



SMALL RuminanTs breeding for Efficiency and Resilience

Breeding to improve lamb survival

Nóirín McHugh

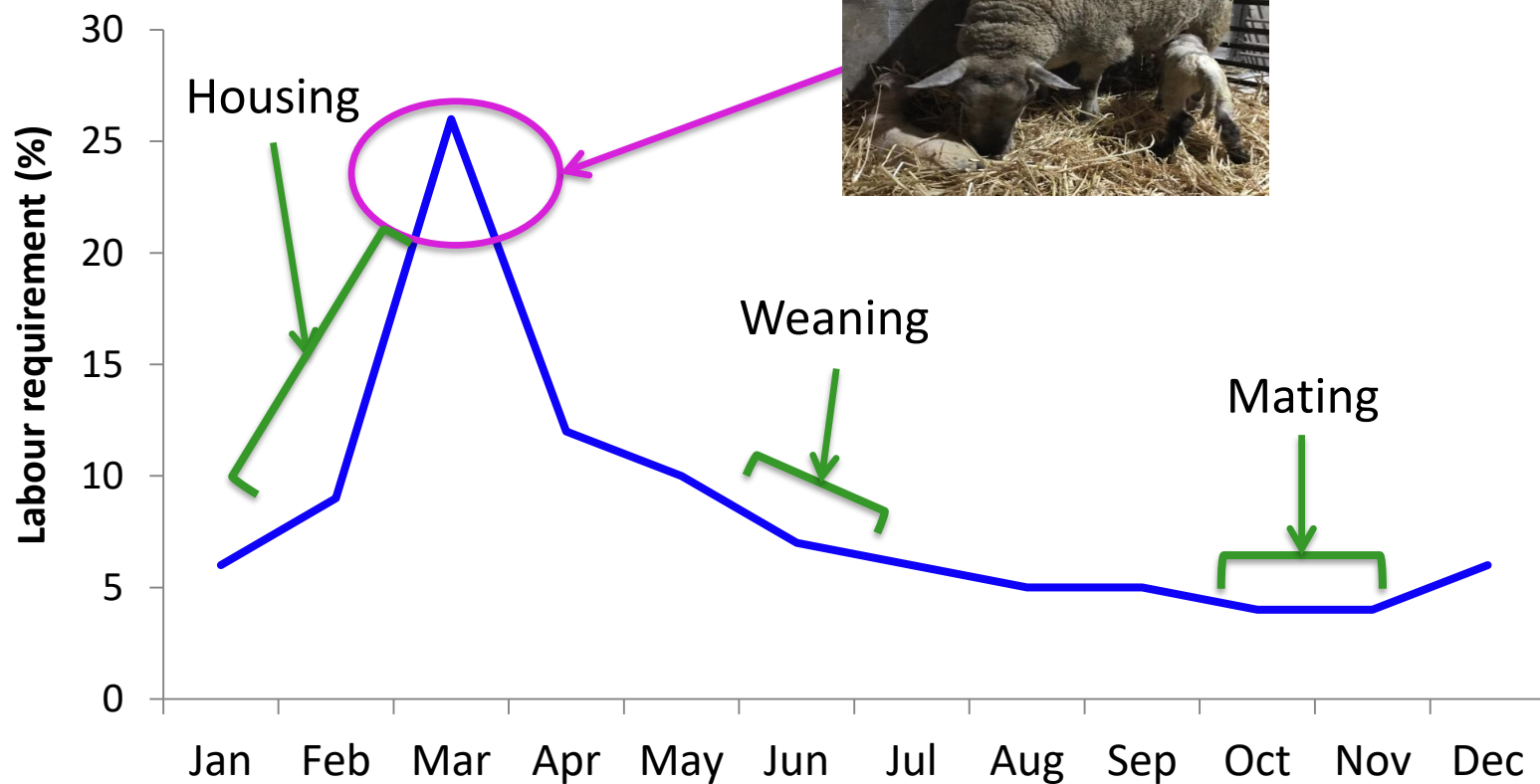


Showcasing Smarter Sheep Science, Edinburgh,
7th December 2022



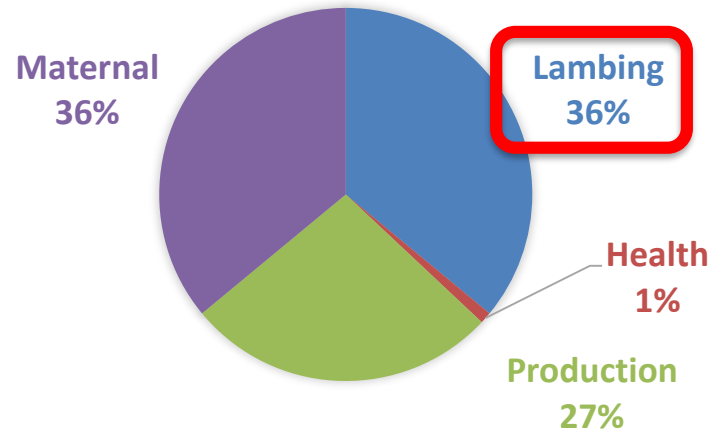
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- One of the most critical periods on sheep farms
