

Introduction



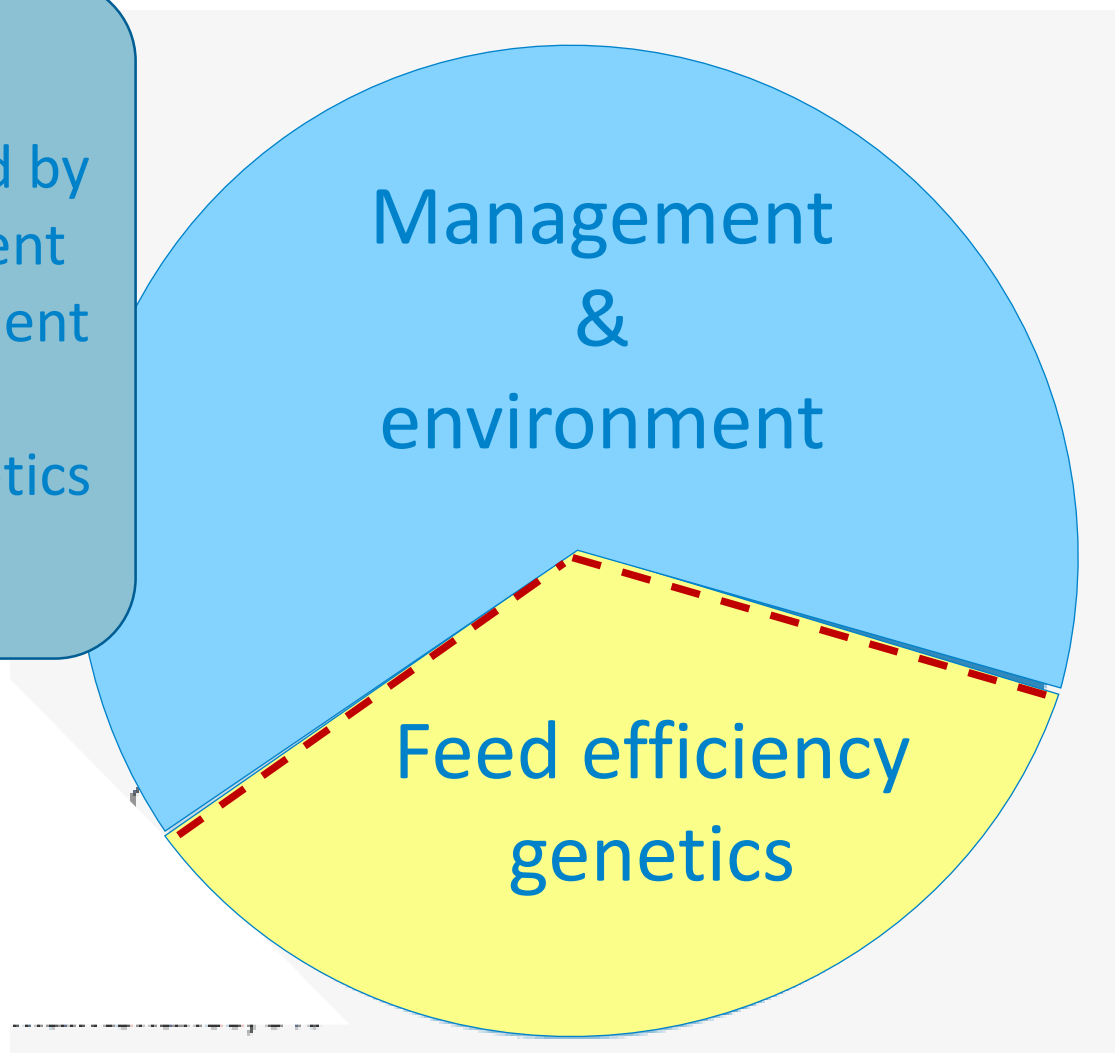
What is feed efficiency?

2/3 affected by
management
& environment

1/3 by genetics

Management
&
environment

Feed efficiency
genetics



Why feed efficiency?

During the growing and finishing phase a 1% improvement in feed efficiency has the same economic impact as a 3% increase in rate of gain.



