

- 1) Estradiol – produced by the ovary as the follicle forms; causes estrus behavior.
- 2) Luteinizing Hormone (LH) – produced by the pituitary in response to estrogen; causes ovulation and formation of the corpus luteum.
- 3) Progesterone – produced by the corpus luteum (tissue of the ovary where the egg was released) throughout pregnancy – necessary to maintain pregnancy.
- 4) Estrus behavior
- 5) Ovulation
- 6) Fertilization and transport to the uterus – begins signaling the uterus that pregnancy will occur.
- 7) Luteolysis – regression of the corpus luteum and decrease in progesterone production if pregnancy does not occur.
- 8) Implantation of the embryo.

DRUGS AND TOOLS WE HAVE AVAILABLE

- 1) Gonadotropins – either mimic or cause the production of LH resulting in ovulation; currently available as PG 600 1.5 to 2 cc IM.
- 2) Progesterone implant, oral or injectable – mimics luteal phase of cycle and pregnancy; currently available as CIDR implant
- 3) Prostaglandin – causes lysis of the corpus luteum -> return to estrous or termination of pregnancy; available as Lutalyse, Estrumate 1.5cc and 0.5 cc IM respectively.
- 4) Dexamethasone – prepares fetal lungs for and induces delivery at 5-10cc IV or IM.
- 5) Oxytocin – causes uterine contractions and milk letdown at 0.5 to 1 cc IM, IV or SQ.

AREAS OF THE CYCLE WE CAN INFLUENCE

- 1) Estrous
 - a) During breeding season – does *must* be actively cycling
 - i) Synchronization of estrous
 - (1) Prostaglandin injections
 - (a) One injection to all open does will result in 60-70% cycling within 30-60 hours; remainder should cycle within 14 days.
 - (b) First injection to all open does, don't breed, second injection 12 days later, breed all (must ensure adequate buck to doe ratio).
 - (c) Observe and breed all animals that cycle for 4 days, inject remaining animals on the fourth day and breed; results in a 7 day breeding period.
 - (2) Implants – place CIDR for 10-14 days; inject PG600 36 hours (24-48) before removing; inject prostaglandin 24 hours before removing. Does will cycle in 24-72 hours
 - ii) Timing of estrous – for A.I., limited buck availability, difficult heat detection

- b) During transition season – beginning and end of breeding season (Sept-Oct, Jan-Feb)
 - i) Buck effect – presence of the buck near or in the herd will enhance cycling. Not as effective if bucks are kept with does year-round.
 - ii) Implants – see above
- c) Outside breeding season
 - i) Selection of replacement does from does that cycle naturally out of season
 - ii) Lighting – goal is to artificially increase day length through the winter for late spring breeding. Provide 20 hours of light daily from Jan 1 to Mar 1 then return to normal lighting. Does will begin cycling in 7-10 weeks for 2-3 months. Estrus will be shorter and less obvious. Bucks should be under the same lighting pattern, introduced on return to normal light Mar 1 and run with the does.
 - iii) Implants – see above
- 2) Pregnancy
 - a) Abortion (due to mismatch) – prostaglandin will terminate pregnancy from day 6 to end.
 - b) Delivery (timing, prolonged gestation)
 - i) Induce before 144 days with dexamethasone 10 cc – doe will deliver in 48-96 hours (allows formation of fetal lung surfactant).
 - ii) Induce after 144 days with prostaglandin – doe will deliver in 24-48 hours
 - c) Labor (loss or lack of contractions) – oxytocin will stimulate uterine contractions – *make sure cervix is dilated*. Correct calcium and glucose deficiencies if present.
- 3) Ovarian and uterine abnormalities
 - a) Follicular cysts – repeated short cycling; treat with gonadotropins; rule out infection, fetal remnants
 - b) Luteal cysts – no cycling; treat with prostaglandin
 - c) Hydrometra – no cycling; treat with prostaglandin
 - d) Pyometra – normal or short cycling; treat with systemic antibiotics, uterine flush with antibiotics and oxytocin, prostaglandins at treatment and again in 12 days.

PRODUCT SOURCES

- CIDR implants available from BioGenics and Pipestone Vet- applicator needed
- PG600 available from Pipestone Vet
- All other products are veterinary label and must be gotten from or prescribed by your vet

Prepared by Sandy Flournoy DVM

Antelope Veterinary Hospital
 85 Belle Mill Rd.
 Red Bluff CA 96080
 (530)527-4522
 antvet@sbcglobal.net

