Ram Compare Genetic Evaluations

Abbygail Wells, Kirsty Moore, Mike Coffey

A bit about me...

- Geneticist for Edinburgh Genetic Evaluation Service

- Projects
  - Routine evaluations
  - Genomic beef carcass traits and primal cuts
  - Genomic fertility in beef
  - Genomic Calf survival in dairy and beef
  - Ram Compare carcass traits

Traits

Slaughter age

Carcass weight

Carcass conformation

Carcass fat

Traits

Slaughter age

Carcass weight

Carcass conformation

Carcass fat

Front total weight

Middle total weight

Haunch total weight

Shear force

Main abattoir traits-definitions

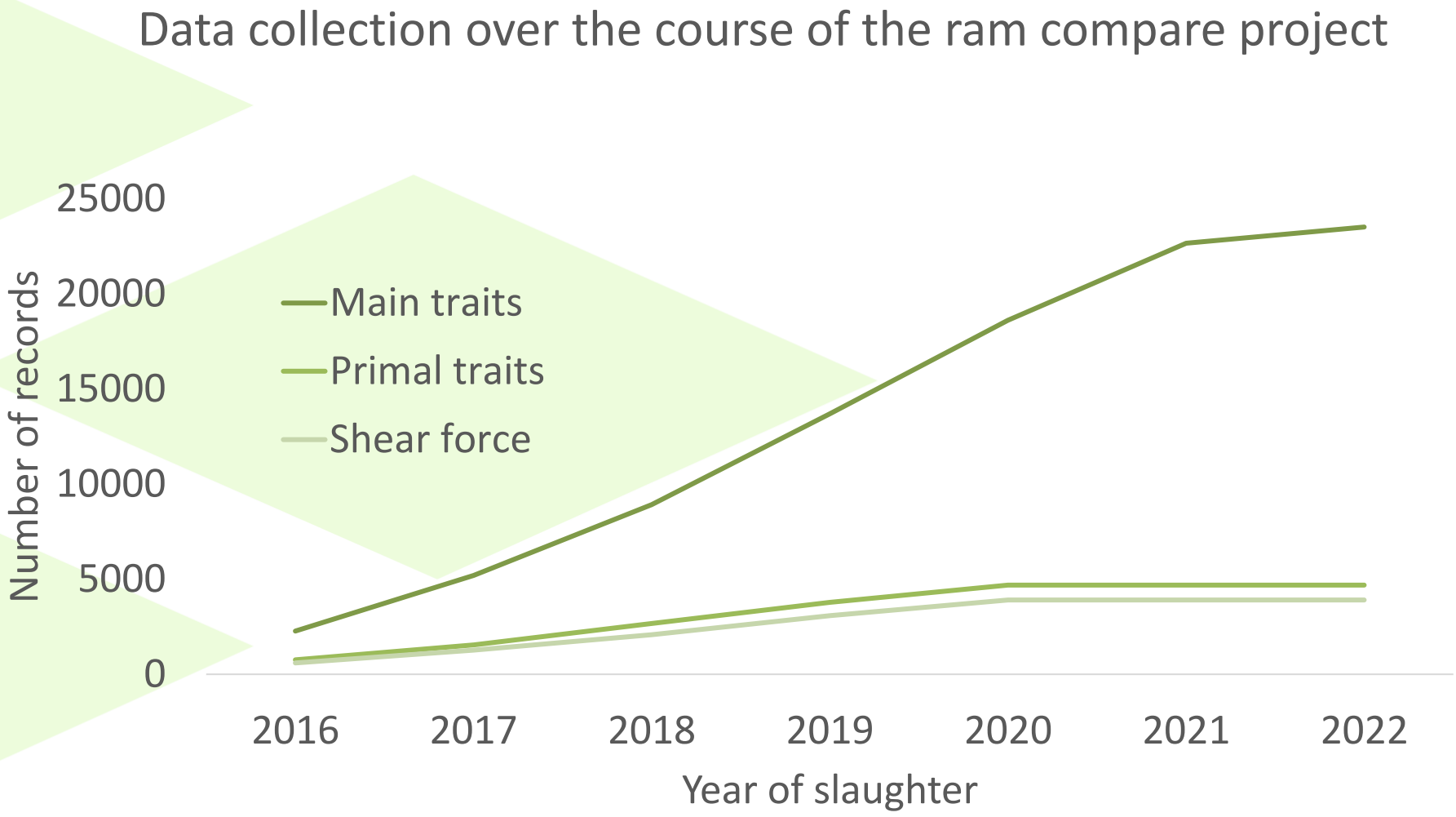
Slaughter age - days to slaughter (days)

