New Research Projects: Sheep Breeding

Sheep Ireland Industry Meeting
29th April 2019

Teagasc
Agriculture and Food Development Authority

Sheep Ireland
www.sheep.ie

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Our Genetic evaluations

Three criteria for a breeding goal

1. Socially or economically important

2. Exhibits genetic variation (heritability)

3. Measurable on a large scale

Ewe Productivity

Greenhouse Gases

Feed Intake

Commercial Slaughter Data

Ewe Longevity

On-farm Genetic Eva

Objectives

- To evaluate the usefulness of elite Irish and New Zealand sires across commercial sheep flocks

- To investigate the performance of elite Irish and New Zealand female progeny within a commercial flock

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Study Design

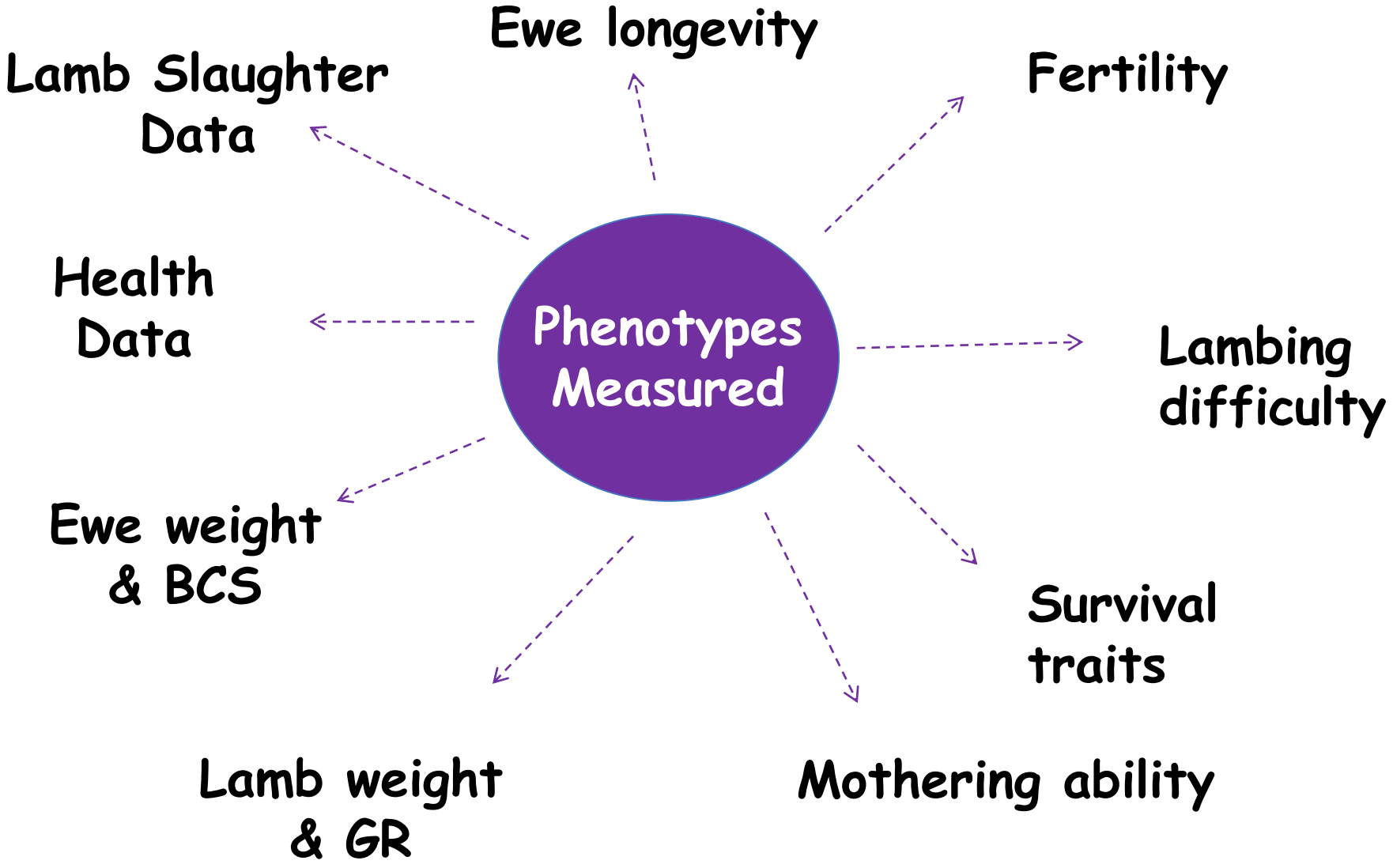
Selection of Ewes

Elite NZ Rams

Elite Irish Rams

Selection of female lambs retained from each ram

Male lambs performance recorded & slaughtered


Ewe longevity
Lamb Slaughter Data
Fertility
Health Data
Phenotypes Measured
Lambing difficulty
Ewe weight & BCS
Survival traits
Lamb weight & GR
Mothering ability

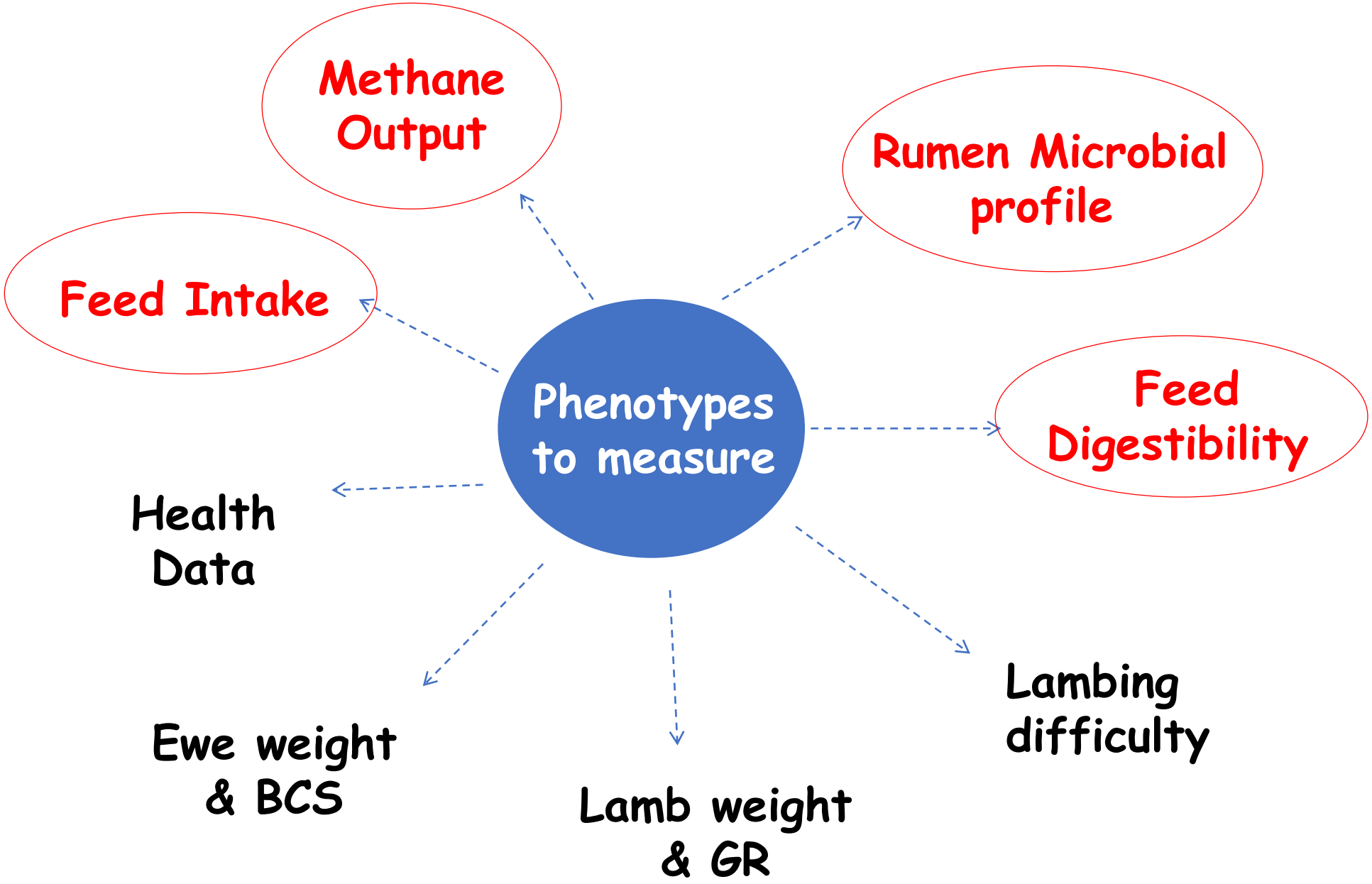
GREENBREED

Objective

→ To develop, validate and deploy the necessary tools and optimal strategies to achieve sustainable and quantifiable genetic gain through environmental and economic efficiency

