

Identifying and describing ultrasonic noise on dairy farms

Sarah Purcell¹, Emily Pope², Paul Bernard² & Kathryn Proudfoot¹

¹Department of Health Management, University of Prince Edward Island, 550 University Ave, Charlottetown, PEI

²Department of Biomedical Sciences, University of Prince Edward Island, 550 University Ave, Charlottetown, PEI



01. Introduction

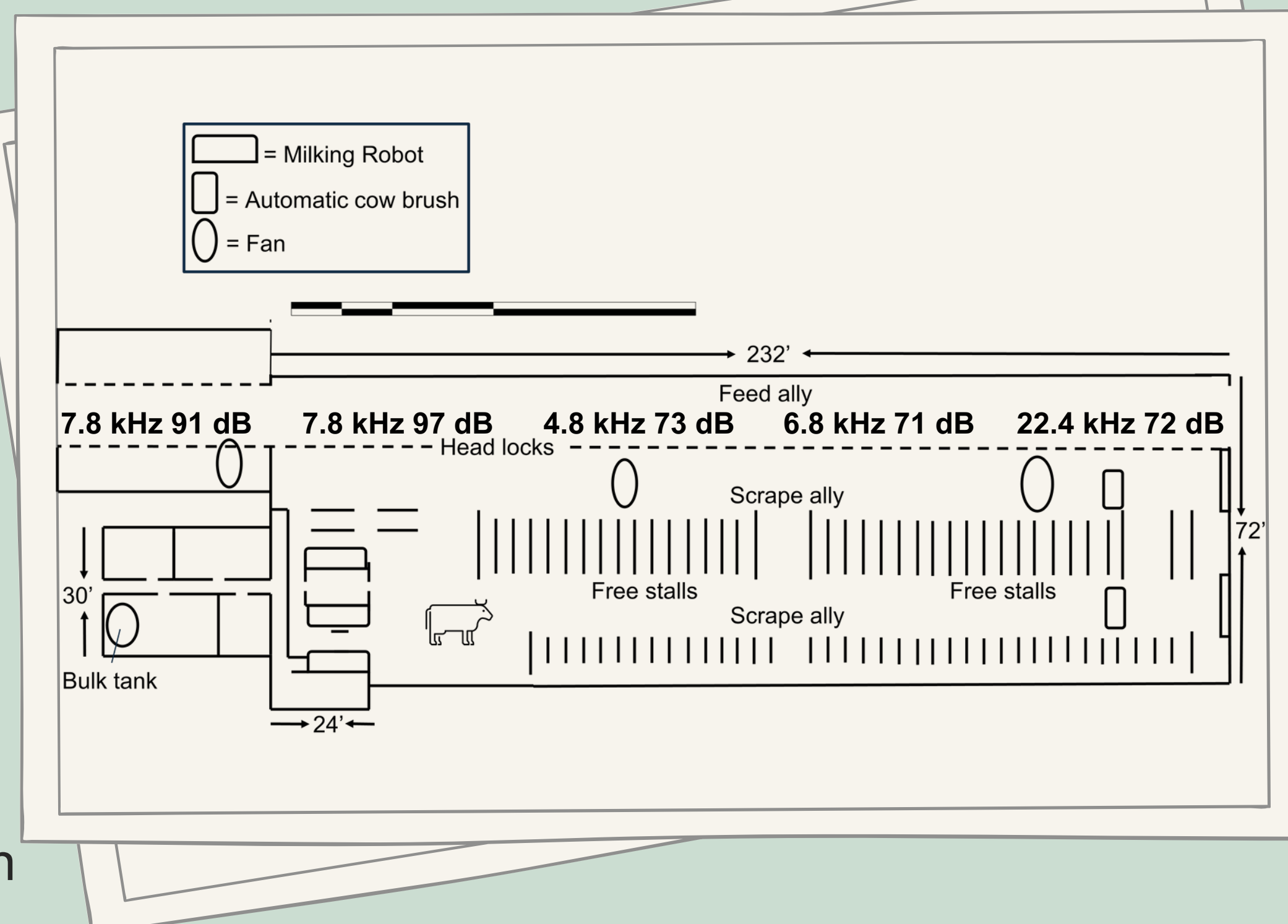
- Studies show that excess noise in the human audible range on dairy farms can have negative effects, but cattle can hear sound frequencies up to 37 kHz, which is significantly higher than the human hearing range of up to 20 kHz.
- Ultrasonic noise has been demonstrated to induce stress in other mammals, and it's suspected it could have similar effects on cattle.
- In dairy farms, there are many potential sources of ultrasonic noise, especially during milking procedures.