Carcass weight – weight of carcass (kg)

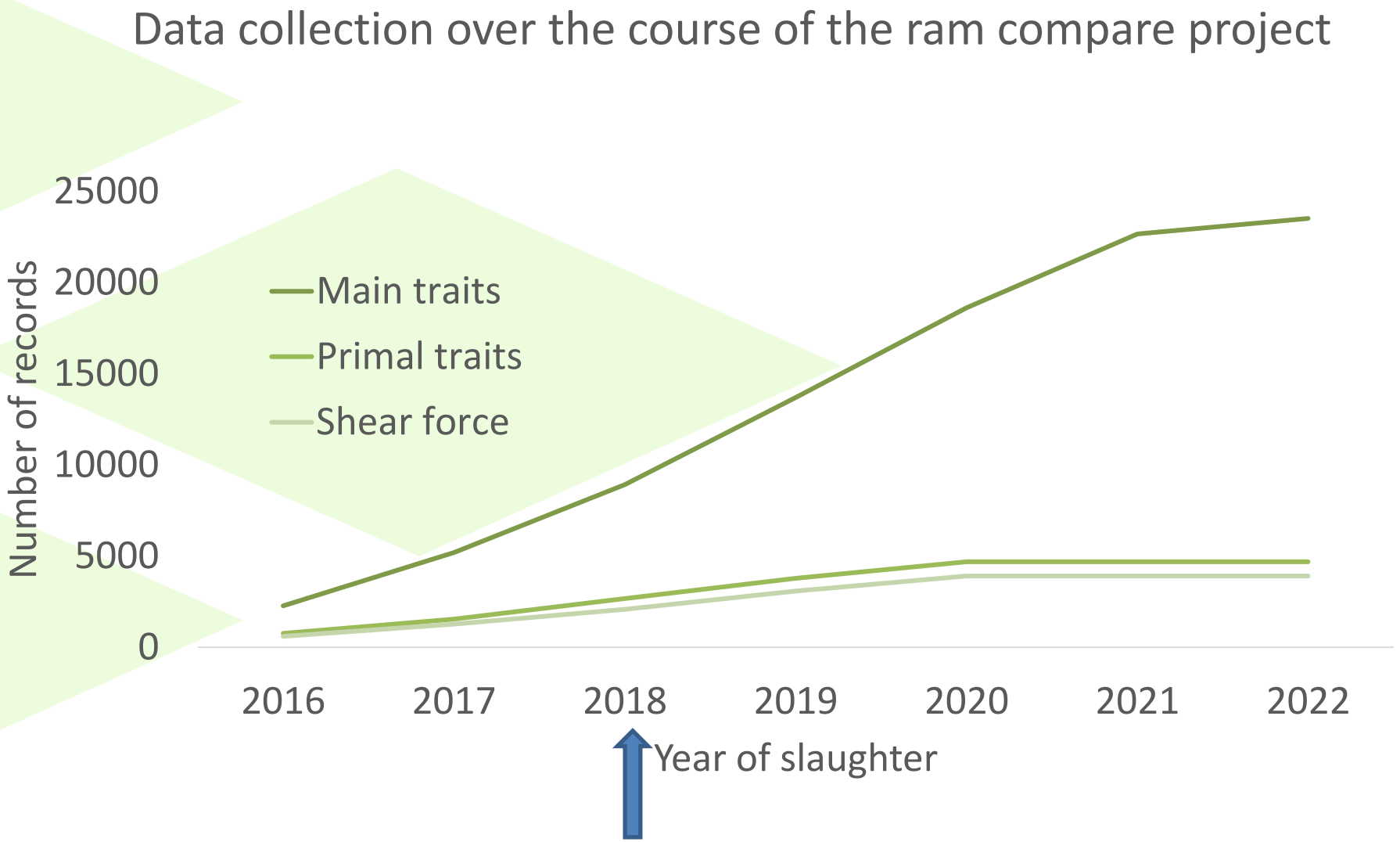
Carcass conformation – EUROP grid score converted to 15 point numerical score

