Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_

Animal Breeding & Reproduction Notes

1. ***Discuss the meaning and importance of reproduction in animal agriculture***

* Producers rely on successfully reproducing young for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Cow/Calf Operation without calves?
  + Hog farm without piglets?
  + Sheep farm without lambs?
  + Dairy farm without calves?
* Our \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ would be in jeopardy without sound animal reproductive practices

1. ***Describe benefits of using genetically superior animals for breeding***

* Responsible Animal Breeding:
  + *Only breed animals with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to be passed on*
    - Natural selection would eliminate most genetic problems, but artificial selection does not
    - It is our responsibility to be responsible animal breeders
* ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***
  + - Hybrid Vigor
    - Eliminate poor characteristics
    - Improve efficiency of food production

1. ***Define common terms and describe the function of reproductive organs***

**Terminology:**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- carrying a fetus
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-the union of the EGG and SPERM nuclei
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-occurrence of fertilization
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-release of an ovule from the female.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-The time from fertilization or conception of a female until she gives birth

**Ovaries:**

-Egg or Ovule- Female Reproductive Cell

**7- Testes:**

**-**Sperm: Male cell or gamete

-Semen: Fluid that carries sperm

**Female:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ -** opening of reproductive tract

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ -** channel for birth and copulation

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ -** divides vagina and uterus

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ -** Where fetus grows and receives nourishment

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-** where fetus grows

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-** where fertilization occurs

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ –** produces eggs and hormones

**Male:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ –** produce sperm and testosterone

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ –** collects and stores sperm