Selection for feed efficiency is independent of

- growth
- mature weight

Alberta & Australia results

- ↓ maintenance requirements of cow herd by 9-10%
- ↓ feed intake by 10 -12%
- → average daily gain or mature size or carcass traits
- ↑ FCR by 9 to 15 %
- ↑ calf-weight-per-cow feed intake by 15%
- ↓ methane emissions by 25 -30%
- ↓ manure N, P, K by 15 -17%





- 4 year project
- Funded by Defra and AHDB £1.75M
- Led by AHDB & SRUC
- Scottish unit funded by Scottish Government and ABP

Objectives

- Identify individual animals and sires with superior genetics for feed efficiency
- Enable breeders to actively select for feed efficiency
- Development of model(s) for longer term legacy for industry
- ↓ GHG emissions



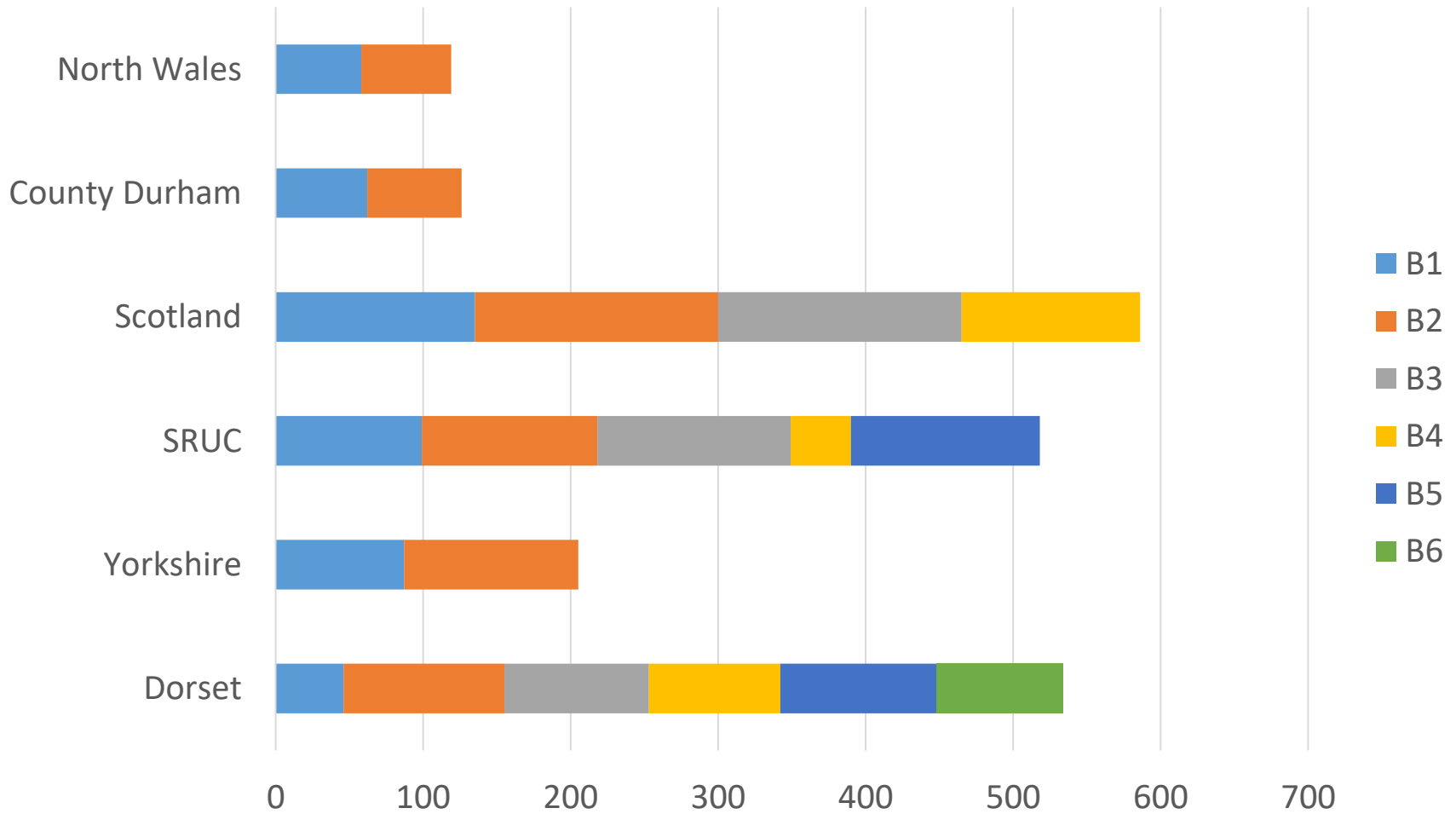
Progress to date

Project overview

- Begin with Limousin breed
- 1800 records to collect (per breed)
- Initial 500 records collected at SRUC
- Remaining 1300 records to be collected on 3 commercial farms in England and 1 in Scotland
- Introduced second breed - Angus
- Completion 2019