Carcass fat - EUROP grid score converted to 15 point numerical score

Main abattoir traits-data



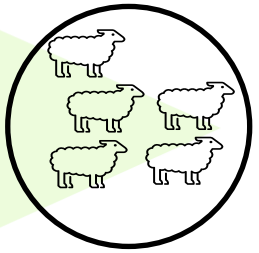
Main abattoir traits-data



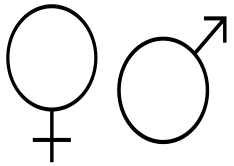
Main abattoir traits-parameters

Phenotype Genetics Environment

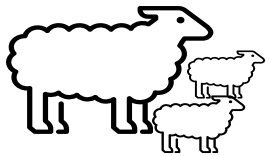
Main abattoir traits-models



Birth and kill CG



sex



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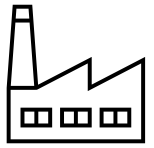
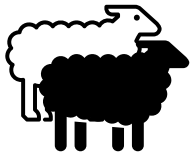


abattoir



Heterosis & recombination

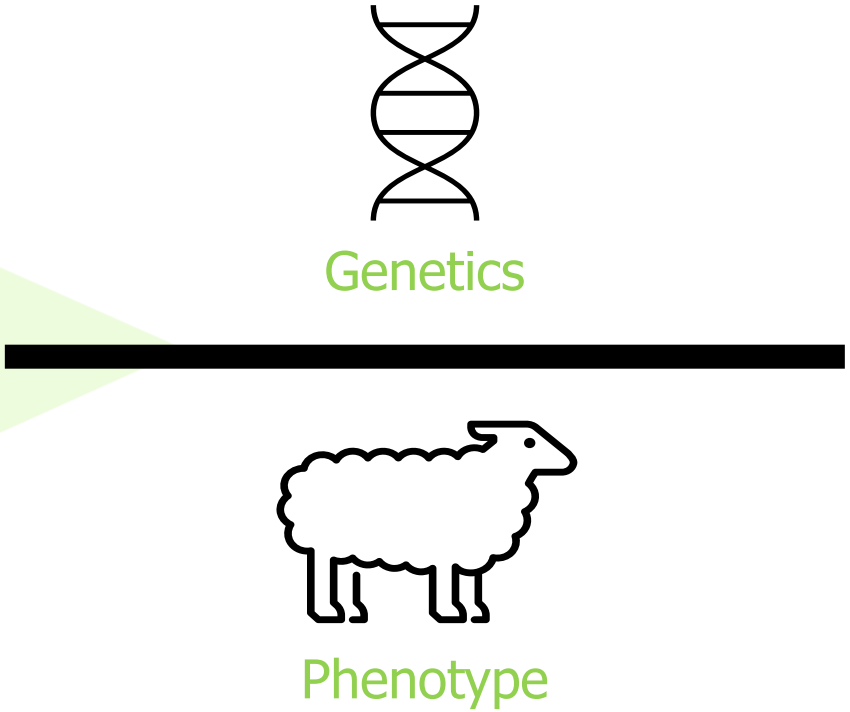
Slaughter age is adjusted for carcass weight

