



Ontario  
**Goat** 



# Goat Reproduction Resource Guide

## 3.0 Artificial Insemination

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Artificially inseminating a doe

Artificial insemination allows producers to use superior bucks to dramatically improve performance of their herd. However, the rewards of AI depend on sound management. Artificial insemination in goats is more difficult than it is in cattle because of the small size of the animal and the complex anatomy of the cervix, making insemination into the uterus difficult. The benefits of AI include:

1. Increased rate of genetic improvement.
2. Introduction of genetics that otherwise are unavailable due to costs and/or location of the superior buck.
3. Reduced risk of sexually transmitted disease and/or disease spread through direct contact.
4. No cost for buck maintenance.
5. Accurate timing of kiddings.

**The success of AI is dependent on:**

1. The appropriate timing of insemination in relation to estrus and ovulation.
2. The ability to efficiently collect and cryopreserve (freeze) sperm from quality bucks.
3. The seasonality of goat reproduction.



## 3.0 Artificial Insemination

### 3.1 Equipment

- ✓ Liquid nitrogen tank
- ✓ Speculum (25 x 175 mm for doelings or 25 x 200 mm for does)
- ✓ AI light or headlight
- ✓ Straw tweezers
- ✓ Sterile lubricant (non-spermicidal)
- ✓ Insemination gun (for straws)
- ✓ Breeding stand or facilities to restrain the doe
- ✓ Thaw box or thermos
- ✓ Paper towels
- ✓ Straw cutter
- ✓ Thermometer

During natural mating, the semen is deposited inside the vagina next to or around the opening of the cervix. However, during the AI process, the semen is deposited within the cervix or in the body of the uterus. Frozen semen is extended (diluted) and a smaller volume is used. The contents of the straw must, therefore, be deposited directly into the cervix or uterine body to maximize conception rates.



Liquid nitrogen tank



AI Kit

## 3.0 Artificial Insemination

### 3.2 Artificial Insemination Step-by-Step

Great care must be exercised to have all AI equipment as clean as possible.

1. Place doe on milking stand or similar elevation for insemination purposes.
2. After the doe is restrained, the semen is thawed and the insemination gun is prepared. Frozen semen should be thawed according to the processor's recommendations. If these recommendations are not available, remove the frozen straw (0.5 mL) from the liquid nitrogen tank with the straw tweezers and place it in a thermos filled with warm water 34°C to 36°C for approximately 30 seconds.



Restrain the doe on an angle to allow for easier AI

3. After thawing the semen, dry the straw thoroughly with a paper towel. Semen must be kept warm and must not be exposed to sunlight or water during the thawing and inseminating process to prevent damaging or killing the sperm cells.



## 3.0 Artificial Insemination

### 3.2 Artificial Insemination Step-by-Step cont.

4. Pull the plunger back on the insemination gun and place the straw into the gun with the cotton plug toward the plunger. After the straw has been secured in the gun, the sealed end of the straw must be cut off with scissors. The cover sheath should now be placed over the insemination gun and secured with an O ring.
5. It is important to clean the vulva gently but well before insemination.
6. Lubricate the clean speculum for each doe with mineral oil or non-spermicidal jelly. Young does have smaller vulvas and a shorter vagina; hence the speculum will not have to be pushed too far into the vagina in order to reach the cervix. Also, with the aid of a speculum and a speculum light it makes it easier to locate the cervix.
7. Slowly and gently insert the speculum by using a twisting motion and slight pressure. The depth of the speculum in the vagina will be governed by the age of the doe.
8. Once the speculum is in place, turn on the light within the speculum and locate the opening of the cervix. The speculum may have to be moved slightly back and forth or side ways to identify the cervix, which looks like a small rosette-shaped structure.



Vaginal wall through the speculum



Cervix through the speculum

## 3.0 Artificial Insemination

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### 3.2 Artificial Insemination Step-by-Step cont.

9. After locating the cervix, push the open end of the speculum over the cervix.
10. Push the inseminating device through the speculum and to the opening of the cervix
11. Do not penetrate more than four cm. The cervical folds are harder to penetrate in older does; if you can not fully penetrate the cervix expel the semen but remember to do so very slowly. If the plunger of the inseminating device is expressed too rapidly, a certain amount of semen will remain in the device and not be deposited in the cervix or uterus.
12. Withdraw the speculum very slowly after insemination and place it in a warm bucket of clean and soapy water.
13. Clean the speculum in warm soapy water, rinse in distilled water or alcohol and air dry in a dust free area.
14. Record all important information either on paper or onto the computer. Be sure to regularly back up the records if using a computer program.

Research data shows that three to six percent of all pregnant cows may show signs of heat, which may be true for goats as well. Passing the insemination device into the uterus could cause death of the embryo by bacterial infection or mechanical injury. Therefore, if you are inseminating a doe that is showing signs of heat, around 21 days post-insemination, examine the cervix very carefully for a brown-yellow plug of pregnancy. If in doubt, do not penetrate the cervix with the insemination device.



Boer doe with twins

***Artificial insemination is a powerful tool that can allow goat breeders to quickly improve herd genetics.***