Welcome to the Barn
No photo/video
No guests
Rubber boots with coveralls or non-green scrubs

Sign In

Scrub boots after lab… boot-wash stations at Pasture gates or in barn

Lab Objectives (and Final Exam Questions!)
Why rectally palpate—what info can we gain?
How do we rectally palpate—sequence for safe efficiency?
How does cattle palpation differ from horse palpation?
What organs and structures can we palpate?

Pelvic brim, pelvic shelf, cervix, uterus, horns, intercornual ligaments, ovaries, follicle, corpus luteum, etc.

- The cow’s non-pregnant reproductive tract lies +/- flaccidly on the pelvic shelf. The arc-shaped boney pelvic inlet (or brim of the pelvis) is formed by the cranial surfaces of the pubis and distal left and right iliums.
- Cervix lies on the pelvic shelf (or floor of pelvis formed by the pubic bones and the left and right ischiums) just cranial to the vulva and vagina, at approximately as you enter the rectum the depth of your wrist.
- The cow’s cervix is firm with fibroelastic rings within its lumen. It may range in size and consistency from as firm and rigid as a “turkey neck” in the non-pregnant cow to as large as a human arm in an immediate post-partum cow. Expect and appreciate this variation among cows.
- Bovine uterus is bicornate; the body of the uterus is short; the two horns curl ventrally like rams horns or lie flaccidly on the pelvic shelf or hang over the brim of the pelvis in the non-pregnant cow—dependent on the age, parity, stage of estrus cycle of a given animal
- The intercornual ligaments connecting the horns at the bifurcation provide a handy finger-hold for retracting the uterus or for inverting the horns
- Ovaries lay off-midline at about the 5 and 7 o’clock positions on the arc of the brim of the pelvis and normally may vary in size from a lima bean to a golf ball. Follicles, corpora luteum, ovarian cysts, adhesions, fibrosis and tumors may be identified. Cyclicity will increase an ovary’s size. Follicles, when felt, do not generally change the shape of the ovary and lie within the ovary’s normal contours. A corpus luteum (CL) will have a more rubbery, liver-like consistency than the adjacent ovarian stroma and will usually have a prominent crown protruding from the ovary’s normal contour indicating the location of ovulation. A recent ovulation will leave an ovulation depression. As this depression fills with clot and rapidly organizing luteal parenchyma, it can be termed a corpus hemorrhagica—an immature corpus luteum. The fibrotic remains of aged CL, or corpus albicans, persist for a time even as a cow is anestrus or forms a new CL.

Pregnancies, calves and caution, placentomes, uterine arteries, fetus

- Many of the cattle in the herd are pregnant. We can detect pregnancies in cattle by rectal palpation from Day 32 to term.
- For any cow with a potential early pregnancy of 32 to ~70 days, a manipulation to invert or turn over the ventrally curled uterine horns is necessary to fully examine the full length
of each horn for early pregnancy diagnosis. This involves fully grasping the body of the uterus or uterine horns at their bifurcation from the body of the uterus and turning the horns upward, or sweeping the uterus against the shaft of an ilium so that it rolls over in your hand so that each horn can be investigated.

- The chorioallantois can be distinguished laying intimately to the inner surface of the pregnant horn from about Day 38 to term. Palpation of this membrane is commonly referred to as a "membrane slip" and is a positive sign of pregnancy.

- The amnionic vesicle containing the embryo can be found within the pregnant fluid-filled chorioallantois. It is also a positive sign of pregnancy that is useful from as early as Day 32 to about 66 days. Its size and shape allows the age of the conceptus (days of gestation) to be determined.

- Placentomes (the combination of the fetal cotyledon and the maternal caruncle) can be discerned as early as Day 75. The size and shape of placentomes can be used to approximate days of gestation up to about 6 months. These must be distinguished from the ovaries.

- Uterine arteries within the broad uterine ligament can be used as supportive evidence for approximating days of gestation from 3 months to term. These must be distinguished from the internal iliac and pudendal arteries.

- You may readily feel calf heads and feet in cows pregnant more than 6 months. Though the fetus may be discerned by palpation as early as 66 days, it may not accessible if it has descended to the depths of the abdomen during the period of the 5th to 7th month.

- Loss of pregnancy can be caused by even careful rectal palpation so use proper technique at all times and be patient as your skill develops. Durability of pregnancies increase with days of gestation.

Cows vary

- Cows vary by age, size, parity, estrus, pregnancy, gestation, dystocia, degree of uterine involution, metritis, pyometra, and rumen fill. No two cows are the same and a cow’s tract will vary greatly over the course of a calving interval (the period from one calving to the next) due to the above factors. Thus, pregnant cows are best for learning pregnancy diagnosis and non-pregnant, cycling cows are best for learning the cyclic changes of the ovaries and uterus. Every cow can teach you something.

