

Female Reproductive Box

by C. Kohn, Waterford WI



Name: _____ Hour _____ Date: _____

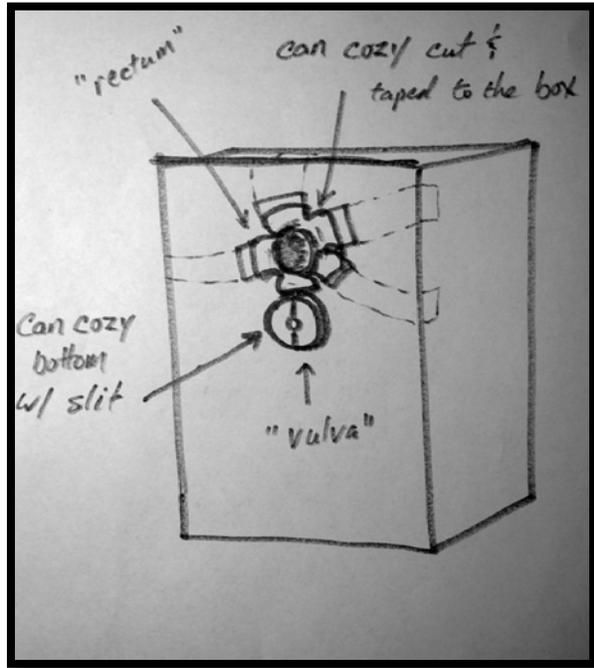
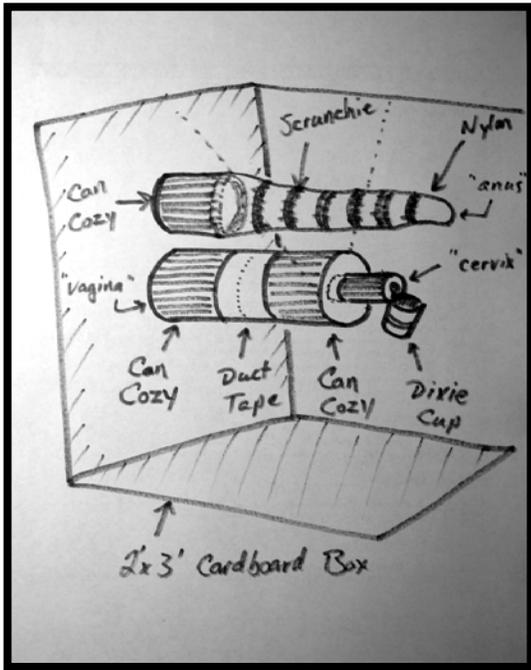
Objective: To provide a hands-on model for students to practice artificial insemination (AI) techniques. This is meant to be paired with the reading on AI from the University of Florida IFAS Extension - <http://bit.ly/UF-AI>.

Materials:

- 4 foam can cozies (more are recommended in case of ripping or tearing)
- One small paper cup
- Duct tape
- Nylon
- Hair scrunchies
- A 2x3 foot cardboard box or larger

Building Directions:

1. Roughly 3/4ths from the bottom of the box, trace around the bottom of a can cozy. Cut out a circle slightly smaller than the cozy. Draw a similar sized circle at least an inch above your first hole. Be sure that your hand fits inside the hole; if not, increase the size of the hole to prevent ripping or tearing.
2. Cut a slit from top to bottom of one can cozy. This will become the vulva. Cut a hole in the side of the cozy to represent the urethra.
3. To make the cervix, cut a can cozy in half from top to bottom. Remove the remaining piece of cozy bottom. Wrap the cozy in a tight roll and secure with duct tape.
4. Cut a hole slightly smaller than your cervix in a third can cozy. Insert the cervix into this hole and secure with tape if necessary. Be sure that the cervix protrudes slightly into the third can cozy. This is necessary to create the vaginal fornix.
5. Match the top of the vulva can cozy with the top of the vaginal/cervix can cozy. Tape together with a couple wraps of duct tape.
6. Insert the vulva/vagina/cervix can cozies into the bottom hole of the box.
7. Remove the bottom of the fourth can cozy and cut small half-inch slits around the perimeter of the bottom of the can cozy.
8. Push the can cozy into the top hole of the box and secure in place with tape. Because this "anus" cozy will be pushed on by hands with some pressure, extra effort should be made to secure it in place.
9. Tape a nylon to the "rectum" cozy. Push hair scrunchies onto the nylon. Secure the end of the nylon with a piece of tape.
10. Tape a small paper cup to the end of the 'cervix'. This is necessary to catch the 'semen' when it is deposited. Secure all materials in place on the inside of the box, offsetting the tract to the right. Decorate if desired.



