



Ovi Data

Increasing sheep genetic gain in Ireland through scientific data capture and analysis

Geographical Location	Ireland (not limited to one region)
Keywords	Sheep, Genetics, Genomics, Genotype, Parentage, Health, Carcase, Longevity
Project Leader	Eamon Wall, Sheep Ireland (email: ewall@sheep.ie)
Project Type	Operational Group
Starting Date	January 2018
End Date	December 2022
Project Status	Ongoing
Main Funding Source	Rural Development Programme (RDP) 2014-2020
Total Budget	€515,225

Project Rationale

The rate of genetic gain within the Irish sheep industry is being hindered by the lack of known animal parentage and phenotypes (performance records) available on Irish commercial sheep farmers. Capturing phenotypes on animals with unknown ancestry has limited capacity to add long-term improvement to productivity. Only when parentage is known can the true power of these phenotypes be unlocked by linking and comparing the performance of entire bloodlines – through Ireland’s national sheep genetic evaluations.

Project Aims & Objectives

The project aims to accelerate the rate of genetic gain in the Irish sheep industry through the application of innovative genomic technologies to commercial flock performance recording, and to increase the productivity and profitability of the sector for the benefit of all Irish sheep farmers and associated industries (e.g., processors, abattoirs).

To achieve these goals, the project will pursue the following specific objectives:

- (i) Genotype sheep in high value flocks which are collecting large volumes of phenotypes;
- (ii) Increase the accuracy% of Ireland’s genetic indexes and in doing so increase genetic gain by ‘unlocking’ the value of phenotypes by assigning full flock parentage;
- (iii) Develop a model for commercial farm data capture which can be replicated by other Irish sheep farmers;
- (iv) Generate large quantities of health phenotypes to contribute to a new national health genetic index &
- (v) Investigate the establishment of an infrastructure which will facilitate the routine transfer of carcase data into the national database for the purpose of genetic evaluation.



Project Activities

- Collection of DNA (ear biopsy) from all breeding animals in selected participating flocks (1,500 breeding ewes and rams).
- Collection of DNA (ear biopsy) samples from all progeny born to these genotyped ewes at birth using DNA tags incorporated into national identity tags.
- Genotype all project animals on a high density 50K SNPchip which is custom designed for the Irish sheep industry.
- Collect new phenotypes relating to health traits (lameness, dag and mastitis) and longevity traits from all project animals three times per year over the project 5-year lifespan.
- Investigate the establishment of routine carcase data transfer from sheep processors to the national genetic evaluation database.
- Develop standard phenotype collection protocols for health and longevity phenotypes and to train data collection technicians/participating farmers accordingly.