BFEP - Cattle Recorded



Total = 2145

(Limousin 1787 Angus 359)

Measuring feed efficiency

- GrowSafe feed intake recording equipment
- Known registered sire
- 7-12 months of age at trial start
- Measurement period 63 days
- Age range within batch 8-12 weeks
- Steers



Batch 4 - Ingliston

- 121 steers
- 16 Limousin sires
- 12 farms of origin

Start age	12 months
Start LW	362kg
Current LW	415kg
Test DLWG	1.53kg/day



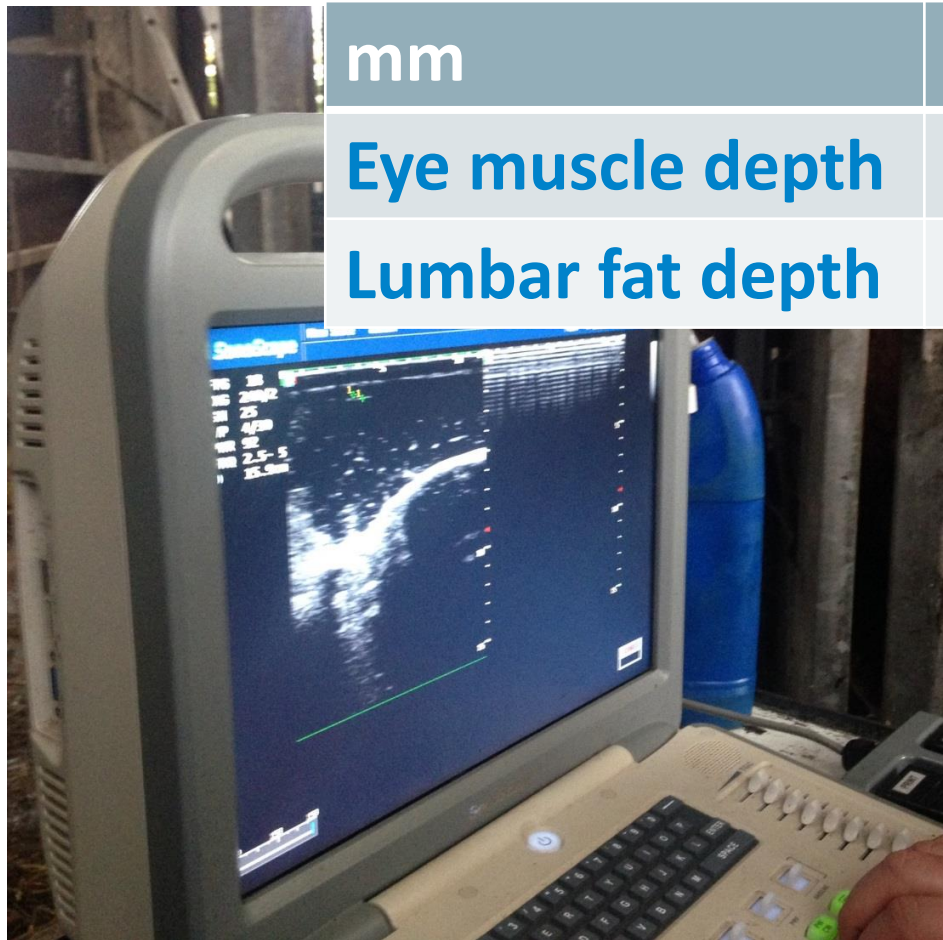
Ration - Ingliston

TMR spec (40% DM) - Targets	
Forage in DM	50% - 70%
ME (MJ/kg DM)	11.5-12.2
Crude protein (% in DM)	15%

Feed	FW Inclusion % Ingliston	DM Inclusion % Ingliston
Grass silage	76%	55
Barley	14.6%	34
Molasses	8.4%	10
Mineral	1%	1

