

Artificial insemination in cows

Recommended Instructor to student ratio: 1:<16

Objective

To place diluted/extended/cryopreserved semen in the most appropriate part of the female reproductive tract (uterus) to optimise subsequent conception.

Alternatives to animal use for teaching

Students must receive prior instruction on the anatomy and physiology of the area (slides and videos may be appropriate). The technique must be practised on abattoir specimens and/or an artificial cow prior to use of live animals.

Details of procedure

Only mature cows of quiet temperament should be used for instruction. Animals under 15 months of age or undersized animals should not be used. They must be individually identified by ear tag or freeze brand prior to use in a school.

They should be pregnancy tested prior to the commencement of instruction; only non-pregnant cows should be used.

They must be restrained to prevent lateral or forward movement, preferably with a vet gate.

Cows should have current Leptospirosis vaccination. If the EBL or Pestivirus status of the cattle in use has not been established, a new glove should be used with each cow to avoid the possible transmission of diseases per rectum. Cows known to be carriers of Pestivirus or EBL should not be used. Equipment should be disinfected or a new sleeve used between each cow.

Only recommended test guns or insemination guns (pipettes) with sleeves should be used.

Cows showing abnormal vulval or vaginal discharge (other than oestrus discharge) should not be used. The oestrous status of cows used for instruction should not be important. Easier penetration of the cervix in oestrus cows is very transient and would not justify the use of oestrus synchronisation. The disadvantage of the use of oestrus cows is that oestrus synchronisation will be required prior to the course, with associated extra yarding and handling. Oestrus cows will show mounting behaviour in confined areas, causing additional stress.

The cows should be restrained in a crush/shute;

The students should have a prepared AI pipette with sheath ready for use in the cow;

The student introduces one arm per rectum and locates the cervix;

The vulva is wiped with a paper towel;

The insemination pipette is introduced in an upwards and forwards motion with the non-palpating hand until the tip is detected near the cervix;

The pipette is manipulated through the cervix, and the tip detected in the uterine horn;

The 'semen' is introduced into the uterus;

The pipette and arm are removed from the cow.

Drugs, chemicals and biological agents

As a general practice, no drugs are required.

Obstetrical lubricant or similar product should be used to provide lubrication.

Impact of the procedure on the wellbeing of animal(s)

Repeated and/or inexperienced practice of the procedure may result in severe straining, ballooning of the rectum, bleeding or thickening of the rectum. Thickening is less likely to occur in animals accustomed to rectal palpation.

To reduce the impact of the procedure, students should be asked to have fingernails cut short, jewellery removed and to wear gloves with seams inside-out so that the seams are on the inside.

Reuse and repeated use

There should be a maximum of two inseminations per cow if used in the first 'hands-on' session. Cows used in subsequent sessions may have a maximum of four inseminations.

Appropriate marking (using a proprietary stock marker, or other appropriate recording system) should be applied to each animal before insemination to identify each insemination.

Cows may be used in one session per day and may be used on a second day after an overnight rest. They may be used for a maximum of two days in any one fourteen day period. Reuse should only occur after assessment of the cow by a veterinarian or a qualified instructor.

If not used two days in a row, they can be used once weekly. Cows not showing rectal thickening may be used at fortnightly intervals unless removed for some other reason. The greatest risk to the cows is from mucosal abrasion of the rectum due to the number of 'arms' entering the rectum, and examining the pelvic contents. In view of the rapid regeneration of rectal mucosa (Holyhead *et al*, 1983) this time should allow for sufficient mucosal regeneration and healing to occur if necessary.

Cows which show evidence of thickening of the rectal wall should be withdrawn immediately and not used for a period of one month, after which reuse should only occur after assessment of the cow by a veterinarian or qualified instructor.

Holyhead, E.M.; Thomas, N. W. And Wilson, C. G. (1983) The regeneration of rectal epithelium in the rat following wounding with suppositories of polyoxyethylene (23) lauryl ether. *Br. J. exp. Path.* **64**, 456

Care of animal(s) during/after procedure

1. During the school. Cows showing any sign of distress during a school must be removed from the school.

Any cow showing reproductive tract bleeding or more than slight rectal bleeding, should be withdrawn immediately and not used until veterinary clearance has been given. Use of cows must be discontinued for a week if they show frank blood, severe straining or ballooning of the rectum.

2. After the school. Cows should be checked twice daily for the first day after a school and once daily for a further 5 days. Records must be kept for individual cows of the incidence of discharge, other abnormal event or behaviour, or any treatment administered.

A necropsy must be performed on any cow that dies unexpectedly following a school and the supervising AEC informed of the results as soon as practicable.

Pain relief measures

Normally none required.

Qualifications, experience, skills necessary to perform this procedure

- Demonstrator - instruction in insemination technique will only be provided by a suitably qualified veterinarian or instructor approved by an AEC.
- Students - experience in cattle handling. Familiarity with anatomy/physiology, competence using abattoir specimens and/or an artificial cow.

Relevant Links

<https://www.animaethics.org.au/policies-and-guidelines/animals-in-teaching/artificial-insemination>

