

**WIN A
FREE**
trip to
I  **NY**

2009 BOVANCE EVENTS

October

*World Dairy Expo - Madison, Wisconsin
American Royal - Kansas City, Kansas*

November

*North American International Livestock Exposition
- Louisville, Kentucky*

Stop by the Bovance or Trans Ova Genetics booth and ask us how genetic preservation and cloning can bring extra value to your herd.



Diane Broek- Bovance, General Manager
1-800-999-3586 Ext 3104/712-441-3193
dianeb@transova.com
2938 380th St.
Sioux Center, IA 51250



BOVANCE BULLETIN: Fall 2009

Smart Investments Still Pay Dividends

Even in an uncertain economy, there is value in certain genetics. Genetics which can be continually counted on to produce the rankest offspring in the industry are the best animals in which to invest. Preserving the traits of these elite animals is one of the best investments that can be made. Genetic preservation combined with cloning is the only way to reproduce an exact

genotype of those superior animals that can offer the opportunity for increased value a breeder can benefit from in the future.

“A bucking stock breeding program can be just as challenging as the stock market,” says Diane Broek, general manager of Bovance.

“But implementing advanced reproductive technologies, such as genetic preservation and cloning to harvest the value from a proven animal, and his or her genotype, for years to come can be a wise investment.”

Breeders that are not completely confident in an investment in cloning know that genetic preservation is still a smart decision to preserve elite genetics without requiring a commitment to clone. Genetic preservation also can provide added value in the form of an insurance policy.

“A breeder cannot be sure when injury or even an untimely death will occur,” says

George Owen of ViaGen. “That’s the high-risk nature of the business.” Owen reminds breeders that the best way to prepare and protect themselves against injury or death of a promising individual’s genetics, is in the form of investment insurance, and genetic preservation is the ideal way to do this.

Artificial insemination (AI), ET, and

Especially in bucking stock bloodlines, the best genetics are often not fully realized until late in the animal’s life.

“Through cloning, breeders have the ability to recapture superior genetics from a previous generation with a new, young, fertile version of the same genotype,” says Owen. “This technology allows those animals not accurately recognized as a superior athlete, sire, or brood cow to still

make a huge impact on future bucking bull lines.”

Economists continually advise businesses to keep marketing and product development dollars at a strong proportion to prepare the business for the future. While cattle breeding may not always seem like a business, this same advice can be applied. Investing in development of elite genetics, protecting that investment from loss, and capitalizing on the revenue

potential of doing so makes smart business sense, regardless of the current economy. ■



One of the Panhandle Slim cloned bulls showing the power of genetic replication.

IVF each have their own application to cattle breeders, but cloning offers unique benefits. Many breeders spend a lifetime attempting to find and raise the rankest animal. With cloning, breeders have the advantage of knowing exactly what they will produce. In one year, cloning makes genetic copies of the sex, color, and genotype of the original animal. “Many breeders only have the opportunity to work with truly elite animals once or twice in a lifetime,” notes Owen. “Having the ability to replace those shining stars with a younger, identical version is much more valuable than the monetary cost of the loss.”

Inside this issue:

Bovance Q&A	2
Supply Chain Management	3
Clone an Apple, Grow an Orchard	3
Bovance Events	4

CLONING

Q & A

Can you tell me more about the recipients used for cloned embryos?

Cloned embryos produced (using cells from

your genetic donor's cell line) are transferred into recipient animals (surrogate mothers) much like an embryo transfer or IVF embryo would be. These recipients will be tested negative for Brucellosis, BVD (Bovine Virus Diarrhea), BLV (Bovine Leukosis Virus), Johnes Disease, Anaplasmosis and Neospora prior to that implant to protect the biosecurity many of you employ in your home programs through rigorous testing and vaccinating for disease. The recipients will be pregnancy checked starting on day 40 after embryo implant. Those recipients that are pregnant on day 60 will continue in the gestational program at a devoted facility where they are monitored and pregnancy checked once a month through out gestation. You will receive a report at regular intervals to document the progress of these pregnancies.

