PSXI-17: Increasing the number of water troughs does not increase water intake or improve calf performance

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Introduction

The amount of water needed for cattle is influenced by the type of cattle, weight, diet and environmental conditons (Rasby and Walz, 2015). As cattle become heavier, daily water intake can increase between 18 to 24 L when ambient temperature increases from 26 to 32 ºC (Winchester and Morris, 1956).

In episodes of heat stress, Mader et al. (1997) water space should be increase 3 times to meet water demands.

Objective

The aim of this study was to evaluate the effect of increasing from one to two water troughs per pen on water intake, performance and calf behavior over time

Materials and Methdos

One hundred and eight Holstein male calves (241 ± 3.1 Kg and 184 ± 0.9 d of age) were allocated in 6 pens (3 pens per treatment; 18 calves per pen) with one computerized concentrate feeder and one straw feeder with 5 feeding spaces. Pens were assigned to one of the two treatments according to the number of water troughs, a single water trough (SWT) or a double water trough (DWT). Concentrate and water intake was recorded daily, and body weight (BW) and behavior fortnightly. Data were analyzed using a mixed-effects model with repeated measures including treatment, period and their interaction as main effect and pen per treatment as random effect.

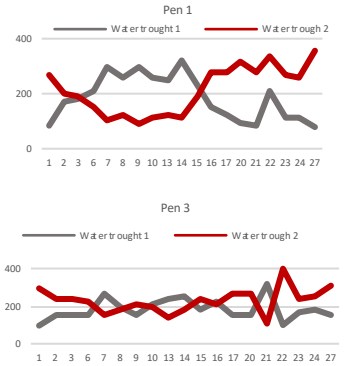

Figure 1.Examples of indistinctive use (total liters per pen) of the two water troughs by cattle in pen 1 and 3 during the first days of study

Results

Table 1. Performance, feed and water intake and carcass data of Hostein bulls with a single water trough (SWT) or a double water trhogh (DWT) per pen

	SWT	DWT	SEM	T	Time	T x Time
Initial BW, kg	241	241	0.9	0.94		
Final BW, kg	534	540	4.7	0.45		
ADG, kg/d	1.64	1.67	0.032	0.54	< 0.001	0.25
Water intake, L/d	34.7	34.9	0.63	0.79	< 0.001	0.63
Feed intake, kg/d	7.1	7.4	0.13	0.11	< 0.001	0.93
Carcass weight, kg	296	296	3.3	0.89		
Dressing, %	52.9	52.5	0.32	0.41		

No differences ($P > 0.10$) in behaviors such us grooming, oral behaviors, fighting, mounting or displacements were observed during the study between treatments.

Conclusion

The provision of an extra water trough per pen did not improve calf performance nor increase water intake even in summer month. The cleanliness of the water troughs may be the key for the indistinctive use of the two water points.

Winchester and Morris, 1956, JAS 15, 722-740 ; Mader et al. 1997, Proc 5th Int Livest Symp Amer Soc Agri Eng, 795-802; Rasby and Walz, 2015, Nebraska Extension G2060

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