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Embryo Transfer & Semen Freezing On Your Farm

What is Embryo Transfer?

Embryo Transfer (ET) is a reproductive technique used to produce more offspring from an elite donor to improve the genetics in your herd or for sale to third parties. Conventional ET (in-vivo) is done on farm and involves a hormone protocol to stimulate the ovaries of a donor cow prior to being bred to increase the number of oocytes she ovulates. Seven days after breeding, the donor cow is flushed to retrieve embryos. An average flush would result in 6 embryos per collection, resulting in 3-4 pregnancies and 1-4 heifers per flush cycle, depending on the semen used. However, there is a huge variance, with some animals producing very few embryos and others producing 20 or more. A donor cow could be flushed or collected as many times per lactation as the owner chooses. The idea is to genetically move your herd ahead faster by using the top 10% of your cows as donors and the bottom 50% as recipients for the embryos. Animals in the bottom 50% that do not receive an embryo will be bred to beef semen, so they do not continue to hinder the farms genetic improvement.

Who are the best donors?

The best donors, besides being the elite animals on farm, also need to be of good reproductive "status". Good reproductive status of the cow is the key to maximizing the number of transferable embryos recovered in your ET program. Virgin animals need to be well grown, have shown multiple heats, and free from disease. For cows, it is preferred to select donors that have had a calf every year, calved with little or no negative health issues, returned to expression of estrus in a timely manner after their last calf and are at least 50 days since their last calving. Nutritionally, she should be on a rising plane nutrition with a well-balanced ration and adequate minerals and vitamins.

Who are the best recipients?

One of the most important factors affecting the outcome of your ET program is recipient quality. Recipients (recips) are the animals that will be receiving fresh or frozen embryos from donor animals. Each recipient should have a healthy reproductive status and history. Recips should be properly vaccinated a minimum 3 weeks prior to being implanted. They should also be housed somewhere with easy handling, an area the producer can easily heat detect and an area with minimal stress to increase pregnancy rates. Once implanted, recipients should remain in their current housing for a week to minimize stress, disease outbreaks, and turmoil from new social interactions.

Recipients are evaluated prior to implantation by the ET vet to assess BCS, disease and reproductive status. An ultrasound unit is used to evaluate the uterus and ovarian structures to ensure they correlate with the animal's heat date. On average, 1 in 4 recips are turned down due to poor ovarian structures, poor heat observation, body condition score or history. Only the best recipients are used to maximize conception rate.

If you think embryo transfer is something you might be interested in, do not hesitate to give the clinic a call and speak with the ET team to discuss the possibilities! Check out our social media pages to see some of the animals and results we have worked with lately!



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Bull Testing & Semen Freezing

New to the clinic in the last couple of years are these two services – Bull testing & On-farm Semen freezing!

Bull Testing – what is it?

Bulls are evaluated for their capacity to breed. All bulls used in a farm's breeding program (beef or dairy) that are expected to make pregnancies should be evaluated at least once a year. It begins with a full evaluation of the body systems of the bull. Can he see properly? Can he walk and jump easily? Does he have adequate body condition? Does he have any apparent disease?

Next the reproductive system of the animals is evaluated. Scrotal size is an important factor in fertility. Does he meet breed standards for minimum circumference? It has been shown, the bigger the circumference, the better the fertility. Using an accurate and repeatable scrotal tape ensures accurate and repeatable measurements. Next internal and external organs are examined to ensure no abnormalities. Semen is collected via manual stimulation or by using an electro-ejaculator. Semen is evaluated using a microscope for motility, quantity, and quality. Each bull is given an evaluation form to be kept by the owner or passed onto sales as needed. If a bull fails his "test", he can be re-evaluated in a few weeks time. Young animals may need additional time to mature their reproductive tracts to ensure they have what it takes to produce offspring. Stress and inclement weather can also affect semen quality.

How long does it take?

In a well-organized system (a chute is needed), bull testing will take approximately 5-10 minutes per bull.

Semen Freezing

From the producer perspective, on-farm semen freezing procedures are similar to that of bull testing. The bull and semen are evaluated on farm. Once it has been determined that the semen is good, antibiotics and an extender are added to the semen immediately. The semen is then taken to our lab for further processing. Concentration is determined to decide on the number of straws to be prepared. Then the semen is further extended and cooled for a minimum of 4 hours. Once that time has elapsed, semen is frozen in liquid nitrogen vapour, plunged into a liquid nitrogen bath, and placed into canes. Then it is ready to be picked up!

This semen is deemed "Owners-Use Only" semen and therefore can only be used by owners and cannot be sold. Typical uses of this type of semen are for on-farm AI, flush programs, AI beef breeding on problem dairy cattle, or as an insurance policy in case a bull gets injured or sick.

If you have any interest in this service, please call the clinic and ask for Christie to discuss all opportunities related to semen!

Christie Morrow, DVM



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Bulk tank antibiotic residue testing

Due to popular demand, limited testing options available to farmers, and our clinics acquisition of more sensitive testing equipment, Heartland Veterinary Services will be providing bulk tank testing for specific antibiotic residues. Please call us for more details.

Important changes to our Covid-19 protocols

With the increasing presence of Covid-19 in our area, our team is taking additional precautions during our farm visits, as highlighted below, to help mitigate the spread of this disease in our community. Please be aware that as this pandemic develops, we may have to adjust our procedures in response.

Veterinary farm visits

- Once on farm, we will try to maintain a distance of at least six feet from people wherever practically possible
- Care will be taken to wash and disinfect hands and contacted tools and equipment before re-entering our vehicle
- **A mask will be worn whenever practically possible, especially in closed air spaces or when physical distancing is not possible. We would like our clients to do the same while we are on farm.**

Technician farm visits

- Techs will continue to assist veterinarians as necessary. The same precautions as above will apply
- Technicians will continue to provide services, such as dehorning, but we ask that no farm personnel are in the immediate vicinity during their visit

Clinic procedures

- Our clinic will remain open, but business hours may be subject to change
- Clients will be met at the door by one of our customer care representatives
- Purchases will be set out at the door
- Laboratory samples will be received at the door

If you have experienced any Covid-like symptoms or have had exposure to someone with symptoms, we urge you to please notify us before your next vet visit so we can take the appropriate precautions.

We thank you for assistance in helping us continue to provide veterinary care while considering the health of yourselves and our staff.

Stay healthy!