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Breeding Directions:

1. Prior to breeding, be sure that you have your breeding gun, a semen straw filled with “semen” (colored water or diluted milk), a towel, and a breeding glove.
2. Cup your fingers together and gently but firmly push into the anus (the top hole). Orient yourself inside the tract. Feel the top of the vagina and follow it until you feel it narrow into the cervix. Inside of a real cow the cervix will feel like a turkey’s neck.
3. Wipe the vulva with a paper towel (adventurous advisors might want to purchase Duncan Hines Chocolate Whipped Frosting for additional realism). Do not push manure into the vulva
4. With your free hand, make a fist and gently press down on the vulva to spread the ‘lips’. This is necessary to allow the breeding gun to enter.
5. Insert the breeding gun at a 30° upward angle. This is necessary to avoid entering the urethra and the bladder in a real cow.
6. Once you are inside the vagina by a few inches, raise the rear of the breeding gun and slide forward until you touch the beginning of the cervix with the gun.
 - a. Be sure that you are not in the fornix of the vagina (the dead-end pouch below the cervix).
 - b. Try to follow the movement of the breeding gun in the vagina with your hand in the anus.
 - c. Each scrunchie represents the rectal constriction rings that an inseminator must deal with. Just as in a real cow, place two fingers inside each scrunchie ring and massage back and forth as you push your arm forward.
7. When you feel confident that you are at the entry to the cervix (you should be able to move the breeding gun forward with little resistance; if you feel resistance, pull back and try again), push the breeding gun forward through the cervix.
8. Get the breeding gun tip at the edge of the cervix (in a real cow, you’d pull the cervix over the gun – in this case we are limited; just move the gun forward until you feel the tip through the rectal walls of your nylon).
9. When you are confident the tip of the breeding gun is just past the cervix by ¼ of an inch (and can feel it through the nylon), push the plunger of the breeding gun so that the semen is deposited into the cup.
 - a. If the tip of the breeding gun is more than an inch into the uterus, all the semen will be deposited into one uterine horn instead of both. In this particular case, you will miss the cup.
 - b. Be sure that you do not move the breeding gun back or forth while pushing the plunger.
10. After depositing all the semen, slowly remove the breeding gun. Then slowly pull your hand out of the anus (students may need help from someone holding the box). Remove your breeding glove. Check in with your instructor. Brag to your friends.

Artificial Insemination in Dairy Cattle by D. W. Webb

University of Florida IFAS Extension, <http://bit.ly/UF-AI> . Questions by C. Kohn, Waterford, WI



Name: _____ Hour _____ Date: _____

Date Assignment is due: _____ Why late? _____
Day of Week Date If your project was late, describe why

Directions – using the accompanying reading (found at <http://bit.ly/UF-AI>), please complete the questions below. You may work together quietly, but you are responsible for completing your own answers.

1. Define Artificial Insemination (AI): _____

2. Describe the origins of AI from 1322 AD: _____

3. What was Anthony von Leeuwenhook’s contribution to AI?: _____

4. How pioneered AI in 1899? _____ What did he do? _____

5. Where was the first AI Cooperative established? _____

6. What is the main advantage of AI? _____

7. Name 6 other advantages of AI in your own words:

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

8. What are 4 disadvantages of AI?

1 _____

2 _____

3 _____

4 _____

9. How is semen collected for use in AI? _____

10. What does it mean to "extend" semen? _____

a. Why would an AI company do this? _____

11. How many cows could be inseminated from one bull ejaculate? _____

12. What are the two most widely used semen extenders? _____

13. What is the lowest amount of sperm per insemination that can be used to ensure a good conception rate? _____

14. Why are antibiotics added to semen? _____

15. How does glycerol help improve the quality of semen? _____

16. Why is artificial coloring added to semen? _____

17. In early methods of AI, where was the semen deposited? _____

18. In the rectovaginal technique, where is semen deposited? _____

19. How long does estrus last? _____

20. When should cows be inseminated to obtain the maximum conception rate? _____
