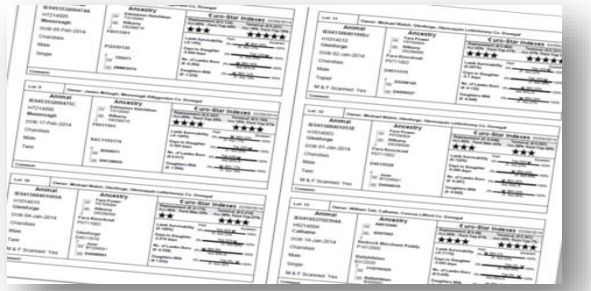
Sheep Ireland
www.sheep.ie

Updating the Irish Genetic Evaluation



T. Pabiou & Sheep Ireland team

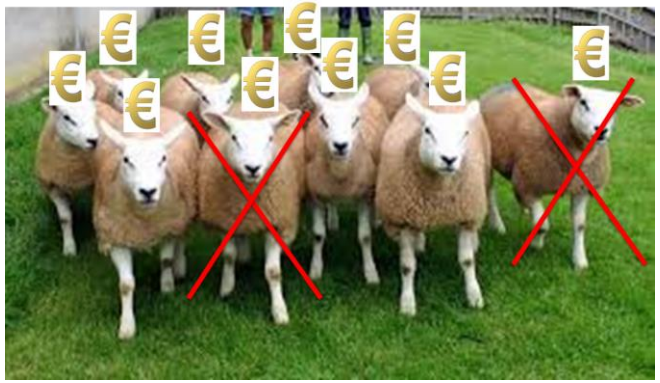
Why we update the evaluations

- So we can produce more accurate evaluations!
  - More accurate ram selection
  - More profitable decisions
  - Greater difference between 1 and 5 Star rams
  - More confidence/emphasis placed on Star ratings

