

IN VITRO FERTILIZATION PROGRAM

What Is In Vitro Fertilization?

In Vitro Fertilization (IVF) is the process of creating embryos from oocytes (unfertilized egg cells) by fertilizing them with semen in a Petri dish. Oocytes are first collected from the ovaries of donors by ultrasound-guided follicular aspiration. Oocytes are then placed in a Petri dish and fertilized approximately 20 hours later. Conventional, sexed-frozen, or reverse-sorted semen may be used for fertilization. They then mature in an incubator for seven days, at which point the viable embryos that result are transferred into recipients.

What results can be expected on each IVF cycle?

Results vary with each donor, but we typically expect to collect about 15 oocytes per aspiration. On average, 30% of these oocytes will develop into a viable embryo. Thus, we expect about 4.5 transferrable (Grade 1 & 2) embryos per IVF cycle on average. Donors that produce greater numbers of oocytes and oocytes of higher quality may see larger numbers of embryos produced, whereas donors with compromised reproductive conditions may have lower results. Development rate will also vary greatly depending on sire used.

What is reverse-sorted semen?

Frozen semen is thawed, and our semen sorter is utilized to separate the female and male sperm cells. We call this process "reverse-sorting", because the sorting occurs after the semen has been previously frozen. The sorted semen of the desired gender is then used to fertilize the oocytes collected from donors. This process generally requires at least two units of semen for a given sire.

What results can be expected from reverse-sorted semen?

Based on fetal-sexing of pregnancies that result from reverse-sorted semen, we achieve greater than 90% accuracy of selecting for female calves. Although most sires will sort accurately, the process can be affected by semen quality and concentration. There may be differences among sires in fertility and embryo development rates.

What donor females are candidates for the IVF program?

While reproductively sound donors are most likely to achieve success in IVF, we have worked with donors with a variety of reproductive conditions, including those unable to achieve success in conventional ET. Donors that tend to make unfertilized or degenerate embryos are a common type with which we have had success. Many clients also appreciate the ability to create embryos from pregnant donors and younger heifers with IVF.



When can embryos be created from pregnant donors?

The general window for creating embryos from pregnant donors is 40 to 100 days of pregnancy. A large percentage of our IVF program is composed of pregnant donors that take advantage of this extended window for creating offspring. While the procedure is quite safe, clients should be aware that there is a slight risk of pregnancy loss from the manipulation of the reproductive organs.

How often can oocytes be collected?

Oocytes can be collected every other week as long as the attending veterinarian believes this is best for the donor. This fact makes it possible to create a significant number of pregnancies in a given period of time.



What are the pregnancy rates when IVF embryos are transferred fresh?

On average, we expect fresh IVF embryos to achieve about a 50% pregnancy rate. This will vary somewhat depending on the time of year, type of recipient, and recipient management.

Can IVF embryos be frozen?

Yes, but with limitations. In order to maximize pregnancies, we still recommend that IVF embryos be transferred fresh. However, if clients would like to freeze some IVF embryos, Trans Ova will be very selective on the quality of embryos that are frozen. Embryos that do not qualify for freezing should be transferred fresh or discarded.

How will IVF embryos be frozen?

Freezing of IVF embryos will be done with one of two methods: vitrification or 10% glycerol. We have a good pool of data indicating acceptable pregnancy rates with vitrified embryos. However, vitrified embryos must be thawed by Trans Ova Genetics personnel at one of our facilities. IVF embryos frozen with 10% glycerol may be thawed on-farm by other qualified practitioners, but the pool of data on pregnancy rates with this method is not as extensive at this point.

What recipient options are available?

Client-owned recipients can be utilized if they can be hauled into a Trans Ova Genetics center for fresh transfers. If this is not a possibility for clients, there are several other recipient options available. At our Iowa center, embryos can be transferred into Trans Ova's health-certified beef recipients. Pregnant beef recipients can be purchased for clients to calve out at home, or clients can utilize our Live Calf Program. At our Maryland center, embryos can be transferred into Holstein heifers available through Trans Ova Genetics. Clients may also utilize our Fresh-Ship Program to have IVF embryos shipped to them to be implanted into their recipients on-farm.

What are Trans Ova beef recipients?

We use Angus-based beef cows that are two to six years of age. Recipients are screened for BVD, Brucellosis, BLV (Leukosis), Neospora, Johne's, and Anaplasmosis. Those clients purchasing pregnant recipients do so after the recipient is confirmed pregnant at 60 days.

What is the Live Calf program?

In the Live Calf program, Trans Ova Genetics will manage the beef recipients through gestation, calve them out, and raise the calf on a bottle for the first 30 days of age. The client is guaranteed a live, 30-day-old calf. This program is available only at the Iowa center, although embryos may be shipped in from our other centers to utilize this option. Ask us for more detailed information on this program.



What is the Fresh-Ship program?

The Fresh-Ship program allows IVF embryos to be shipped fresh to clients' farms to be implanted into recipients. Embryos are packaged one day prior to transfer and loaded into portable, battery-powered incubators. The embryos continue to develop in the incubators during shipment (by Fed Ex, UPS, or courier), and arrive the next day having developed to the proper stage for transfers. Clients' local practitioners can then perform the transfers into recipients. Ask us for more detailed information on this program.

Where are IVF services available?

Trans Ova Genetics has IVF labs at its Iowa, Maryland, and Texas centers. These centers offer a full range of services, including donor housing and IVF collection services. The Missouri center also offers donor housing and IVF collection. In addition, Trans Ova Genetics has developed a network of IVF satellite centers for collection of oocytes. At our satellite centers, donors are set up by clients at home and hauled in for the day of collection. Oocytes are then transported back to one of our IVF labs for fertilization. Our satellite centers have been an excellent option for many of our clients to utilize our services closer to home.

What are the risks involved with IVF?

Although the incidence is very low, there are risks involved with IVF that clients should be aware of. Aspirations are invasive procedures that can cause bleeding and infection. This creates the risk of the development of ovarian adhesions. On very rare occasions, the bleeding caused by aspiration may result in loss of the donor. In addition, because aspirations involve manipulation of the reproductive organs, there is risk that a pregnancy can be lost if the donor is pregnant. Also, while we are able to get positive results with most donors, not all donors will produce viable embryos each time they are aspirated. Please discuss these risks with your Trans Ova Genetics representative prior to beginning work with your donors.

How will billing be handled?

Clients will be billed for services from Trans Ova Genetics on a monthly basis. Clients' accounts must be current and pregnant recipients and live calves must be paid for prior to picking them up. Discounts are available for prompt-payment and pre-payment of services.

How do clients enroll a donor in the IVF program?

Clients should begin by contacting a client service representative at Trans Ova Genetics. These representatives will work with you to complete a client service agreement and obtain all pertinent donor information. Depending on which center a client plans to utilize and the state from which the donor is coming, there may be specific health testing requirements that need to be completed prior to the donor's entry into the program.



Who do I contact with questions?

Our goal is for your experience with our IVF program to be not only one that creates value for your business, but one that you clearly understand. We encourage you to seek clarification on any questions that you might have with one of our client service representatives. We look forward to working with you!

HEADQUARTERS

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