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_–** transports sperm

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ –** places sperm in female

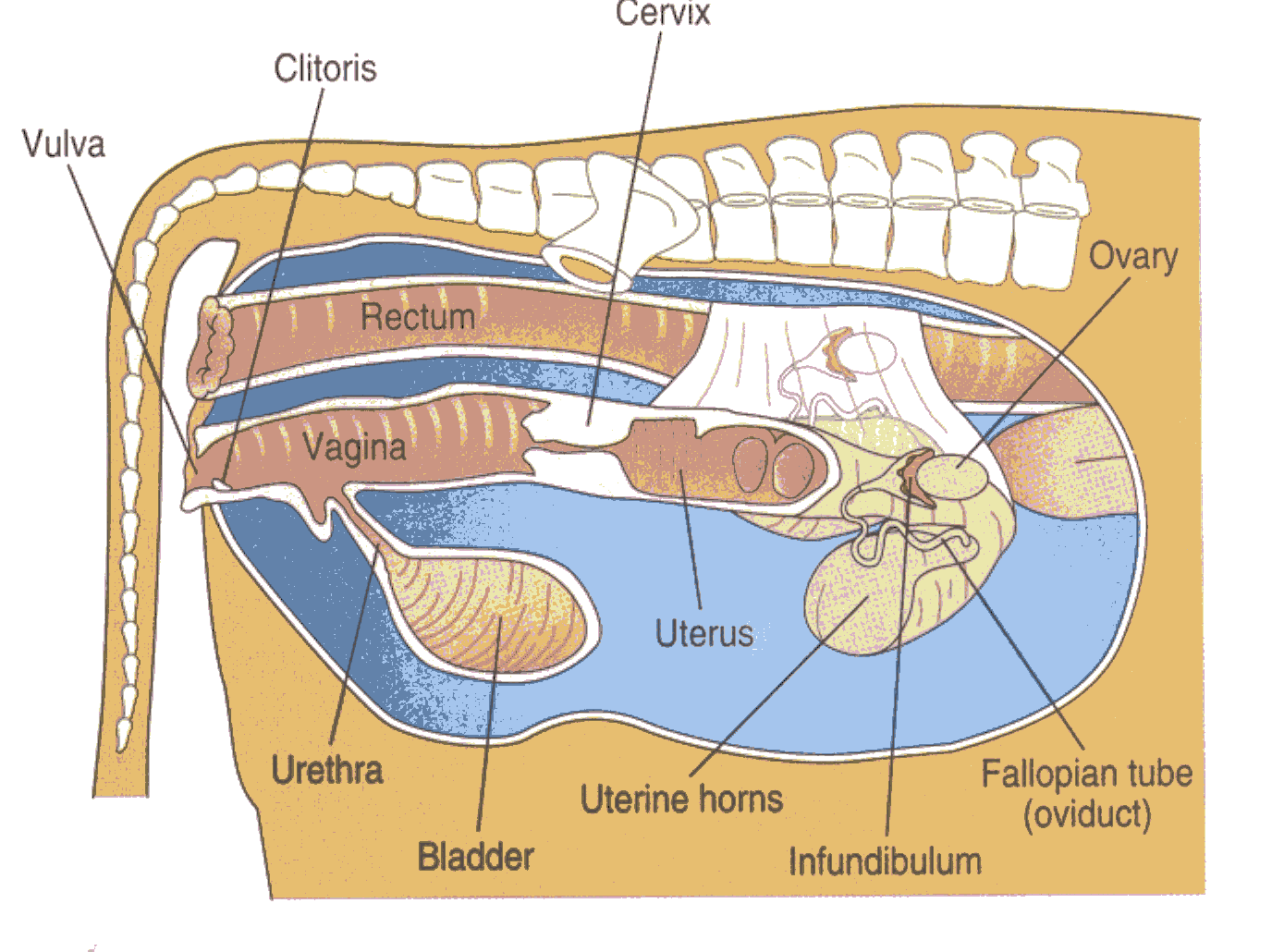
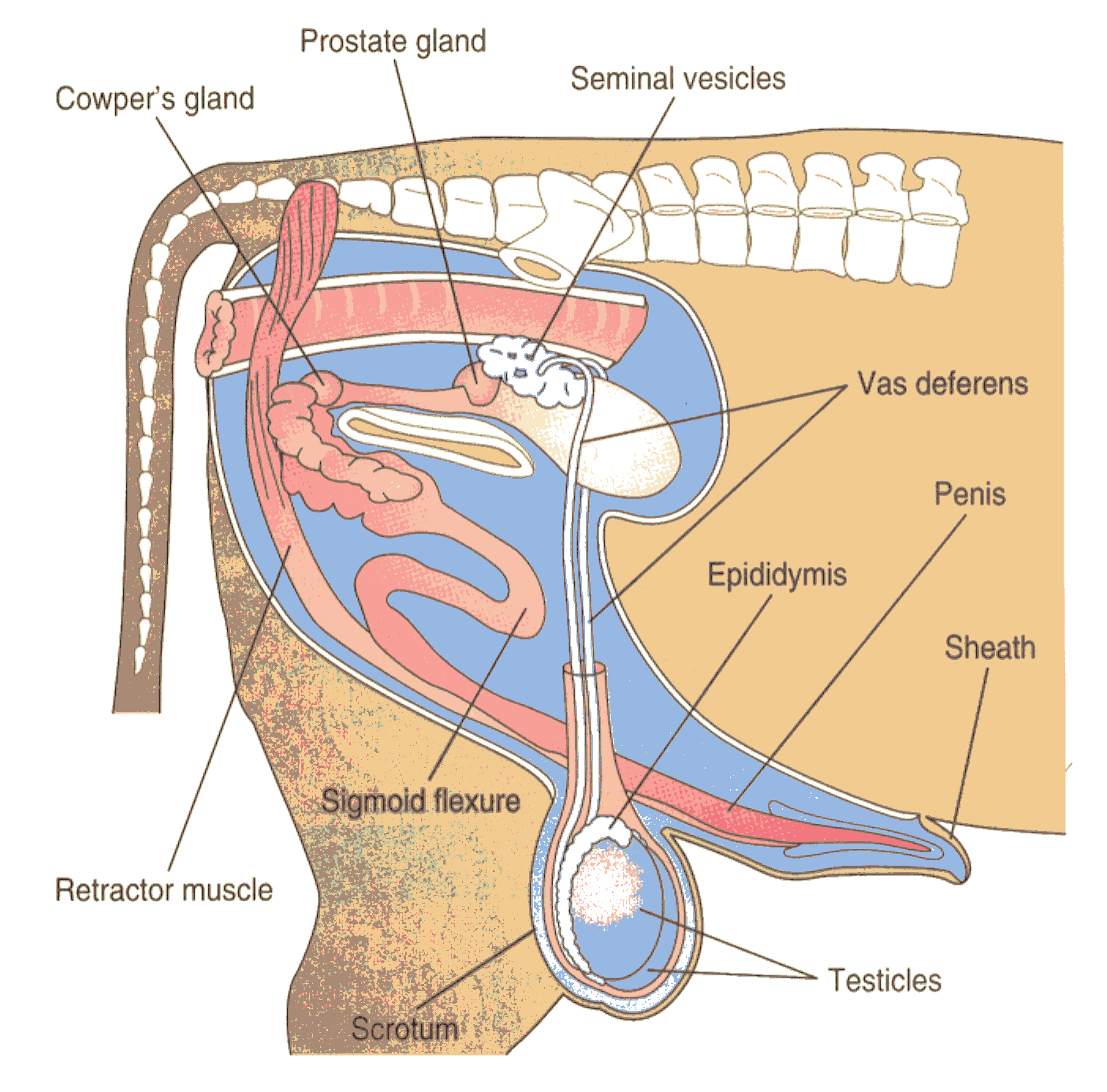
**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-** produce semen