Increasing the odds of hitting the bulls eye

Improvements to the 2019 Evaluation

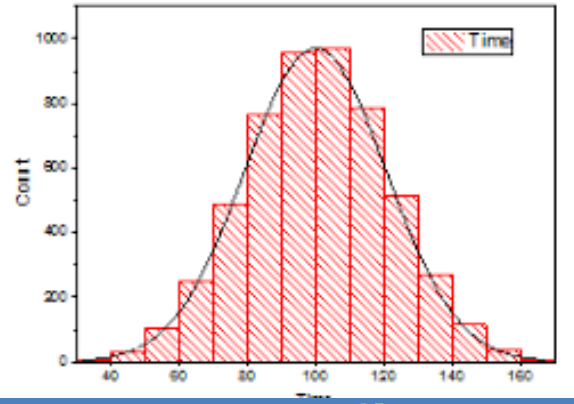
Parentage Corrections



Carcass Data

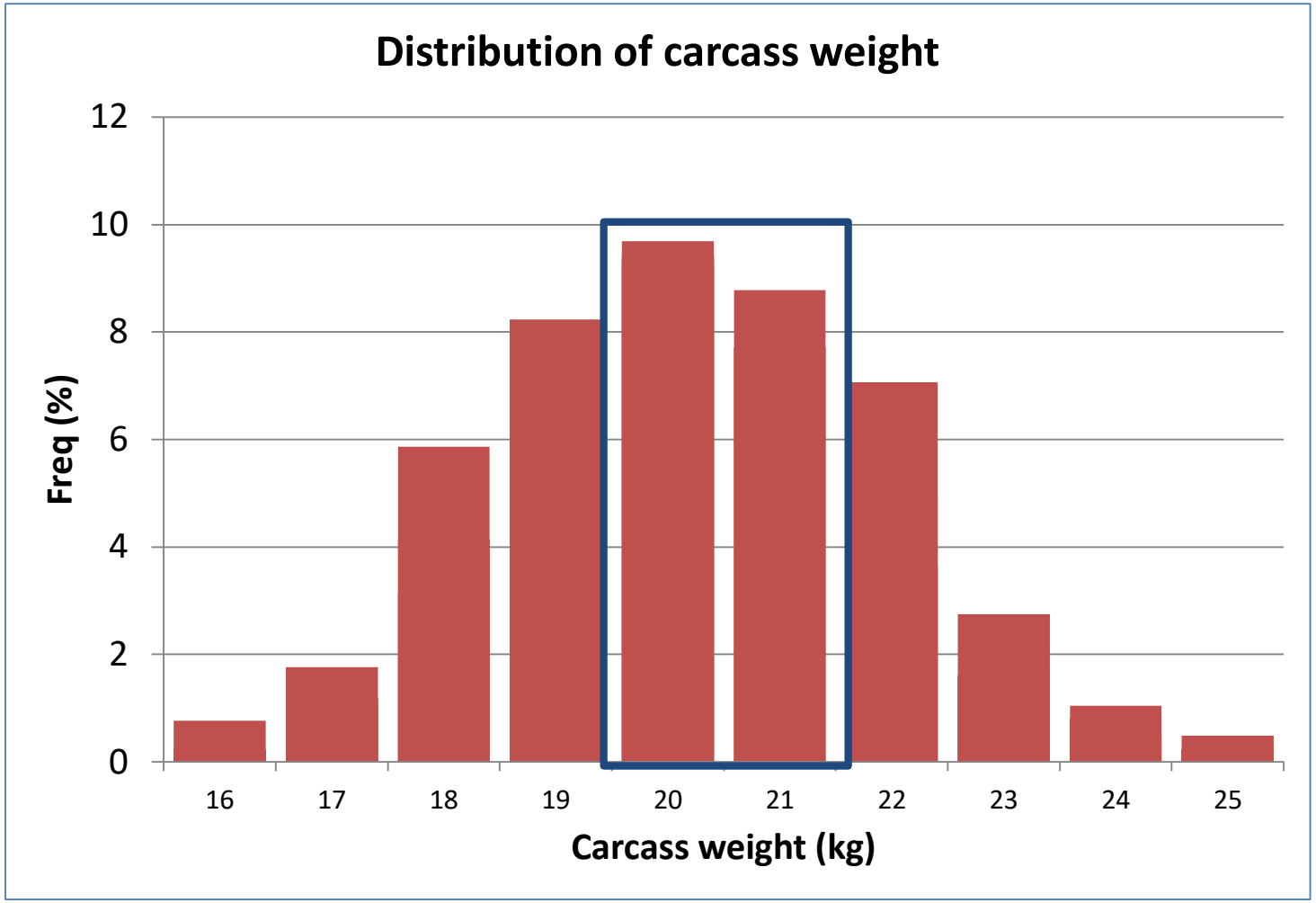
Across-Breed Model

Updating Genetic parameters

