

A Giant Leap by the State into Embryo Transfer Technology-
Six Calves Born using the technique at Breeding Farms in H.P.

Himachal Pradesh has taken a giant leap in the field of Embryo Transfer Technology (ETT) with the birth of six calves in the state by this technique. Embryo Transfer Technology is a latest breakthrough in reproductive biotechnology for rapid genetic improvement of livestock which was introduced in the state about three years back as a *Pilot Project* under a centrally sponsored ETT programme. Resultantly the birth of four male calves in succession was followed by two female calves “**Ganga**” and “**Jamuna**” on 24/03/2012 and 05/04/2012 respectively by way of Embryo Transfer Technology. Out of these six calves, four (two males namely “**Gaurav**” and “**Saurabh**” and two females namely “**Ganga**” and “**Jamuna**”) have their biological parents in Punjab, but were born to surrogate cows of Cattle Breeding Farms of this state, in which frozen embryos were implanted through this technique.

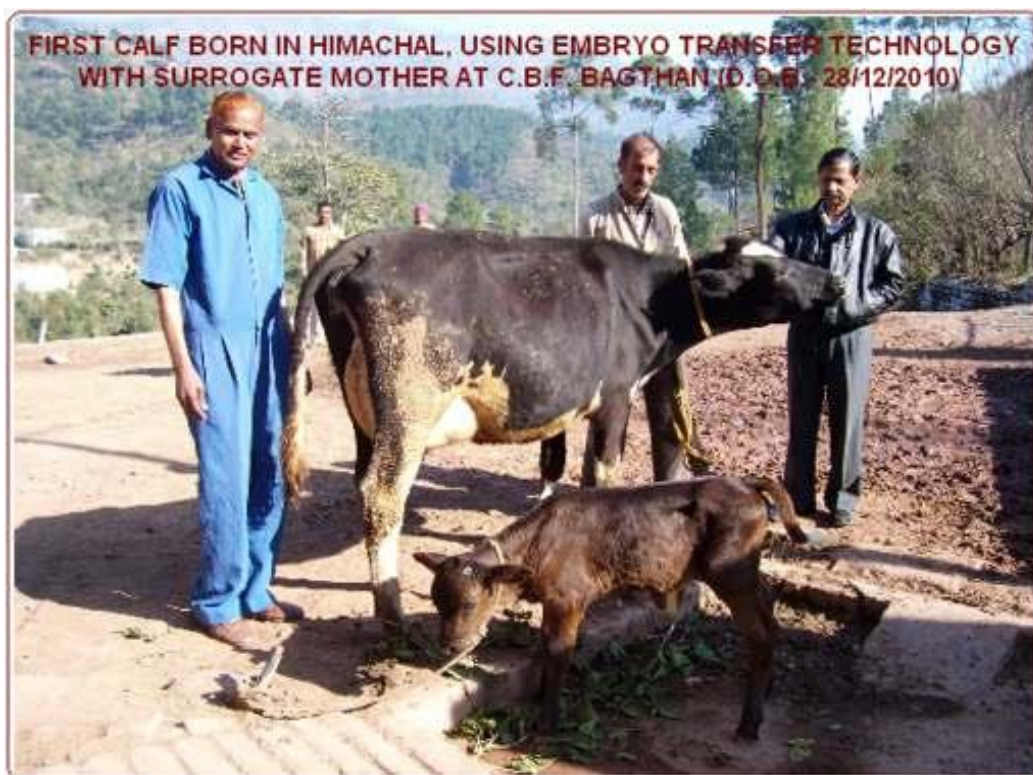
Initially three veterinarians from the department were sponsored to **German Holstein Association (DHV), Bonn, Germany** and thereafter to ETT Training Centre, Kalsi (Uttarakhand) to undergo training in this technique. Subsequently, a trial was conducted by **Dr. K.D. Ryot**, the then Deputy Director (Animal Production) of the department to standardize the technique of ETT at Cattle Breeding Farm, Bagthan and Livestock Farm, Kotla Barog in Sirmour District. In the beginning 10 frozen cattle embryos were brought from GADVASU, Ludhiana which were implanted in surrogate cows at Bagthan farm. Simultaneously embryos were also collected from the cows of Bagthan and Kotla Barog farms after subjecting them to super-ovulation treatment. These embryos were further transferred in synchronized recipients (surrogate cows) resulting in the birth of two calves at these farms.

The success of this pilot project in ETT has cleared the decks for implementation of the embryo transfer technique in the state on wider scale for the benefit of livestock owners. The major benefits and applications of ETT are *rapid genetic improvement, circumvention of infertility, twinning in cattle, conservation of endangered breeds or species of animals, easy and economical import and export of embryos as compared to adult livestock*, besides, *disease control*. This technique can bring a sea change in improving the economy of dairy farmers by rapidly enhancing the milk production in the state. The programme will also give impetus to the on going *Dugdh Ganga Yojna* in the state by contributing significantly to the genetic pool of elite milch cattle.

Regarding future strategy, the department proposes to import high pedigree embryos from abroad. These imported embryos will be implanted in the cows of State Cattle Breeding Farms. Male calves thus born will be used as bulls (sires) at Sperm Stations for semen production, whereas, females, on attaining their maturity, will be used as donor cows for production of embryos and calves at Breeding farms. Even the cows of average or low genetic merit can be used as surrogate mothers in this programme. A state of the art ETT Lab has been established at Palampur with an approximate cost of Rupees 2 Crores. For implementing this technique on a wider scale in the state, six more veterinarians have also undergone 21 days training at ETT Training Centre, Kalsi (Dehradun). Besides this, 60 other veterinary officers have been imparted refresher training on latest techniques in Animal Reproduction (including E.T.T.) at BAIF, Pune and Veterinary College, Pant Nagar (Uttarakhand).

(Dr. K. D. Ryot),
Director of Animal Husbandry,
Himachal Pradesh, Shimla-5.

“Gaurav”, the First Calf, Born in Himachal Pradesh using Embryo Transfer Technology at Cattle Breeding Farm, Bagthan on 28/12/2010 (Inset- Calf with Surrogate mother).





THIRD CALF BORN BY WAY OF MOET TECHNIQUE AT CBF, BAGTHAN ON 9/5/2011



FLUSHING OF EMBRYOS FROM A DONOR COW IN PROGRESS AT KOTLA BAROG FARM



**FIRST FEMALE CALF, "GANGA", BORN USING ETT AT LIVESTOCK FARM, KOTLA BAROG
ON 24/3/2012**



GANGA" AND HER SURROGATE MOTHER WITH Dr. K.D. RYOT, DY. DIRECTOR (ANIMAL PRODUCTION) AT KOTLA BAROG FARM



SECOND FEMALE CALF, "JAMUNA", BORN THROUGH ETT AT LIVESTOCK FARM, KOTLA BAROG ON 5/4/2012



"JAMUNA", WITH HER SURROGATE MOTHER (JERSEY COW), HER TRUE CUSTODIAN, AT KOTLA BAROG FARM



"GANGA" AND "JAMUNA", THE TWO ETT BORN CALVES, AT LIVESTOCK FARM KOTLA BAROG:



(STANDING BEHIND ARE THE ETT EXPERT, Dr. K.D. RYOT, AND THE STAFF OF LIVESTOCK FARM)