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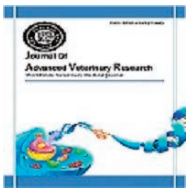

Occurrence of Quadruplets in Nelore Cattle: A Case Report

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ABSTRACT

Cattle are monotocous species and cow usually deliver one calf per birth. The present report has the aim to notify the birth occurrence of quadruplets of a Nelore cow: first time in scientific literature for this breed. The report presents negative and positive consequences of event.

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Introduction

Cattle are monotocous species, with one or, occasionally, two newborns. There are few reports in literature for quadruplets in cattle (Basrur and Kanagawa, 1969; Andreu-Vázquez *et al*., 2012; Biswas *et al*., 2015), being a very rare event. Prediction studies indicated that quadruplets rates in cattle would be 0.1% if multiple birth rate of herd would be 55% (Bennet *et al*., 1998). Multiple births are undesired in dairy cattle due to detriments caused and abnormal karyotype (Andreu-Vázquez *et al*., 2012). However, in beef cattle, the trait has economic potential for selection (Kirkpatrick, 2002; Komisarek and Dorynek, 2002).

Case report

The present report was aimed to notice, for first time in the available scientific literature, the occurrence of birth of quadruplets of a Nelore cow (*Bos taurus indicus*). No ethical statement was needed since no handling or sampling of animals was done. It is just a notification. A Nelore cow, in its second parturition, at four years and seven months of age, calved quadruplets, being three male calves and one female calf (Fig. 1). It is a rare event. The pregnancy resulted from artificial insemination of the cow by an Angus bull. One of the male calves died after birth. The other three are alive and healthy. Curiously, the cow calved twins in its first parturition. We tried to diagnose calves for freemartinism. However, farm was located far from the laboratory and it did not allow sampling fresh blood for testing

Discussion

Twinning rates or multiple births are unknown, in scientific literature, for Nelore cattle, but occurrence of twins in commercial herds was noticed by breeders. There are reports of quadruplets in other cattle breeds (indicine and taurine) by Basrur and Kanagawa (1969); Andreu-Vázquez *et al.* (2012) and Biswas *et al.* (2015). It is worth to know that twinning rates in cattle are low, varying from 0.5% to 5% (Vinet *et al*., 2012).

Some negative consequences come with the occurrence of multiple births such as: smaller birth weight, increase in calf

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Fig. 1. Nelore cow with three crossbred calves alive and healthy.

mortality, dystocia, stillbirth, calf rejection by dam, retention of placenta, increase in open days and freemartinism (Kirkpatrick, 2002; López-Gatius *et al*., 2017). Moreover, it is recommended to remove one of the embryos in dairy cattle (Andreu-Vázquez *et al*., 2012; López-Gatius *et al*., 2017). However, Kirkpatrick (2002) proposed alternative cow and twin calf management to avoid drawbacks of twinning in beef production systems.

In beef cattle production, the increase in number of calves per parturition improves economic return (Guerra-Martinez *et al*., 1990; Komisarek and Dorynek, 2002). In production systems with taurine breeds, in which calves are heavier at birth, selection for twins is potentially of interest (Moioli *et al*., 2017).

Heritability estimates for twinning rates are low (Moioli *et al*., 2017; Lett and Kirkpatrick, 2018), indicating low additive genetic contribution. The fact that dam, herein reported, had multiple births in both parturitions might be an indication of additive genetic contribution, since other contemporary dams were in same environment and calved singletons. It might also be a contribution of non-additive genetic, since sire was from another breed. Although heritability estimates were low, Van Vleck and Gregory (1996) reported increase in twinning rates by selection. Moioli *et al.* (2017) reported great increase in heritability estimates when genomic data were incorporated, being interesting when trait is selection criteria.

Nelore breed is raised in tropical environment and mainly in semi-extensive or extensive production systems. Calves are born with average weight of 30 kg. In this situation, selection for multiple births would not be advantageous. However, in some farms, production is intensified by using new technologies. Therefore, it might be a trait interesting to be selected due to its economic return.

The report of animals with superior phenotype, as it is in the present case, are worth to be done. We notice variability within breed. It may be taken into account for further studies of reproductive physiology and biotechnologies and also propositions of phenotypes of interest.

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Conflict of interest

None of the authors has any conflict of interest to declare.

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