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-** protects testes & maintains temp.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-** opening of reproductive tract



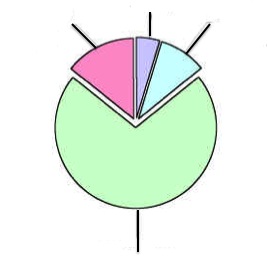
1. ***Compare estrous cycles and gestation of different species and list common signs of breeding readiness***

* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
  + Time **between** periods of estrus, or “heat”
  + Often influenced by of hours of light in the day

Estrous Cycles by Species:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Species** | **Estrous Cycle** | **Length of Estrus (heat)** | **Ovulation** | |
| Cow |  | 12-18 hours | | 10-14 hours after estrus |
| Mare |  | 6-8 days | | 1-2 days before estrus ends |
| Doe (goat) |  | 30-40 hours | | At end of estrus |
| Doe (rabbit) |  | Constant | | 8-10 hours after mating |
| Sow |  | 40-72 hours | | Mid estrus |
| Ewe |  | 24-36 hours | | Late estrus |
| Dog |  | 9 days | | 1-2 days after estrus begins |
| Cat |  | 5 days | | 24 after mating |

**1- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-** also known as “heat.” The period of time when female is receptive to male and conception can occur.



-**Hormone**: Estrogen

**2- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-** follows estrus. Usually when ovulation occurs

-**Hormone**: LH (leutenizing hormone)

**3- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-** Period of cycle when system assumes pregnancy.

-**Hormone**: Progesterone

**4- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-** If not pregnant, body prepares to begin cycle again

-**Hormone**: Progesterone drops

***Signs of Breeding Readiness:***

|  |  |
| --- | --- |
| * Standing to be mounted or trailing other cattle * Clear, viscous mucous from vulva * Swelling of vulva * Restlessness | * Restlessness whinnying * Frequent urination in small amounts * Backing up and pushing on fences or other objects |
| * Erect ears * Moist vulva * Standing or “Locked up Response” when touched | * Seeking out and standing for ram   (symptoms are much less noticeable than other species) |
| * None * Sperm from a rooster can be viable in a hen for up to 30 days. Once inseminated, it’s stored until the next egg is produced | * None * Does ovulate at presence of sperm, not on a cycle |

**Gestation:**

* Length of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Begins with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and ends with parturition (birth).

|  |  |  |  |
| --- | --- | --- | --- |
| **Species** | **Gestation** | **Breeding Season** | **Cycle** |
| **Cattle** |  |  |  |
| **Sheep & Goats** |  |  |  |
| **Swine** |  |  |  |
| **Horse** |  |  |  |
| **Rabbit** |  |  |  |
| **Chickens** |  |  |  |

* All animals have different gestation lengths. Usually the LARGER the animal, the LONGER the gestation.