 - Productivity
 - Economics

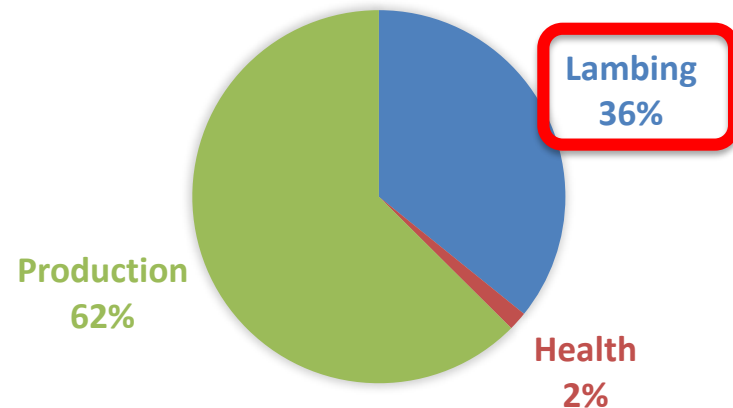


Importance of lambing traits

REPLACEMENT

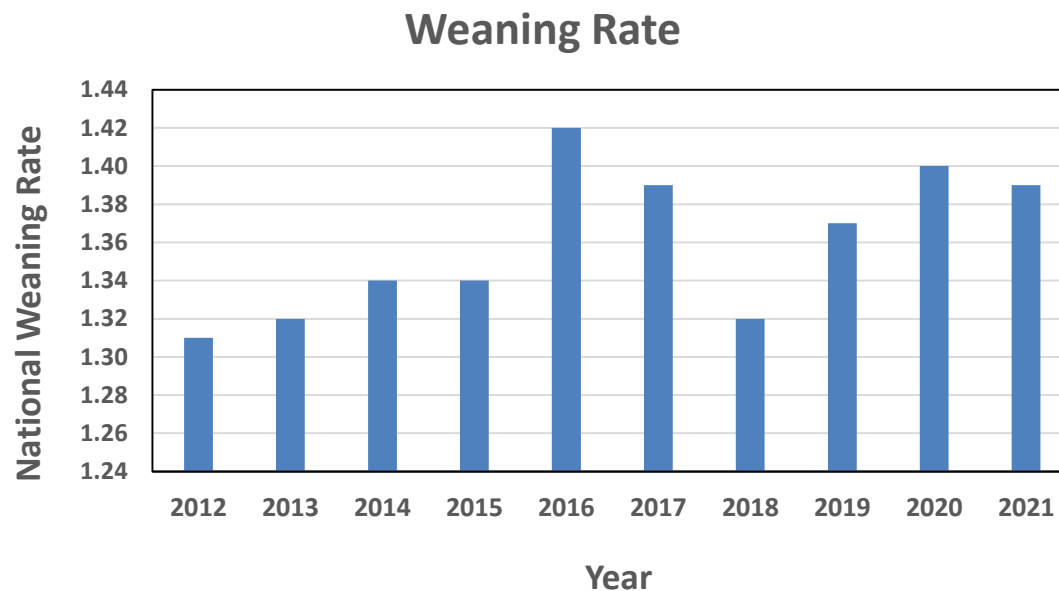


TERMINAL



Lamb Survival
Lambing difficulty
Birth weight

- International estimates vary → 8 to 25%
- Ireland ~11% in recorded flocks
- UK ~15%



Room for improvement!!