The mare

- **Suspension**
  
  The mare’s tract is suspended within her abdomen; the ovaries are typically found dorsally at the 2 and 10 o’clock positions cranial to the pelvis making the mare generally easier to palpate than the cow, as much less manipulation of the tract is required.

- **Cervix**
  
  The mare’s cervix is shorter and much less rigid than the cow’s cervix and can be entered much more easily than the cow’s cervix, even when not in estrus.

- **Caution—rectal tears and injury**
  
  The horse’s rectal tissue is much more delicate than the cow’s making the mare much more risky to palpate and a liability risk for veterinarians. Horses also can be fractious to work on, often suddenly and unexpectedly so, and some are especially sensitive to/irritated by rectal palpation. Be careful not to get kicked or have your palpat ing arm injured. A barrier behind the horse will protect you from kicking but increases the possibility for arm injury should the mare drop her hindquarters down below the barrier while your arm is in her rectum.
Which arm?
- Either arm is acceptable for palpation, though a new skill is just as easily learned by your less dexterous arm thus saving the more dexterous arm for taking notes, infusing or inseminating, etc. I highly recommend using your left arm while learning to palpate as it is more ergonomic to use your left arm to follow the tract as it courses cranial, ventral over the brim of the pelvis and to the right, displaced from midline by the rumen’s bulk. Some dairy veterinarians earn a high income from skill at rectal palpation so the injury of one arm would be devastating. Having both arms skilled would protect your income from injury and share daily use and fatigue between two arms.

Jewelry?
- Take it off. Consider your own proctologic exam…!

Gloving
- Hemostats or knot
  If you don’t have a hemostat or other securing clip to use, a tight overhand knot, like you would tie on a plastic bread bag, at the top edge of your plastic sleeve will help hold it on your arm. You can form a self-retaining “cuff” at the top of your glove by stretching the glove a bit lengthwise in a narrow area 3-4” below the open end of your glove before you put it on.
- Same glove, no changes necessary
  In this lab, the same sleeve can be used through the whole lab, even as you are going from cow to cow. Farms with concerns about the spread of bovine leukemia virus would require separate gloves for each animal. Sweat from your arm will accumulate in our glove, but it is difficult to slide a new glove over a damp arm.
- Lubricant—dip and go, use plenty
  In practice, once the OB sleeve is lubricated and the veterinarian has examined the first cow, the fresh manure on the sleeve might be considered sufficient lubricant to complete the rectal examination of many cows; however, in a lab setting where there are many unskilled students learning examination technique on a small number of cows over the course of one week, it would be better to use plenty of lubricant between every cow you examine to reduce the irritation to the cows. Even in practice, I advocate using plenty of lubricant on your gloved hand between cows as it is simply much, much less stress on your arm to do so and the health of your shoulders is worth the few pennies of added expense per day. Plus, you will be faster, more accurate and more confident at rectal palpation if you are less fatigued physically when doing it.
  - Approach each cow with your gloved hand cupping a small pool of fresh lubricant and apply it to the exterior of the anus as this perianal skin causes the most drag on your motions and possibly the most discomfort to the cow.
  - In the horse, use lots of lube for every rectal exam as friction increases the risk of rectal tears.

Approaching the cow
- Speak softly and wear a long glove
  Working around cattle is best done quietly, smoothly, gently. Speak clearly to the cow, then pat her firmly on the tailhead to get her attention.
• **Kicking and bluffing**
  Cows may feign kicking to bluff you or at least show agitation with tail swishing. Some may truly try to kick if you surprise them or, in the other extreme, are too tentative and timid and they get the impression that you are more afraid of them than they are of you.

• **Tail**
  The cow can be steadied and the likelihood of kicking reduced by grasping the proximal 1/3 of the tail and raising it to a vertical position over the back—“tail-jack”. Most cows in our “experienced” herd will not require tail-jacking, grasping the tail firmly will suffice. The tail can be twisted to the left to get the animal to step to the right and vis versa. Once you are in the rectum most cows will settle down and allow you to complete your exam if you are not being too rough and the tail can be released to lie on the backside of the arm performing the exam.

• **Which orifice?**
  In this lab we are performing rectal palpation through the anus, not vaginal examination via the vulva.

• **Torpedo fingers**
  Bring your fingertips together and tuck your thumb under your fingers so that you can enter the anus gently and smoothly. Your greatest challenge in entering the rectum will be to push the width of your hand through the anal sphincter. Remember, applying lubricant on the external surface of the anus greatly eases entry and subsequent motion.

