

## **Insemination Technique**

Artificial insemination (AI) is the manual placement of semen in the reproductive tract of the female by a method other than natural mating. It is one of a group of technologies commonly known as “assisted reproduction technologies”.

### **Advantages: Artificial Insemination**

- 1- Increased efficiency of bull usage.
- 2- Increased potential for genetic selection.
- 3- Decreased costs.
- 4- Increased safety for animals and farmers.
- 5- Reduced disease transmission.

### **Disadvantages:**

- Requires a trained inseminator .
- Requires more time and herd supervision .

### **Methods of A.I.**

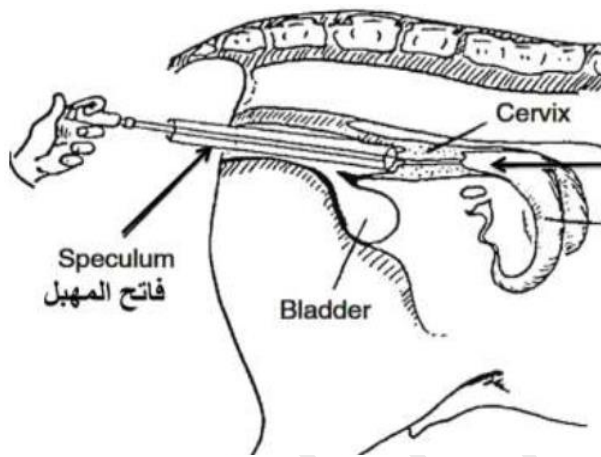
- 1- Vaginal method.
- 2- Cervical Insemination: Using speculum.
- 3- Rectovaginal method.(best method)

### **Timing of Insemination**

- 1- Success in insemination timing is dependent upon a good heat detection program.
- 2- The right time of insemination based on the duration of estrus, the timing of ovulation, and the lifespan of the sperm and oocyte.
- 3- Ovulation occurs 12-14 hours after the end of estrus.
- 4- The oocyte survive for 12-14 hours after ovulation.
- 5- The sperm survive for 24-48 hours post-insemination.
- 6- The best time of insemination is 12-18 hours after the beginning of the estrus.

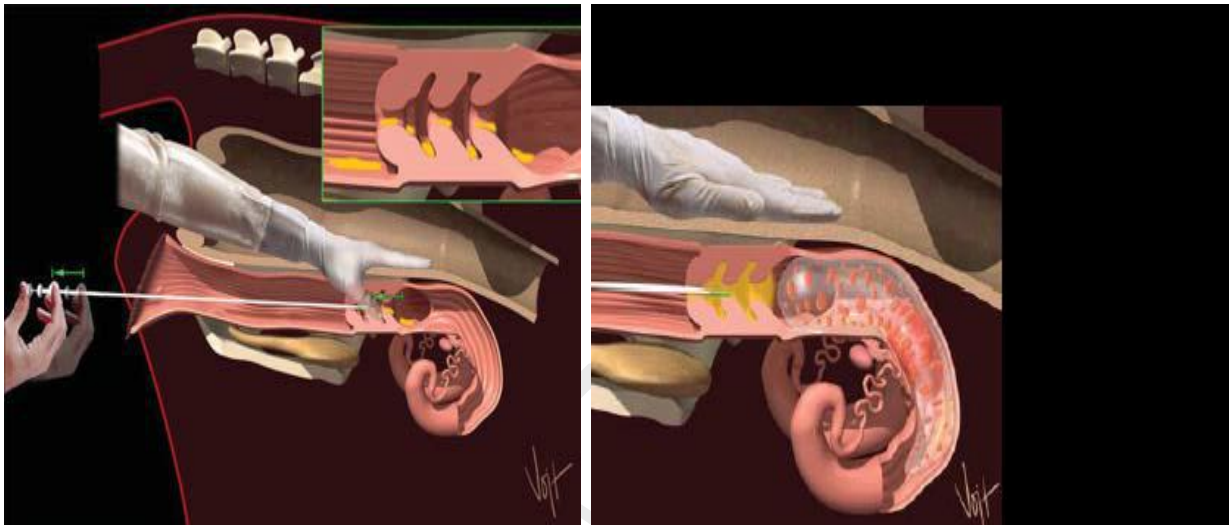
**Vaginal Insemination:**

- 1- This methods simply inserting a tube into vagina.
- 2- Deposition semen at the orifice of the cervix.
- 3- This procedure simulated a deposit of semen during natural mating.
- 4- Need above 20 million motile sperm will result in a very low conception rate.