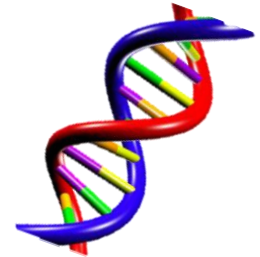
Genetics of lamb mortality

Heritability

- Direct 2%
- Maternal 1%



Can we make genetic improvement??



Validation results

Star Rating	Average Survival (%)
	92.57
	93.14
	93.59
	93.38
	93.55

0.92 more lambs

How can we improve this?

- Better recording
- Other traits?

Objective

Can we improve lamb survival whilst reducing labour inputs at lambing?



Lamb vigour - Trait description



1

2

3

4

5

Very poor

Poor

Average

Good

Very good



Standing
within 60
minutes

Standing
within 30
minutes

Standing
within 10
minutes



Ewe mothering ability



Very poor

Poor

Average

Good

Very good

No interest in lamb



Keeps lamb well away from her
Does not know how to lick lamb(s)

Licks the lamb(s) & follows the lamb(s)

Licks the lamb(s), is protective & follows closely



Very active, licks lamb(s) immediately, follows the lamb(s) closely & bleats for lamb(s)

Recording the traits



PEN No. 1 DOB: 01/03
TIME: 1:30 PM
LD: 3 MO: 2
LV: 1 MILK: 4

Comments: 1 dead lamb, Lamb 123
Fostered onto ewe 15615A in
pen 12.

