

Tharparkar Donor cow with three of her IVF calves born from frozen IVF embryos using crossbred cows as recipients (Foster Mothers)



First IVF Female Calf from Frozen IVF Embryo



India's first IVF Male Calf (Krishna) born from frozen IVF Embryo along with his Crossbred Foster Mother at the Farm of JK BovaGenix at Gopalnagar



Third IVF Calf (Male) from Frozen IVF Embryo

### OUR ACHIEVEMENT TILL 15TH JAN'17

- Birth of India's First IVF Calf from Frozen IVF Embryo at our Gopalnagar Facility
- 3 Calves born from Frozen IVF Embryos
- 3 Calves born from Fresh IVF Embryos
- 28 Pregnancies established from Fresh IVF Embryos
- 17 Pregnancies established from Frozen IVF Embryos
- 406 IVF Embryos are produced, some of these embryos were transferred fresh and the remaining Embryos are frozen for future use



## JK BovaGenix

An initiative of JK Trust

'JK Trust is one of the largest NGOs working towards "Cattle Breed Improvement Programme" in various states of the country for the last 20 years. The initiative has immensely benefitted millions of families residing mostly in remote and tribal villages of the country.'

Taking its existing work forward, the Trust has introduced "**Assisted Reproductive Technologies (ART)**" in Bovines to undertake a new breed improvement programme for **Indigenous Cattle Breeds of the country**. This is the first of its kind initiative conceptualized & developed for establishing pregnancies from the IVF embryos of selected Indigenous cattle breeds.

This is also in line with the objectives of the **Government of India's "Rashtriya Gokul Mission"**, aimed at preserving and propagating the indigenous breeds of cattle such as **Gir (Gujarat), Sahiwal (Punjab/Haryana), Tharparkar (Rajasthan), Ongole & Punganur (A.P.), Khillar (Maharashtra) & others**.

At present, JK Trust has two state-of-the-art ET (Embryo Transfer) and IVF (In-Vitro Fertilization) Laboratories known as "**Dr. Vijaypat Singhania Centre of Excellence for Assisted Reproductive Technologies in Livestock**" at **Gopalnagar, near Bilaspur, in Chhattisgarh** and "**Dr. Vijaypat Singhania Centre of Excellence for Assisted Reproductive Technologies in Livestock**" at **Vadgaon-Rasai near Pune, Maharashtra**.

Additionally, JK Bovagenix is reaching out to farmers through **Mobile Cattle ET & IVF Lab**. This van is taking this new & advanced Assisted Reproductive Technology (ART) to the door steps of farmers.

### JK BovaGenix Facilities



Gopalnagar Lab, Janjgir Champa,  
Chhattisgarh



Vadgaon Rasai Lab, Pune,  
Maharashtra

### JK BovaGenix Lab Infrastructure



### View of the ET Van



### DONOR BREEDS



SAHIWAL



THARPARKAR



ONGOLE



GIR



RED SINDHI



RATHI

### SERVICES OFFERED BY JK BOVAGENIX

- Aspiration of oocytes from elite donor cows at the doorsteps of famers
- In vitro embryo production by IVF
- In Vivo embryo production
- Freezing of Embryos
- Embryo Transfer



## Brief about the technology of ET & IVF

*JK BovaGenix is the pioneer of IVF-ET Technology for the Conservation & Propagation of Indigenous Cattle Breeds*

### What is Embryo Transfer Technology (ETT)?

Embryo Transfer Technology (ETT) is a technique used to increase the reproduction rate of cows. Embryo Transfer simply means collection of an embryo from a donor female and its transfer to the uterus of a recipient female of the same species.

Conventional ET involves specific hormonal treatment (with follicle-stimulating hormone) of donor cows or heifers to cause multiple follicles to ovulate. The donors are bred using AI following super ovulation and estrus or standing heat. Seven days after AI, the embryos are flushed from the donor's uterus and transferred to synchronous recipient cows. The embryos may also be frozen to be transferred at a later stage.

