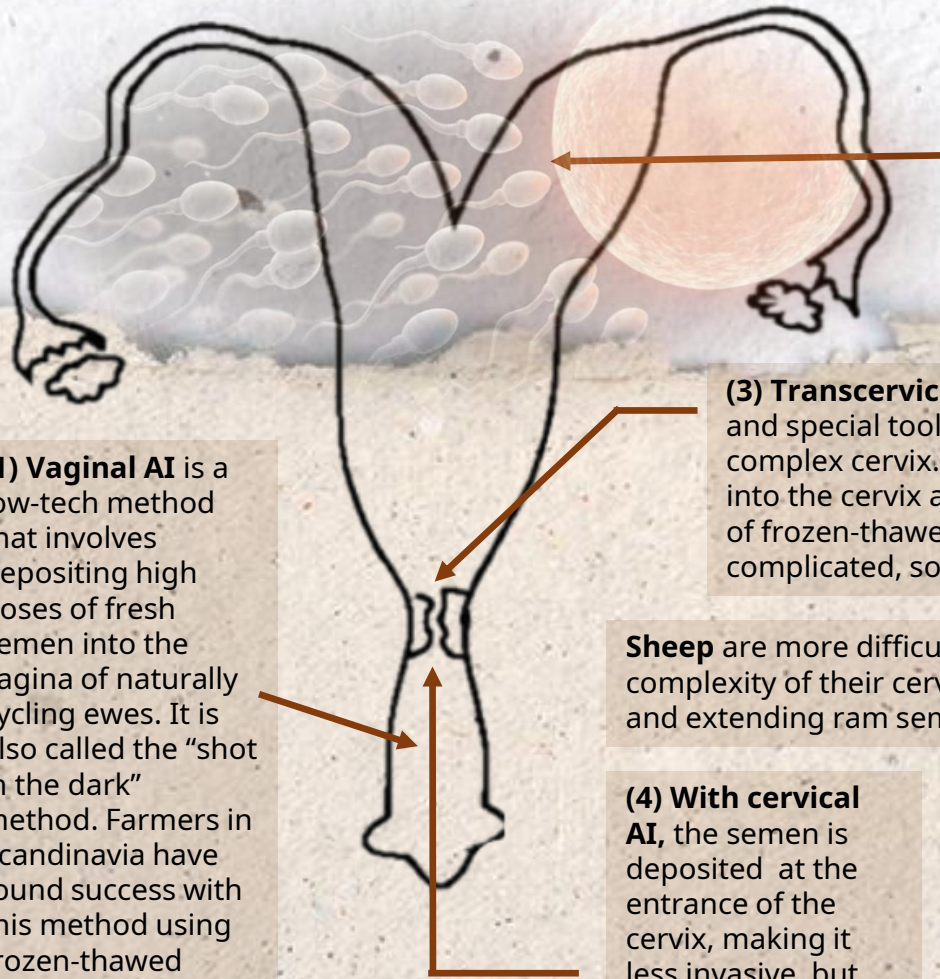


ARTIFICIAL INSEMINATION (AI) OF SMALL RUMINANTS

Artificial insemination (AI) is when you put semen in the female's reproductive tract instead of letting the male do it naturally. While AI is more common with large livestock (e.g., 75% of dairy cattle), it is increasingly being done in small ruminants. There are four different methods of AI that can be used in sheep/goats.



(1) Vaginal AI is a low-tech method that involves depositing high doses of fresh semen into the vagina of naturally cycling ewes. It is also called the "shot in the dark" method. Farmers in Scandinavia have found success with this method using frozen-thawed semen.

Timing is everything! Regardless of method, artificial insemination needs to occur at specific times relative to the onset of estrus (heat) or removal of synchronization hormones.

(2) Laparoscopic AI (LAI) is a more invasive procedure in which semen is deposited directly into the uterine horn(s), bypassing the cervical barrier. LAI usually gives the best results, especially with frozen-thawed semen. The procedure is sometimes banned.

(3) Transcervical AI (TAI) involves using a speculum and special tools to navigate the ewe's unusually complex cervix. The semen is deposited as deeply into the cervix as possible, allowing the potential use of frozen-thawed semen. The doe's cervix is less complicated, so TAI is easier and more common.

Sheep are more difficult to artificially breed due to the complexity of their cervix and the difficulty in preserving and extending ram semen. Goats are easier.

(4) With cervical AI, the semen is deposited at the entrance of the cervix, making it less invasive, but less effective. It is more difficult for frozen semen to travel through the cervix, so fresh semen is usually utilized.

Factors determining AI success

- Age, condition, and breed
- Stress, e.g., heat, nutritional
- Season
- Semen dose
- Semen handling
- Semen quality
- Correct estrus detection
- Hormonal protocols
- Method of insemination
- Number of inseminations
- Semen type (fresh vs. frozen)
- Timing of insemination

Pros and cons of artificial insemination in small ruminants

P R O S	C O N S
Can use old, infirm, or dead sire(s) Control breeding Disease control Easy transport of genetics Extend genetic influence of elite males Increase rate of genetic improvement Reduce costs of maintaining males	Increased costs Increased labor and management Lack of identification of superior males Less genetic variability in breeds Limited availability of semen Lower conception rates May require specialized equipment and expertise