Carcass weight is adjusted for slaughter age

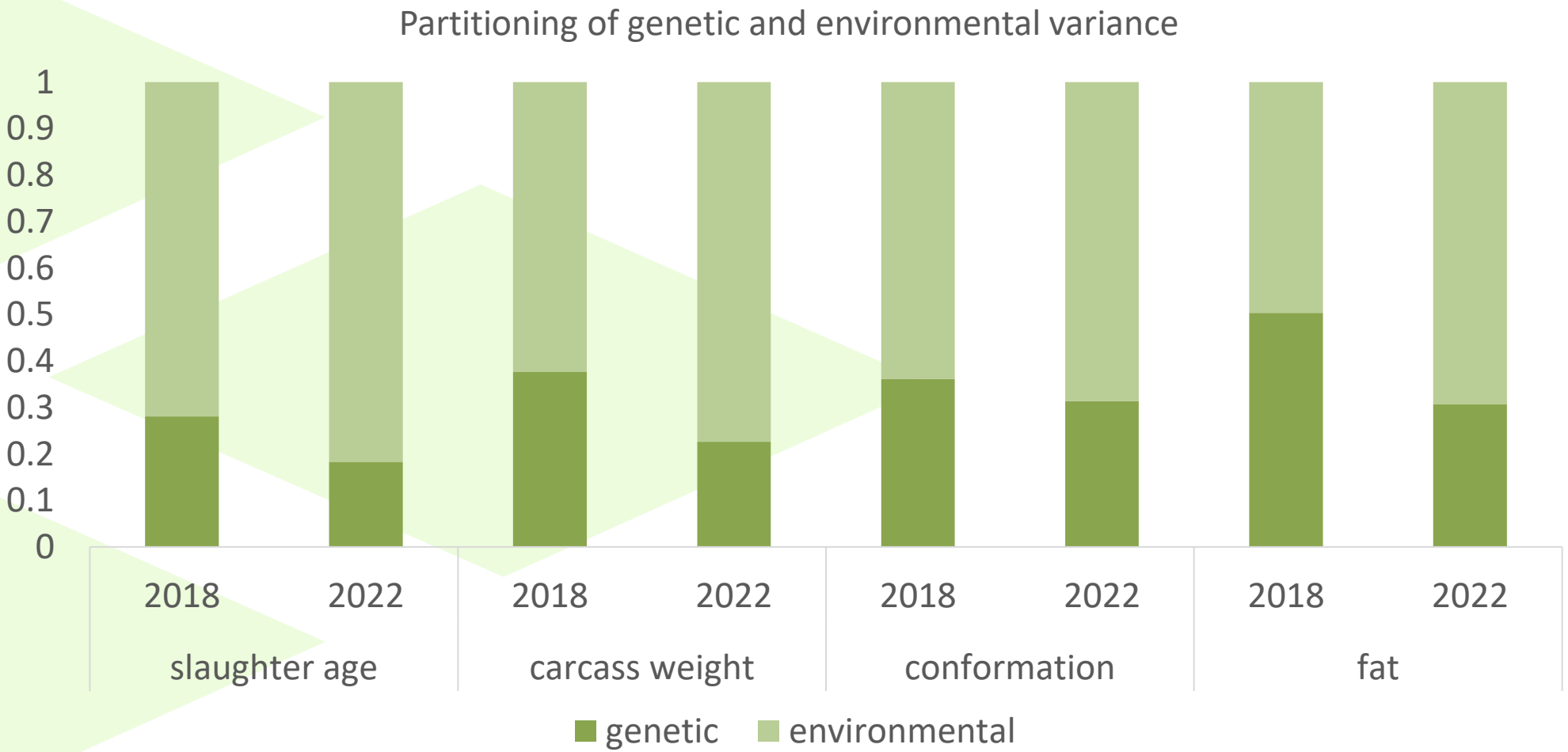
Currently no adjustments for conformation or fat - breed differences?