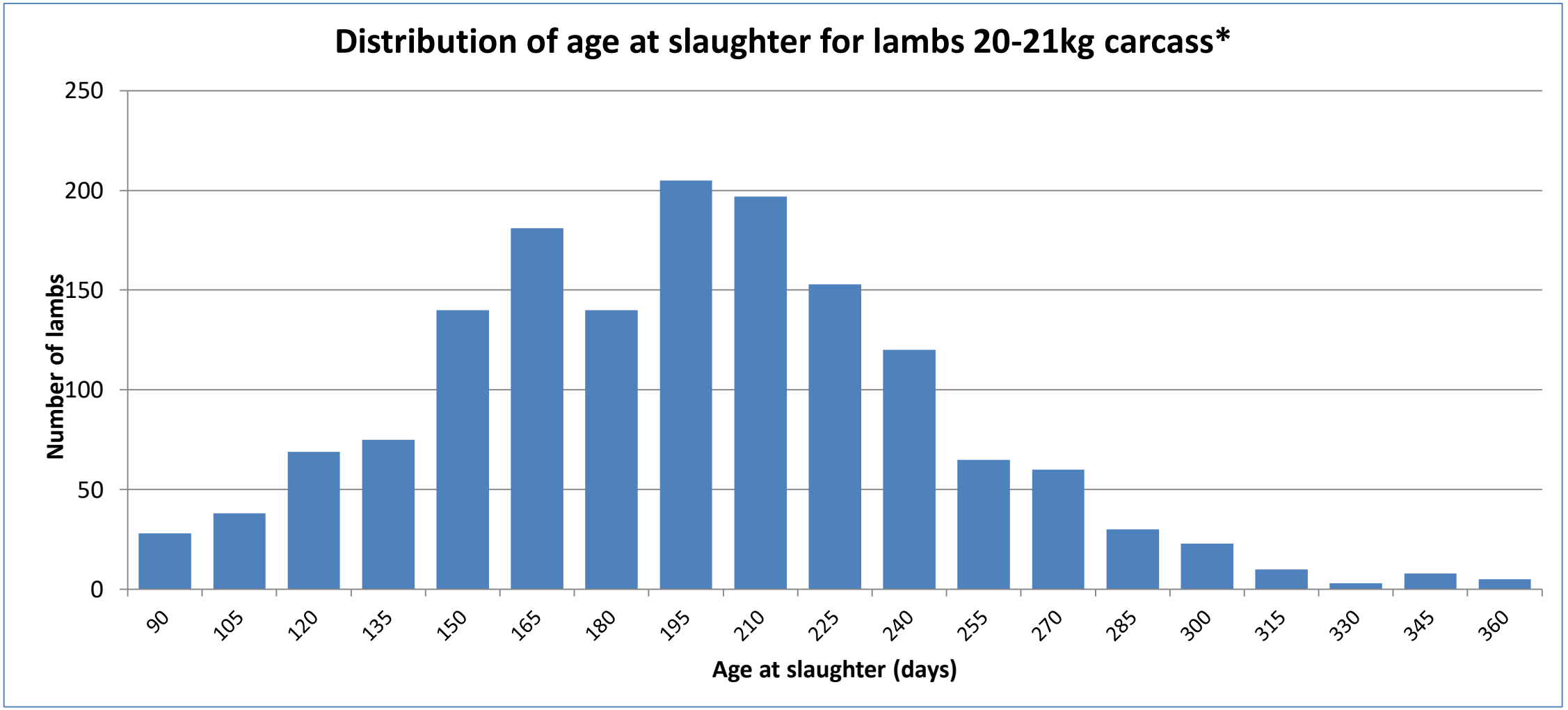


Using Carcass data

- ~6,000 CPT lambs born since 2016 with records
- Average Carcass Weight 20.5kg



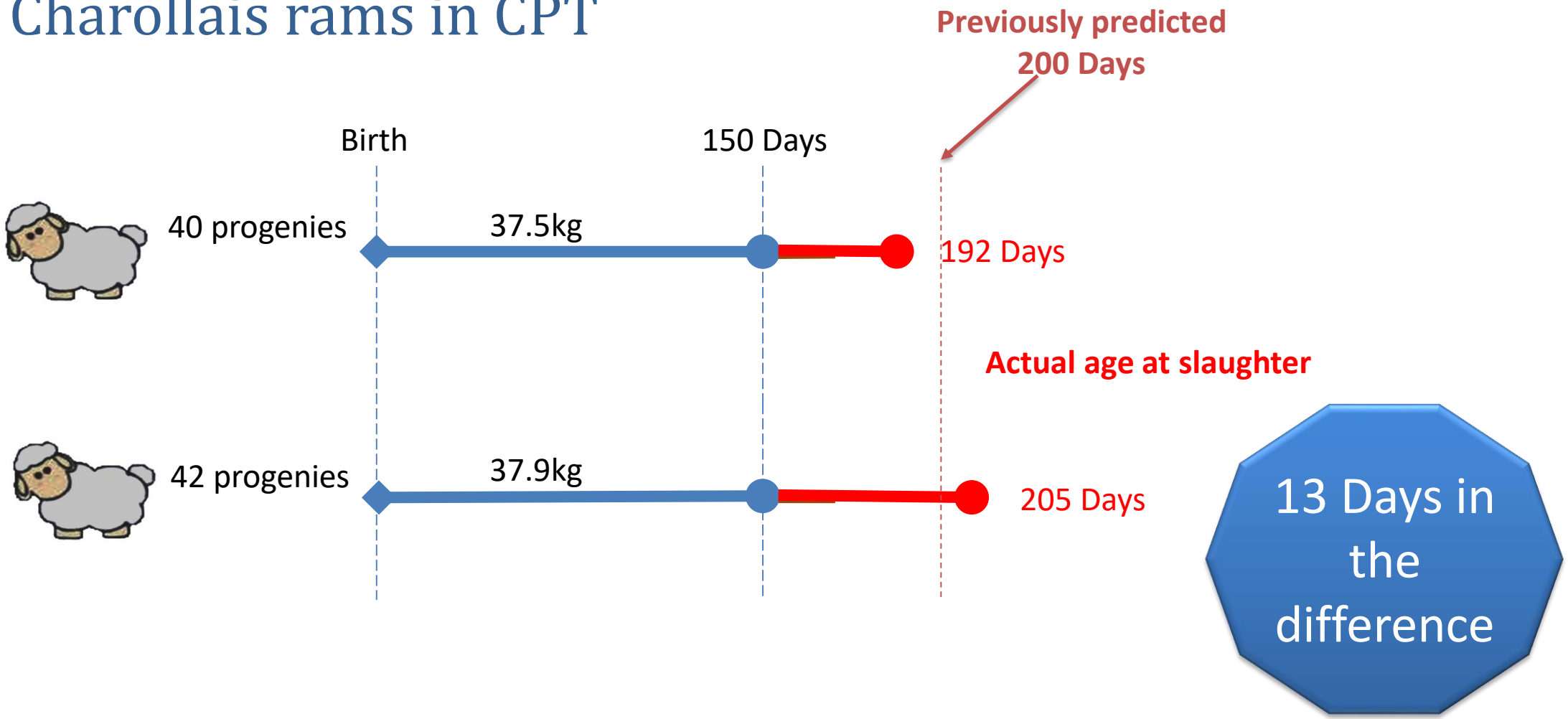
Variation in age at slaughter



*1,550 lambs with 20kg ≤ carcass weight ≤ 21kg

