its low temperature .These moisture droplets merge to form large drops of water which may fall into the vessel after the lid is replaced. This in turn leads to high rate of evaporation.

- ❖ Monitor the liquid nitrogen level of 35 litre /3lit containers regularly with the help of dipstick.

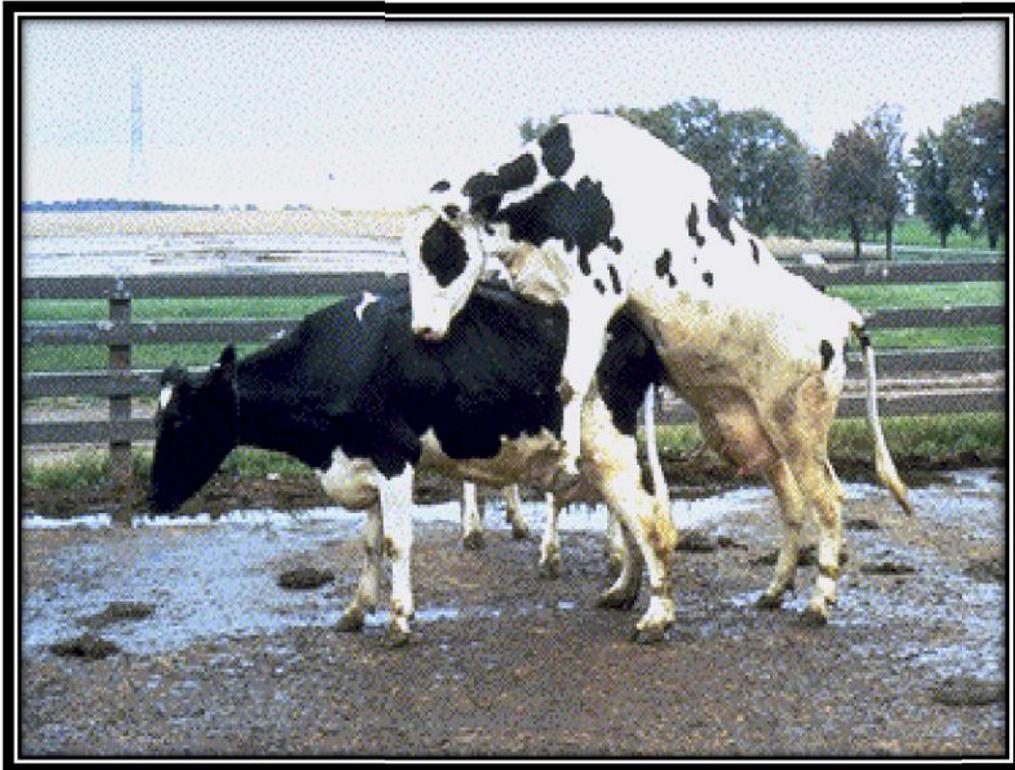


FIG 1 –Cow in standing heat



FIG 2 – Cervical discharge in a cow in oestrous



FIG 3 – Artificial Insemination kit

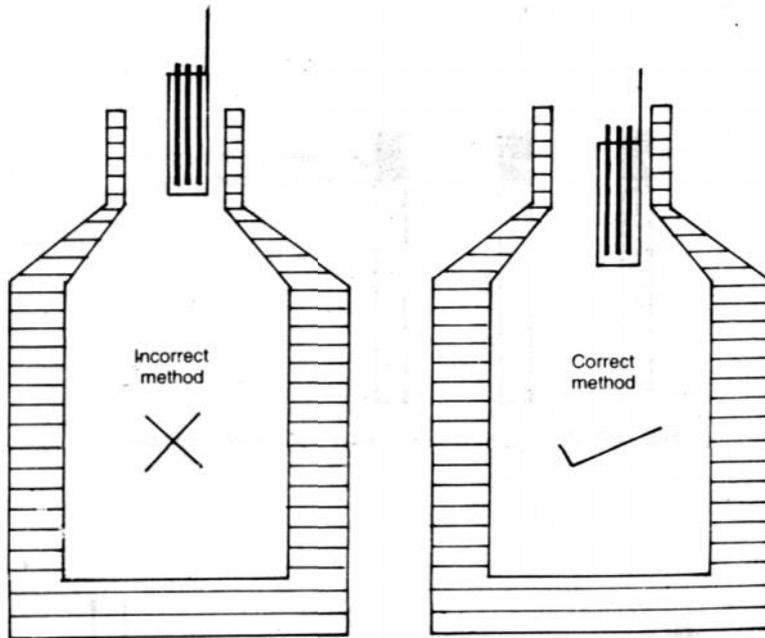


Fig 4 Never lift the canister above the frost line



Fig 5 -Liquid nitrogen containers with duly tagged canisters sensiti