

Effects of Mechanical Lead System for Boar Control During Heat Detection on Libido and Salivary Androstenone and Androstenol

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Introduction

Daily boar exposure for weaned sows shortens weaning-to-estrus interval.^{6,13} Boar libido impacts a technician's ability to correctly identify heat⁶. Mechanical leads are used for human safety and to reduce labor for boar movement and heat detection. To date, we are unaware of other studies that have measured impact of mechanical lead on libido and salivary androstenone and androstenol levels.

Objective

This study compared two options for mechanical leads, the Boar Bot (BB) and Contact-O-Max (CM) on measures of boar libido during heat detection and effects on salivary androstenone and androstenol as a potential indicators for libido.

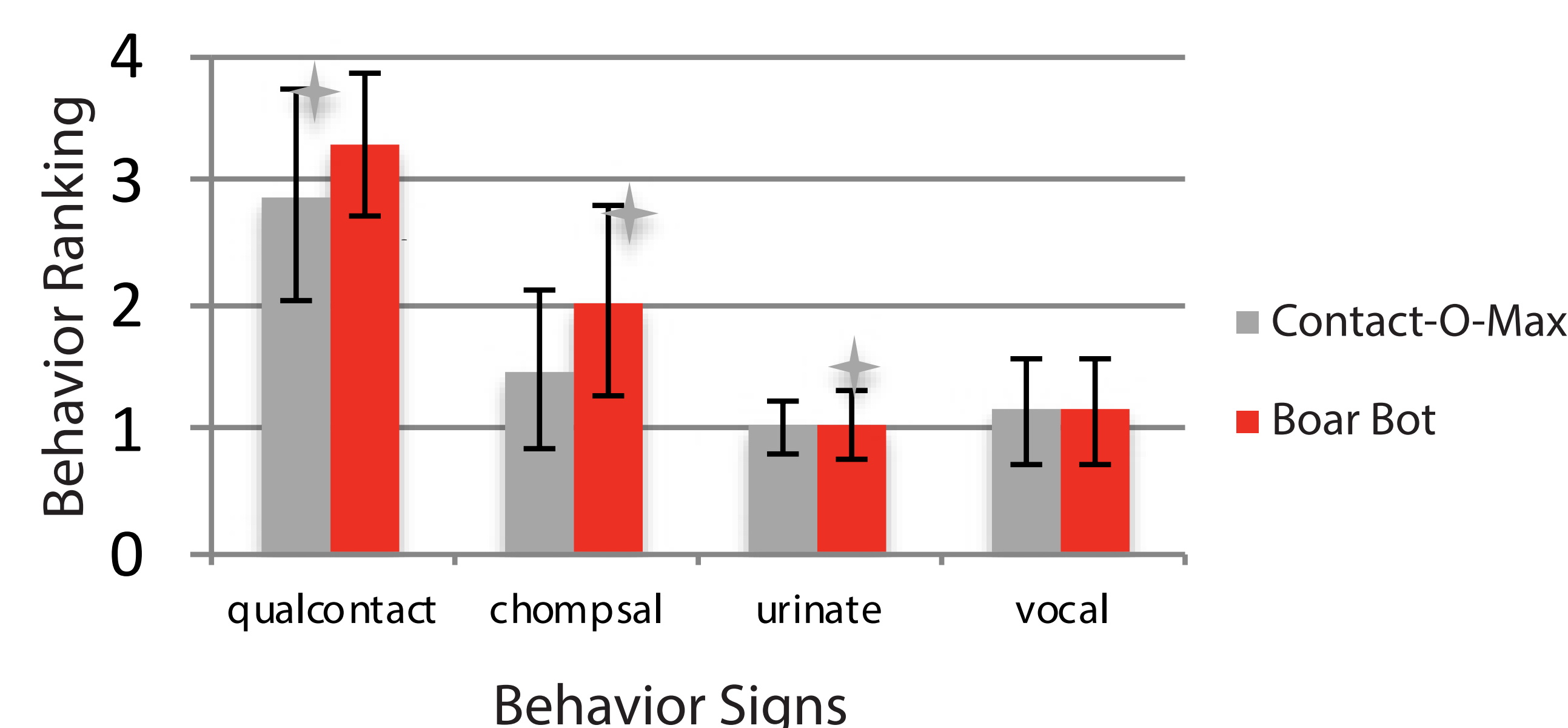
Materials and Methods

Twelve boars from 5 different farms were observed during morning heat detection from June through July 2017. Farms ranged in size from 2700 to 6200 sows. Boars observed were 50% Meishan and commercial breed. Different treatments were located on different farms. For BB, 5 boars were used to observe libido in response to 2759 sows over 9 days. For CM, libido of 7 boars to 2840 sows was observed over a 9-day period. Boar libido behaviors were ranked (1- 4) with 1=not interested and up to 4=strong activity. Scores on a per sow basis included contact time (head toward sow), chomping/saliva production, urination, vocalization, and the time for the boar to be moved from snout to tail while in front of a sow stall. Saliva samples were obtained from boars via ropes before and after a heat check shift. Samples were extracted and stored at -80°C and later processed for gas chromatography analysis of androstenone and androstenol¹.