02. Objectives

1. To investigate whether there is ultrasonic noise present on dairy farms.
2. To identify sources of ultrasonic noise on dairy farms, with a focus on milking procedures, and describe their individual frequencies.

03. Methodology

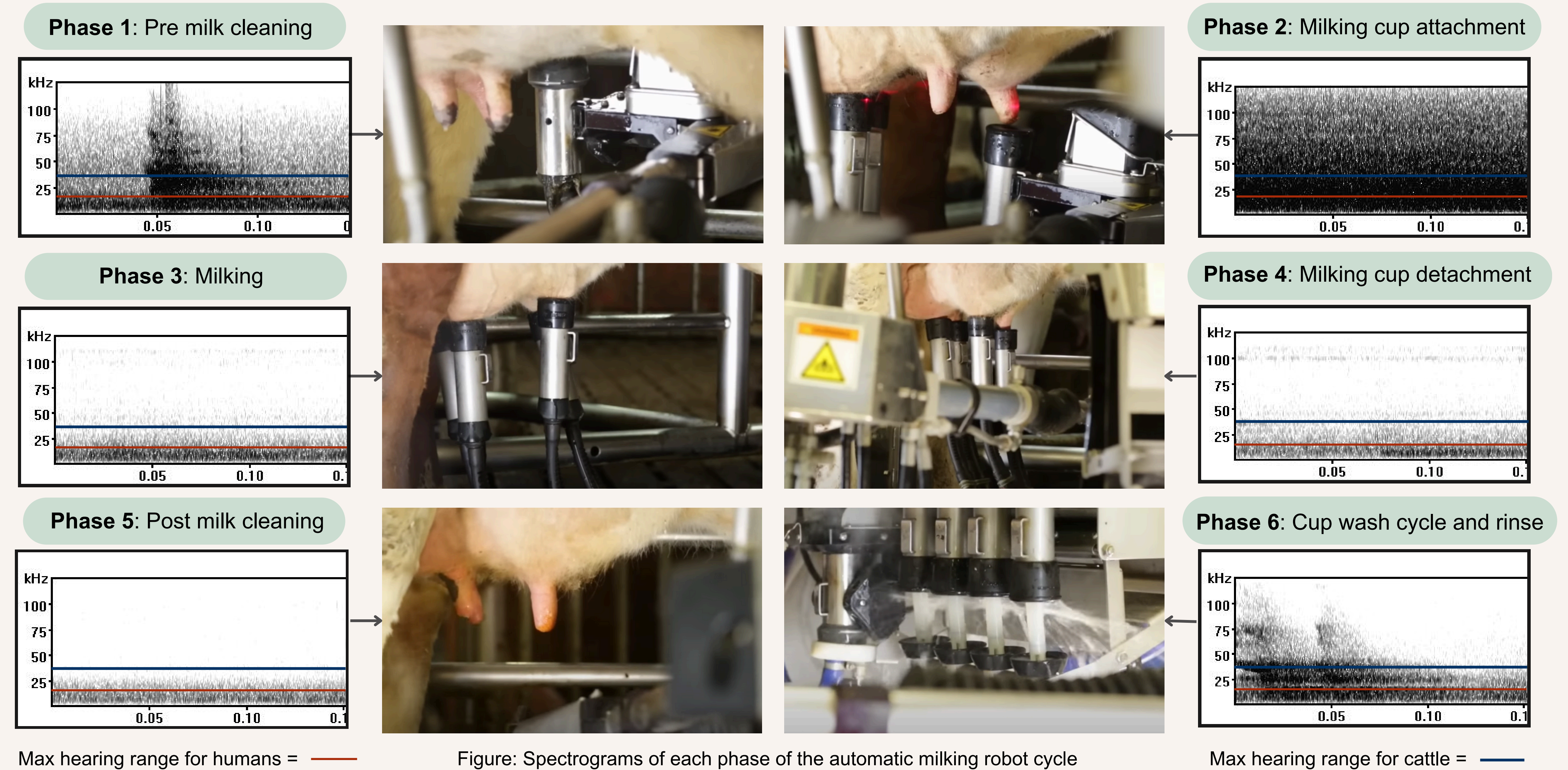
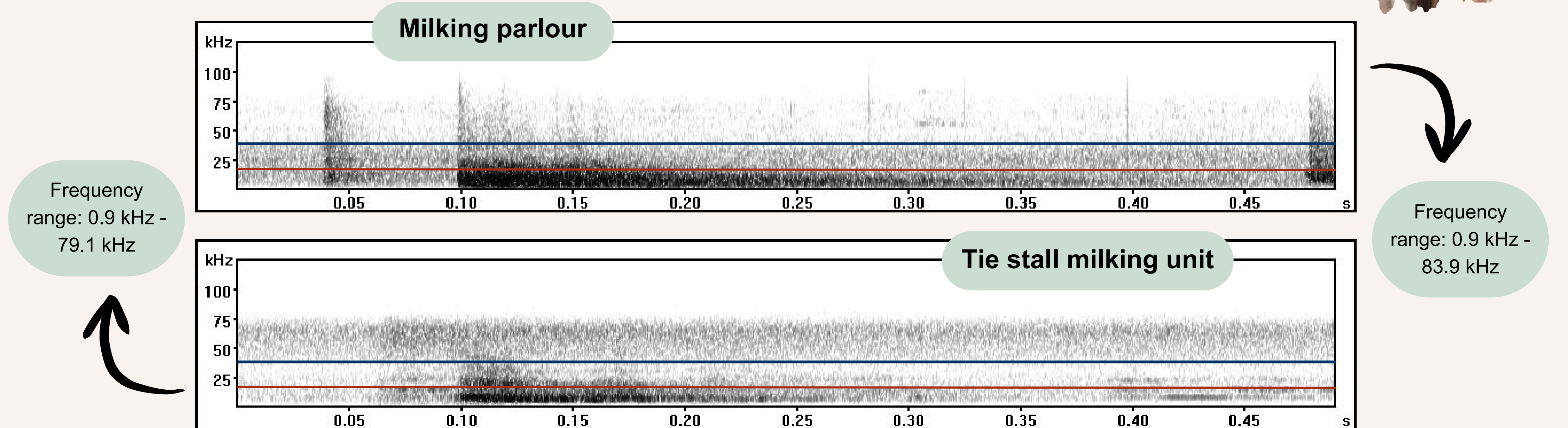
- 1 Recordings were taken of potential sources and every 3 m on farm using an Avisoft UltrasoundGate and microphone.
- 2 6 dairy farms were mapped out digitally in 2D and overlaid with frequencies detected at max amplitude.
- 3 Data were analyzed using the Avisoft Bioacoustics program and frequencies from produced spectrograms are presented descriptively.



Automatic Milking System
Scan this QR code to watch and listen to the automatic milking robot at work

04. Results

Broadband noises with frequency components >20 kHz were identified at all 6 dairy farms, therefore ambient ultrasound appears common on the dairy farms included in this study.



05. Conclusions

- This study shows that many of the sources of noise on dairy farms that are audible to people also emit sound with ultrasonic components.
- Some of the ultrasounds recorded on dairy farms contain frequencies well within the upper hearing range of cattle, as well as frequencies far above their hearing threshold.
- Further work is encouraged to determine how cows respond to these ultrasonic noises.