PENNER BY: AM

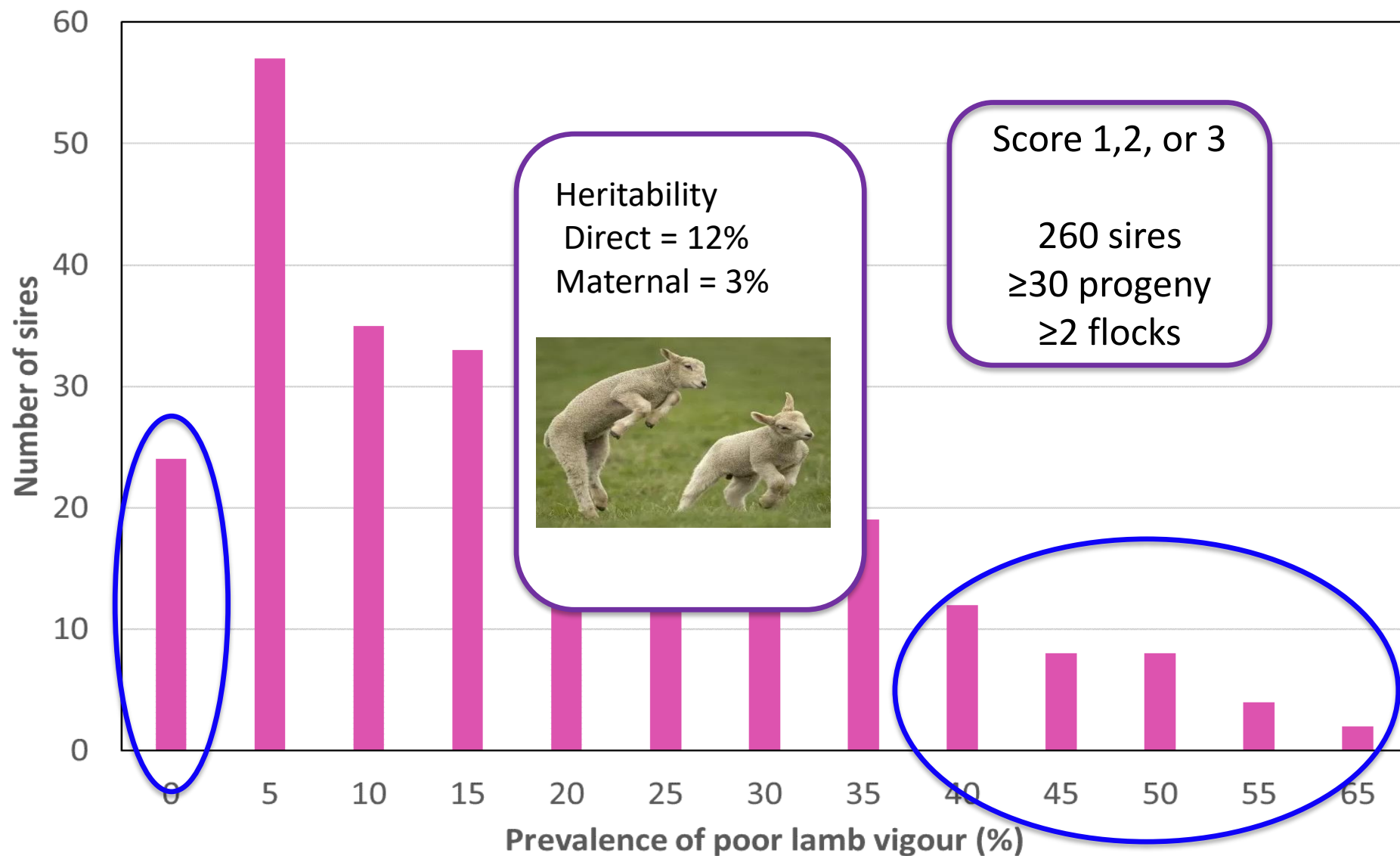


Score prevalence (%)

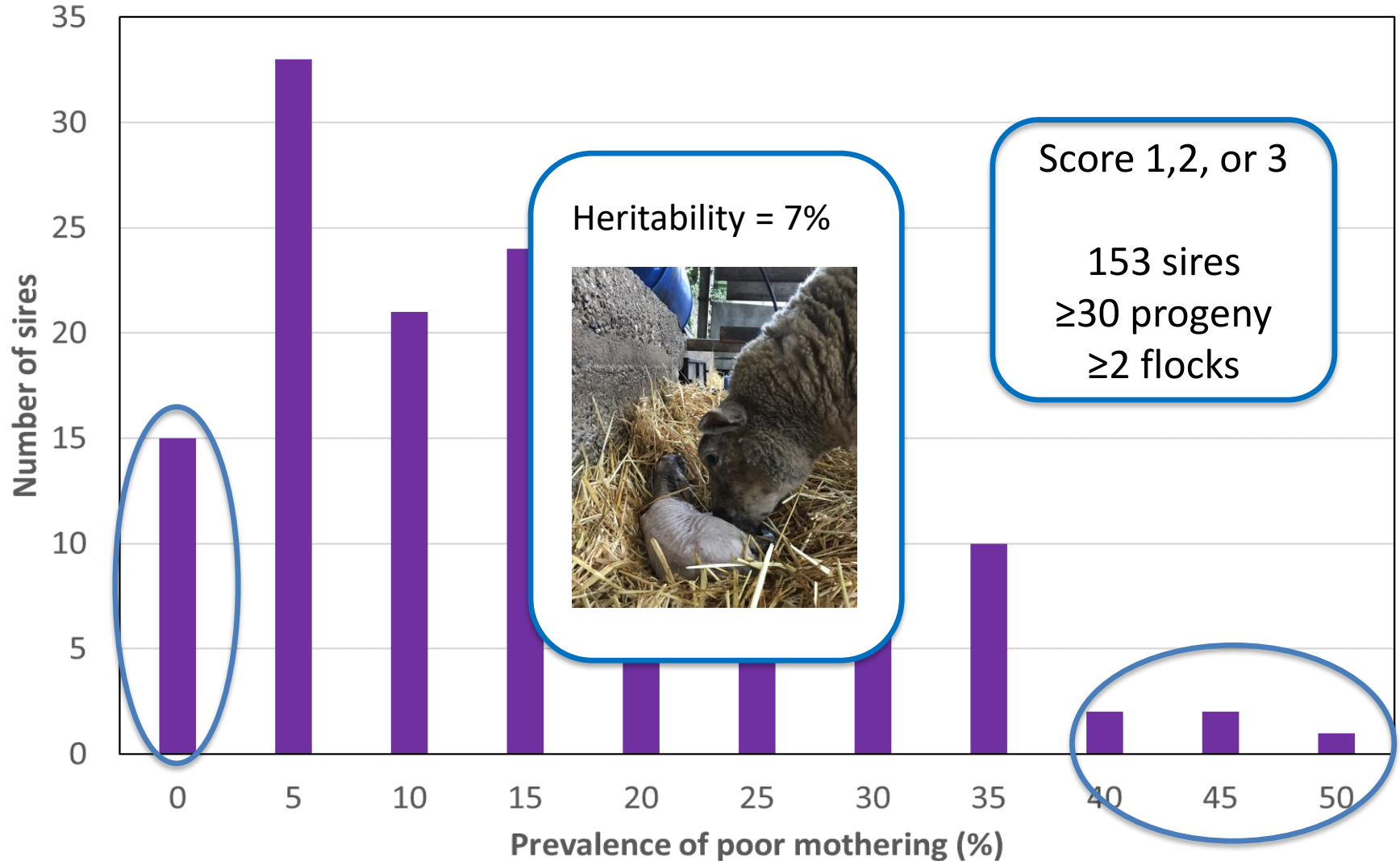


Score	Description	Lamb vigour
1	Very poor	2.02
2	Poor	1.72
3	Average	12.47
4	Good	39.99
5	Very good	43.80