Results

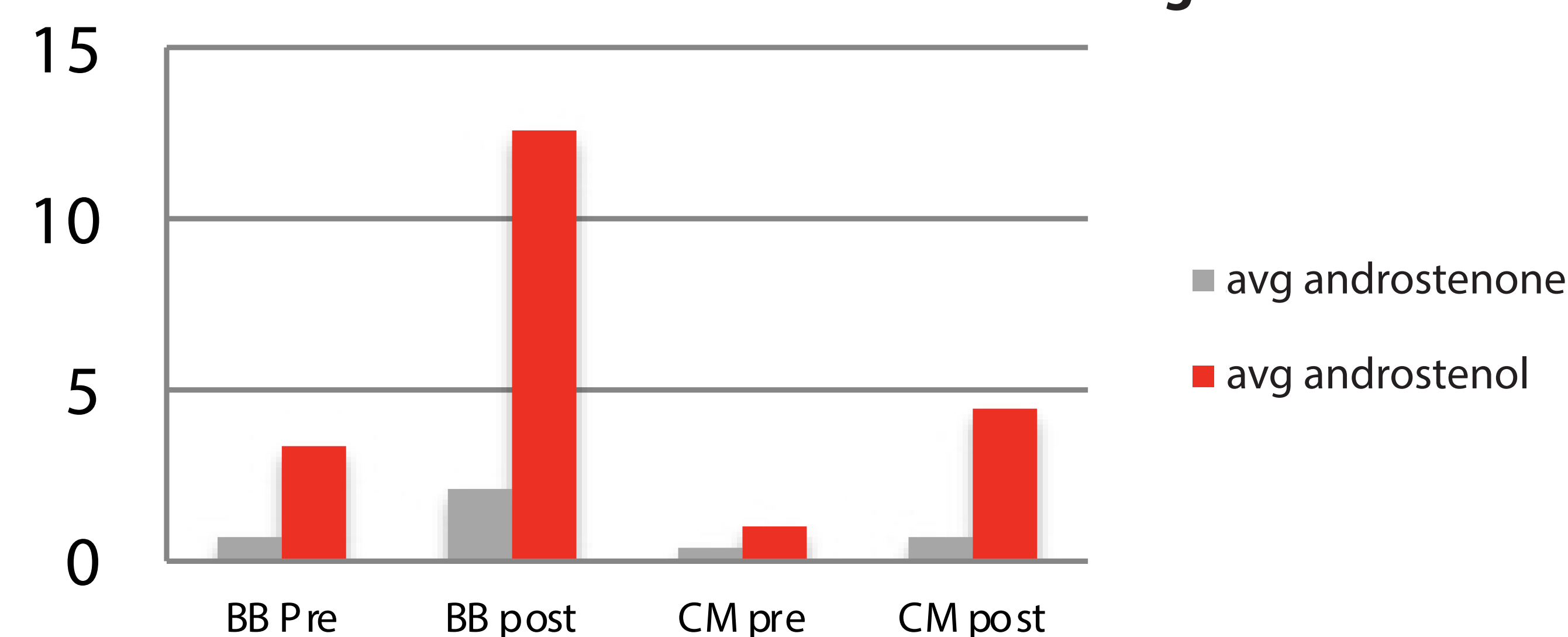
Statistics were performed using SAS for the main effects of mechanical lead, and boar and sow order of exposure (1-200, and 201-400 sows/day). BB boars showed doubled contact time ($p<0.0001$), increased chomping/saliva production ($p<0.0001$), and increased urination ($p<0.02$), with females over CM boars (Figure 1). There was no significant difference for vocalization. It was common to observe boar libido waning over time for both lead systems. CM libido waned more than BB ($P<0.05$).

Figure 1: Overall Means for Behavior Signals



There was a difference between pre- and post- androsterone and androstenol for all boars, but no significant difference between BB and CM boars (Figure 2).

