



Pregnancy Detection in Cattle

Oklahoma Cooperative Extension Service • Division of Agricultural Sciences and Natural Resources

In an effort to make a profit, beef cattle producers must strive for a high calf crop percent and heavy weaning weights. Cows producing one calf every 12 months and cows calving early in the calving season give the best cow-calf performance. To boost your profits, you should be able to identify the non-pregnant dairy or beef cow.

The pregnancy detection procedure should be inexpensive, highly accurate, and conducted at the ranch by ranch personnel. One way you can check for pregnancy is to observe signs of estrus (heat) after the breeding season is over. This observation method is inexpensive and can be done by ranch workers, but it is very time consuming and not very accurate. Pregnancy detection by palpation is not only more accurate but meets the other requirements as well. You do not need a great deal of training for this procedure, and you will find it easy to learn.

There is only one secret to accurate pregnancy detection by palpation. That secret is practice. Once you learn the basic procedure and technique, practice is necessary to become skillful at pregnancy detection.

Facilities and Supplies

Facilities are very important when you are checking for pregnancy. You do not want the cattle to develop an uncomfortable attitude toward the working facilities. Palpation facilities are very similar to those you use for artificial insemination. On most ranches the same facilities are used for both procedures.

You should have a crowding chute long enough to hold at least three cows (Figure 1). The most time-consuming activity during pregnancy determination is getting the cows into the chute. Therefore, having three or more cows in a crowding chute or alley could reduce that time frame.

Put a gate in the crowding chute just behind the cow to be palpated. This may seem like a luxury item, but it would not take very much fence climbing to change your mind. This gate should

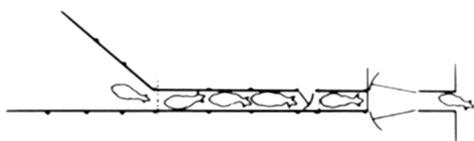


Figure 1. A common working chute for pregnancy detection.

swing all the way across the alley and should latch securely to keep cows from coming up behind you and possibly causing injury.

Have the working chute wide enough so the cattle can stand normally and quietly. A headgate is not necessary; however, you should have at least a bar behind the cow to hold her in the working chute. Arrange cutting gates according to your need to separate the cows.

When palpating, take safety precautions for yourself and the cow. A bar or chain behind the cow to be palpated and a gate in front of the next cow will provide protection. Keep the chutes in good repair and restrain the cows so they cannot jump out, turn around, or turn over. For safety, have a dirt floor in the working chute and protective shade over it.

You need only two articles for pregnancy detection by palpation: a plastic or rubber sleeve and a lubricant. The plastic sleeves are relatively inexpensive. The purpose of the sleeve is to protect your arm and hand against disease and eliminate irritation to the arm. Use the thin plastic sleeve only once; you can use the thicker sleeve on many cows before discarding it.

You can use many different kinds of lubricants: liquid soap, mineral oil, KY jelly®, and Vaseline® are just a few. If you use liquid soap, dilute it with water for a good, inexpensive lubricant. Mineral oil, KY jelly®, and Vaseline® are excellent lubricants, but are expensive. The lubricant makes the entry through the cow's anus into the rectum as easy as possible without discomfort to the animal or the examiner.

Reproductive Tract

Understanding the structure of the reproductive tract of a cow (Figure 2) is very important in detecting pregnancy.

The following definitions will help you learn that part of a cow's anatomy:

The vulva consists of two labia, or lips, that lie, one on each side of the opening to the reproductive and urinary systems. The vulva serves as the entrance to the internal organs and also allows for the passage of urine.

The vestibule is the general passageway to the urinary and reproductive tracts. It extends inward from the vulva for about 4 inches to where the urethra opens into its ventral surface from the bladder.

The vagina is the tube that lies between the vestibule and the cervix. The bull deposits sperm in the vagina during mating. The vagina is normally 12 inches long.

The cervix is the narrowed end of the uterus that separates that organ from the vagina. It is composed primarily of connective tissue with lengthwise folds or rings.

The cervix's primary function is to prevent unwanted organisms and substances from entering the uterus. During estrus, however, it dilates and produces large amounts of mucus (clear discharge). The cervix is usually about 3 inches long, but its size may vary with the age and breed of the cow; for example, a heifer usually has a smaller cervix than a mature cow.