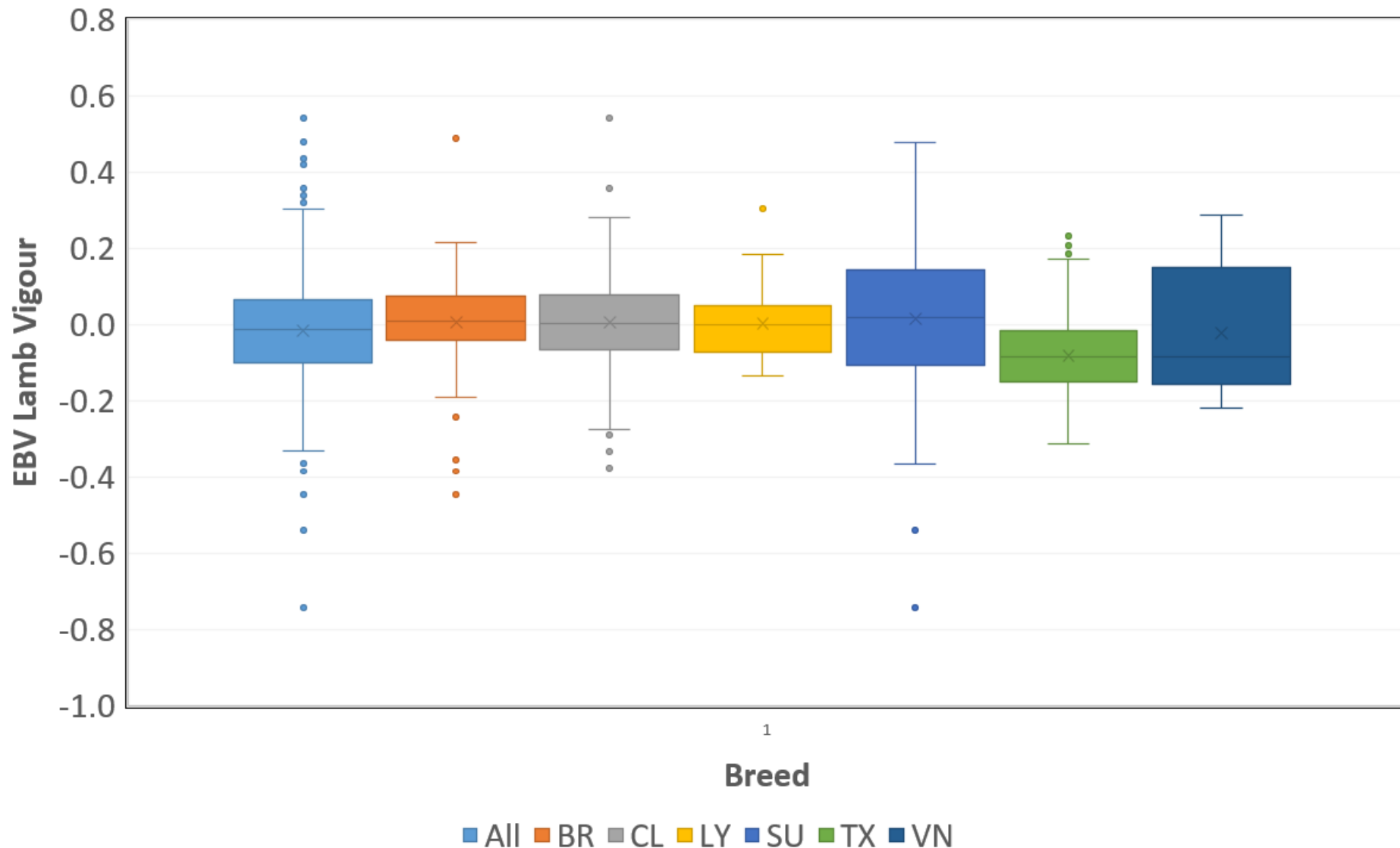
Sire prevalence – poor lamb vigour



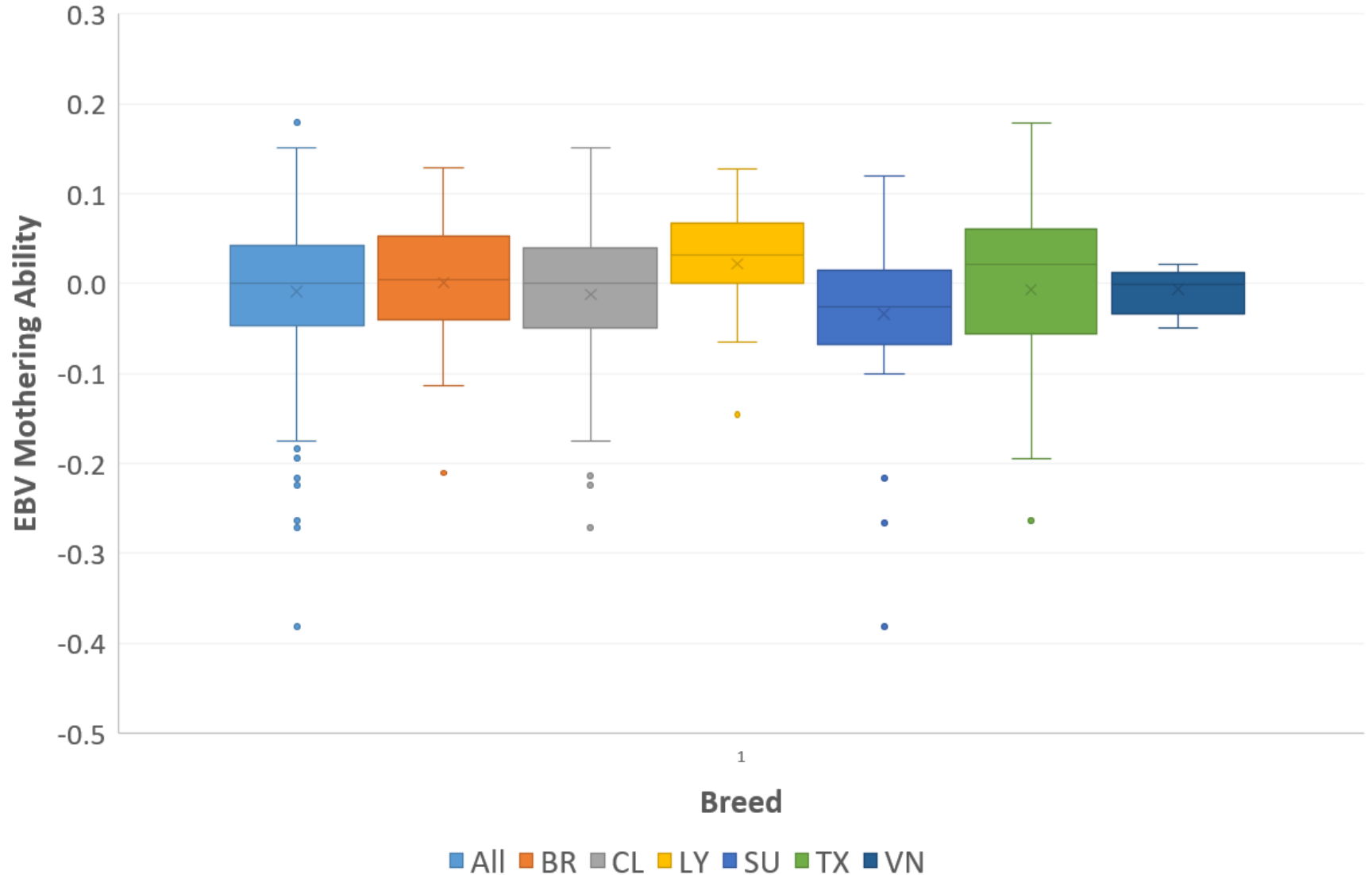
Sire prevalence – poor mothering



Breed differences – lamb vigour



Breed differences – mothering ability



What's the relationship between lambing traits?

