

# The effects of bull-specific scents on the reproductive performances of the postpartum Hanwoo cows

Junyoung Kim<sup>1</sup>; Yubin Song<sup>1</sup>; Muhammad Shakeel<sup>1</sup>; Heejun Jung<sup>2</sup>; Ho-Youn Kim<sup>3</sup>;

Minjung Yoon<sup>1, 2, 4, 5</sup>

1. Department of Animal Science and Biotechnology, Kyungpook National University, Sangju, 37224, Republic of Korea
2. Department of Horse, Companion, and Wild Animal Science, Kyungpook National University, Sangju 37224, Republic of Korea
3. Smart Farm Research Center, Korea Institute of Science and Technology (KIST), Gangneung, Gangwon 25451, Republic of Korea
4. Research Institute for Innovative Animal Science, Kyungpook National University, Sangju 37224, Republic of Korea
5. Solomon Co., Ltd. Sangju 37224, Republic of Korea

The effects of a bull's presence on cows' reproductive physiology and performance through sensory cues have been studied. The results indicate that the chemical communication between bulls and cows is one of the key factors for normal reproductive functions. We recently extracted the specific chemical compounds from bull's urine and combined them in the air freshener (on a patent). This study aimed to investigate the effect of bull-specific scents on the reproductive efficiency of Hanwoo cows. The study used 90 postpartum Hanwoo cows at four Hanwoo breeding farms from August 2022 to August 2023 in the Republic of Korea. The air fresheners containing bull-specific scents were attached to the pole approximately at 2.5 m height for the treatment group, while such stimuli were absent in the control group. Results revealed significant differences in various reproductive parameters between the treatment and control groups. Specifically, cows exposed to bull-specific scent exhibited shorter intervals ( $47.6 \pm 3.26$  days) from calving to first behavioral estrus (ICE) compared to the control group ( $62.3 \pm 3.76$  days). The interval from calving to the final artificial insemination (IFAI) from the cows in the treatment group was also shorter than that of cows in the control group ( $84.1 \pm 5.60$  days). Additionally, the number of artificial inseminations until conception (NAC) was lower for the cows in the treatment group ( $1.3 \pm 0.07$ ) compared to that of cows in the control group ( $1.6 \pm 0.13$ ). These findings suggest that bull-specific scent-contained air freshener positively influences the reproductive efficiency of Hanwoo cows. In conclusion, the chemical communication between bulls and cows is essential for normal reproductive performance.

Acknowledgment: This research was supported by the Korea Institute of Planning and Evaluation for Technology in Food, Agriculture, and Forestry (1545026914) and the Korea Institute of Science and Technology.

e-mail address: [cpm\\_911@naver.com](mailto:cpm_911@naver.com)