

L. Chaufard, Z. Dehghani Madiseh, F. Fatahnia, and D.M.W. Barrett

Dalhousie University, 58 Sipi Awti, B2N 5E3, Truro, NS, Canada

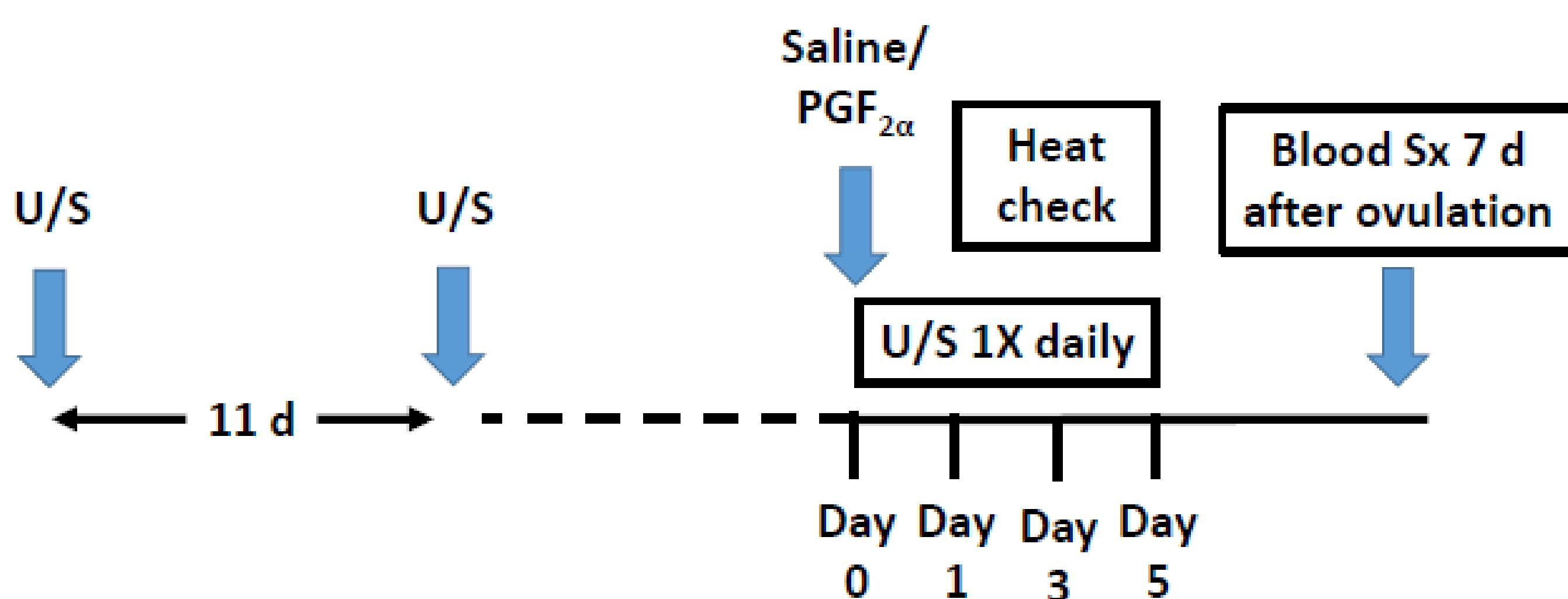
Introduction

- Often controlled breeding protocols using PGF_{2α} need to be used to maximize reproductive herd performance.
- A few studies have been done on the induction of ovulation with PGF_{2α} in cattle- in dairy cows and pubertal heifers and beef cattle either pretreated with exogenous hormones or not [1-6].
- Beef cattle are reproductively different from dairy cattle in many ways due to differences in their genetics and management.
- When animals are pretreated with hormones before being given the treatment hormone of interest, perhaps the pretreatment hormones are effecting the outcome.
- It is unclear if a luteolytic dose of PGF_{2α} induces ovulation in the absence of CL in cattle and no one has examined this in pre-pubertal dairy heifers or the effects of a sub-luteolytic dose.

Objectives

- To determine if a luteolytic and sub-luteolytic dose of PGF_{2α} will induce ovulation in the absence of CL in pre-pubertal dairy heifers.