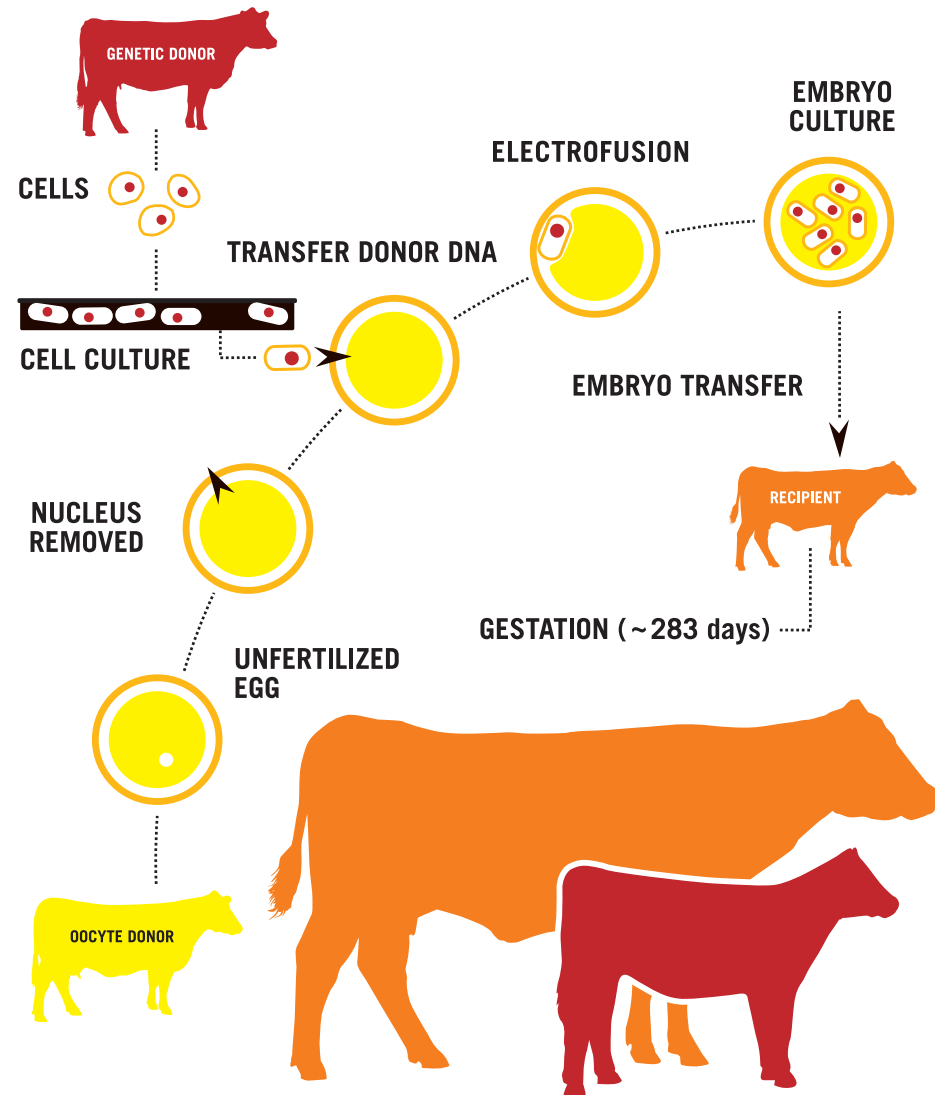
Can I use cloning in combination with other ART (assisted reproductive technology) services?

Certainly cloning works in harmony with other ART technologies. Probably the simplest method to utilize several services at once would be in the event your donor cow or bull is housed at a collection facility. While the donor female is in an embryo transfer or IVF program it is very easy to have the staff veterinarian obtain a tissue sample since she is frequently in a chute for other procedures. The same would hold true if you are collecting donors on farm for embryo transfer or had a bull in a collection facility. In the case of IVF, cumulous cells

on the oocytes from a donor cow can be removed and utilized to create a cell line as an alternative cell source.

If desired, can I purchase cloned animals of both sex from my Genetic Preservation?

No, the sex of the genetic donor will remain consistent through out the cloning process. (In the case of castrated males, the cloned calves will be born as intact bulls since the castration event occurred after birth).



How long can my Genetic Preservation be stored once it is frozen?

Once a cell line has been cryopreserved (frozen) in liquid nitrogen, it can be stored in that state for an indefinite period of time.

Is a cloned animal and a transgenic animal basically the same thing?

No, a cloned animal is a genetic copy of an elite animal or genetic donor, who provided a tissue sample to create a cell line or Genetic Preservation. The cells from this cell line were used in the cloning process to create "identical twins" to the genetic donor. A transgenic animal is produced by adding exogenous genes, or removing and modifying endogenous genes, so that the expression of the genes are altered, resulting in desirable genotypes and phenotypes. ■

Supply Chain Management

Bovance parent companies, Trans Ova Genetics and ViaGen, developed a supply chain management (SCM) program in December 2007 for identifying and registering cattle and pig clones produced by the companies. The program was developed with input from the entire food chain to enable all aspects for the chain to meet potential marketing requirements if a company or retailer was sourcing products that did not contain products from cloned animals.

The program entails education,

identification, and a marketing incentive. Cattle receive a Radio Frequency Identification (RFID) ear tag with a unique animal number. That animal number is then entered into a database that can be queried by a registered user, such as a livestock auction market or packer/processor, to determine if that animal is a clone. No other information is released.

Bovance implemented the program in July, 2008. Meanwhile, efforts have been underway to get past Bovance, Trans Ova and ViaGen clients to voluntarily

identify their cloned animals and register them in the database. For any client that participates, a credit is given toward future services.

Over 100 animals are now enrolled in the program which has been hailed by the food industry, the U.S. government and foreign governments as an important step toward acceptance of the technology. Contact Bovance for more information about the program or visit: <http://www.cloneinfo.org/cloning/scm/> ■

Clone an Apple, Grow an Orchard

The World Dairy Expo is held each fall in Madison, Wisconsin to showcase the very best dairy cows in the U.S. and Canada. The Expo features seven breed shows, numerous sales, hundreds of commercial exhibits, and events for a multitude of domestic and international guests who fly in for the week of festivities. This year, September 28 – October 3 will mark the days for a special feature at the World Dairy Expo. The genetic donor KHW Regiment

Apple Red-ET and two of her clones, will all be on display and will exhibit in the Grand International



Red and White Show. In celebration of this first time event, Bovance will be featuring a promotion that will allow Expo attendees to vote for their favorite Apple and win a chance to win two plane tickets to the "Big Apple"...New York city! The winner will be announced after the Red and White heifer show at a reception to be held at the Sherona-Hill Farm display. For more information on "cloning an Apple" or better yet, your favorite cow or bull, we invite you to stop at the Bovance booth on the lower level of the World Dairy Expo commercial displays. ■

MORE INFO AT:

- ▶ www.bovance.com
- ▶ www.transova.com
- ▶ www.viagen.com
- ▶ www.clonesafety.org