

THE THREE PILLARS OF IVF SUCCESS: DONOR MANAGEMENT, VYTELLE'S IVF PROCESS AND RECIPIENT MANAGEMENT

PILLAR ONE: DONOR MANAGEMENT

Every cattle producer has their favorite donors, each with its own unique genetics and legacy. Vytelle's goal is to help you accelerate the genetic influence these donors have on your herd in a way that is easy on animals and simple for you. Vytelle utilizes the most modern *in vitro* fertilization (IVF) technique which helps move your cattle herd forward quickly by multiplying offspring from your elite performing animals, shortening generation intervals and improving reproductive efficiency. But before the IVF process begins, proper donor selection and management, including adequate health and reproductive soundness, should be prioritized to drive the donor's ability to produce top-quality embryos.

3 PILLARS OF SUCCESS



Donor Management



IVF Process



Recipient Management

DONOR ELIGIBILITY

Age, regularity of cycling, body condition, mineral status, nutrition, and reproductive health should be considered when selecting donors. Many females can be qualified as donors, including:

- Heifers, as young as 6 months of age
- Open cows, as early as 15 days after calving
- Pregnant cows within the first 100 days of gestation

As young donors reach puberty and maintain regular estrous cycles, their oocyte quality and embryo results will improve. When donors are being bred, avoid ovum pick-up (OPU) within 48 hours of insemination. After donors are inseminated, OPU can be done through the first trimester and potentially extended, if ovaries can be safely handled without disturbing the fetus.

DONOR PREPARATION

Vytelle's IVF process requires no set up for donors prior to aspiration, so donors can remain in their natural environment with no disruption prior to OPU. For best results, potential donors should be examined by a veterinarian prior to aspiration to ensure reproductive soundness. Information to document on donor forms includes:

- Ovarian and reproductive tract size and structure
- Reproductive status (open, postpartum, pregnant) or last heat cycle
- Parturition history
- Physical soundness

VYTELLE'S HORMONE FREE IVF PROCESS

Vytelle's skilled technicians perform oocyte (egg) collection on your donors, without the use of follicle stimulating hormone (FSH), a hormone that is naturally released by females to stimulate new

| | VYTELLE | OTHERS |
|------------------------------------|----------------|--------------------|
| PRICING | Pay per embryo | Fees + Fees + Fees |
| FOLLICLE STIMULATING HORMONE (FSH) | Never | Required |

follicles to grow every 7 to 10 days. Injecting FSH into 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 technicians collect oocytes without the use of FSH. Vytelle's process achieves oocyte collection rates similar to other IVF processes that require several injections of FSH. Utilizing a hormone-free process has several benefits for the animal, the product and your business. Vytelle's all-natural IVF process is easier on animals, allows for weekly collection, and is more cost effective.

NUTRITION

A suitable nutrition program for donors should be established and maintained 60 days before aspiration. Providing donors a positive plane of nutrition directly influences and supports their reproductive performance. Work with a nutritionist to formulate balanced rations to meet requirements of crude protein, energy, minerals and vitamins. Requirements will change based on the donor's age, stage of production and environmental conditions. Always provide donors access to a complete mineral program with organic and inorganic sources, as well as plenty of clean and fresh water. Additional supplements including EPA and DHA rumen-protected fatty acids can be offered to donors, as well as magnesium and zinc, which are essential for reproduction.

Donors that are over or under weight can have altered reproductive hormone levels, increased postpartum interval, and irregular follicular growth and ovulation. Body condition scores¹ can be used to monitor nutrient reserves of donors and rations can be designed to change condition accordingly. Any negative influences (nutritional or environmental) can impact oocyte production 60 days later. It is therefore important to recognize potential nutritional problems early and to act on them as quickly as possible to support oocyte collection and embryo development.

¹ Farney, J. et al. (2016), Guide to Body Condition Scoring Beef Cows and Bulls, Kansas State University.

VACCINATION

Vytelle recommends working with your herd veterinarian to maintain annual vaccination protocols for all donors. As donors reside in different locations and environments, there is not a one-size-fits-all protocol for health management. Pre-breeding vaccines are important for replacement heifers and cows to manage reproductive diseases. For best results, vaccinations should be administered at least 45 days before aspiration. If vaccines need to be administered within 45 days of aspiration, discuss vaccine history with a Reproductive Specialist to manage ovum pick up and embryo development accordingly.

OVUM PICK-UP

The OPU process takes 15 minutes per donor, on average. Aspiration is extremely safe with minimal damage to the reproductive tract and is low risk for pregnant donors. Ovarian tissue heals quickly and follicular growth resumes immediately after collection. Thus, oocytes from the same donor can be collected as frequently as every seven days, with best results seen when OPU is done every two weeks.

SUMMARY

Donor management is a key pillar to a successful IVF program. Vytelle's IVF process makes achieving genetic goals a reality for cattle and dairy producers globally. The ability to produce offspring from young females who have yet to birth their first calf, as well as to create embryos from pregnant donors, greatly speeds up the generation interval that would take decades with natural breeding. Vytelle's modern, all-natural process is easy on animals, simple for you, and cost effective. Identify your elite donors and contact Vytelle to start accelerating your herd's genetic progress today.