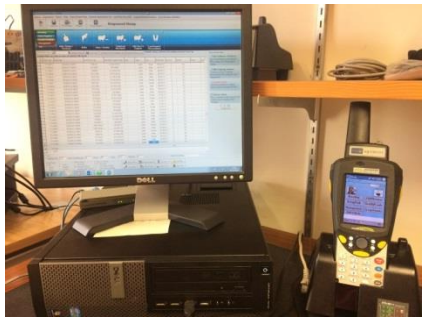
Tasks

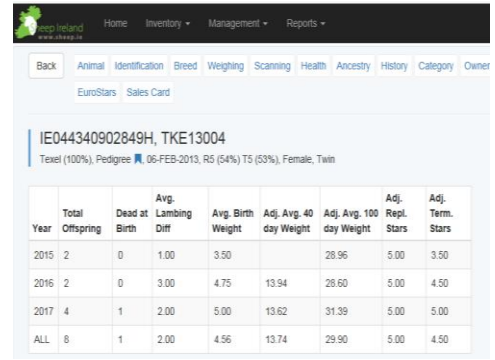
1. Assessment of low cost phenotypic tools for measuring feed intake and methane in sheep
2. Intra-animal variability in feed intake, protein utilisation and methane emissions across an animal's lifetime
3. Genetic analysis in predicted feed intake and methane emissions from a large population of commercial sheep
4. International genetic analysis of predicted feed intake and methane emissions


Methane Output
Rumen Microbial profile
Feed Intake
Phenotypes to measure
Feed Digestibility
Health Data
Ewe weight & BCS
Lamb weight & GR
Lambing difficulty

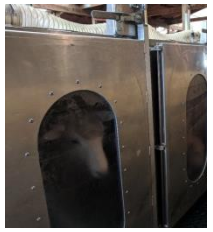
Measuring a new trait

1. Design a protocol for collecting the data
2. Validate the technology used
3. Implement the procedure in a research scenario
4. Collect large volumes of data
5. Calculate a breeding value and accuracy
6. Inclusion in the index????





Completing the Validation



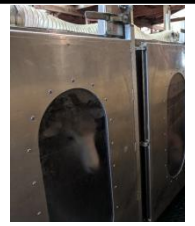

Select animals; measure FI & Ch4


Measure FI & Ch4 indoors


Measure FI & Ch4

Jun '19 Aug '19 Dec '19 April '20 June '20

Lambs go to AFBI : Respiratory Chambers & feed intake




Measure feed intake at grass

Determining feed intake at grass

Select Animals

Day 0 Day 1 Day 6 Day 7 Day 12

Take grass samples Day 6-12

Collect faecal samples Day 7-12

Begin dosing with *n-alkane* bolus (Day 1-12)

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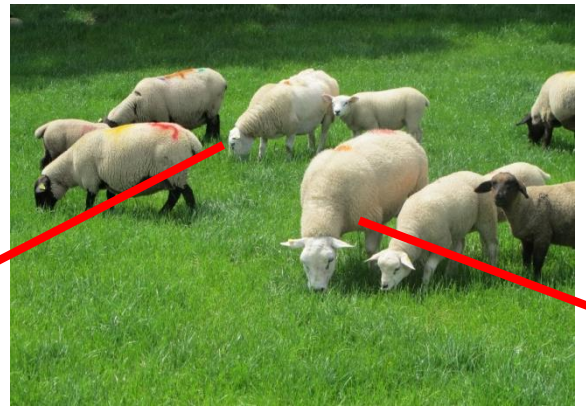
Estimating Feed Intake



	Animal A	Animal B
Feed Intake (g/day)	660	2000
Ch4 (mg/min)	7.57	28.49


Thank you,
Any
Questions?