Main abattoir traits-parameters

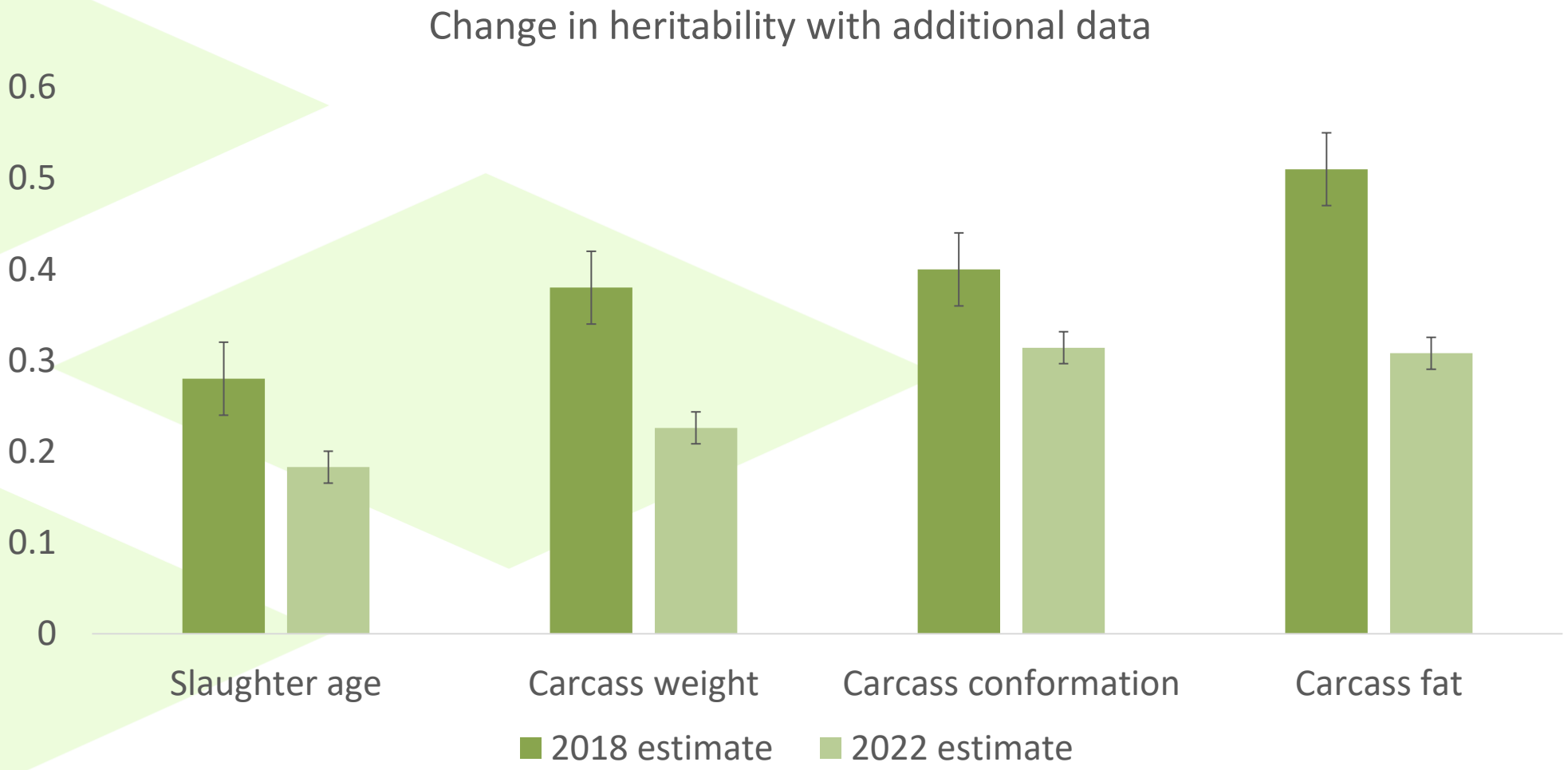
h^2 =



Main abattoir traits-parameters



Main abattoir traits-parameters



Primal traits-definitions

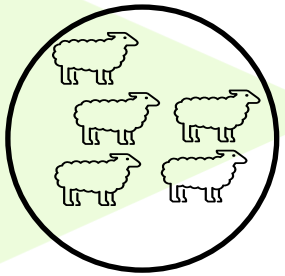
Front total weight -raised shoulder, neck fillet, front paddiwack, front trim, front fat and front bones. (kg)

