

## **WORLD'S FIRST CALVES OF PREDETERMINED SEX**

London (LPS): Scientists have successfully used British and US technologies to produce the world's first calves of predetermined sex.

This long-sought goal, which promises to allow farmers to choose the sex of their calves, has been achieved by the Mastercalf Company from Cambridge in eastern England in collaboration with Britain's Institute of Animal Physiology and Genetics Research, and the US Department of Agriculture (USDA).

It has been possible for some time to diagnose the sex of embryos before birth, but not, until now, to predetermine sex at the time of conception. This has now been made possible by combining a new US method of sperm sorting with UK in-vitro fertilisation (IVF) techniques.

Mastercalf, world leader in IVF technology, has confirmed that it has produced the first animals of predetermined sex - three male and three female Holstein Friesian calves that were indistinguishable in all other respects from any other calves.

Numerous attempts have been made over the last 75 years to predetermine the sex in animals. However, no successful procedure had been developed until Dr. Larry Johnson and his colleagues at the USDA's Agricultural Research Service invented a sophisticated method utilizing flow cytometry to separate live bull sperm based on their DNA content.

The process involves staining the sperm with a fluorescent dye and passing it through a laser beam that enables scientists to separate X-chromosomes that produce female calves from Y-chromosomes that result in male calves. This is possible through a four per cent difference in DNA content.

Sex is pre-determined by fertilising eggs in a laboratory test tube (in vitro) with the appropriate sperm. The resulting embryos are then used to establish pregnancy.

The link between the USDA and Mastercalf came about because the only practical way to apply the sex preselection procedures in cattle is to use it in conjunction with IVF. In order to merge the sexing and IVF technologies, a co-operative research and development agreement between the two organisations was established.

Extensive controlled field trials organised by Mastercalf, the agricultural business of Animal Biotechnology Cambridge Ltd., will now

be carried out under veterinary supervision on farms in three different parts of Britain before sexed embryos are available commercially.

Dr. David Cran, one of the world's leading scientists in this field, and his team at Mastercalf are currently producing more than 100 Grade One sexed embryos a week for the trials. He commented: "For the first time, farmers will be able to choose the sex of their calves with 90 per cent accuracy." (LPS)

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