

Effect of follicular wave moment on AFC and its repeatability of Nelore and Caracu prepubertal heifers

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Introduction

Antral Follicle Count (AFC) is the evaluation of the ovarian antral follicles number (≥ 2 mm) presents in the ovaries at the same time. This is an attribute that doesn't follow the same pattern among bovine genetic groups and is highly variable between individuals. Despite this, it has high repeatability in the same animal (Burns et al. 2005. Biol Reprod 73:54-62; Ireland et al. 2007. Hum Reprod 22:1687-1695) but regarding this characteristic in prepubertal heifers and its repeatability at different follicular wave moment, there're conflicting reports.

Objective

The objective of this study was to evaluate the effects of antral follicular wave moment (emergence and dominance) on the AFC and its repeatability in prepubertal heifers of different genetic groups.

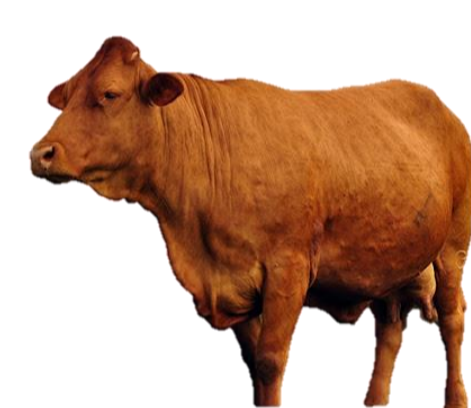
Materials and methods



Nelore (*Bos indicus*)

n = 30

- Mean age = 468 ± 25 days (between 395 and 518 days)
- Mean weight = 236.73 kg (between 186 and 284 kg)

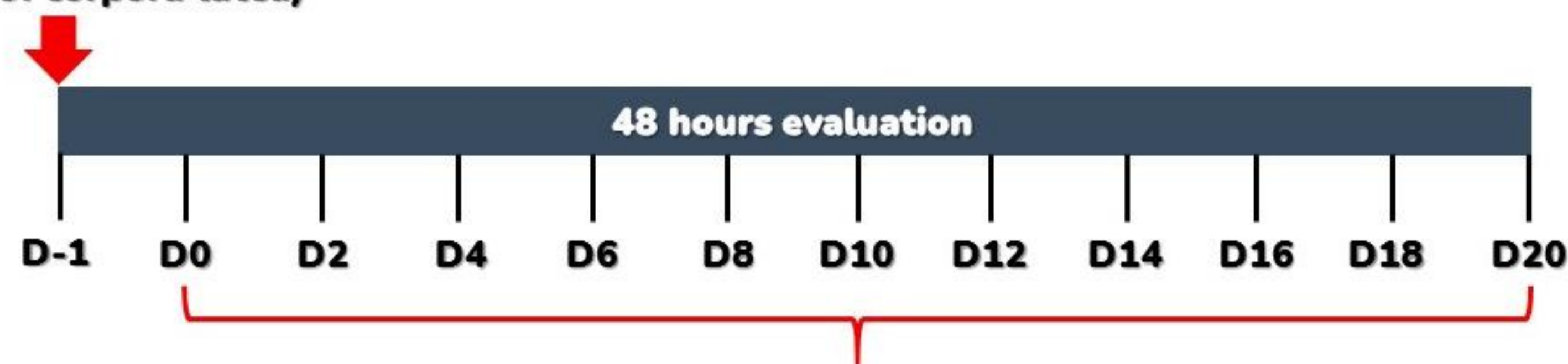


Caracu (*Bos taurus*)

n = 28

- Mean age = 468 ± 20 days (between 404 and 504 days)
- Mean weight = 282.14 kg (between 214 and 317 kg)

Prepubertal anestrus confirmation (absence of corpora lutea)



Antral follicles were identified and quantified by mapping the location of each structure