Ultra-sound

mm	Start	End
Eye muscle depth	59	68 (46-80)
Lumbar fat depth	1.1	2.4 (0-6)

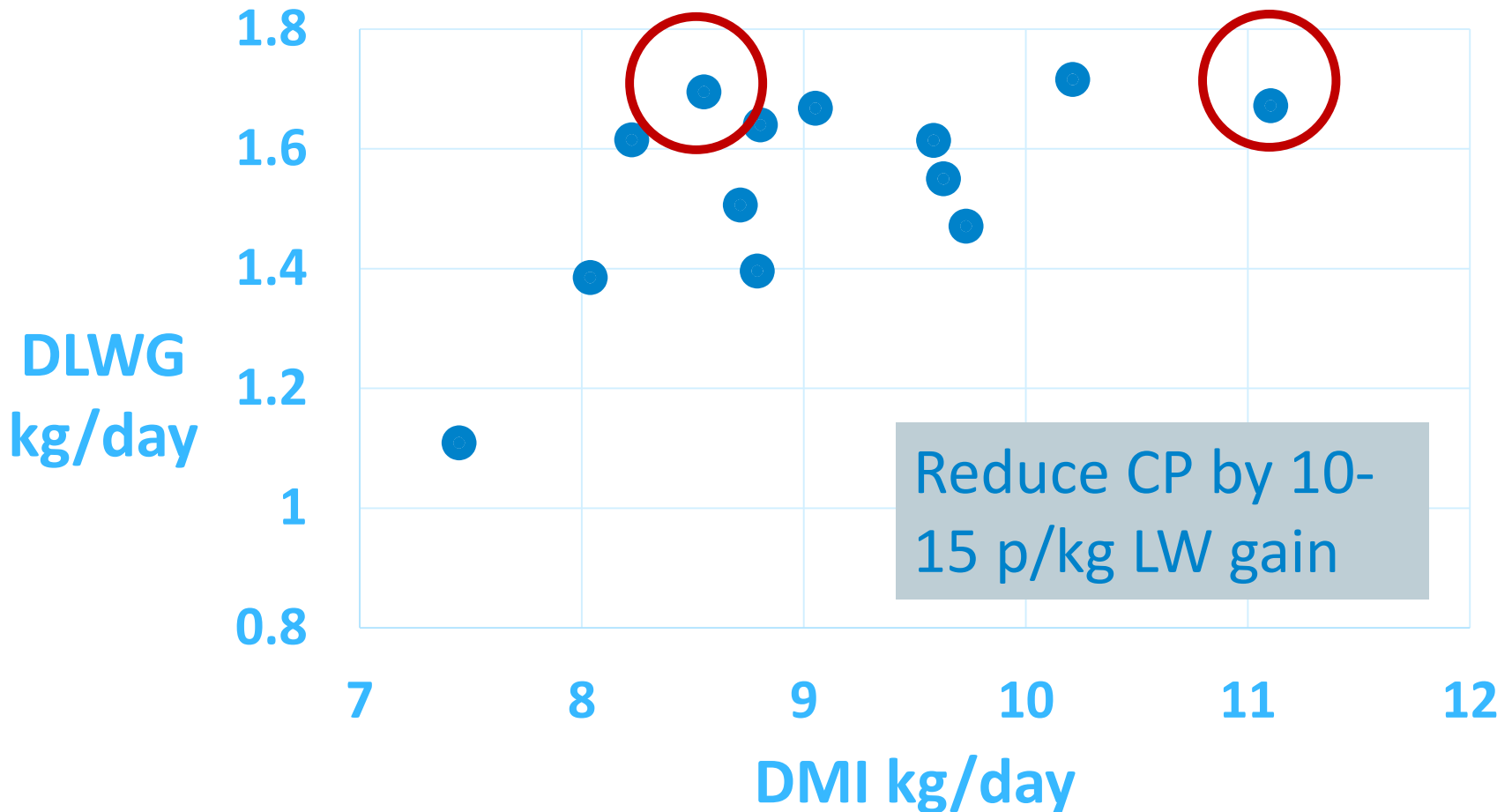
An ultrasound machine monitor displaying a scan. The screen shows a dark background with a bright, curved line representing a scan. The machine is a light-colored, portable unit with a keyboard and control panel. A blue water bottle is visible next to the machine.

