



THE UNIVERSITY of EDINBURGH  
Royal (Dick) School of  
Veterinary Studies



***USING BLUETOOTH BEACONS TO  
EXAMINE EWE-LAMB DISTANCE AS AN  
INDICATOR OF WELFARE IN SHEEP***

**Michelle Reeves**

**Aimee Walker**

**Anthony Waterhouse**

**Ann McLaren**

**Claire Morgan-Davis**

**Nicholas Nils Jonsson**

**Cathy Dwyer**

**Fiona Kenyon**

*Leading the way in Agriculture and Rural Research, Education and Consulting*

# Ewe-lamb bond is crucial



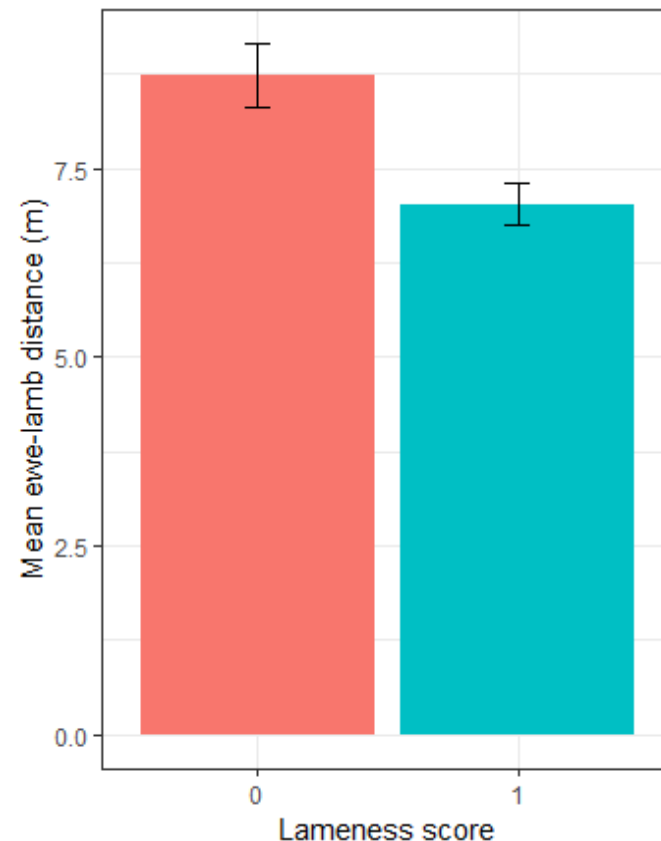
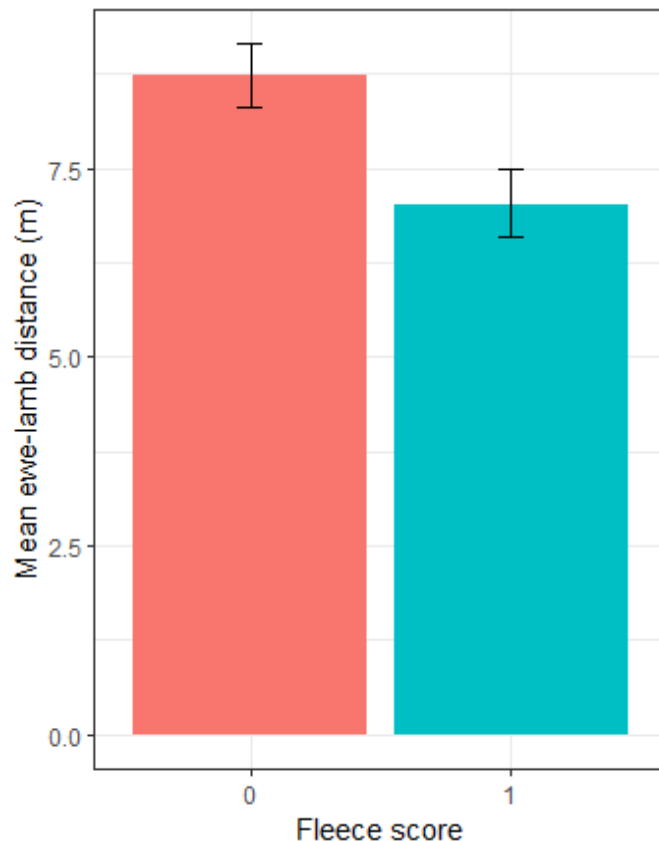
# Technology creates welfare monitoring opportunities



# Ewes with welfare challenges were closer to their lambs

Ewes with no fleece problems had a higher mean ewe-lamb distance ( $8.73\text{m}\pm 1.05$ ) than ewes with fleece problems ( $7.03\text{m}\pm 1.07$ ) ( $p < 0.001$ ).

Sound ewes had a higher mean ewe-lamb distance ( $8.73\text{m}\pm 1.05$ ) than lame ewes ( $7.03\text{m}\pm 1.04$ ) ( $p < 0.001$ ).



# Take home messages

- Exact mechanism behind these results are unclear.
- Bluetooth beacons: potential welfare monitoring tools
- Ewe-lamb distance is associated with ewe welfare





**THANK YOU!**

Technicians  
Ailsa Thomson  
and Fiona Livingstone

**CENSIS**

**This work was funded by the European Union's  
Horizon 2020 research and innovation  
programme under grant agreement No.862050**