



Introduction to Reproduction

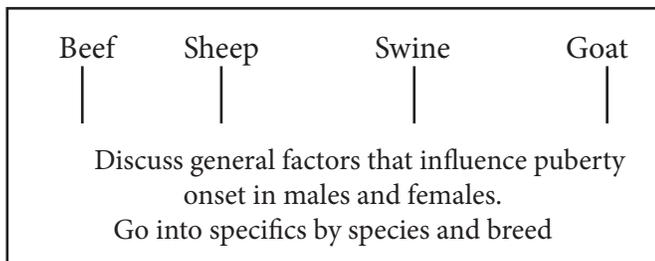
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Goal (learning objective)

Youth will learn about beginning concepts of reproduction and puberty in livestock.

Supplies

- Poster displaying a flow chart to summarize the age of puberty onset along with influencing factors (see diagram below), created by you as an example



- Poster paper (for your demonstration poster and enough for team posters)
- Colored markers

Pre-lesson preparation

- Be prepared to discuss general reproduction. Some information is provided in this lesson and does not vary from species to species
- Research puberty for each species along with physical factors that influence onset of puberty as well as factors unique to species. For example:
 - Beef heifers with a higher fatness will go into puberty earlier than low weight heifers, likely due to metabolic signals effecting hormone production

- Gilts in a larger group or fenced in a pen next to a male will go into puberty sooner than gilts in small groups or with no male exposure. This is the result of the presence of pheromones and the animals detecting them, initiating a hormonal response
- The month/season a lamb is born in influences when it will reach puberty, this is in relation to sheep being short day breeders
- Breed and genetics influence provide a couple examples within a species

Lesson directions and outline

Reproduction is a sequence of events resulting in new life and beginning with development of the reproductive system in the embryo, or unborn animal. After an animal is born, it must grow and achieve puberty, a stage of maturity, by developing the ability to produce fertile gametes, or reproductive cells. This ability must be accompanied by reproductive behavior and copulation or mating. After copulation, the sperm and egg meet, fertilization occurs and development of the embryo follows. The embryo attaches to the inside of the uterus by the placenta, which is where the embryo develops and grows. The fully developed embryo will then be born and the female will begin to lactate or produce milk as nourishment for the newborn. After a time of recovery, the process will happen all over again.

But wait a minute... puberty must take place before an animal is able to reproduce.

Conducting the activity (DO)

1. Do a discussion with youth participants. Ask: What is reproduction? What is taking place?
2. Share with the group the prepared poster.
3. Discuss common terms (keep your audience in mind). Discuss ages at which each livestock species reaches puberty (male and female) and influencing factors.
4. After the discussion, break individuals up into groups by species. Have the teams create a poster for their species based on your example and the discussion.
5. Ask teams to share their poster with the group.

What did we learn? (REFLECT)

- Ask: What is reproduction?
- Ask: What does reaching puberty allow for?
- Ask: Can we influence puberty in our 4-H animal? How?

Why is that important? (APPLY)

- Ask: Why is successful reproduction important?
- Ask: How is reproduction affected by the onset of puberty in an animal?
- Ask: How is the industry impacted by the ability to influence puberty?

Resources

- Ohio State University Extension. (2011). Reproduction and Genetics. *Beef resource handbook* (pages 6-1 through 6-6).
- Ohio State University Extension. (2011). Reproduction. *Goat resource handbook* (pages 35-41).
- Ohio State University Extension. (2011). Reproduction and Genetics. *Sheep resource handbook for market and breeding projects* (pages 119-123).
- Ohio State University Extension. (2000). Selection of Breeding Stock. *Swine resource handbook for market and breeding projects* (pages 15-4 through 15-16).
- Senger, P.L., (2003). *Pathways to Pregnancy and Parturition*. Second revised edition. Chapter 1 (page 1) and Chapter 6 (pages 132-141).