**RSSV****Vaginal speculum to ewe vaginal examination**

### **Cervical Insemination:**

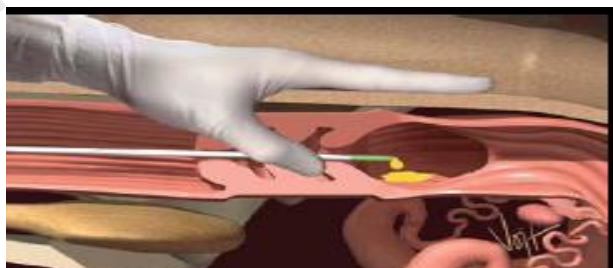
- 1- By inserting a sterile speculum into vagina with light source.
- 2- Deposition semen into opening of the cervix.
- 3- Conception rate 10-20% lower than recto –vaginal insemination.
- 4- Disadvantage needed amount of equipment that must be sterilization between inseminations.



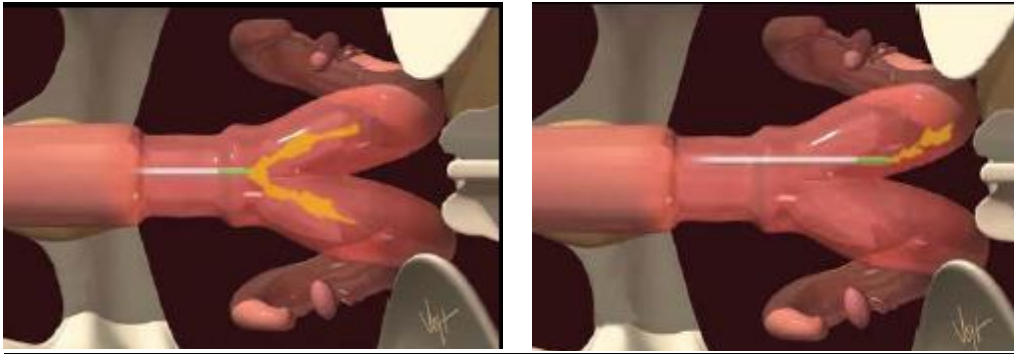
- Use your index finger to check gun placement (1/4 inch past the end of the cervix) before depositing semen.

\*\* If you encounter cervical mucous which feels thick and sticky on the gun in a cow that has been previously inseminated, she may be pregnant. In this case, deposit the semen halfway through the cervix.

### **Recto –vaginal insemination (Intra-uterine insemination)**



With proper A.I. technique and gun placement, semen will be deposited in the uterine body and contractions will transport spermatozoa forward to the horns and oviducts.



- Push the plunger slowly so that drops of semen fall directly into the uterine body.
- If the gun is more than 1 inch through the cervix, all the semen will be deposited into only one horn.

### **Technique of Intra-uterine insemination**

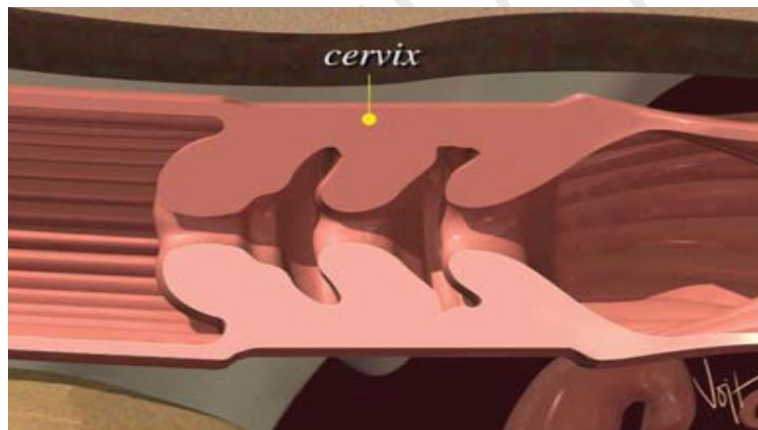
#### **PROCEDURE:**

- 1- Clean vulva and perineal region with dry cotton.
- 2- Insert the left hand in the rectum and remove the fecal material by back racking.
- 3- Spread vulva apart and insert the instrument (catheter or gun apparatus) up to fornix.
- 4- Hold the cervix between two fingers through rectal wall and keep thumb on the external orifice.
- 5- The catheter is initially inserted pointing upwards at an angle of about 30° to avoid entering into the external urethral opening and is then moved horizontally until it is engaged in the external orifice of the cervix.
- 6- Entry into the external orifice is accompanied by a characteristic 'gritty' sensation.
- 7- There after, introduce the catheter through convoluted cervical canal by manipulation of the cervix through rectal wall.
- 8- Place one finger over the internal orifice of the cervix, so that the tip of the catheter can be palpated when it passes the cervical canal
- 9- As soon as, the catheter is passed, the semen should be pushed through syringe into the body of uterus not in uterine horn.
- 10- In this way, semen is equally distributed between the two uterine Horns.