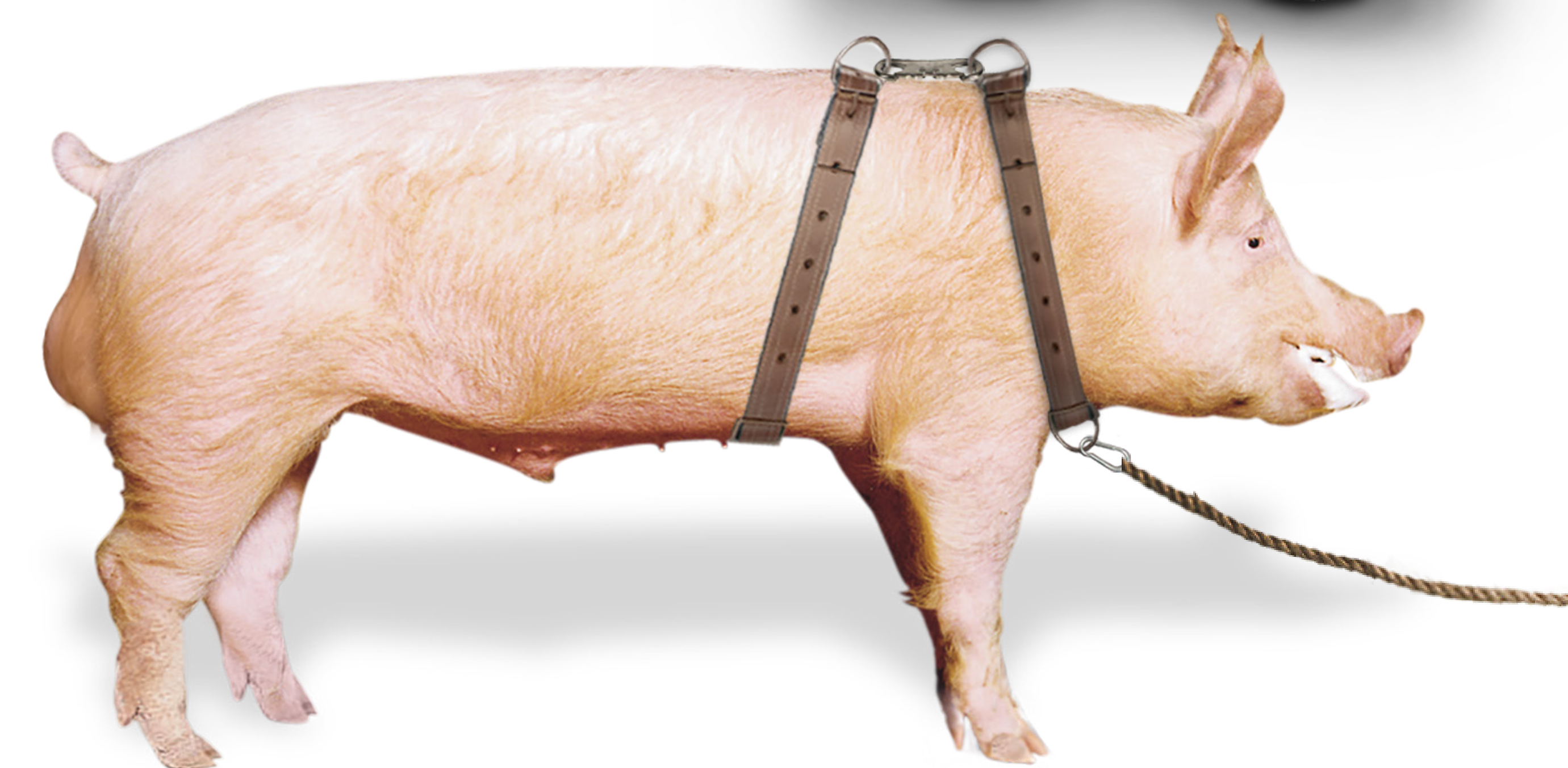
Figure 2: Average Boar Androstenone and Androstenol Levels Before and After Heatchecking



Discussion

Of note to veterinary practitioners providing reproductive consulting, boars in CM tended to lay down more frequently, especially as heat detection shifts progressed. By choice, BB farms rotated boars more frequently than CM farms, resulting in better libido scores. In fact, all CM farms used the same boar for the entire morning. We observed that some farms had a favorite boar (usually elderly) they chose to use every day. Farms using the same boar daily had lower libido scores. In addition, psychological attachment may make staff reluctant to cull boars viewed as "pets." Training on why a boar replacement program is important to impact boar libido and human safety could be valuable to the industry. Of note is that the farm with highest post heat checking salivary androstenone and androstenol did the best job of rotating, culling old, and training new boars. This suggests that testing at height of boar excitement or just after, could be a better timing to measure boar libido. Further studies are needed with saliva collection during heat checking to determine if libido difference between method of boar control.

Overall, this study shows boar handling for heat checking has a significant difference on boar libido and performance. Investigating further on the effects of age and training for boars can help formulate better boar protocols for improving heat checking efficiency on sow farms.



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