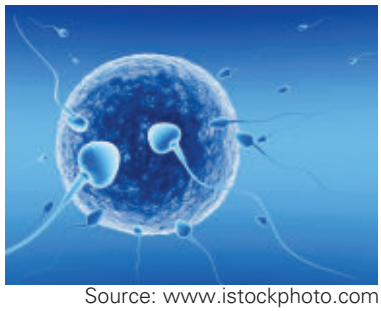
SEMEN SEXING PROCESS

"This technology involves low-cost, industrial scale production of semen enriched with sperm carrying X or Y chromosomes."



Source: www.istockphoto.com

Idea | Laboratory | **Pilot scale** | Scale-up | Industrial scale

► Process

Description

The technology consists of a new method of semen sexing by density gradient centrifugation, using fractions of enriched semen for application in artificial insemination (AI) or *in vitro* fertilization (IVF). Compared with the methods currently in use, the proposed technology offers larger quantities and higher quality of final product allied to lower costs.

Problem

The market requires a semen sexing technology that can be inserted in the frozen semen industry. The commercial application of the process depends on the establishment of a technology that is compatible with the freezing method, with a minimum loss of sperm during the process, and that does not diminish the sperm's fertilizing power.

Proposed solution

The proposed technology allows for the industrial scale production of semen doses enriched with sperm carrying larger quantities of X or Y chromosomes, with higher quality and lower cost compared to the processes currently in use.

Benefits

In comparison to cytometry, semen sexing by the proposed technology produces larger quantities of sexed semen with higher numbers of viable live sperm. Production can be greatly expanded without loss of purity of separated spermatozoa, at considerably reduced equipment acquisition and maintenance costs. Improving the quality and reducing the cost of the semen sexing process would translate into significant benefits in the area of genetic improvement for Brazil's huge dairy and beef cattle farming sector, which produces more than 6.6 million tons of beef and 20 billion liters of mil per year (IBGE, 2009).

Market potential

: In Brazil, more than 9 million doses of bovine semen were commercialized in 2009 for the genetic improvement of beef and dairy cattle breeds, 58% of which were supplied by domestic companies and 42% by international companies. The semen sexing technology is inserted in this market, which showed an accumulated growth of 47.35% in the last ten years (ASBIA, 2009; MAPA, 2009).

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