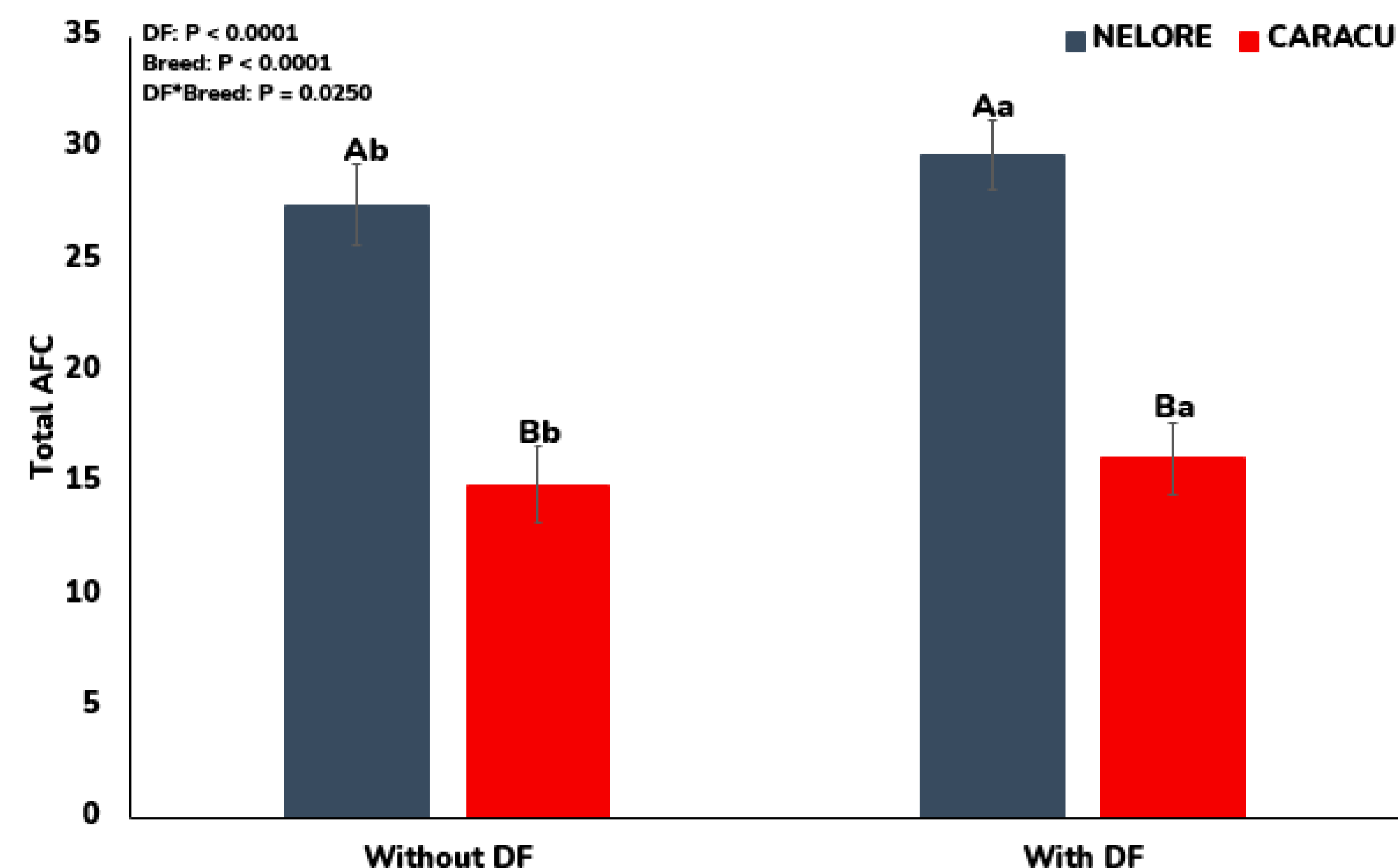
Data obtained were compared according to the antral follicular wave moment, which were defined by the absence or presence of a dominant follicle (DF) in at least one of the ovaries, with a diameter ≥ 6.2 mm for Nelore and ≥ 8.5 mm for Caracu breed.

Results

The total AFC repeatability in prepubertal Nelore and Caracu heifers was 0.76 and 0.74, respectively ($P < 0.0001$).

Regardless of the antral follicular wave moment, the total AFC was greater in prepubertal Nelore heifers compared to Caracu ones ($P = 0.0004$ and < 0.0001 , respectively) in all study days. The follicular wave moment also influenced the evaluation and the total AFC was greater ($P < 0.05$) in females with DF (dominant phase of the antral follicular wave).

Fig. 1. Mean (\pm standard error) of the interaction of total AFC evaluated for eleven days every 48 hours at different follicular wave moments (emergence and dominance) with the absence or presence of DF and between the Nelore and Caracu breeds.



Lowercase letters (^{ab}) indicate significant difference ($P < 0.05$) between the follicular wave moments (absence and presence of DF) in the same breed.

Uppercase letters (^{AB}) indicate significant difference ($P < 0.05$) between breeds in the same follicular wave moment (absence or presence of DF).

Conclusion

Although the genetic group and the antral follicular wave moment exert effects on the AFC, it has high repeatability in prepubertal heifers.

Acknowledgments