



THE VETERINARY LINK

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Factors affecting length of the postpartum interval

The postpartum period is the time from calving until a cow resumes estrous cycles and can become pregnant again. There are two significant events that must take place during the postpartum period:

- The uterus must return to a pre-pregnancy state (involution); and
- The hormones that control the estrous cycle must resume normal function and signal the ovaries to resume fertile ovulation.

The uterus decreases in weight from 20-25 pounds (lb.) at parturition to less than 1 lb. 25 days later. In the normal process of involution, the attachment between the uterus and the placenta (caruncle) dies due to loss of blood supply – the dead tissue is sloughed and expelled as part of the uterine lochia.

Lochia is the name for the normal uterine fluid that is expelled in large amounts during the first 10-12 days after calving. Expulsion of this fluid is complete within 14-15 days if involution is normal.

Lochia is normally brownish-red for the first eight to nine days. When caruncles begin to slough at about 10-12 days postpartum, the lochia may contain increased amounts of blood. There are also white chunks of disintegrating caruncle that may be confused with puss.

Uterine infections are associated with abnormal lochia, which can vary from a thin liquid to one that is yellow-white and has a putrid odor. Uterine involution is not a significant reason for infertility following calving unless infection is present. If you suspect uterine infection because of the odor or nature of the uterine discharge or if a placenta is retained for more than three days, a veterinarian should examine the cow and will possibly prescribe antibiotic treatment to speed uterine recovery.

Anestrus

Anestrus (lack of estrus or heat cycles) is the major component of postpartum infertility. In the nonsuckled cow, the first ovulation can occur as early as seven to 10 days postcalving. In suckled cows, the first ovulation is delayed to 30 days or more after calving. The typical time from calving to the resumption of cycling for mature cows is reported as 40-60 days. For first-calf heifers, the postpartum period is closer to 80 days.

The estrous cycle is controlled by the hypothalamus (an area of the brain), the

pituitary (an organ right below the brain), the structures on the ovaries (follicles and luteal tissue), and the hormones that each of these structures secretes. Suckling and nutrient status have powerful influences on the control system.

Suckling

Suckling has a dramatic effect on length of the postpartum period. Cows that have their calves weaned at birth have shorter postpartum periods than do cows that are suckled. If calves are weaned some time after birth but before estrous cycles begin (usually between 20 and 40 days after calving), cows will return to estrus within a few days of weaning.

Postpartum intervals can be decreased by complete weaning, short-term weaning (48 hours), or partial weaning (restricting suckling to short periods of time each day).



Nutrition

A cow's nutritional demand is the highest of the year during the postpartum period, primarily due to the demands of lactation, which peak about 60 days after calving. Quantity and quality of feed intake, nutrient reserves stored in the body, and competition for nutrients from other body functions besides reproduction (lactation, growth, etc.) are all factors that affect the length of time required to resume cycling.

Body weight and condition score are good indicators of energy status and rebreeding performance after calving. Inadequate precalving or postcalving energy or protein nutrition lowers pregnancy rates and extends postpartum intervals.

Other factors

Besides suckling and nutrition, a number of minor factors also appear to affect the length of the postpartum period. Cows calving from

late spring to early fall have shorter postpartum periods than cows calving from late fall to early spring.

Breed effects on length of the postpartum period appear to exist, although they may be confounded with amount of milk produced or appetite and feed intake. Younger cows have longer postpartum periods than older cows.

Calving difficulty (dystocia) will increase the length of the postpartum period; however, the adverse effects of dystocia can be at least partially overcome by providing early obstetrical assistance.

Once a cow begins to cycle, another hindrance to fertility is the fact that the function of the first corpus luteum (CL) is less than normal. Progesterone production by the CL is less than in subsequent cycles, duration is less than normal (cycle of 10-15 days), and signs of estrus (heat) are reduced. Short estrous cycles prevent fertility by causing the cow to return to estrus before pregnancy recognition occurs.

Normal CL function during an early postpartum estrous cycle can be obtained by pretreating with a progesterone-like product such as MGA® (melengestrol acetate) in the feed or the norgestomet implant associated with the Syncro-Mate-B® estrous-synchronization product.

Effect on pregnancy rate

The length of postpartum periods for individuals within a herd has a profound effect on overall pregnancy rate in a controlled breeding season and also on the number of cows that become pregnant early in the breeding season. Management options to decrease the effect of anestrus and infertility include:

1. Manage nutrition so body condition score is 5-7 before and after calving;
2. Minimize calving difficulty and intervene in a timely manner if dystocia occurs;
3. Improve CL function with progestogen-utilizing estrous-synchronization schemes (MGA or Syncro-Mate-B); and
4. Use complete, partial or short-term weaning judiciously.