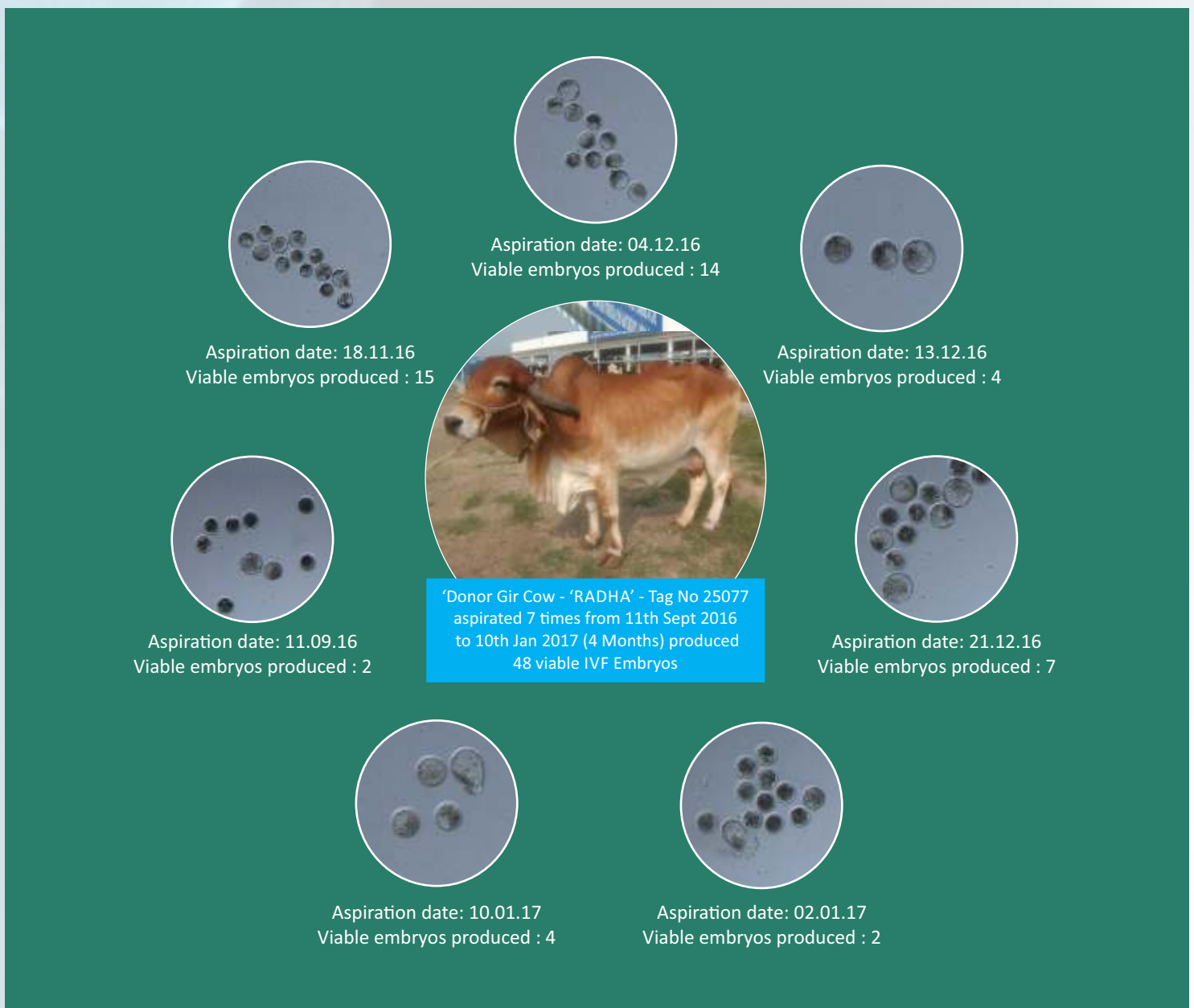
### What is IVF (In-Vitro fertilization) technology?

IVF is an advanced reproductive technology that is slightly more complex than the traditional embryo transfer flushing program. In IVF technology, a trained veterinarian collects oocytes from a donor cow using an ultrasound-guided follicular aspiration technique. The oocytes are placed in a Petri dish and fertilized the following day with semen.

The fertilized eggs mature in an incubator for seven days, and the resulting viable embryos are transferred into recipient cows. The embryos can also be frozen to be transferred at a later date.

### Benefits of ET & IVF to a dairy farmer

- A farmer can form a herd of his choice by propagating the genetics of a cow & a bull of his choice at a faster pace
- While the average cow will produce only a few calves in her entire lifetime, this technology can potentially allow a genetically superior cow to produce about 25 calves within one year.
- The biggest advantage of ET & IVF technology is that it helps us to use not only the genetics of the best bulls available, but also taps the genetic merit of the females to the fullest potential
- Eggs (oocytes) from sick, injured or aged female with high genetic merit can also be used in this technology.
- Oocytes from pregnant donors can still be collected throughout the first trimester of pregnancy
- In addition, the use of sexed semen allows the farmer to selectively produce female calves only.