On-farm data collection

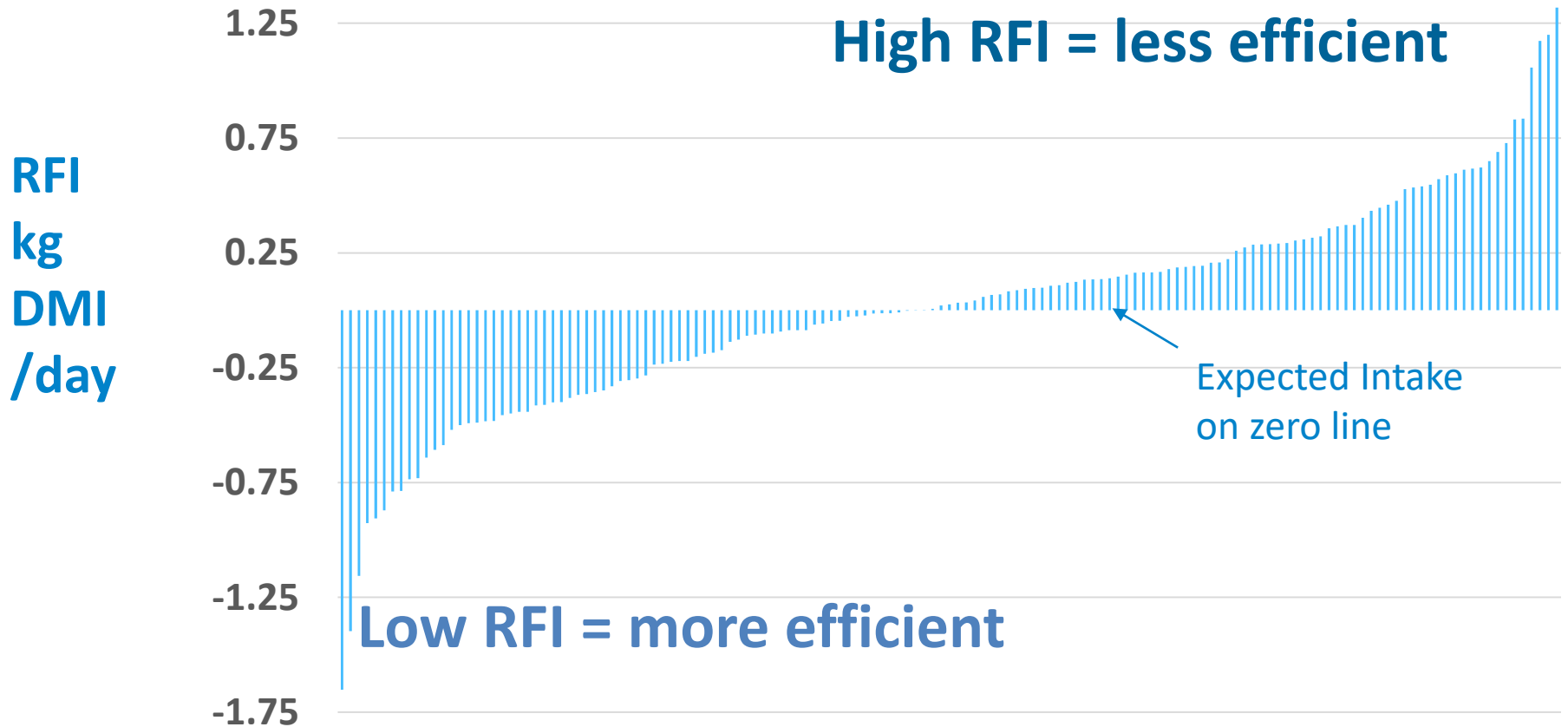
Apart from Autonomous Feed Intake and Ultrasound scanning, participating farmers also measure:

- Liveweight x weekly
- Dry Matters of all feed ingredients
- Record weight of feed ingredients into TMR mix
- Collect slaughter data

Relationship between DM intake and growth rate by sire



RFI by Sire - completed batches



RFI = difference between expected intake and actual intake (net of maintenance level)

Commercial significance

Finishing cattle -

£19-£21/head lower feed cost to gain 100kg LW

19p-21p lower feed cost per kg LW gain

£75-£90 saving per finishing space / year.

Breeding herd -

Feed saving £100 per cow/calf unit per year

(SRUC/Stabilisers)