Middle total weight -middle rib in loin, middle best end, breast, spinal cord, fat, kidneys and blade tips. (kg)

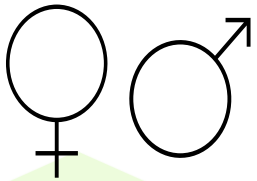
Haunch total weight -haunch leg, chump, haunch trim, haunch fat and haunch bones. (kg)

Shear force -kgf, the higher the shear force measurement the tougher the meat and the poorer the eating quality

Research traits-models



Birth and kill CG



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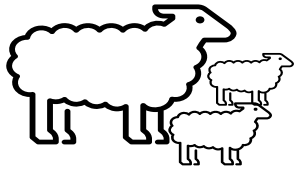

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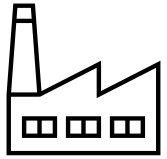

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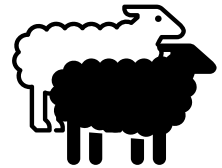
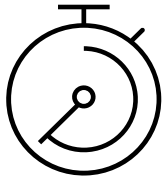


Heterosis & recombination

Primal traits are adjusted for slaughter age and carcass weight

Shear force is adjusted for slaughter age +

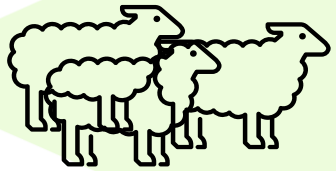


Kill to freeze

Research traits-models

Inclusion of RC into National Terminal Sire evaluations

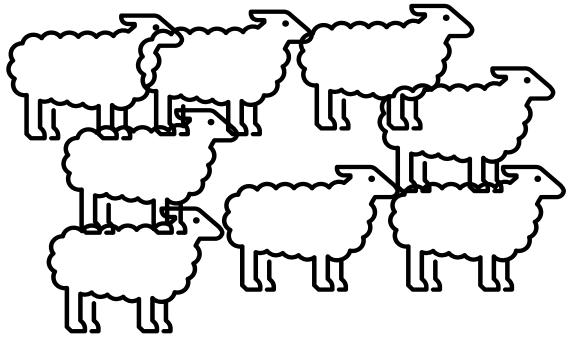
RC=53,552



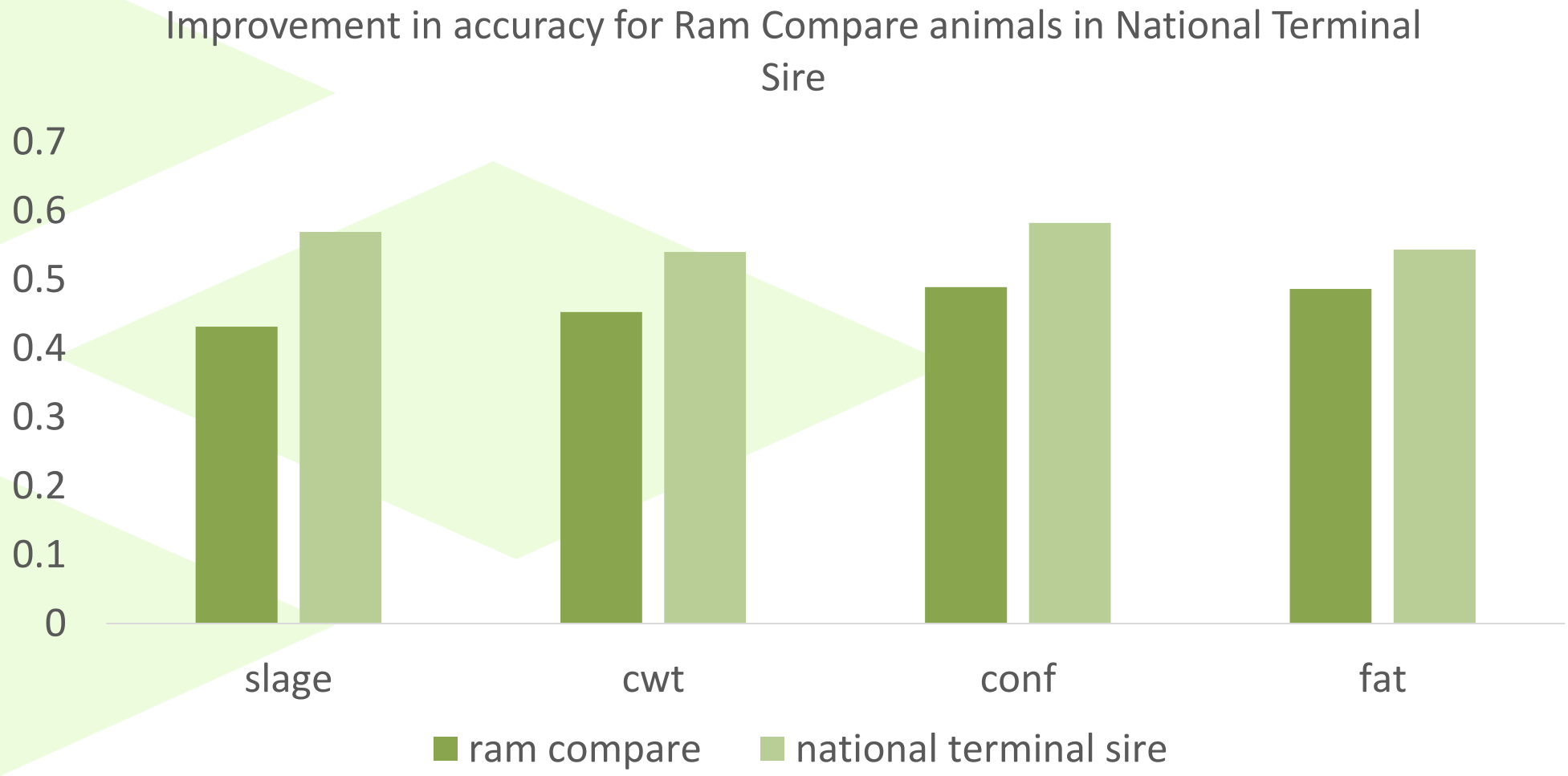
2018

2022

NTS=4,402,758



