

## Embryo Transfer in Sheep and Goats

- Donors might average 5 to 12 good embryos per flush
- Donors can be reflushed every 2 months
- Good embryos should become pregnancies 60% to 80% of the time
- Freezing of embryos permits sale and implanting at any time.



Embryo transfer (ET) is a useful tool to achieve more progeny from one ewe or doe or a group than is possible in the usual lifetime of a female. The technique is also referred to as Multiple Ovulation and Embryo Transfer (MOET).

A simple outline: A series of hormone injections are given to donor females, causing the release of multiple ova (eggs) at a controlled time. Fertilization of these multiple eggs is achieved by standard laparoscopic insemination perhaps combined with natural service. Six days later the fertilized ova are flushed from the uterus of the donor. They are microscopically examined, graded, and transferred as single or twins to the uteri of synchronized recipient females.

### **What ewes or does are suitable as donors?**

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As long as the donor has a healthy reproductive tract, and has achieved puberty, she is a candidate for ET. Young animals, even as young as 8 months old, can be flushed successfully, but it is preferable to see a few natural cycles from a young donor prior to the commencement of a program. There is a greater probability of a small response from very young donors.

Any history of infertility also increases the probability of getting a below average result. Sometimes valuable females are entered into a program for just this reason, but the result can be unpredictable. Sometimes the cause of their infertility precludes fertile embryos ever being recovered.

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## **How many embryos will each donor give each flush?**

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The range of fertilized, quality embryos recovered per flush is 0- 30. Nil, one and two are very common recovery numbers, but usually this is balanced by one or two big responding donors bringing the average of the group to 5-12.

Some donors will not give viable embryos for the following reasons;

- No response to the hormone treatment. The donor has no, or a very small number of ova released.
- Fertilization of the released ova failed. Semen quality needs to be high. Despite high quality semen, in some cases, especially large responses, fertilization does not occur.
- Fertilization occurred, but the embryos start to die after a few divisions. These are referred to as “degenerate” embryos and are not transferred to recipients.



There is a genetic component in how each breed responds to the hormone given to stimulate multiple egg release (Follicle Stimulating Hormone, or FSH). Some donors do not respond to a standard dose, whilst others have a large response. The response by individuals is quite repeatable; if a donor gives a large number of embryos in one program, she is likely to respond well when re-flushed.

## **How many pregnancies will result from good embryos?**

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60 - 80% of good embryos should result in pregnancies, but recipient fertility and management is the key. Higher or lower results can occur according to the level of recipient management. LBS can guide you in the best treatment of recipients to maximize results

Every recipient presented for implantation is laparoscopically inspected to ensure good uterine and ovary health. To ensure a maximum pregnancy result, any recipient looking less than perfect will not have an embryo implanted.

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## **Embryo freezing**

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Some embryo programs are designed around the freezing of embryos. This can be for the sale of embryos, export, or storage to implant at a later time.

Sometimes too many embryos are recovered for the available recipients; excess good embryos can be successfully frozen, stored in liquid nitrogen and then implanted months or years later.

Only very good quality embryos survive freezing and thawing. All embryos are damaged to some degree by freezing so this results in a slightly lower (5 - 10%) conception rate than might be achieved if the embryos had been implanted fresh.

## **How often can a donor be flushed?**

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Donors are given treatment at flushing to help the uterus and ovaries return to their normal state. After about 2 weeks the program can begin again, so donors could be flushed every 5 to 7 weeks

## **The Result**

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A group of unselected donors (say 10 or more) should average 5 - 12 good embryos per donor with a 60-80% pregnancy rate in recipients. Results are improved by flushing a group and removing from future programs the poor performers. Generally donors settle into a pattern of good or poor response.

<http://www.livestockbreedingservices.com/services.htm>