

# THE VYTELLE IVF PROCESS.



Vytelle makes the *in vitro* fertilization (IVF) process easy on animals and simple for you. The pillars to successful IVF include donor management, IVF process and recipient management. Preparing donor and recipient cows to perform successfully in IVF requires proper management prior to ovum pick-up (OPU) and embryo transfer. From oocyte collection at the farm to top quality embryos out of the lab, Vytelle helps guide producers to reproductive success throughout the IVF process.

The Vytelle IVF process includes three steps:

- 1**  
Ovum  
Pick-Up
- 2**  
Embryo  
Production
- 3**  
Embryo  
Implantation

## Ovum Pick-Up

Before the IVF process starts in the lab, the oocytes need to be collected from donor cows. To do this, trained reproductive services veterinarians utilize a small vaginal ultrasound probe and aspiration needle assembly to aspirate follicles off the ovaries of donor cows. Follicles are fluid filled pockets on the ovary, containing oocytes. An ultrasound screen is used to visualize the ovary and follicles of each donor. On screen, fluid will appear black and tissue is hyperechoic, appearing white or gray depending on density. With the use of a vacuum pump, the fluid and oocytes are collected and travel through a small line into a tube that will be sent to the lab for oocyte "searching." The goal is to remove all follicles from each ovary to maximize oocytes going to the lab. Cows regularly grow follicles on the ovary every 7 to 10 days,

which allows aspirations to be performed weekly but more consistent results are seen when aspiration occurs at two-week intervals. OPU takes 15 minutes per donor on average and can be done on open or pregnant heifers and cows, and up to 100 days in gestation.

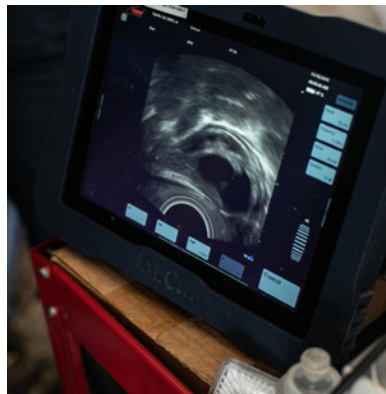
## Hormone Free

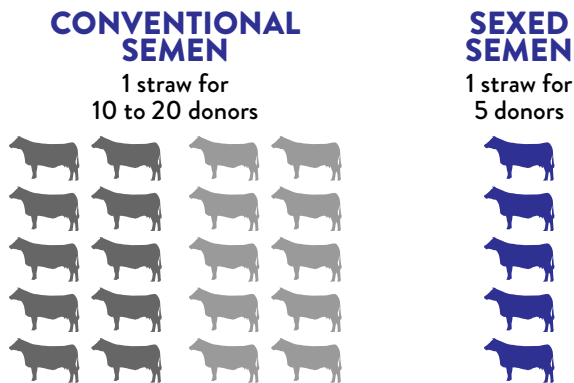
Vytelle's IVF process does not use hormones to set up donors prior to OPU. Follicle stimulating hormone (FSH) is a hormone that is naturally released by females to stimulate new follicles to grow every 7 to 10 days. Injecting FSH in donors is a common process in other IVF systems, as FSH changes the size of follicles, making them more visible on the ovary during OPU. However, using our proprietary process and naturally derived media formulations, our team proficiently collects oocytes without the use of FSH. Vytelle's process achieves oocyte collection rates similar to those of IVF processes requiring several injections of FSH. A hormone-free process is more robust and supports growth of all oocytes. Vytelle's IVF is more natural for young donors and safer for aspiration of pregnant donors.

## Embryo Production

Embryo production takes eight days and involves the following steps:

- 1) *In vitro* Maturation (IVM)
- 2) *In vitro* Fertilization (IVF)
- 3) *In vitro* Culture (IVC)





After oocytes are collected, they are delivered to the laboratory technician to be assessed for quality. Atretic (degenerated prior to maturing) or irregular oocytes are discarded from the lot. Remaining oocytes are placed in maturation media and prepared for fertilization 24 to 26 hours post OPU (Figure 1; day 0 fertilization).

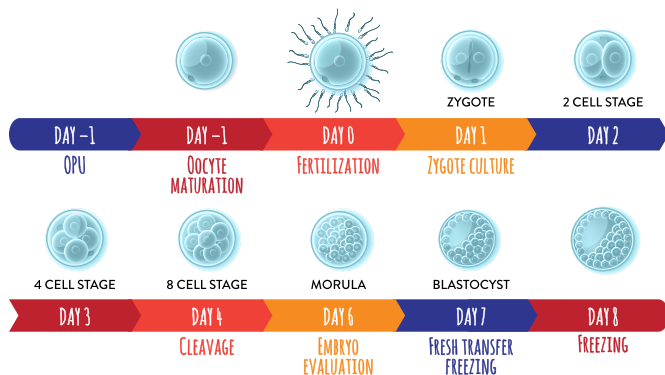
Oocytes can be fertilized with any sire of choice using either conventional, presorted (male or female) and reverse sort (male or female). One dose of semen can be used across multiple donors to maximize semen utilization and produce several embryos. If enough oocytes are collected, multiple sires can be mated to a single donor from one OPU. Semen is added to the fertilization plate and encompasses the eggs to start fertilization. After 24 hours of fertilization, the zygotes (fertilized ovum) are removed from the fertilization dish and placed in culture for 7 days. Embryos are monitored in temperature regulated incubators for development and cleavage (natural cell division from a fertilized ovum) on day four after IVF. Embryo evaluations for quality and quantity are done on day six to predict which embryos will qualify for

fresh transfer or freezing on days seven and eight. Vytelle has a one price per embryo model, only charging clients one price for each Grade 1 embryo produced. There are no additional fees for conducting the OPU, freezing embryos, or any other part of the embryo production process. Other IVF providers charge set fees for stages of the process, regardless of the number of Grade 1 embryos produced.

### Implantation

Embryos are cultured and ready for fresh transfer or freezing 8 days after the OPU. For best results, IVF embryos should be transferred into recipients that are on day 7 or 8 of their estrous cycles. Recipient cows can be synchronized to prepare several cows for embryo transfer at one time. Cows that come in heat naturally within 24 hours post OPU are excellent recipient candidates for fresh embryo transfer as well. A trained embryo transfer technician should be consulted to complete embryo transfer on qualified recipients. Vytelle embryo thawing protocol available on the freeze certificates should be utilized for best results.

**FIGURE 1. IVF EMBRYO PRODUCTION**



### Summary

The Vytelle IVF process makes genetic goals a reality for beef and dairy producers around the world. Vytelle's process is easy on animals and simple for you. Bring donors in to any OPU event across the country to fast forward genetic progress today.

**Visit [vytelle.com](http://vytelle.com) to find Vytelle's U.S. and international locations.**



**TO LEARN MORE, CONTACT US AT 866-689-3477 OR VISIT [VYTELLE.COM](http://VYTELLE.COM).**