1. ***Describe signs of parturition and dystocia***

**Parturition-**

**Signs:**

* + Milk develops in udder
  + Abdomen drops
  + Nesting
  + Restlessness or pacing
  + Abdomen muscles contract (watch for young!)

**Stage 1:** Preparatory Stage (Labor

**Stage 2:** Delivery of Fetus

**Stage 3:** Expulsion of the placenta

**Stage 4:** Period of rest

**Dystocia:**

**Causes:**

-Presentation (position fetus is coming out)

-Oversized fetus

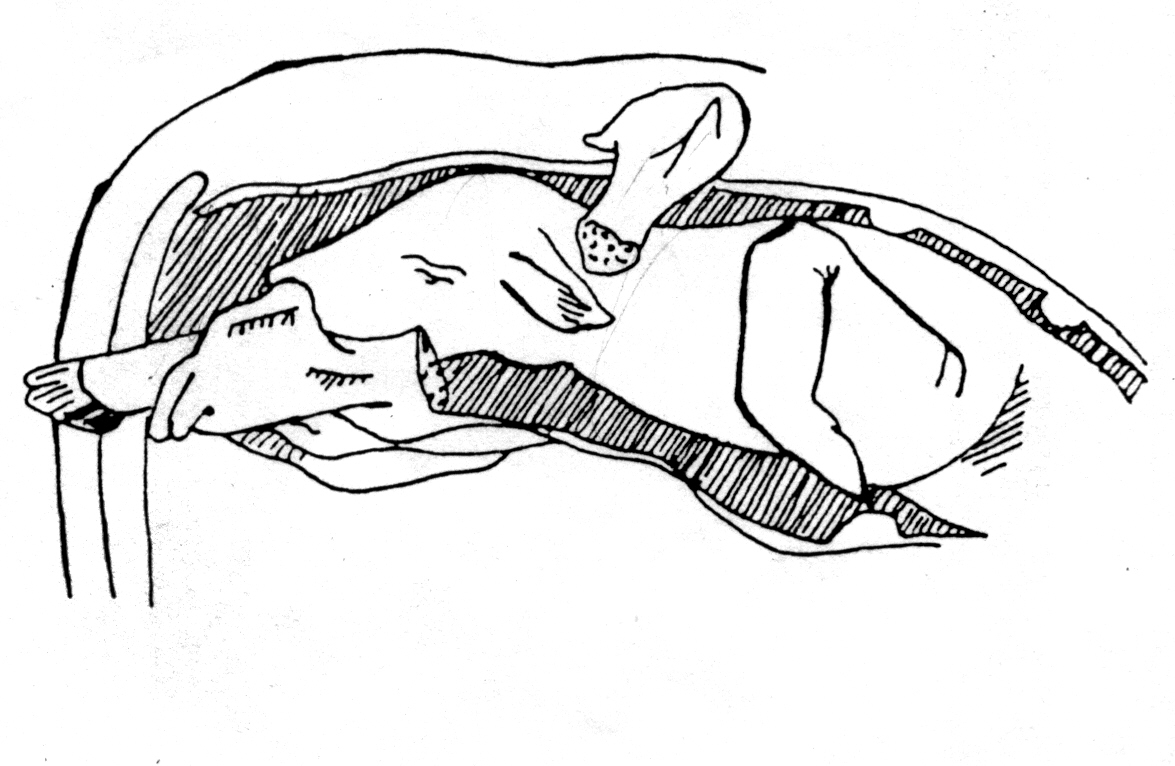
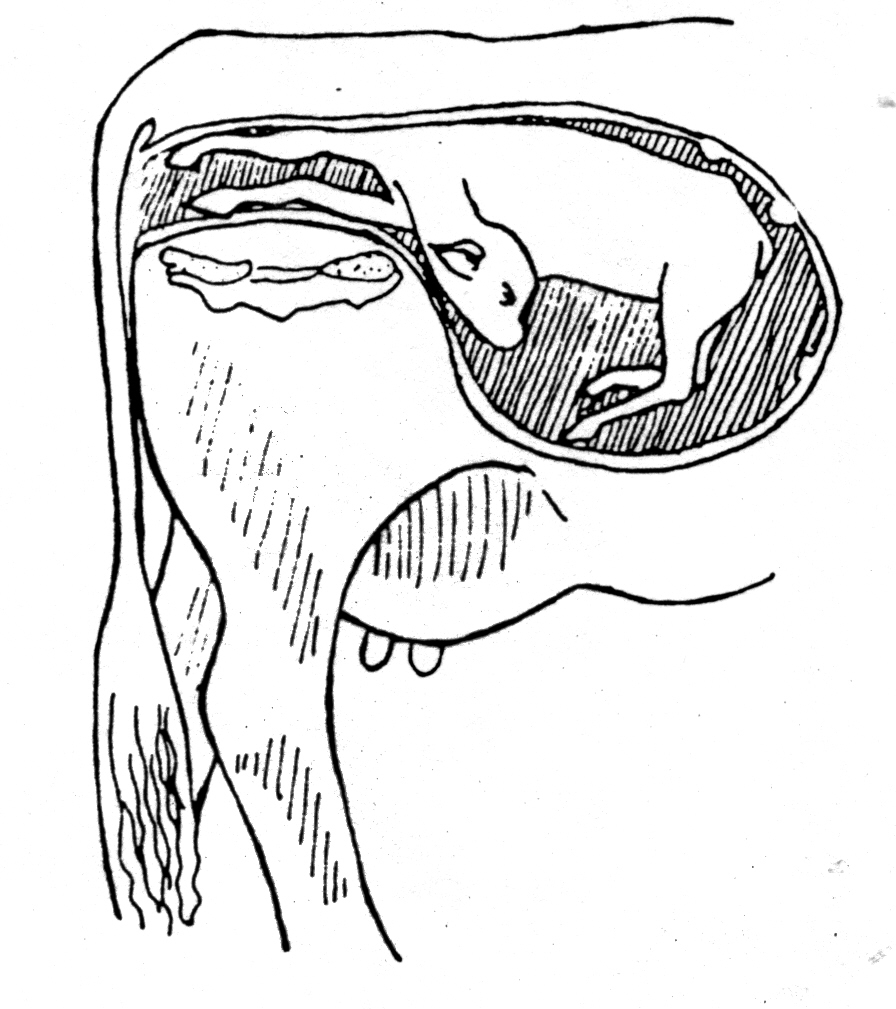
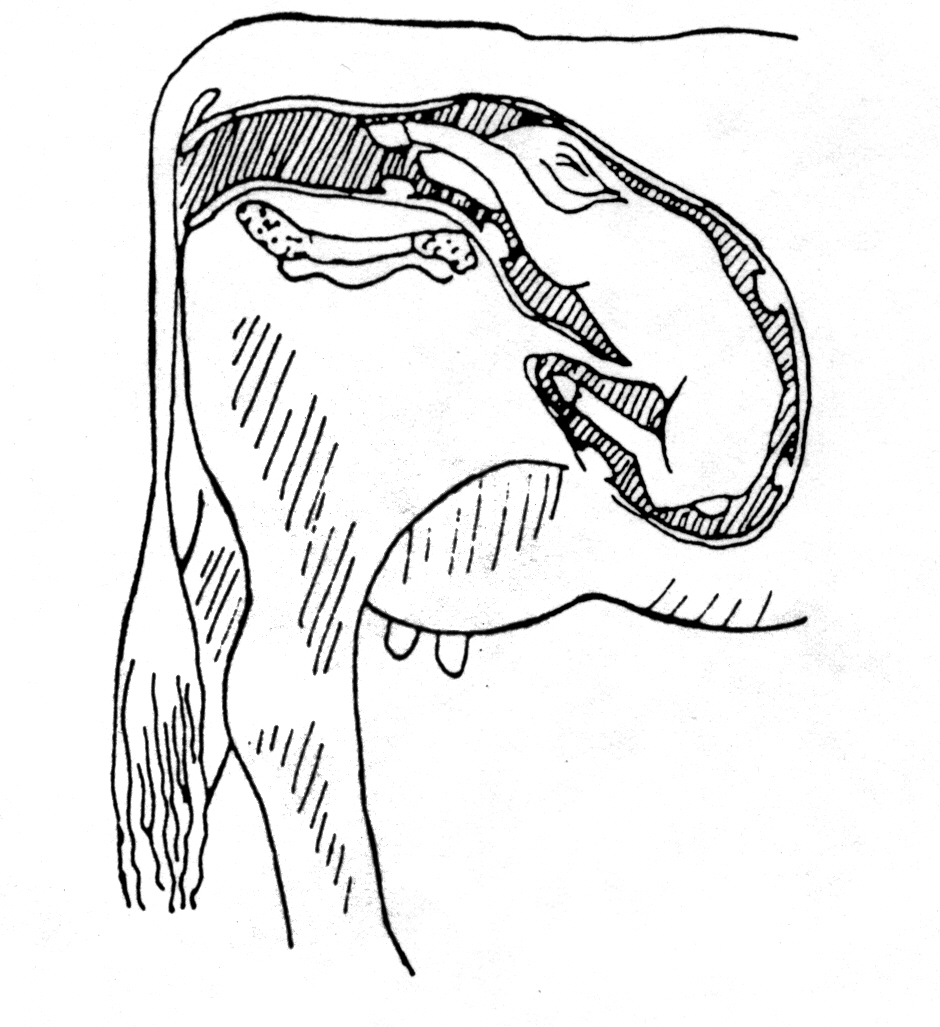
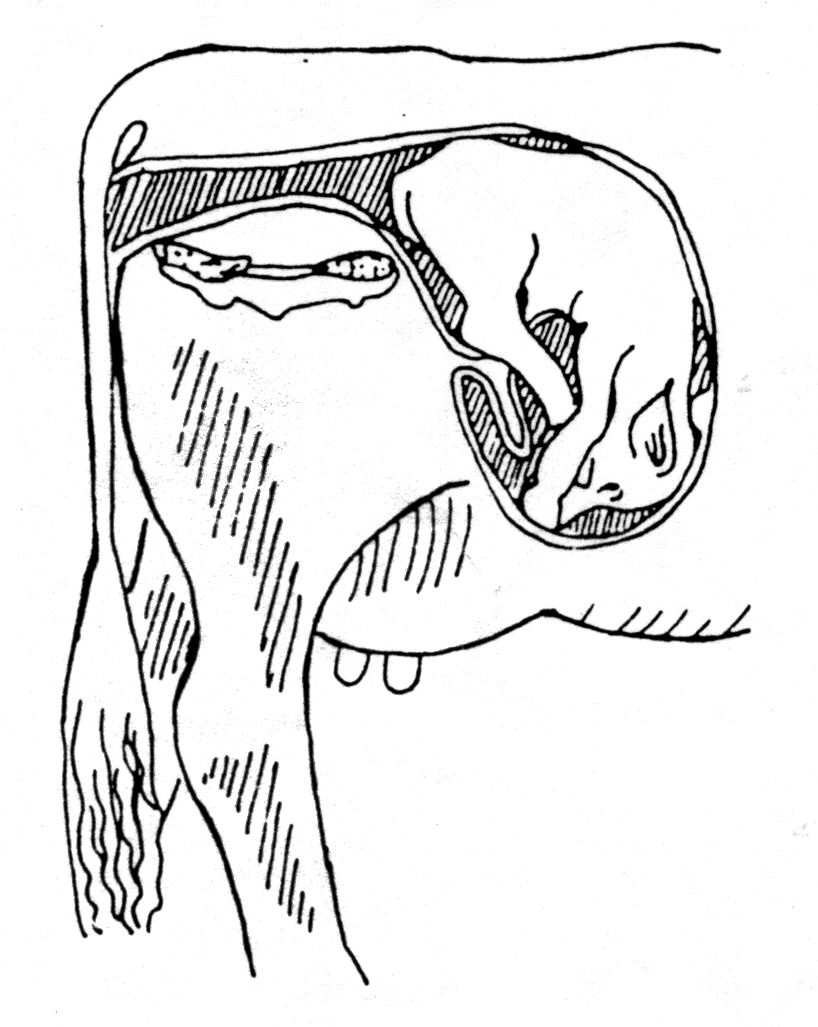
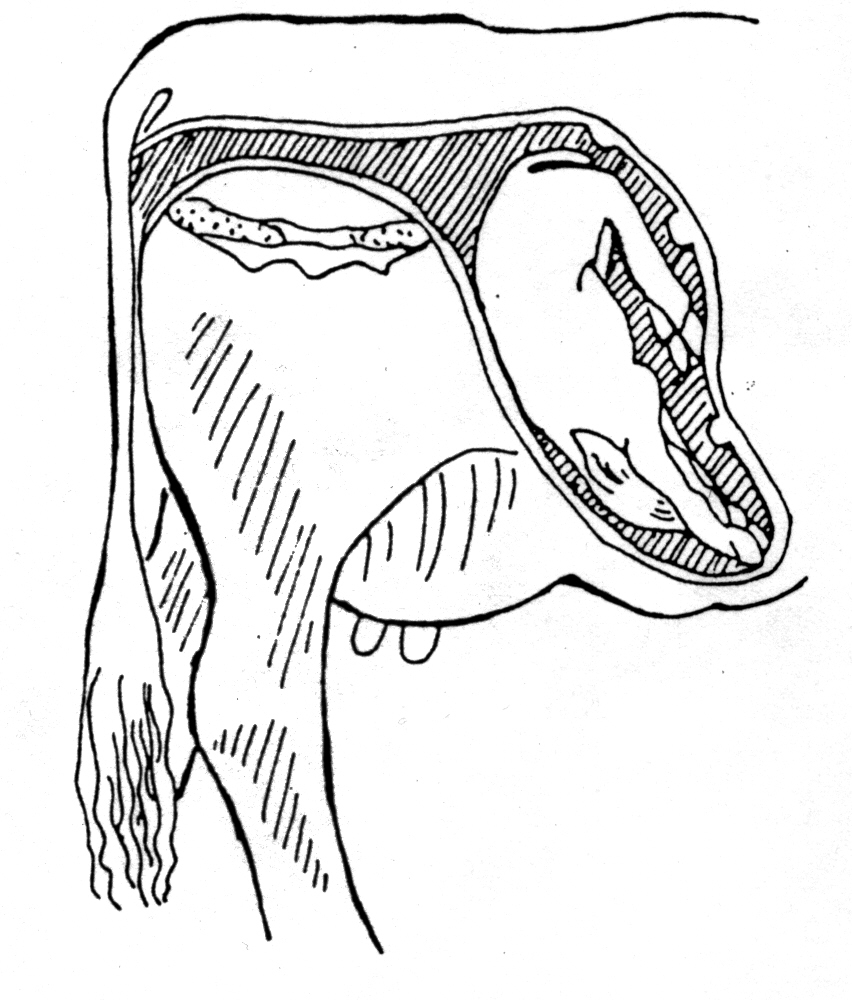
-Multiple births

