

IVF GESTATION & CALVING MANAGEMENT

INTRODUCTION

Utilizing the most modern in vitro fertilization (IVF) technique, Vytelle helps move your cattle herd forward quickly by multiplying offspring from elite-performing animals, shortening generation intervals and improving reproductive efficiency.

After your IVF embryos are transferred into recipient cows, it's important to make plans to conduct timely pregnancy checks and develop specific nutrition and calving plans for recipients, to drive a successful calving season.

PREGNANCY CHECK

Timely pregnancy checks to determine embryo pregnancy rates will help you manage your recipients differently, depending on which cows have retained embryo pregnancies and which have not. Pregnancy detection should take place 28- to 90-days post embryo implantation, to get an accurate record of fetal age. Ultrasound technology should be used to determine the most accurate fetal development and projected calving date. Using ultrasound technology can also diagnose pregnancy earlier and safer than palpation. In addition, fetal heartbeat, gender, possible twins, and placental and ovarian structures can more accurately be detected via ultrasound. Depending on the timing of the ultrasound, embryonic calves will have body structures visible that calves in recipients who didn't hold the embryo pregnancy but were subsequently bred via natural service, will not. For example, an ultrasound of a day 65 confirmed embryo pregnancy will visibly show the ribcage, skeleton, and sex organs to the trained veterinarian. Cows that did not retain the embryo and were bred via natural service 14-days post transfer, will have a fetus that is 50 days into gestation and these body structures will not be visible via ultrasound.

Timing ultrasound pregnancy checks this way can make it easier to distinguish between embryo pregnancies and natural service pregnancies. A list of recipients with confirmed embryo pregnancies

should be created and cross referenced as calving season nears. If cows are not showing signs of parturition on their due date, a veterinarian should be consulted to assess calf size and parturition options.

GESTATION LENGTH

As calving season nears, recipient cows should be closely monitored at least one week prior to the due date. Gestation length is highly correlated to breed, with beef averaging 283 days and dairy averaging 275 days. Genetics selected for calving ease and low birth weights for generations will likely have calves born earlier and lighter. Fetal weight can increase by one pound or more per day during late gestation. Also, embryos implanted on the same day can calve as much as 10 to 15 days apart, depending on donor and sire genetics, as well as age, size and parity of the recipient cow. Geographical location, calving season and calf gender also cause differences in gestation length. If the mating is known to produce larger calves with artificial insemination or conventional embryo transfer, have a plan and expect a similar outcome via an IVF pregnancy. Watch for signs of calving (udder development, changes in eating and behavior) to help identify which cows are near parturition. The absence of these signs may signal a need to palpate cows and determine if the embryo

pregnancy is still present, as well as when calving can be expected.

NUTRITION & MANAGEMENT

At the beginning of the third trimester, rations should be balanced to deliver recipient cows adequate energy and protein for fetal growth, colostrum development and body condition. Cows should be in adequate body condition at calving and not thin. Poor body condition can lead to more calving difficulty, poor calf energy, poor colostrum quality, and a decrease in reproductive performance the next breeding season. As fetal growth increases, rumen capacity is decreased, meaning more nutrient dense rations are needed to maintain or improve cow condition. Consider supplementing high quality forage during late gestation to ensure dry matter intake is not restricted. Late gestation rations should be balanced for vitamins and minerals as well. Vitamins A and E need to be supplemented as these are not synthesized in the rumen, but rather obtained from grazing green grass. As always, consult with a trained nutritionist before making ration changes. And always provide cows with access to fresh water, adequate bunk space, and protection from the elements during severe weather events.

CALF CHECKS

When calving IVF recipient cows, producers should check for visual signs of calving every 12 hours, at a minimum, for one week leading up to calving. Once parturition begins, cows should be kept in a dry, low-pressure calving environment, and checked every 2 to 4 hours to monitor progress and provide intervention if necessary. Keep in mind the three stages of parturition, signs to observe and when to intervene (see Table 1).

CALVING SUPPLIES

Always be prepared for calving with calf care products on hand. While nobody hopes to need them, the window for use is narrow when they are necessary. For example, colostrum needs to be consumed by the calf within 4 hours post-partum for it to be absorbed and provide passive immunity.

Therefore, colostrum replacer is one of the main items to have on hand due to the need for its timely usage. More calving supplies to have on hand include:

- Calving pen or restraining system (halter or rope)
- Disposable long-sleeve obstetrical (OB) gloves
- 2 OB chains or straps and 2 handles
- Warm water and towels
- Gentle iodine or chlorhexidine for disinfecting the navel
- Colostrum replacer or supplement
- Esophageal feeder
- Electrolytes
- Calving book, tags and tattoo equipment

MONITOR CALVES

After calves are delivered, it is important to monitor them for 24 hours to observe normal breathing and nursing behavior. If any dystocia was experienced during parturition, calves may be slow to stand up and nurse. If necessary, assist calves with nursing to ensure colostrum is consumed within the appropriate timeframe. Also, calves should be monitored for normal navel healing before turning out. Navels can be dipped with gentle iodine to help close off the umbilicus and prevent infection.

SUMMARY

Complications may arise if recipients are not carefully managed throughout pregnancy. Primarily, problems commonly occur when recipients do not receive a timely pregnancy check, leaving the Veterinarian to estimate the due date with less certainty than if the pregnancy check had occurred in the 45- to 90-day window, post transfer. These less accurate estimates may lead to recipients going overdue, as the calving date was not accurately diagnosed. Other problems can occur if recipients are overfed, or have inadequate exercise during gestation. Schedule an annual conversation with your veterinarian about recipient calving management and build a plan together that will set you up for a successful calving season.