Inclusion of RC into National Terminal Sire evaluations



Future work for NTS

- Breed differences-breed adjustment in NTS?
  - While maintaining RC aims
- Still option to produce Ram Compare EBVs as a standalone
  - Two sets of EBVs could lead to confusion
- Correlations with on farm traits
  - some very high correlations so proceeding with caution
- Dorset carcass phenotypes
  - To be added in later

Future work-Index

- Currently based on carcass weight, conformation and fat
- Next step is to include slaughter age now that we have new parameters

For further details: abbygail.wells@sruc.ac.uk

Main abattoir traits-parameters

	Heritability estimated in 2018	Heritability estimated in 2022
Slaughter age	0.28 (0.040)	0.183 (0.0175)
Carcass weight	0.38 (0.040)	0.226 (0.0179)
Carcass conformation	0.40 (0.034)	0.314 (0.0188)
Carcass fat	0.51 (0.041)	0.308 (0.0184)

Research traits-parameters

	Heritability estimate 2018	Heritability estimate 2022
Front total weight	0.38 (0.078)	0.32 (0.045)
Middle total weight	0.63 (0.106)	0.48 (0.051)
Haunch total weight	0.41 (0.083)	0.28 (0.042)
Shear Force	0.16 (0.066)	0.15 (0.036)