The uterus is the organ that contains the fetus during pregnancy. It consists of a body and two horns: the body lies on the floor of the pelvis and the horns coil downward. The uterus has two layers, a muscular inner layer and a mucosal lining. From the mucosal lining protrude about 70 to 120 structures called caruncles that allow for attachment by the fetal membranes during pregnancy.

Two small tubes that extend from the uterine horns to the ovaries are called the oviducts. At the end of each oviduct there is a funnellike structure that partially surrounds the ovary and receives the egg. Fertilization normally occurs in the oviduct.

The ovaries are the oval, or almond-shaped, organs at the ends of the oviducts that release eggs and secrete hormones. Each ovary consists of an inner and outer segment. The inner segment is composed of blood vessels, nerves, and connective tissue; the outer segment is the site of the primordial follicles, which are the immature eggs surrounded by a layer of cells.

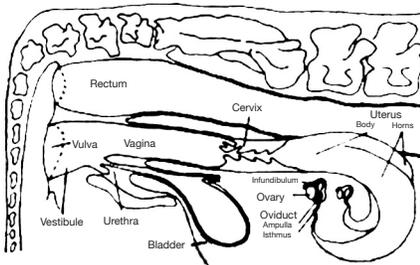


Figure 2. Major reproductive organs of the cow.

Palpation Procedure

With the cow restrained in the working chute, prepare for the examination. Either hand may be used in palpation, but many people use the left hand. The sleeves are interchangeable. After you put the sleeve on and pull it all the way up to your shoulder, place a rubber band around the upper arm to help hold the sleeve in place. Use some lubricant on the front and back sections of your gloved hand and up the sleeve. With your free hand, you can grasp the cow's tail for leverage.

Shape your gloved hand into a wedge by putting the fingers together and push it into the cow's anus and rectum. Once the hand is in the rectum, make a fist and thrust into the rectum about elbow deep. With the arm in elbow deep, the cow's rectum will usually relax quicker. Then open your hand and search for the reproductive tract. Rectal contractions

may occur, which can make palpation very difficult. These contractions will ease. Do not ever fight these contractions, but allow them to pass and then continue with your work.

Puncturing the rectum rarely occurs, but it can happen. Many times, following palpation, you might see blood on your gloved hand. This is because the lining of the rectum was damaged. There is no cause for great alarm; however, you should always take special care when manipulating the rectum.

Once you have your arm in the rectum about elbow deep, feel downward-not forward. The rumen and kidneys are located forward, and you can palpate them, but this will not help in determining pregnancy. You can locate the open and early pregnant uterus on the floor of the pelvis (Figures 3 and 4). The pelvis, which is bone, will not move. It forms a cradle for the reproductive tract and is one landmark to locate inside of the cow. As pregnancy progresses, the uterus will become larger and drop over the edge of the pelvic rim, or girdle.

The other landmark to locate inside of the cow is the cervix. The cervix is a gristlelike structure that has the feel of a turkey neck. Unlike the pelvis, the cervix is not bone and will move depending on the stage of pregnancy. Once you have located the cervix, the uterus is the next structure. Do not reach forward, but reach down to locate the uterus.

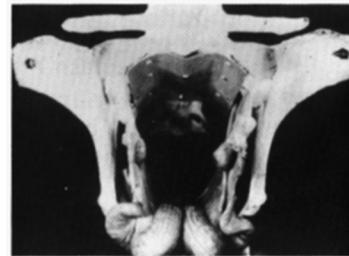


Figure 3. A nonreproductive tract of a mature cow.



Figure 4. Examination of a 45-day pregnancy.

Palpation Findings At Various Stages

Nonpregnant State (Figure 3): A nonpregnant reproductive tract of a heifer is much different from a nonpregnant reproductive tract of a cow. A heifer's nonpregnant tract will usually be located within the pelvis and be rather small. Sometimes the reproductive tract of a heifer is not located on the floor of the pelvis, but along the side wall of the pelvis. Therefore, you might have to search along the pelvic walls to find a heifer's nonpregnant reproductive tract. The nonpregnant tract of a cow, however, is larger than that of a heifer. It is usually located on the pelvic floor and may even extend over the rim of the pelvis. When palpating a cow's extended reproductive tract, you may have to actually pick it up and pull it toward you to determine pregnancy. When palpating the nonpregnant uterus, you will note an absence of embryonic fluid and tissue.