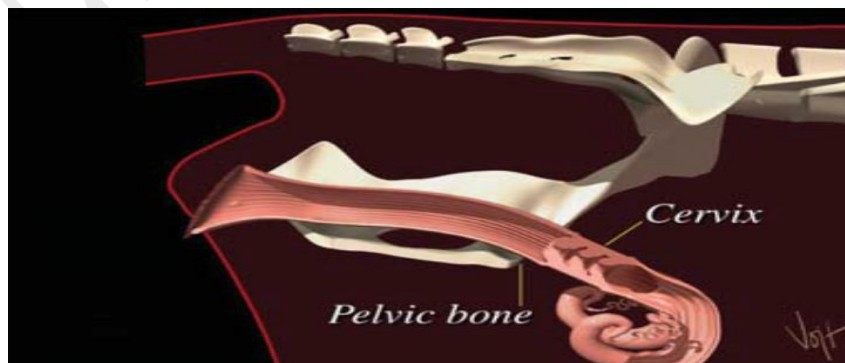
- Because the rumen displaces the reproductive tract to the right, it is much easier to locate and manipulate the tract with your left hand.



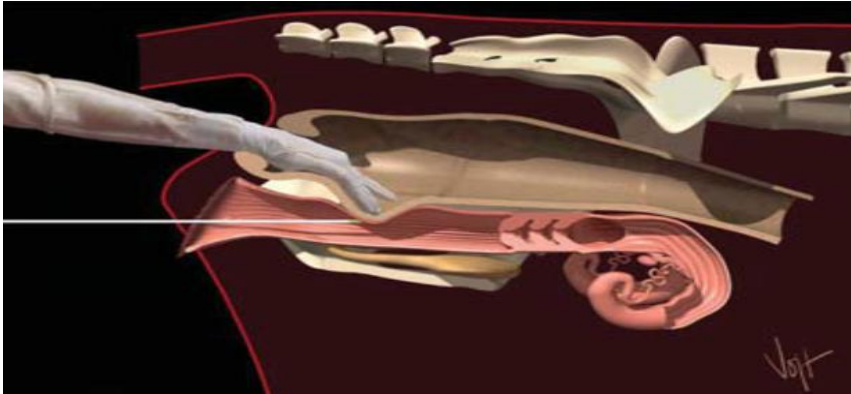
- The opening into the cervix protrudes back into the vagina



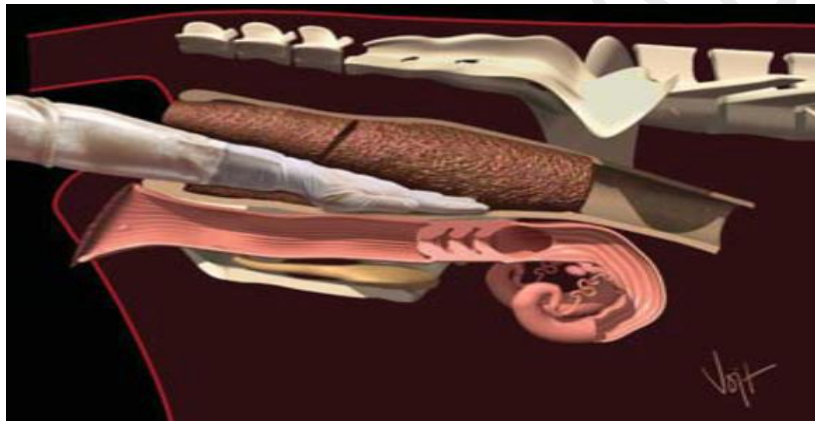
- The cervix is located on the floor of the pelvic cavity near the anterior end of the pelvic bone.



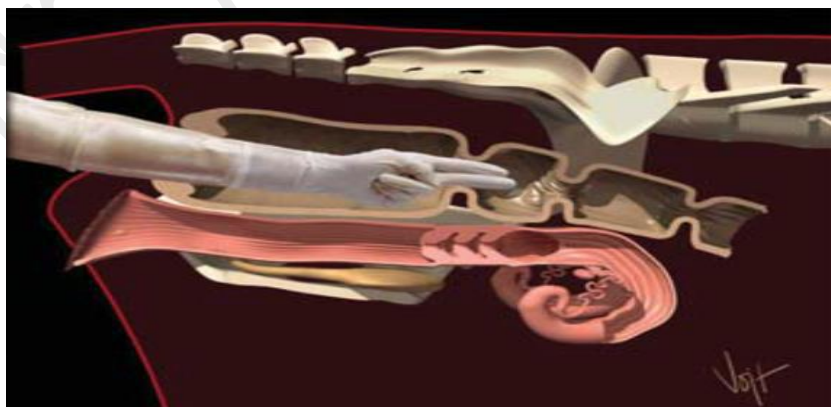
- As you insert the breeding gun into the vagina, keep your gloved hand even with the gun tip.



