Embryo Transfer
General Information

Embryo transfer is the process of breeding a “donor” mare, then flushing her uterus (6.5-8 days after breeding) to retrieve the embryo. The embryo is then transferred into the uterus of a “recipient” mare to carry the embryo to term and care for the foal until weaning.

ADVANTAGES OF EMBRYO TRANSFER

- Enables offspring from sport horse mares, while allowing them to continue in their sport
- Potential for multiple foals from a valuable donor mare in one breeding season
- May allow offspring from older mares/ or ones that have difficulty carrying their own foals to term

CHOOSING RECIPIENT MARE(S)

Selection of recipient mares is vital to giving the transferred embryo the best chance of surviving and thriving. Ideal recipient mare candidates:

- Young maiden mares
- Young broodmares with proven fertility
- No history of reproductive issues
- Size matched to the donor mare

To maximize the chance of closely synchronizing the donor with a recipient, it is ideal to have 2 potential recipients available.

Clients can provide their own recipient mares, or choose to use one from Fen Vet’s herd with a buy out program once the mare is confirmed in foal.

SYNCHRONIZING THE DONOR AND RECIPIENT(S)

The donor and recipient mare(s) are followed with ultrasounds and given hormone medications to synchronize their estrous cycles and cause them to ovulate within 1-2 days of each other. Close synchronization ensures that the recipient’s uterus is at the correct stage to receive the embryo.

INSEMINATION OF THE DONOR MARE

The donor mare can be bred with fresh, fresh-cooled, or frozen semen. Breeding with a proven, highly fertile stallion will maximize the chance of an embryo recovery. It is crucial that the mare be followed by ultrasound to ensure an accurate ovulation date is known, as this is needed to synchronize the recipient(s) and time the embryo flush procedure.

FLUSHING AND TRANSFERRING THE EMBRYO

Embryo recovery is carried out 6-8 days after the donor mare ovulates. The procedure is painless for the mare. A specialized lavage solution is infused into the uterus, then the fluid is retrieved and drained through an embryo filter. The contents in the filter are searched under the microscope to identify an embryo. When an embryo is isolated, it is washed and loaded into a pipette to transfer into the uterus of the recipient mare. The recipient mare is then treated with oral medication to give the embryo the best chance to thrive.

An ultrasound of the recipient mare is performed 5-7 days after the transfer to check for pregnancy. If she is pregnant, a “fetal heartbeat check” ultrasound should be performed at around 28 days to ensure the pregnancy is healthy and developing normally.

TWINNING
Occasionally, the donor mare double ovulates (releases two eggs) and produce twin embryos. When tracking the mare's cycle, if two dominant follicles are present, we plan for the possibility of recovering multiple embryos by lining up an additional recipient mare.

FREEZING EMBRYOS
Rather than transferring embryos immediately after recovery, the embryos can be cryopreserved in liquid nitrogen, to be thawed and transferred at a later date. In order to freeze an embryo, pre-planning is required as the donor mare needs to be flushed earlier than in a typical transfer.

REPORTED SUCCESS RATES
The average embryo recovery rate per flush is equivalent to the pregnancy rate of the donor. This may be affected by the donor's fertility and reproductive health, the donor's age, the stallion's fertility, and the type of semen used.
Success rates of embryo transfer vary from 60-80% and are affected by many factors including the quality of embryo retrieved, and the quality and synchrony of the recipient mare used.