



KEY WORDS

- ✓ Holstein
- ✓ Simmental
- ✓ Locomotor activity
- ✓ Behavioral changes
- ✓ Diseases

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THE RELATIONSHIP BETWEEN DISEASE AND FREQUENCY OF MOVEMENT IN HOLSTEIN AND SIMMENTAL COWS

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THESIS ABSTRACT

In this thesis, the effects of diseases on locomotor activity in Holstein and Simmental dairy cows were evaluated using sensor technologies. The study was conducted on dairy farms in Bursa, Türkiye, where movement data were continuously monitored using the SCR Heatime® Pro+ system and compared between healthy and disease periods.

Results showed that mastitis, digestive, metabolic, hoof, and reproductive diseases caused significant changes in locomotor activity. ROC analyses indicated that locomotor activity can support early disease detection. These findings highlight the potential of sensor-based precision livestock farming for herd health monitoring and improved productivity

APPLICATION AREAS OF THE THESIS RESULTS

The findings of this thesis can be used to support the development and wider adoption of sensor-based monitoring systems for the early detection of diseases in dairy farms. Associating changes in locomotor activity with disease conditions may contribute to decision-support tools for herd health management.

The results provide a scientific basis for precision livestock farming, AI-based early warning systems, and animal welfare-oriented herd management. They may help veterinarians, researchers, and farm managers improve disease detection, reduce treatment costs, and increase farm productivity

ACADEMIC ACTIVITIES

1. Yılmaz, K. B., & Orman, A. (2026). Breed-specific locomotor behaviour for early disease detection in Holstein and Simmental cows. *Italian Journal of Animal Science*, 25(1), 321–330. <https://doi.org/10.1080/1828051X.2026.2625496>
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