-Exhaustion, uterine contractions stop

**Solutions:** Call a vet or assist yourself

-Cesarean Section (C-Section)

- Assist manually



1. ***Describe the purpose and benefits of reproductive technologies***

**Reproductive Technology:**

1-  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Collecting and placing sperm from the male to the female reproductive tract without natural mating

*Step 1:* Collect & Store Semen

-Collect Semen

-Extend sample and place in straws

-Store in liquid nitrogen

*Step 2:* Manually inject semen into female reproductive tract at correct stage of estrus

**Advantages of Artificial Insemination:**

1- Wider selection & use of outstanding sires

2- Rapid Genetic and herd improvement

3- Overcome physical barriers to mating

* + - Examples: Aggressive behavior or injuries

4- Danger of the bull is eliminated

5- Eliminate cost of purchasing and keeping a bull

**Disadvantages of Artificial Insemination:**

1- Skilled Technician or training required

2-Very close supervision of females is necessary to accurately determine stage of estrus

**2- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

The process of causing a herd of cows or heifers to come into estrus and ovulate at or near the same time

**3- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

The transfer of fertilized egg(s) from a donor female to one or more recipient females. Utilizes genetics of superior FEMALES by producing more offspring per year than by natural breeding methods

**4- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Producing an EXACT genetic copy of an organism