

EMBRYO TRANSFER - CATTLE

Embryo Transfer is a technique to maximise genetic gain from a superior female.

A high level of management input and skill is required.

A donor cow can be flushed when she is at least 49 days after calving, in good condition, her genital tract is normal, and having regular heats - cows should be in store condition. Heifers can be collected from, soon after reaching puberty. It is important that they are not fat. They should be on good quality feed with adequate roughage at least a month before the programme. Roughage is very important. There should be no trace element deficiencies.

Four days after a CIDR is inserted the donor is treated twice daily for four days with follicle stimulating hormone (FSH) to increase the number of eggs to be released from the ovaries. On the third day prostaglandin (PG) is injected morning and night. The CIDR is removed on the evening of the third day. From the evening of the fourth day the donor is expected on heat and should be on heat by the morning of the fifth day. She should be observed 4 to 6 hourly to detect the onset of heat. Donors that come on late generally have a poor response.

The donor is inseminated 12 to 24 hours after the onset of standing heat or once at 18 hours. Meticulous cleanliness is important particularly with a second insemination.

Natural mating may be used. Remove the donor after one service and return her 3 to 5 hours later for a subsequent service.

The donor is normally flushed 7 days after the heat and insemination, via a catheter passed through the cervix and into the uterus.

The donor needs to be effectively restrained during collection. The collection area must be sheltered to allow for all types of weather.

On average 4 embryos are collected for dairy cows and 6 for beef cows, but this can range from 0 to 40.

20% of donors will give no transferable embryos.

The embryos are transferred into recipients that have been programmed to be on heat at the same time as the donor. This is usually done with two prostaglandin injections 12 to 14 days apart or with a CIDR for 8 days and a prostaglandin injection at CIDR removal. Most recipients will come on heat 2 to 3 days after the second injection.

Most transfers are done non-surgically via an extended Cassou gun which is manipulated through the cervix and then passed up the uterine horn on the same side as the ovary which released the ovum when the recipient was on heat.

Recipients should be in good condition, on good quality feed with adequate roughage and should not be fat. They should be accustomed to regular handling. Heat detection in recipients is important. It should be carried out at least twice daily particularly early morning and late afternoon. It may be advisable to use heat detection aids such as tail paint or heat detectors. The recipients should not be stressed for the five weeks after implantation. They may be moved within a few days of transfer.

Conception rates - with good quality embryos conception rates of 65% are generally achieved.

Embryo freezing - embryos can be frozen successfully and if top quality embryos are frozen then conception rates of at least 50% are attainable.

Embryo Splitting - top quality embryos may be bisected with a fine blade and the two halves may be transferred together into the same recipient cow or singly into recipient heifers with a 45 - 50% success rate thus increasing the yield of pregnancies from a given number of embryos.