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Embryo Transfer Q &A

What is Embryo Transfer?

Embryo transfer is a commonly used reproductive technique. This process requires a donor mare and a recipient mare. The donor mare is the provider of the embryo (which will eventually develop into a foal), and the recipient mare carries the pregnancy to term and raises the foal.

How does the process work?

An owner selects a donor mare. This mare would be examined for any reproductive problems that could preclude or decrease her ability to produce an embryo. If she is reproductively sound, then her breeding cycle would be closely followed, she would be bred, and her ovulation date would be recorded. She can be bred with live cover, cooled shipped semen, or frozen semen. Once the donor mare has been bred and is confirmed to have ovulated, she would be flushed for the collection of an embryo 6 to 8 days following ovulation. If an embryo is recovered in the flushing process, it would be transferred to a recipient mare.



Figure 1 Magnified 7 day old equine embryo (actual size is 0.3 to 0.4 mm)

Managing the recipient mare is often where things are tricky. Recipient mares that are provided by the owner need to be synchronized with the donor mare. This means the donor mare and the recipient mare must be cycling together and must ovulate relatively close to one another for when the donor mare's embryo is transferred to the recipient mare. When the embryo is transferred the recipient mare is able to receive and recognize the developing pregnancy since she is at the same point in her cycle as the donor mare. If there is not a suitable recipient mare available, the embryo can be cooled and shipped (same day delivery via airlines) to a large embryo transfer facility. These facilities have multiple recipient mares to choose from and will be able to match the donor mare with a recipient mare. Arrangements with this type of facility need to be made in advance of breeding and fees are incurred for leasing or buying the recipient mare.

Why would one consider embryo transfer?

Some reasons to choose embryo transfer include wanting to breed a mare with a reproductive problem that is not able to carry a foal to term, a mare with a metabolic disease or severe lameness that would interfere in a mare's ability to have a foal, a valuable mare could have more than one foal per year, a show mare could continue to show and also produce foals and lastly to adjust a mare's breeding schedule. Throughout a broodmare's lifetime, her conception schedule can move her to later foaling dates in successive years. If she slips to a summer foaling date, you might choose to wait and breed her early the next season to move her back to a desirable schedule thus losing a year. Taking an embryo in this situation will also allow you to move her back to the desirable schedule and still get a late foal from the surrogate recipient mare.

What is the success of embryo transfer?

This technique has become more successful over the past number of years. The success rate is dependent on multiple factors: the donor mare's age and reproductive soundness, the recipient mare's reproductive soundness, and the stallion's semen quality. With an older mare or a mare with reproductive challenges, one can expect to obtain a viable transfer and pregnancy less than 40% of the time. Using a younger mare with no reproductive problems and a sound stallion, one can expect to obtain a viable transfer and pregnancy 70% to 80% of the time.

What is the expense incurred with embryo transfer?

An owner can expect to invest around \$5,000 to breed the donor mare, collect an embryo, ship the embryo to a recipient mare, and lease or buy a recipient mare. This would not include breeding fees or charges related to shipping and collecting a stallion for semen.