	Lambing Vigour	Birth weight	Lambing Difficulty
Birth weight	0.27		
Lambing Difficulty	-0.24	0.76	
Lamb Mortality	-0.48	-0.09	0.52

Correlations:

- Mothering ability & lamb mortality **-0.25**
- Mothering ability & litter size **0.70**

Application of results

[Back](#) [Details](#) [Ancestry](#)

TUBBER GIBSON, IE043817801814D, WD2101814

Belclare (100%), Pedigree  16-JAN-2021, R3 (75%) T5 (77%), Twin

[Show link to this](#)

Current EuroStars (Published On: 30-NOV-2022)

Index	Across breed		Within breed	
	Value 	Accuracy 	Rank 	Stars 
Replacement 	€6.49	75%	Top 46%	★★★★
Terminal 	€1.72	77%	Top 14%	★★★★★
No. Lambs Born 	0.30	68%	Bottom 6%	★
Daughter Milk 	0.3 kg	76%	Top 2%	★★★★★
Survivability 	0.60%	73%	Bottom 38%	★★
Days to Slaughter 	-13.5 days	83%	Top 9%	★★★★★
Barrenness 	-1.20%	63%	Bottom 28%	★★
Lambing Difficulty (% difficult) 	15.89%	85%	Bottom 6%	★
Lamb Vigour (% vigorous) 	86.56%	92%	Top 23%	★★★★★
Ewe Mothering Ability (% good mothering) 	82.10%	54%	Top 44%	★★★★
Ewe Lameness 	-0.90%	73%	Bottom 39%	★★
Lamb Lameness 	0.00%	76%	Bottom 12%	★
Daginess (% dirty) 	26.90%	75%	Bottom 15%	★
Ewe Mature Weight 	1.9 kg	80%	Bottom 9%	★
Carcass Conformation 	-0.02	71%	Top 6%	★★★★★
Carcass Fat (higher = fatter) 	0.04	63%	No stars apply for this	

Details

NSIS	IE043817801814D
Pedigree ID	WD2101814
Flock Name	TUBBER
Animal Name	GIBSON
Birth Date	16-JAN-2021
Birth Rank	TWIN
Breed	Belclare (100%)
Sex	Male
Pedigree Status	Pedigree
Genotyped?	Yes
Genomic Evaluation?	Yes
Scrapie Status	ARR/ARR
Scrapie Type	1



