

Boost the Odds of IVF

Stack the deck in your favor with preparation.

by Becky Mills, field editor

No doubt, plain ol' luck and Mother Nature can enter the equation with *in vitro* fertilization (IVF). However, Covington, La., veterinarian, reproductive physiologist and Angus breeder, Gary Greene, says there are management steps you can take to increase the odds of a successful outcome.

For starters, here's an IVF vs. embryo transfer (ET) review. With IVF, oocytes are harvested directly from the cow or heifer's follicles and fertilized in a petri dish in a high-tech, controlled environment. More than likely, you're used to ET where a cow is superovulated, the eggs are fertilized with traditional artificial

insemination (AI), then the embryos are harvested. After that, with either ET or IVF, the fresh embryos can be implanted in recipient cows or frozen for later use.

While Greene has performed IVF for five years and ET for 35 years, he can't help but lean a bit in favor of IVF.

"IVF is surpassing conventional ET worldwide. There are a lot of advantages. We're doing one cow that is 60 days pregnant. We did another that was 13 years old."

There is also safety in numbers. Greene says IVF can be repeated every two weeks while there is a 30- to 45-day wait between flushing a

cow for ET, so the corpus luteum can regress and a follicle can ovulate.

When it comes to viable embryos, ET might have a bit of a leg up. Greene says they typically get 20 to 25 oocytes in the incubator and five to eight embryos with IVF. With ET, he says six to nine embryos likely.

However, he adds, "You can get more embryos from IVF, since you can harvest oocytes every two weeks up until the donor is 75 days pregnant."

On the costs, he says ET tends to be a little less expensive, but since oocyte collection can be done more often with IVF, the costs can be spread over more embryos per donor.



Gary Greene (right), Matt Greene and Blake Fortenberry use a team approach to harvest oocytes from donor cows.

Matt Greene, Greene's son and partner in Greeneline Genetics, also says the money spent on semen can be less with IVF since fertilization is done in a petri dish rather than a live animal.

"You'll use three to four straws of semen for conventional ET, but with IVF, you can fertilize three to four donors with one straw of semen."

If you decide to give IVF a try, here's a rundown of the Greene's tips: Eat for a crowd, details details, keep calm and carry on, good genes, timing is everything, credentials count, and once again it's the details.

Eat for a crowd

Gary Greene is emphatic about the first step in getting your cows or heifers ready.

"Nutrition, nutrition, nutrition. They need to be in a body condition score (BCS) of a 5.0, 6.0 or 7.0."

For cows in heavy lactation, he says they need to start at a 6.0 or 7.0, and hopefully not fall below a 5.0. However, if a donor is dry, he says to make sure she doesn't get too fat.

He also says a good mineral program is a must.

"We're pretty deficient here, our sandy loam soils tend to bind up minerals. There are a lot of antagonists that prevent absorption. A high iron level in our soils ties up copper. Sulfur ties up selenium."

In addition to keeping his mineral feeders full, he's careful to lime his pastures and hay fields since acidic soils tie up minerals.

He also emphasizes that a mineral program is not a last-minute fix.

"The oocytes we harvested today have been in development probably the past 90 days. That reflects on what we get today."

Both Greenes are also big fans of Multimin®, an injectable mineral,



Pictured back row (from left) are Gary Greene and Matt Greene; in the front row (from left) are Kimberly Greene with Gus and Kelsey Greene with Nora Grace.

which they give 30 days prior to aspiration for IVF or flushing for ET.

"We plan ahead and give it two or three times a year. It helps with follicular memory," Gary says.

Details, details

Timely, effective vaccinations come under this heading.

"Sit down with your local vet," Gary says. "The main objective is to make sure the modified-live vaccines are done 30 to 45 days prior to breeding and tailored to your area."

For example, he says there is a hot bed of anaplasmosis 20 miles from their headquarters. Breeders there need to vaccinate against the disease, while producers from other areas may not.

Keep calm and carry on

"Use classic low-stress handling," Gary says. "We can handle wild cows, but we don't want to. The lower the

stress, the better they do."

