

Study reveals link between sheep reproduction and infection

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Soay sheep on St Kilda. Credit: Jill Pilkington

Sheep living in the remote outpost of St Kilda are more susceptible to infection if they have recently given birth to lambs, according to new research involving the University of Stirling.

The published study—which emerged from a Stirling student's undergraduate project—found that, during lambing season, female Soay [sheep](#) that had a [lamb](#) suffered from bigger gut worm infections compared to those sheep that did not reproduce.

The research team also found that those ewes that successfully suckled

their lamb through to weaning had higher parasite counts than those whose lamb died soon after birth.

Jessica Leivesley led the study while an [undergraduate student](#) at the University of Stirling.

Ms Leivesley, now a Ph.D. researcher at the University of Toronto, said: "Our results also suggest that lactation is particularly costly, because females that weaned their lamb had even more parasites than those whose lambs died and therefore didn't need to lactate."

The research also revealed that the higher worm counts in reproducing females in spring led to the animals having lower body weight in summer—and ultimately they were less likely to survive over the winter, to breed again in the future.

Dr. Adam Hayward, a former Impact Research Fellow at Stirling and now a Research Fellow at the Moredun Research Institute, is senior author on the study.

He said: "We've known for a long time that reproduction can affect survival.

"Our new study provides an explanation for why this might be the case: we've discovered a complex but clear pathway linking reproduction to increased infections and reduced [survival](#)."

The research, "Survival costs of reproduction are mediated by parasite [infection](#) in wild Soay sheep," is published in *Ecology Letters*.

More information: Jessica A. Leivesley et al. Survival costs of reproduction are mediated by parasite infection in wild Soay sheep, *Ecology Letters* (2019). [DOI: 10.1111/ele.13275](https://doi.org/10.1111/ele.13275)

Provided by University of Stirling

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