



A simple guide to Laparoscopic Artificial Insemination and Embryo transplant.

There has been lots of interest recently in utilising Laparoscopic Artificial Insemination (Lap AI) and Embryo Transfer (ET). We have used Lap AI now for 5 years and we are doing our 3rd embryo program this year, so I have been asked to share our experiences of both, from a farmer's point of view rather than a veterinary one.

Lap AI is basically using keyhole surgery to place thawed frozen or fresh semen directly into the uterine horn rather than doing conventional vaginal insemination where the semen still must swim to its goal. The key to success as with most things is preparation and attention to detail. The success rate of Lap AI compared to normal AI should be much higher dependent on the skill of the operator, the preparation of the doe and her nutritional status. Synchronisation and timing are critical. The process is not complicated, arduous, or costly if done correctly.

On day 1 the doe, who should be in condition score 3 to 3.5 on a slightly rising plane of nutrition and having had all her management tasks like foot trimming, worming, vaccinating completed a month before, will have a hormone impregnated sponge inserted into the vagina using a plastic applicator. This is simple to do, takes seconds and is painless. The sponge has a short string which is left hanging so that the sponge can be removed on day 18. The breeding centre (we used Animal Breeding Europe) will give you a program before you start, detailing the exact timings for each stage of the program. On day 17 you will give the doe a small injection of PMSG (hormone) and then pull the sponge 24 hours later. The sponge hormone will have told the doe's system that she is pregnant and stopped her coming in season, when you pull it out the hormone level drops quickly in her blood, and she will come into season approximately 24 hours after removal. The Lap AI is best done when the doe is going out of season and again the written program will detail the timings.

On the day of Lap AI, you travel to the centre, the doe will be given an injection of fast acting anaesthetic and laid on her back in a cradle fast asleep. The vet will insert the laparoscope (think big knitting needle) into a small area of shaved and disinfected skin in her abdomen, this holds the camera, a second cannula is inserted on the other side to allow the pipette containing the semen to be inserted. By using the camera, the vet can guide the straw tube to exactly the correct location before releasing the semen. Both scopes are retracted, and the small incisions then receive a staple which will drop off within a couple of weeks. An antibiotic injection is given into the muscle as a precaution and the doe rolled off the cradle onto a mat. Within 5 minutes the doe will be sitting and then quickly standing and walking, similar to having a tooth out under anaesthetic.

The cost of the entire process is approximately £15 for the lap AI, £5-£6 for the sponge and hormone and then the price of the semen straw, which will be between £30-£100 dependent on the buck used. It costs more to feed a male for a year than the whole Lap AI process with the benefit that you can use different males on every female should you so wish. The doe should be allowed around 30 mins to rest and then taken home and treated exactly as you would after a normal mating.

Embryo transfer is similar with regards to the preparation of synchronisation however the embryos are not implanted until 5/6 days later than lap AI would have taken place because the embryos will have been 5-6 days old when they were flushed from the donor doe. The doe receiving the embryo can be any healthy doe that has ideally been bred once before and has reared kids successfully as she is not going to donate any of her genes to the embryo.

An embryo implanted into your doe will again cost around £5-6 to synchronise with sponge and hormone, £75 per embryo to implant and then the price of the embryos will vary between £200-£350 each. Best results are seen when twin embryos are implanted, which is the norm.

With ET and Lap AI it is vital that the doe or recipient doe are in the peak of health, fully vaccinated and relaxed. Stress and disease/infection are the two biggest reasons for failure of the program, followed by not adhering to the program exactly. Remember if you are stressed then the doe can become stressed.

We have used Lap AI for 5 years and have had 90% success including doelings and with frozen embryo implanting we have had 66% success.

The advantage of Lap AI is that is a cheap and effortless way to improve your herd with access to superior genetics without having to purchase expensive males. If the doe does not hold then you simply re-mate her 21 days later when she comes back in season naturally.

By implanting embryos you are effectively able to buy new animals and genetics from anywhere in the world that has an import arrangement with the UK without having to transport live animals, the offspring have the local antibodies from the recipient mums and as the embryos will have been washed when collected the disease transfer risk is very minimal if not eliminated.

My advice is if you have OCD tendencies then Lap AI and ET is for you, if you are laid back and casual – buy a male and let it happen naturally!

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