This is especially important in the Greenes' IVF operation. While they can do ET on the donor's farm, IVF donors are hauled to them, so the chute is right next to their temperature-controlled, sanitary lab.

While they can harvest the oocytes and have the cow on the way home in 30 minutes, cows who react poorly to a new environment make the process slower and harder.

Greene also says to keep an eye on the temperature. In South Louisiana, heat stress is a major concern.

Good genes

Matt says, "Certain cow lines seem to produce better oocytes and embryos."

Gary adds, "There are lines of cattle that no matter how good the nutrition is, they don't produce well."

However, he says, "Over the last

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40 or 50 years, we, as an industry, have inadvertently selected for bulls and donors that produce more fertile semen and embryos.”

Timing is everything

Make sure your IVF technician has reliable shipping lined up ahead of time. The Greens are a satellite location for Trans Ova Genetics and coordinate with the Bryan, Texas, facility for oocyte fertilization.

Gary says, “The lab needs to know exactly when we start, since fertilization needs to be done 24 to 26 hours after the oocytes are harvested.”

Timing is critical, and shipping so uncertain in COVID times that Kimberly Greene, Gary’s wife, makes a 10-hour round-trip drive to Trans Ova in Bryan to make sure the oocytes get there on time.

Credentials count

While everybody needs to start somewhere, you’d probably prefer the person harvesting your donor’s oocytes has experience. Gary is a board-certified theriogenologist and had specialized IVF training at Trans Ova headquarters. In addition to his mentor and father, veterinarian Matt learned from a list of nationally known reproductive physiologists.

Kimberly Greene, yet another veterinarian, says, “We bought dairy cows to practice on.”

Along with acting as oocyte courier, she also does quite a bit of the microscope work.

The IVF team also includes Blake Fortenberry, farm manager for the Greens’ Angus operation and Whitney Catalanatto, who helps get the oocytes ready for shipping. There is also Kelsey Greene, Matt’s wife and the fourth veterinarian in the family, who helps — usually with children

Nora Grace and Gus in tow.

Gary says, “We’re all about our team. There is no way we could do this otherwise. Plus, we actually like each other.”

Once again, it’s the details

He emphasizes, “Everything counts. Details, details, details.” **AJ**

Editor’s note: For more information on IVF, see www.Transova.com.

The customer is always right

While clients of Gary and Matt Greene’s Greeneline Genetics are used to top-notch customer service, it extends to their bull customers as well. The Louisiana Angus breeders, along with Dale Hoover, their partner in Quality Performance Breeders (QPB), are moving their traditional mid-March bull sale to November 12th this year, purely because of customer requests.

Gary Greene explains, “We started the sale in 2009 as a spring turnout sale, and traditionally, turnout was March 15.”

It worked well for 12 years.

“Producers would buy a bull, turn him out and he’d go to work.”

However, QPB’s commercial customers have been easing into fall calving, and now need bulls in December and January.

“They want to sell their calves in July and August. It gives them a marketing edge.”

The new sale date also gives producers a 2-year-old bull.

“Matt and I are proponents of yearling bulls,” says Gary. “You can use them lightly the first year and essentially get an extra breeding season out of them.” However, he says a yearling bull doesn’t work well for the harsh environment of some of the coastal ranches in extreme South Louisiana. “Two-year-old bulls should be an advantage. They are big and stout.”

While their customers will benefit from the change in schedule, there are challenges on their end.

Dale Hoover says, “We were used to income in March. Now we’re delaying it for seven months. That hurts the cash flow.” He adds, “There is also the extra expense of keeping a bull that long, going into the worst time of the year.”

The three partners are also holding their collective breaths, hoping the bulls don’t get hurt during the extra months.

However, there is the old adage of the customer is always right.

“A lot of our customers wanted it and pushed us toward it,” says Matt Greene.

Hoover adds, “We usually offer 55 to 65 bulls. After moving our sale to the fall, we feel like we’ll have buyers for all of them.”

For more information on Greeneline Angus and the Quality Performance Genetics sale, see www.greenelineangus.com.