### Lab to Land:

After demonstrating success at own Facilities, JK BovaGenix has gone one step ahead by taking these ARTs to the door steps of farmers for the first time in India using a 'Mobile Cattle Embryo Transfer (ET) and In-Vitro Fertilization (IVF) lab.

Through our field trials at the following farms oocytes were collected from their cows and then taken to our IVF lab for production of viable embryos:

### Pregnancies are confirmed from the IVF embryos developed from the cows of the following farms:

- Rachana Khillar Farm, Loni Deokar, Pune, Maharashtra
- Agricultural Development Trust – Krishi Vigyan Kendra, Baramati, Malegaon, Pune, Maharashtra
- Sarda Dairy Farm, Kharora, Raipur, Chhattisgarh
- Vrindavan Tharparkar Desi Cow Club, Bhukum, Pune, Maharashtra

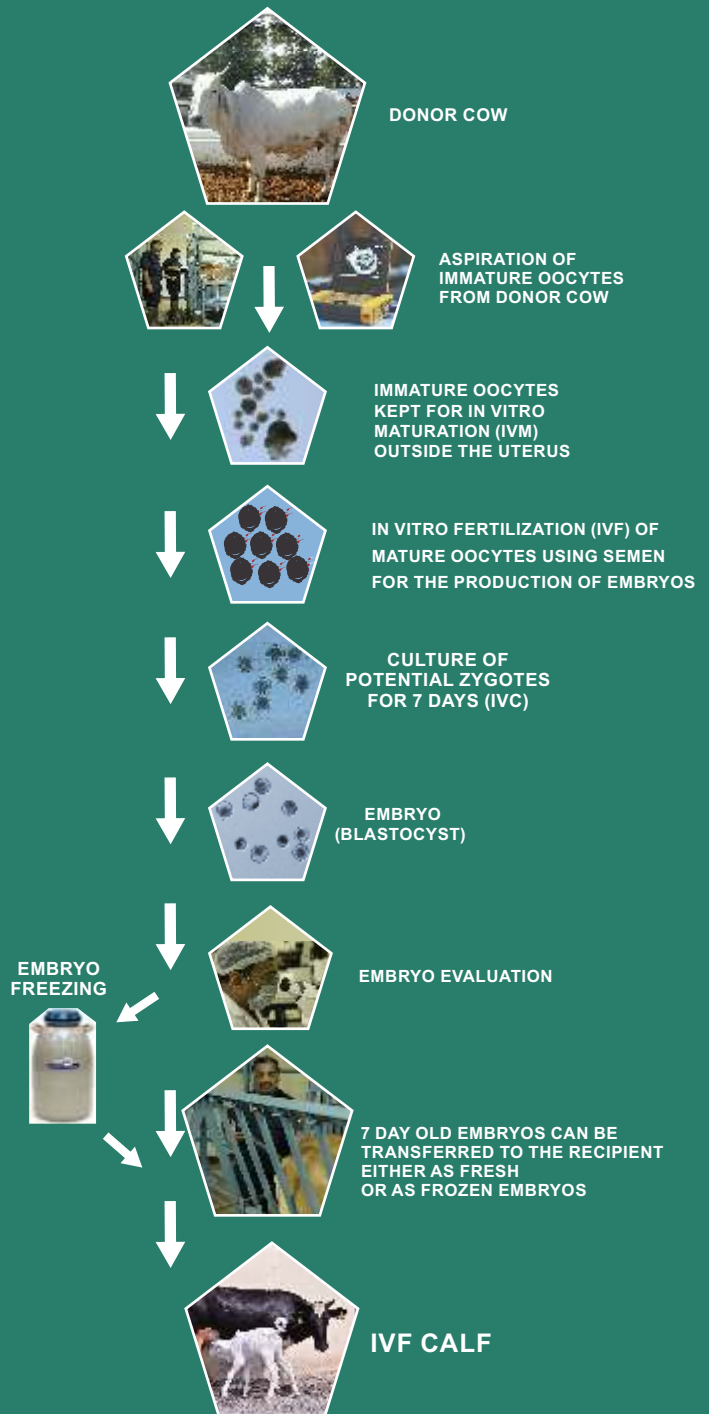
### Viable IVF embryos are produced and frozen from the cows of the following farms:

- Sangamner Taluka Dudh Utpadak Sangh (Rajhans), Taluka- Sangamner, District-Ahmednagar, Maharashtra.
- Jay Biotech (Bafna Group), Jay Research & Biotech India Private Limited, Taluka – Daund, District-Pune, Maharashtra



Specialized Incubator to bring Oocytes from Farmer's Doorstep to IVF Lab

## IVF FLOW DIAGRAM



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