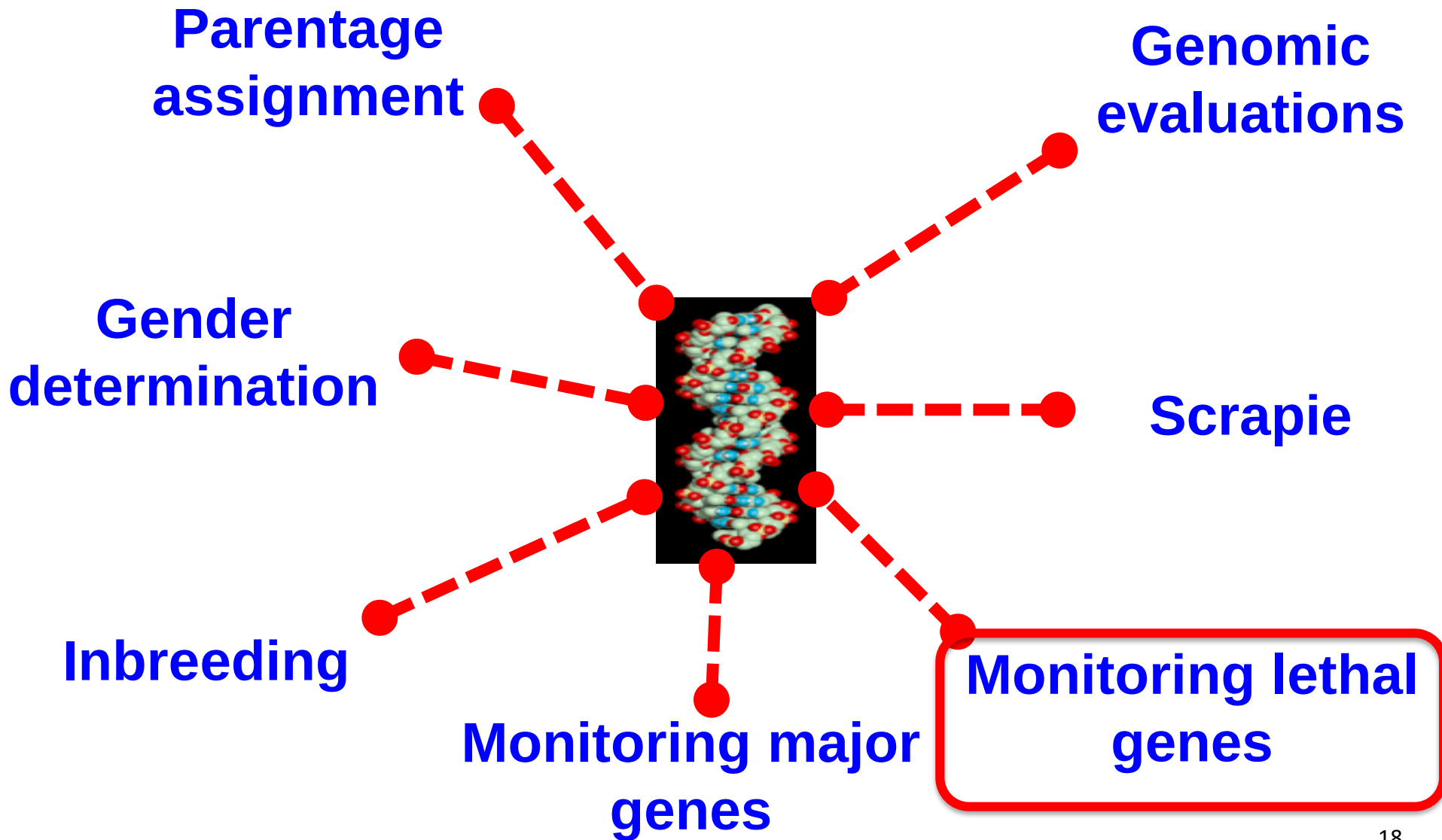
Pregnancy scan Data



- Genetic relationship NLB and pregnancy scan 0.77
- Linked to an individual breeders Data Quality Index



TUBBER GIBSON WD2101814, IE043817801814D		Scrapie: Type 1	
DOB: 16-JAN-2021 • Belclare • Male • Twin • Parentage confirmed			
Breeder: LIAM		DQI: 90%	
Owner: MICHAEL		DQI: 93%	
VIOLET HILL DERREK JR1810861, IE042821310861E		€uroStars 29-JUN-2022	
TUBBER WD1601409, IE043817801409E		Replacement: €6.79 Top 31% Acc 75%	
Sire: TUBBER FINLOUGH WD2001752, IE043817801752B		Terminal: €2.00 Top 5% Acc 76%	
Dam: CAHERGAL MJ1903856, IE042200703856C		★★★★★	
RATHKENTY BEETHOVEN RL1602916, IE044280302916F		★★★★★	
MJ1402792 IE042200702792E		Lamb Survivability: 0.62% Bottom 41%	
		Days to Slaughter: -15.2 days Top 3%	
		No. Lambs Born: 0.30 Bottom 6%	
		Daughter Milk: 0.3 kg Top 3%	

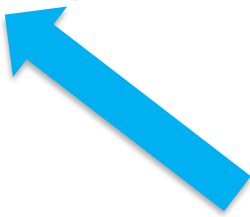


Conclusion



Relationship between traits

Breeding values for individual animals



TUBBER GIBSON WD2101814, IE043817801814D DOB: 16-JAN-2021 • Belclare • Male • Twin • Parentage DNA Verified • Scrapie: Type 1 Breeder: LIAM [redacted] Offaly • DQI: 90% Owner: MICHAEL [redacted] Cork • DQI: 93%	
VIOLET HILL DERREK JR1810861, IE042821310861E TUBBER WD1601409, IE043817801409E Sire: TUBBER FINLOUGH WD2001732, IE043617631732B CAHERGAL MJ1903856, IE042200703856C RATHKENTY BEETHOVEN RL1602916, IE044280302916F MJ1402792 IE042200702792E	€uroStars 29-JUN-2022 Replacement: €6.79 (Top 31% Acc 75%) Terminal: €2.00 (Top 5% Acc 76%) ★★★★★ Lamb Survivability: 0.62% (Bottom 41%) Days to Slaughter: -15.2 days (Top 3%) No. Lambs Born: 0.30 (Bottom 6%) Daughter Milk: 0.3 kg (Top 3%)



SMARTER PARTNERS



Thank you for your attention

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