Unbelievable!
That single word best describes the structure and function of what is one of the most complex organs in the body.
The uterus is simply fascinating and unbelievable. The uterus accepts a substance foreign to it (the calf); blocks the normal body defense designed to destroy foreign “invaders”; and nourishes, protects and sustains the developing calf while the uterus grows from a diameter of about 1 inch (in.) to 24 in. or more.

When the time is right, the uterus accepts a signal from the calf and transforms itself into a delivery system, forcibly expelling the calf, and then begins an amazing process to prepare itself for a repeat of the whole cycle.

It is that recovery process between calving and pregnancy that is so critical to a profitable beef enterprise — and is so frequently misunderstood.

In recovery
Following calving, the uterus must expel the fetal membranes and fluid that surrounded the calf, reabsorb the small, concentrated button-like areas where the calf and mother exchanged nutrients and oxygen, repair the uterine lining, and shrink to a size ready to accept the next embryo. The normal uterus will lose more than 80% of its precalving size within the first two to three weeks postpartum.

The process controlling this recovery is complex and filled with a variety of control systems sending signals between the glands in the uterine walls, the ovaries, several areas in the brain, and the adrenal glands (located by the kidneys). Other hormones, such as oxytocin (which is associated with milk letdown), also play a role in recovery. Plenty can go wrong, but I’m always amazed at how much goes right, frequently in spite of what we human caretakers do.

The rate of uterine involution — a term that encompasses uterine shrinkage, fluid loss and tissue repair — is an indicator of the overall status of the recovery and is largely determined by the nutrition, lactation rate, age, health and flesh condition of the cow. This involution period is often referred to as the anestrous period.

Reproduction on hold
During the anestrous period, the cow’s reproductive abilities are put on hold while uterine involution occurs and her body can build up enough energy reserves to allow her to become reproductively active again. The postpartum interval is the amount of time that the cow remains in anestrus until her first estrus cycle. Biologically, the postpartum anestrous period is the period of highest nutrient demand.

Reducing the length of the anestrous period is the first basic principal of reproductive management. The best way to shorten the postpartum interval is to improve management practices. Let’s review some of the best management practices.

► If a cow is in poor condition and lactating, chances are it could take months for her to rebreed. If she is a 2- or 3-year-old cow, a large-framed cow or a heavy-milking cow, she may not breed back at all. Suckling greatly exaggerates the effects of poor nutrition and can slow the return of estrus.

► Nutritional and body reserve deficiencies are the first place to look when problems with postpartum anestrus are encountered. Adequately addressing the nutritional needs of the cow and using body condition as a management tool will help the cow overcome anestrus.

► Reproductive diseases and bull fertility also play a role in open cows. Therefore, management of these issues should be incorporated into the total program.

► If the goal is to have a cow calve at the same time next year, the anestrous and postpartum period should not exceed 83 days. In order for this to happen, management of the anestrous period...
needs to be a 12-month effort. We need to manage body condition of the beef cow by storing, or banking, fat reserves during periods of low nutrient demand, such as the second trimester of pregnancy. This bank serves as an energy source from which to draw during periods of higher energy demand, such as the last trimester and the anestrous period. It is not economical to flesh a cow during these two periods.

Consider using body condition scores (BCSs) to monitor the condition of your cattle, particularly in the fall after weaning and a few months before calving. Most commonly, scores from 1 to 9 are assigned to cows, 1 being the thinnest score and 9 being the fattest. A BCS of 5 is considered optimum breeding condition for mature cows, while a BCS of 6 is suggested for first-calf heifers.

If you do not have body reserves at a minimal level, your cows cannot reproduce; they will be able to do a lot of other things, but they will not be able to reproduce.

Maintaining body condition
Evaluating body condition is not enough; you have to act on your assessment. During dry years and as BCS is reduced below a 5, management changes — such as supplementation, weaning or moving cattle to better feed — must be made. It is easier and cheaper to preserve body condition than it is to bring a thin cow back into condition.

Many ranches in western states graze cattle on public lands. It is often difficult, if not impossible, to implement management practices such as strategic weaning or supplementation while on public lands. Ofentimes, it is even against government regulations. That does not change the fact that by not implementing these practices, a thin cow will be the result, and thin cows will cost you in extended postpartum interval the following year.

One of the best ways to preserve body condition is to evaluate time of weaning and utilize strategic weaning. Certain estrus-synchronizing protocols, temporary weaning, winter feeding or grazing classes of cattle separately, utilizing teaser bulls during the anestrous period, calving heifers prior to mature cows or feeding energy pre- and postpartum are all management practices that help reduce the anestrous period.

Other management strategies
We should never underestimate the power of genetics. Selecting bulls of moderate frame and milk and high reproductive efficiency is a long-term aid to decreasing the anestrous period.

Another method of reducing the length of the anestrous period is to minimize calving difficulty. Cows that experience difficulty during calving often have more difficulty overcoming effects of anestrus and take longer to rebreed. Anything that slows involution will delay or prevent a successful subsequent pregnancy.

The cervix, the valve that seals the uterine interior from the outside environment, opens wide at calving to allow the calf to pass, thereby admitting whatever bugs are in the neighborhood — and the neighborhood has plenty. This open valve (the cervix) often leads to a contaminated uterus at the time of calving. The cow may subsequently develop a uterine infection. Management systems that minimize calving difficulty and use sanitary practices when assisting births save more calves and attain higher rebreeding rates the next breeding season.

If you would like to discuss this article or simply would like to talk cows, do not hesitate to call (775) 738-1721 or send e-mail to torellr@unce.unr.edu.

Editor’s Note: Torell is an Extension livestock specialist for the University of Nevada, Reno. Klingborg is associate dean for Extension and public programs for the School of Veterinary Medicine, University of California, Davis.