

# KIRKTON VETERINARY CLINIC

## FEBRUARY 2018 NEWSLETTER

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### Propagating your best-Advanced reproductive procedures

A strategy that is commonly discussed to maximize a herd's genetic potential is to use the top 10% of animals as genetic donors, the middle 40% are bred to the best available semen (including sexed semen if available in the desired sire), and the bottom 50% are used as recipient animals which serve to "carry" the genetics from the top 10%.

Each herd's definition of top, middle, and bottom genetics is different.

With many tools out there including GLPI, GTPI, Pro\$, Net Merit, or some combination thereof each herd can choose the formula that works most closely with their goals.

We can help you to achieve these goals through 2 different reproductive procedures – conventional embryo transfer (also called ET) and *in vitro* fertilization (also called IVF).

#### The Procedures:

For both ET and IVF, the "set-up" procedure for the donor is the same and is called dominant follicle reduction (DFR). This procedure serves to physically drain any follicle >5 mm through the use of an ultrasound guided needle. By removing all follicles >5 mm, it allows all the other follicles that are getting primed for growth, to grow at the same rate under the influence of Follicle Stimulating Hormone (FSH), which goes by the brand name of Folltropin-V. The goal of the FSH injections is to have multiple follicles (which contain the egg) growing at the same time and at the same rate. A uniform population of follicles will maximize the number of eggs produced.

<48 hours after the DFR procedure, FSH injections commence. It is here that the similarities between ET and IVF end.

#### Embryo Transfer:

The FSH injections occur every 12 hours for 4 days. In addition to the last 2 shots of FSH, the donor receives injections of prostaglandin.

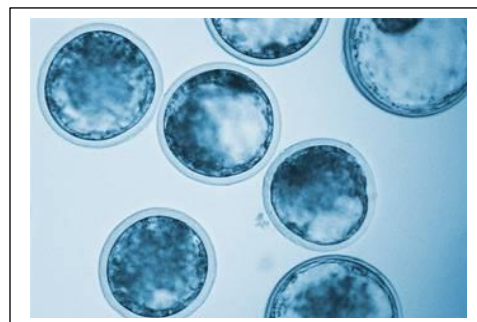
24-36 hours after the last injections, the donor exhibits estrus.

She is bred every 8-12 hours until she is no longer exhibiting signs of estrus (usually 2-3 breedings).

#### **REMINDER TO OWNERS AND BARN STAFF**

To help us serve you better, please remember that calling before 10 am to book a same-day appointment results in increased scheduling efficiency of getting a veterinarian to your farm. It also saves you money as the call fee increases after 10 am.

Kirkton Veterinary Clinic  
Toll Free Phone Number:  
**1 (888) 443-4184**



7 days after breeding, the donor is “flushed.” This involves placing a catheter through the cervix and up one of the uterine horns, inflating the “cuff” (a balloon near the end of the catheter) to hold the catheter in place, running fluid through the catheter which then fills the end of the uterine horn (where the embryos are), and draining the fluid (with the embryos in it) back out and through a filter. This procedure is repeated multiple times in the original horn and is then performed in the other uterine horn. Once the “flush” is complete, the filter is rinsed in the laboratory and the embryos are searched.

In vitro Fertilization:

The FSH injections occur every 12 hours for 3 days. Nothing is administered to the donor on the 4<sup>th</sup> day. However, on the following (5<sup>th</sup>) day, ovum pick-up (OPU) is performed. OPU uses the same equipment as for the DFR procedure. However, as a result of the FSH injections, multiple follicles will have grown. The ovum (unfertilized “eggs”) are aspirated from the follicles using carefully regulated pressures and temperatures into a heated tube. The tube is quickly passed into the heated lab and the ovum are searched. Once found, the ovum are placed in special media in an incubator which is at body temperature (38.5°C). The incubator is shipped overnight to a laboratory in Quebec. The following day, the ovum are fertilized with semen in a petri dish. A week later, the resulting fertilized embryos are assessed.

Fertilized Embryos – both ET and IVF:

Regardless of how the fertilized embryos are produced (either through ET or IVF) 7 days after fertilization (regardless of if the fertilization/embryo growth took place in the cow or in a petri dish), the embryos can then be either implanted fresh into recipient animals or can be frozen for implant at a later date.

Table comparing ET and IVF:

	<b>EMBRYO TRANSFER (ET)</b>	<b><i>In Vitro Fertilization (IVF)</i></b>
Cost	\$	\$\$
Conventional Semen for fertilization	Yes	Yes
Sexed Semen for fertilization	Yes	Yes
Reverse Sorted Semen for fertilization (thawed then sexed)	No	Yes
Prepubescent Heifers Collected?	No	Yes
Collect from Pregnant Animals?	No	Yes
Collect from Problem Breeders?	No	Yes
Frequency of Collections – Every...	32-45 days	14 days
Fertilization Occurs in...	The Donor Cow	A Petri Dish in Quebec
Embryo growth/development for 7 days after fertilization occurs in...	The Donor Cow	A Petri Dish in Quebec
Does the donor exhibit signs of estrus during the procedure	Yes	No
Collection Procedure Location	On Farm	Fradon Donor Facility
Recipients Location	On Farm	On Farm

Please contact us to discuss how we can help you maximize the genetic potential in your herd and reach your farm specific goals using the reproductive procedure that would work best for your operation.

For more information, please visit our Facebook page: <https://www.facebook.com/kvcivf/>