

 **Activity 6.3.1 Hormones****Purpose**

Hormones produced in the endocrine system control reproductive functions. Hormones are especially important in the female reproductive cycle. In most mammalian animals, including livestock and companion animals, this is called the estrous cycle. The estrous cycle prepares the female to become pregnant.

Four main hormones control the estrous cycle, luteinizing hormone, follicle stimulating hormone, estrogen, and progesterone. Each hormone is responsible for specific functions. For instance, one hormone controls the release of the egg during ovulation. The level of each hormone depends on the reproductive status of the female. Some hormones have contradictory effects on the body and when one is high, the other is low.

Materials**Per student:**

- Computer with Internet access
- Agriscience Library
- 4 colored pencils
- Pencil
- *Agriscience Notebook*

Procedure

In this activity, you will study the role of hormones in reproduction and their levels during the estrous cycle.

1. Complete Table 1 on *Activity 6.3.1 Student Worksheet* by explaining the role of each hormone in the female reproductive cycle.
2. Graph the levels of hormones during the estrous cycle in Table 2 and describe hormone levels during pregnancy.
3. Use the following resources in your research.

Books:

- Taylor, R. & Field, T. (2007). *Scientific farm animal production: An introduction to animal science* (7th ed.) Upper Saddle River, NJ: Prentice Hall.
- Lawhead, J., & Baker, M. (2005). *Introduction to veterinary science*. Clifton Park, NY: Delmar.
- Damron, W.E. (2000). *Introduction to animal science: Global, biological, social, and industry perspectives*. Upper Saddle River, NJ: Prentice Hall, Inc.

Websites:

The Bovine Estrous Cycle

http://www.vetmed.lsu.edu/eiltslotus/theriogenology-5361/the_bovine_estrous_cycle.htm

The Mare's Estrous Cycle

<http://www.equine-reproduction.com/articles/estrous.htm>

Name: _____

Activity 6.3.1 Student Worksheet

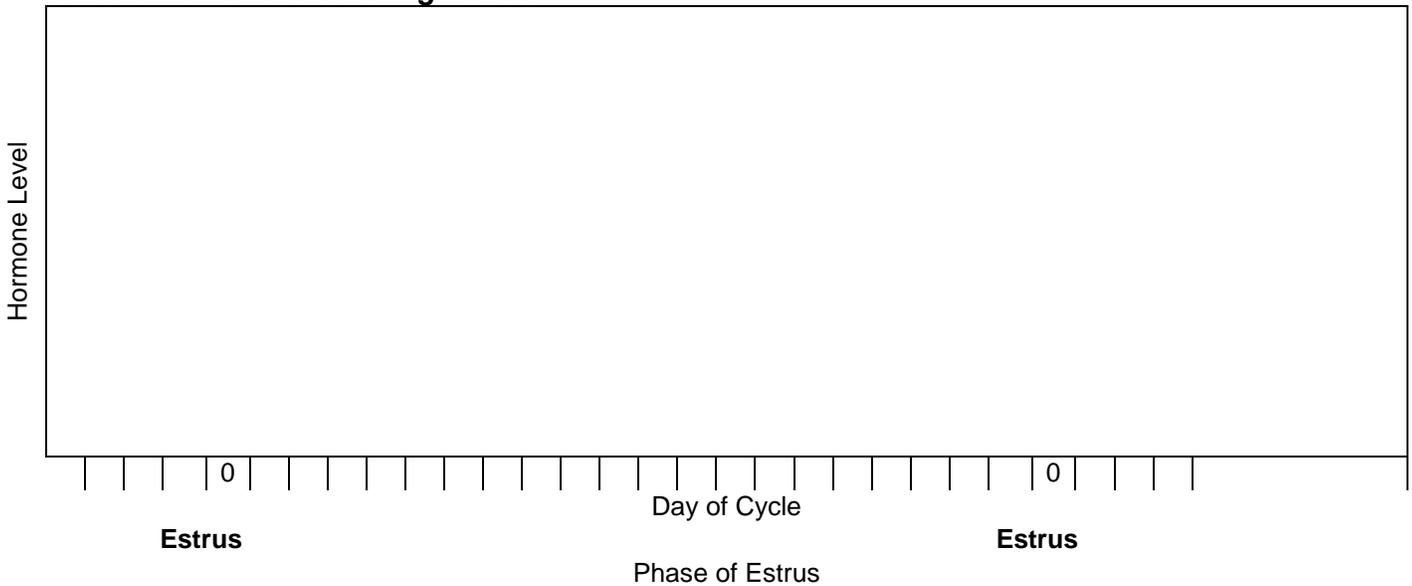
Directions:

- Complete the abbreviation and function of each hormone listed in Table 1.
- Next, graph the relative hormone level of each hormone in Table 2.
- Label the remaining three phases of estrus.
- Use the colored pencils provided to color-code the hormones and create a key to show the representation.

Table 1. Functions of Hormones

Hormone	Abbreviation	Function in Estrous Cycle
Luteinizing Hormone		
Follicle-Stimulating Hormone		
Estrogen		
Progesterone		

Table 2. Hormone Levels During Estrus



Key	
Luteinizing hormone	
Follicle-stimulating hormone	
Estrogen	
Progesterone	

Question: What happens to hormone levels if the female becomes pregnant?