45 Days Pregnant (Figure 4): You must use extreme caution when palpating a cow or heifer that might be less than 45 days pregnant. Too much handling of the fetal tissue might cause the fetus to abort. This stage of pregnancy, therefore, requires additional palpation experience. The location of the uterus that contains a 45-day-old fetus will be approximately the same location as a non-pregnant uterus. You will be able to feel a slight enlargement of one horn and you will notice it has a fluid-filled feeling. When you have improved your skill at palpating a 45-day pregnancy, you can also feel the fetal membranes by slipping them through your fingers. At this stage, the fetus is only 1-inch long.

90 Days Pregnant (Figures 5 and 6): The uterus will be located over the pelvic rim due to the increase in fluid and fetal weight. The fetus is about 6½ inches long, or about the size of a rat. At this stage, you must locate clues other than the fetus to determine pregnancy. The displacement of the uterus is one clue. A second clue to determine pregnancy at this stage is the presence of cotyledons. Cotyledons are ¾ to 1 inch in diameter and are the connection between the fetal tissue and the uterine tissue. You must reach down over the pelvic rim to locate the cotyledons. They will feel much like marbles.

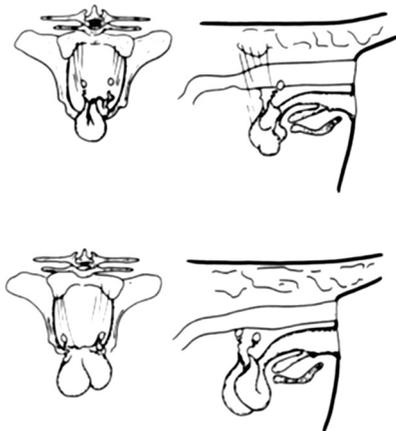


Figure 5. 90-day pregnancy.



Figure 6. Examination of a 90-day pregnancy.

150 Days Pregnant: The uterus will be very heavy and pulled deep into the abdominal cavity. The cervix will be located at the rim of the pelvis. The fetus will be 12 to 16 inches long (about the size of a cat) and very difficult to reach. The cotyledons, however, will be larger and easier to locate. Once again you must reach downward over the pelvic rim to palpate the cotyledons.

200 Days Pregnant (Figure 7): At this stage of pregnancy, the fetus may be large enough to palpate. The fetus can be as large as 24 to 32 inches long. The cervix at this point may be bent over the pelvic rim.

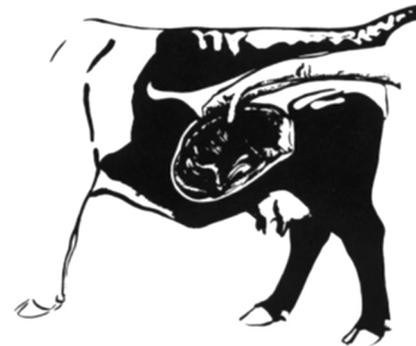


Figure 7. Examination of a 200-day pregnancy.

Conclusions

Anybody who wants to learn the palpation technique of pregnancy detection in cows can do so. Your ability in this method is not limited by your age, background, or sex. You do need the initial training in pregnancy determination to learn the basic ideas. After that, practice will make you skillful at palpating cows for pregnancy. This technique is an inexpensive, highly accurate procedure that can be conducted on the ranch by ranch personnel.

Questions

1. Why should cows be checked for pregnancy?
2. What are some safety considerations to consider while checking for pregnancy?
3. Name the supplies you need for palpation.
4. How do you enter the anus and rectum of the cow with your gloved hand?
5. What are some landmarks you should locate while palpating?
6. What should you be able to feel in a 90-day pregnant cow? in 180 days? in 200 days?
7. What is the best way to become efficient at examining cows for pregnancy?

Activities

1. Plan to attend a palpation clinic sponsored by your county Extension educator.
2. Practice - Practice - Practice
3. Accompany and work with someone during a pregnancy detection examination.

Other Resources

Factsheets or bulletins from your county Extension office.
Southern Region Cow-Calf Handbook "Determining Pregnancy in Cattle" by A. M. Sorensen, Jr. and J. R. Beverly, Texas Agricultural Extension Service. Texas A&M University.

"The Bovine Estrous Cycle: Dynamics and Control" by T. R. Troxel and D. J. Kesler. University of Illinois Cooperative Extension Service, Urbana-Champaign, Illinois.
"Fertility and Sterility" by H. D. Hafs and L. J. Boyd. Hoard's Dairyman, Fort Atkinson, Wisconsin.

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Figure 3 is reproduced from Determining Pregnancy in Cattle by A. M. Sorensen, Jr., and J. R. Beverly. Texas Agricultural Extension Service, Texas A&M University.

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