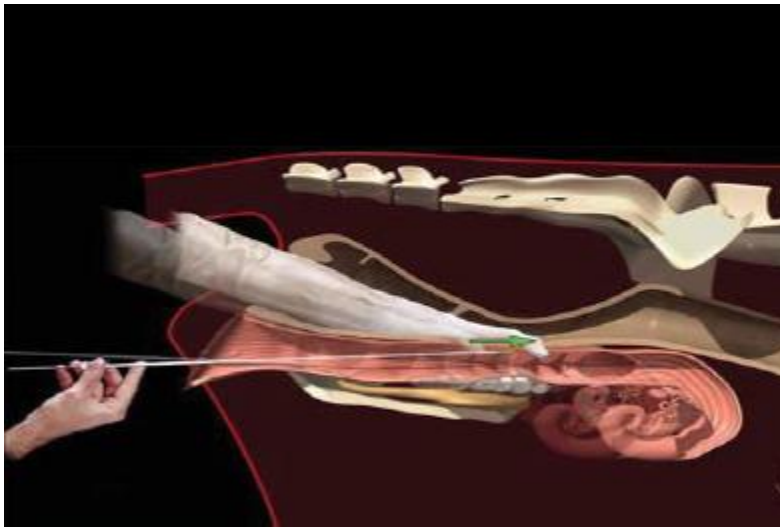
- Keep your open hand flat against the floor of the rectum, allowing manure to pass over the top of your hand and arm.



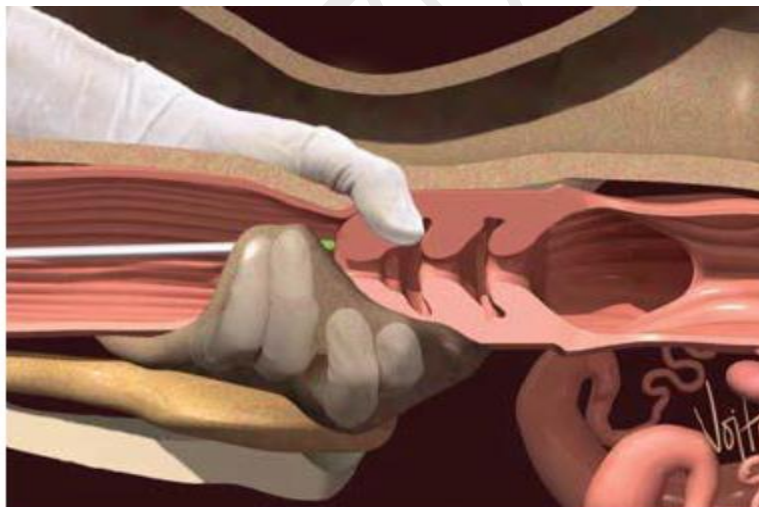
- To relax rectal constriction rings, insert two fingers through the center of the ring and massage back and forth.



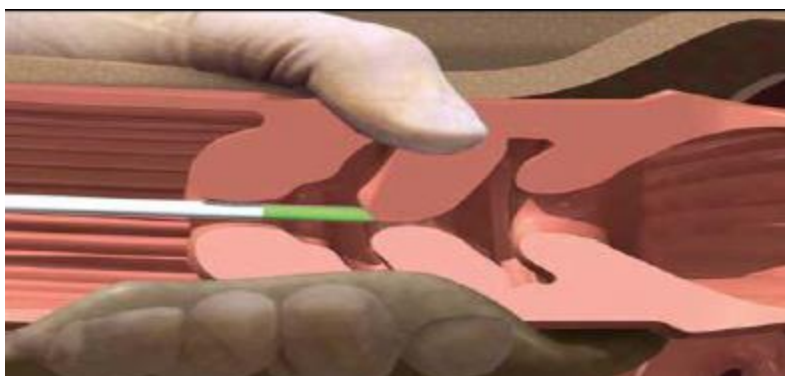
- Grasp the cervix and push it forward to straighten vaginal folds.



- Grasp the external opening to the cervix with the thumb on top and the forefingers underneath to close the fornix and guide the gun tip into the cervix.



- Using the flexibility of your wrist, twist and bend the cervix until you feel the second ring slide over the gun tip.



- Use your index finger to check gun placement (1/4 inch past the end of the cervix) before depositing semen.