• **Full forward, drop fingers and pull back**
  Slide your hand steadily and cautiously inwards and perhaps slightly dorsal and to the right. Confidently advance your arm up the cow’s rectum until you have passed your elbow through the anus. Imagine you are putting on a sweater sleeve that is too long. Repeated gentle, inward and outward motions of your arm as you steadily advance, will fatigue anal sphincter tone and rectal peristalsis thus easing your arm’s progress further up the rectum.
  Once your elbow has entered the cow’s anus, lay your hand flat with fingers together, drop your fingers down to the floor of the rectum and gently pull back—the goal is to retract slack rectum back into the pelvis so that you have enough rectum to easily manipulate and grasp the cow’s reproductive tract. You will also remove manure. Identify the pelvic brim and, on it, sweep left and right to locate the tract hanging over the brim or find it under your palm, sitting on the floor of the pelvis.
  The above movements are not the same in the horse—the rectum cannot be moved/shifted/retracted nearly as much as in the cow nor is it necessary to do so.

• **Manure—ignore it**
  Small amounts of manure can be ignored; larger amounts can be pulled out as you are retracting the rectum, but it is neither necessary nor efficient technique to completely remove your hand from the cow as you pull out excess manure. Leave your hand in the anus.
  In the horse, manure needs to be removed more completely.

• **Peristalsis—ride it out and stroke it**
  You may encounter peristolic rings or constrictions—find the center of these and enter them gently or let the moving peristalsis ride over your arm, don’t allow the peristalsis to push your arm back out of the rectum. When the cow is actively squeezing on your arm, a few long, gentle forwards and backwards movements of your arm will cause the wave of peristalsis to pass, this motion also serves to relax the squeeze of the anal sphincter.
  In the horse, all peristalsis must be allowed to ride over the arm. Do not force peristolic rings in the horse.
• **Air—work it out**  
  Air in the rectum is a true obstacle to efficiently and safely getting the information you seek. A rectum ballooned with air is impossible to manipulate safely and the quantity of air in the rectum compromises your ability to examine the tract and abdomen. To remove the air in the cow, enter a peristolic ring with a finger or hook a fold of rectal wall with a set of fingers and gently retract, expelling the air out the anus.

• In the horse, allow the horse’s peristalsis to evacuate the air, perhaps stimulating the peristalsis by gently placing one or two fingers within a peristolic ring if one is nearby and allowing the peristalsis to pass over our hand and arm.

• **Blood and the mare—beware!**  
  Our cows have not been regularly palpated since the end of last semester and the rectal tissue will be more sensitive and more prone to bleed with this lab’s repeated palpations. Bloody mucus and fluid will occur during today’s lab with the cows—take note of it. Ask if you are concerned. Even if you were the only person performing a rectal exam on each cow today, you might still see bloody mucus on your sleeve after palpating some cows. Frank blood or pooling, clotting blood in the rectum is not normal and you should certainly alert your instructor.

• Any blood found on your glove after palpating an equid is significant and should be noted in your medical record due to the risk of rectal tears.

**3 minutes and move on**

• The large number of rectal exams performed on a small number of cows requires that for the cow’s sake each exam must be brief. Due to the great variation between cows, it is in your best interest to try your hand (pun intended) on as many cows as possible in the lab. Your inexperienced, unconditioned arm will tire rapidly during this lab so there is little sense in spending all the lab becoming frustrated and fatigued trying to find everything (perhaps anything) in just one cow during your first experience with palpation.

**Other things palpable**

• **urinary bladder**  
  The urinary bladder is the only organ other than uterus and rectum likely to be found on the pelvic shelf. The bladder is not usually found during rectal palpation because nervous cows void their bladder prior to palpation.

• **kidney**  
  The more caudally located left kidney is found at arm’s length on the right side of the dorsal midline. Bovine kidneys are multilobar.

• **rumen**  
  The rumen is huge in cattle and more or less occupies all of the left side of the cow’s abdomen. The rumen will usually have a firm consistency similar to bread dough due to it’s fiber mat but may have a palpable gas cap. The rumen is palpable just beyond the pelvic inlet on the left side.

• **iliac arteries**  
  These large pulsing arteries are located in the retroperitoneal space running vertically on the mediocranial margin of the ileums. The uterine arteries must be distinguished from these and the horizontally-oriented internal pudendal arteries located in the caudal pelvic canal.

• **ileofemoral lymph nodes**  
  The ileofemoral lymph nodes lie lateral to the iliac arteries. When enlarged they may indicated regional infection, inflammation or neoplasia.
• **RDA**
  At times, the caudal edge of a right-displaced abomasum can be found along the right lateral body wall.

• **bowel**
  Various loops of colon may sometimes be found below the pelvic brim but it is not possible to examine the bowel well via rectal palpation in the cow.