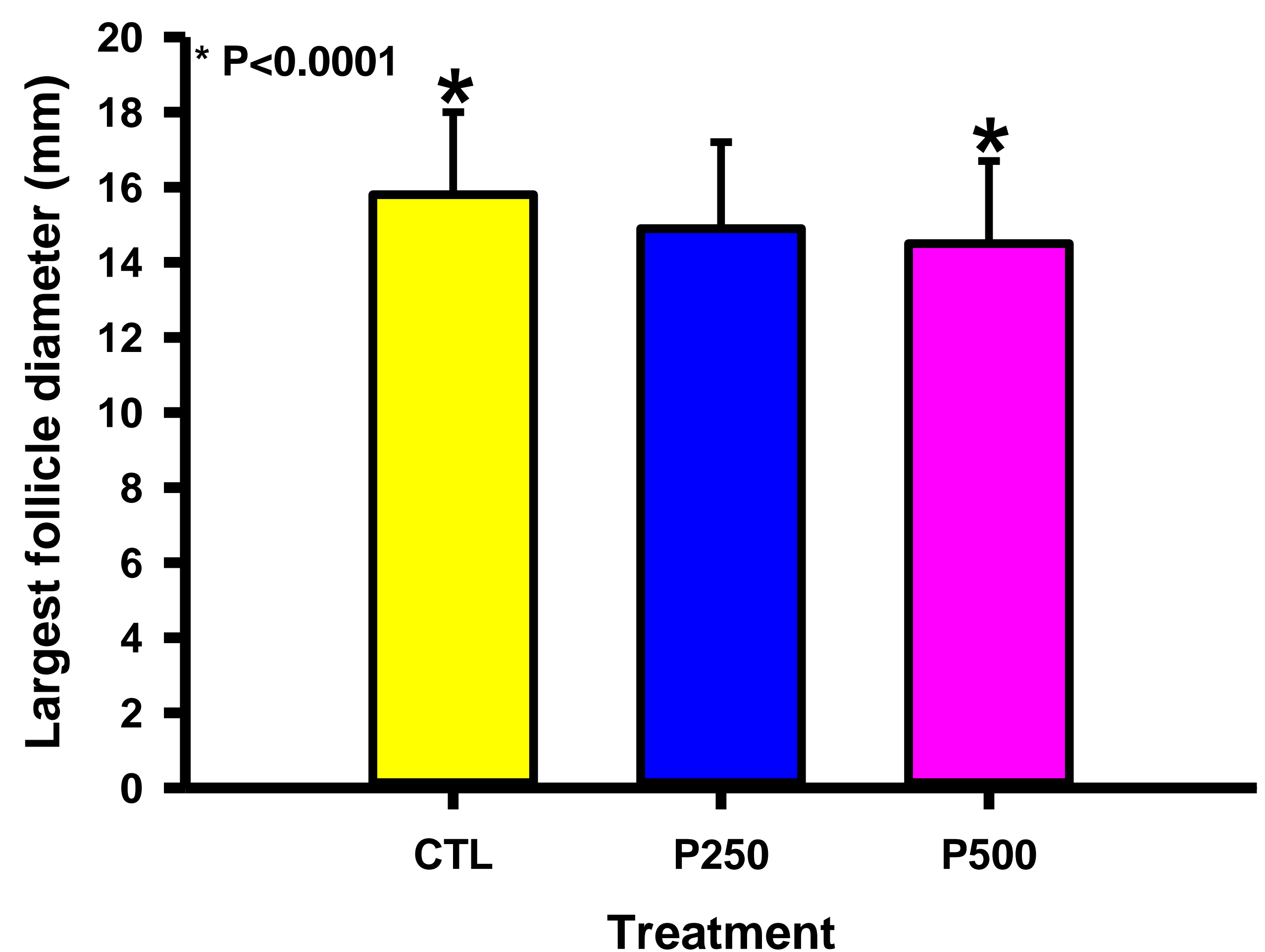
Materials and Methods



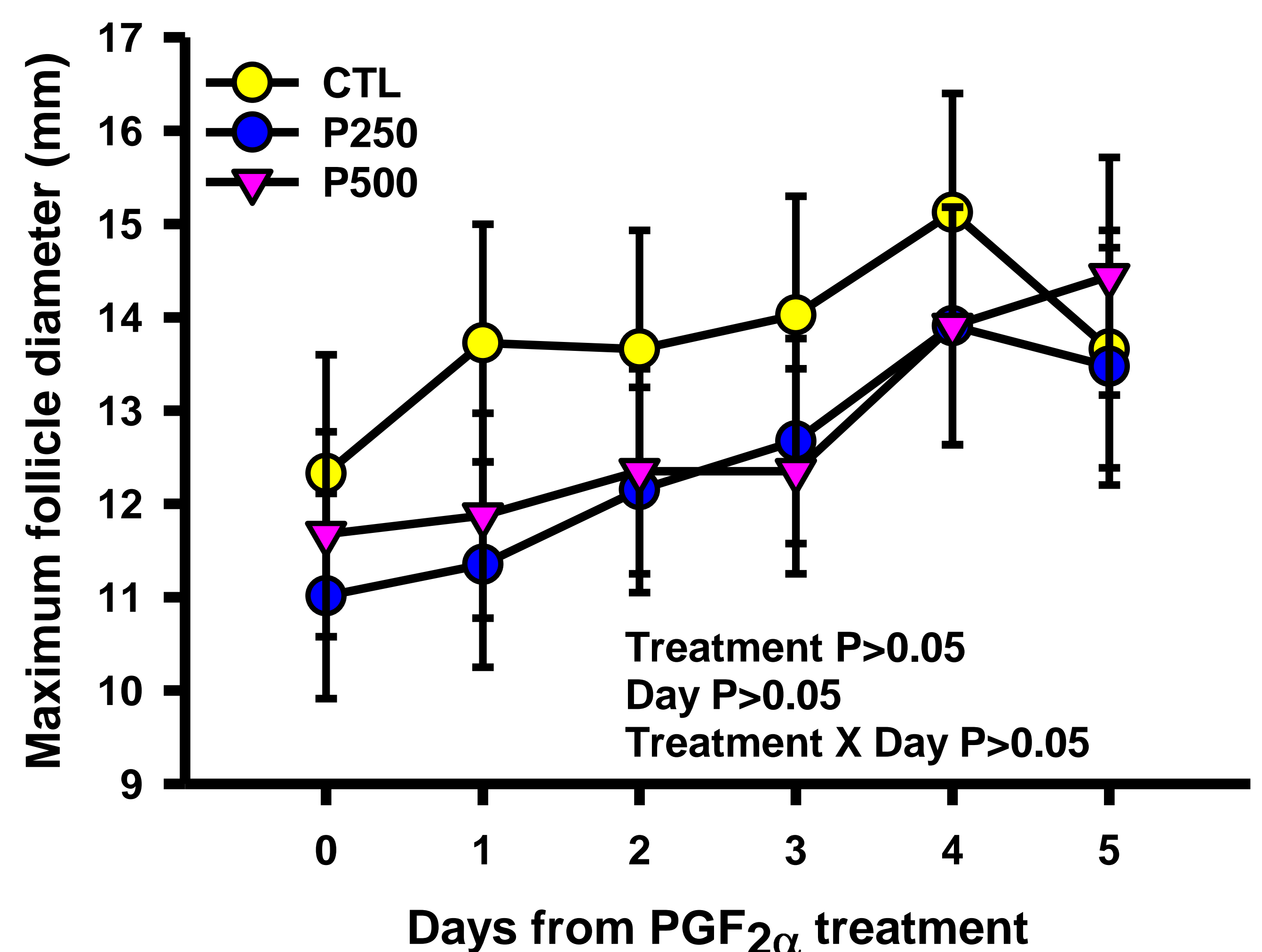
- Ovarian ultrasonography (U/S) was conducted 11 d apart on pre-pubertal heifers to determine if they had CL or not.
- If they had no CL, the largest follicle diameter was noted and this diameter determined when they would undergo U/S again.
- When a growing follicle was first observed to be 10-12 mm in diameter (Day 0), calves were randomly treated with an injection of saline (CTL; n=4) or PGF_{2α} (cloprostenol; Estrumate®, Merck Animal Health, Kirkland, Quebec, Canada; 250 µg (P250; n=4) or 500 µg (P500; n=5)).
- Calves were balanced for dam parity, sire, and calf age, BCS, height, and weight.
- Calves underwent U/S daily until ovulation or Day 5. From Days 1 to 5, calves were observed for estrus.
- If a calf ovulated, a plasma sample was collected 7 d after ovulation to approximately determine progesterone concentrations using a TARGET Bovine CL Chek kit (BioMetallics, Princeton, NJ, USA).
- Data was analyzed using SAS PROC MIXED. If a main effect was found to be significantly different, then the Tukey Test was used.

Results

- There were no signs of estrus. Only one calf ovulated, a P500 calf on Day 5, with no formed CL at 7 d after ovulation.
- From Days 1 to 5, the largest diameter follicle observed was bigger in the CTL (15.8 ± 2.2 mm) than P500 calves (14.5 ± 2.2 mm; P<0.0001); P250 calves were intermediate (14.9 ± 2.3 mm; P>0.05).



- From Days 0 to 5, daily maximum follicle diameter was not affected by PGF_{2α} (P>0.05), but was larger (P<0.0001) in calves from dams with a parity of 1 (14.5 ± 0.4 mm) than a parity of ≥2 (11.5 ± 0.4 mm).



Conclusions

- It is unclear if P500 induces ovulation in the absence of CL; it appears that P250 does not. But, follicle diameter in pre-pubertal dairy heifers was affected by P500.

Acknowledgements

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