# DISCHARGE OF EMBRYOS FROM IN VITRO BOVINE PRODUCTION: A SUSTAINABLE VISION OF THE PROCESS

*DESCARTE DE EMBRIÕES NA PRODUÇÃO IN VITRO BOVINA: UMA VISÃO SUSTENTÁVEL DO PROCESSO*

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Brazil is the world's largest producer of *in vitro* embryos, so breeders in the country have strong interest in increasing the sustainability of the production process of this biotechnology. *In vitro* embryo production (IVP) leads to large waste of good quality embryos, so studies that aim to detect real losses of IVP embryos are important due to the need to develop more sustainable reproductive processes. The objective of this work was to ascertain the disposal rate of viable embryos from the bovine IVP database and present proposals to reduce production losses. The survey was carried out in a laboratory database that contains information about 2,399 aspirations performed between 2013 and 2016. The *in vitro* embryo production was carried out in the laboratory using processes such as maturation, fertilization and *in vitro* culture. On the seventh day of culture, the embryos were evaluated for viability for transfer, with some used and others discarded. Data were analyzed using descriptive statistics and showed the following rates of viable embryos and viable embryos wasted, respectively: in 2013 - 29% (2312/7905) and 7% (167/2312); in 2014 - 34.4% (1824/5308) and 11% (195/1824); in 2015 - 37.1% (3100/8355) and 21% (559/3100); and in 2016 - 30.1% (2165/7192) and 32% (530/2165). In four years of studies the total embryo production was 32% (9401/28760), with 15% (1451/9401) waste. This waste occurred because the average production of embryos exceeded the number of available synchronized receivers. Analyzed economically, this practice of discarding viable *in vitro* embryos generates a lower profit. From an environmental standpoint, this discarding wastes materials and consumes unnecessary energy. Thus, the best solution would be freezing these embryos. However, so far the most limiting factors are the vulnerability to cryopreservation, which exists possibly due to the accumulation of lipids in the cytoplasm. To summarize, the total loss of *in vitro* embryos was 15%. We propose a plan to count the number of synchronized recipients, taking into account breed, population and donor's history of aspiration (short term resolution). In the long term, a solution would be to establish an efficient embryonic cryopreservation technique.

Keywords: aspiration, cryopreservation, embryo receptors.

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