Slaughter data added value

- 2 Charollais rams in CPT

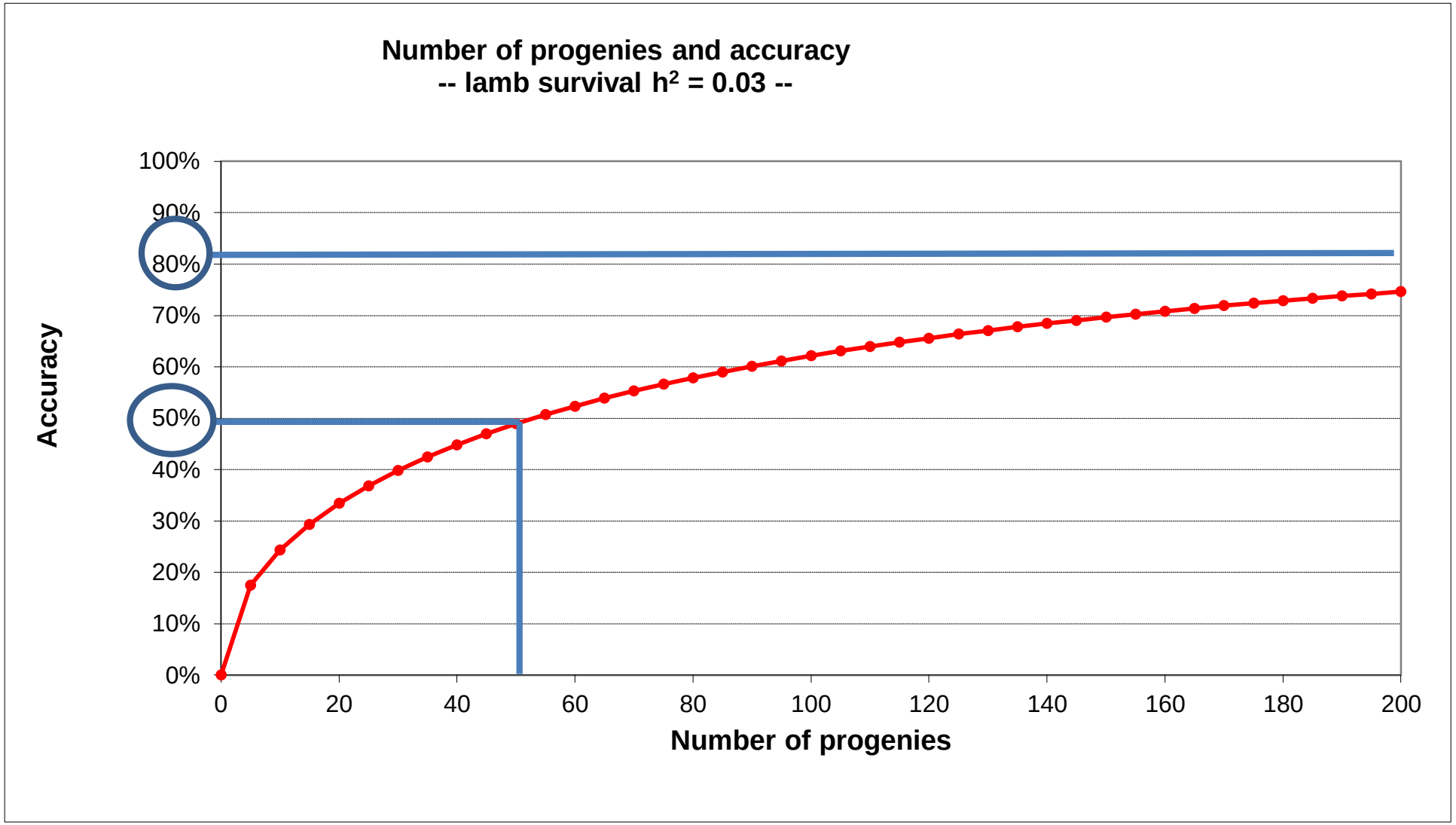


Updating heritability

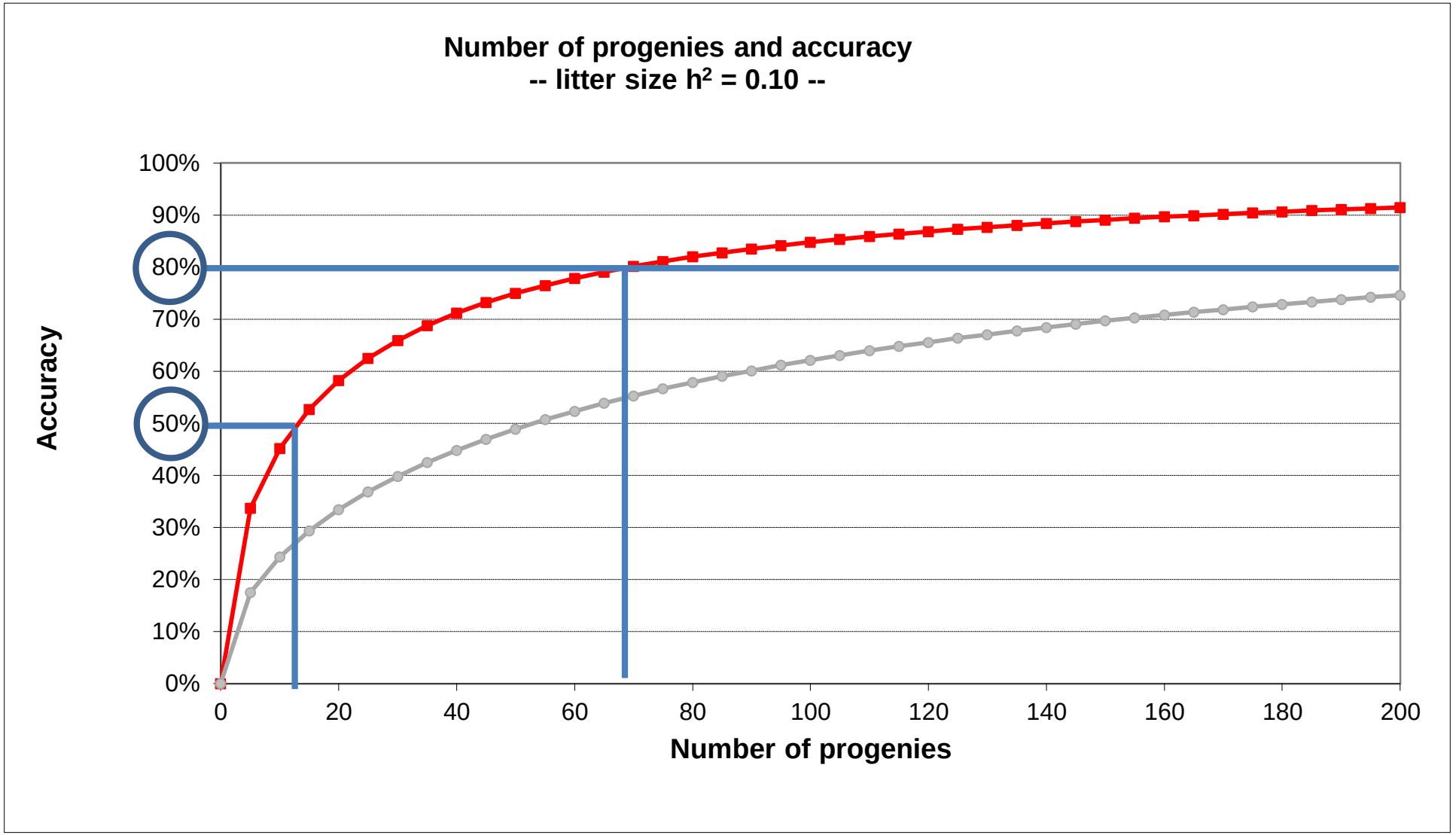
- Heritability (h^2) = the difference in performances that can explained by the genetic make-up
  - Expressed 0 to 1
  - High h^2 traits: dairy milk (0.35), beef carcass (0.37), lamb weight (0.30)
  - Low h^2 traits: lamb health (0.03), beef fertility (0.07)

- Heritability & Accuracy of breeding values are positively linked
  - Higher heritability = Higher accuracy

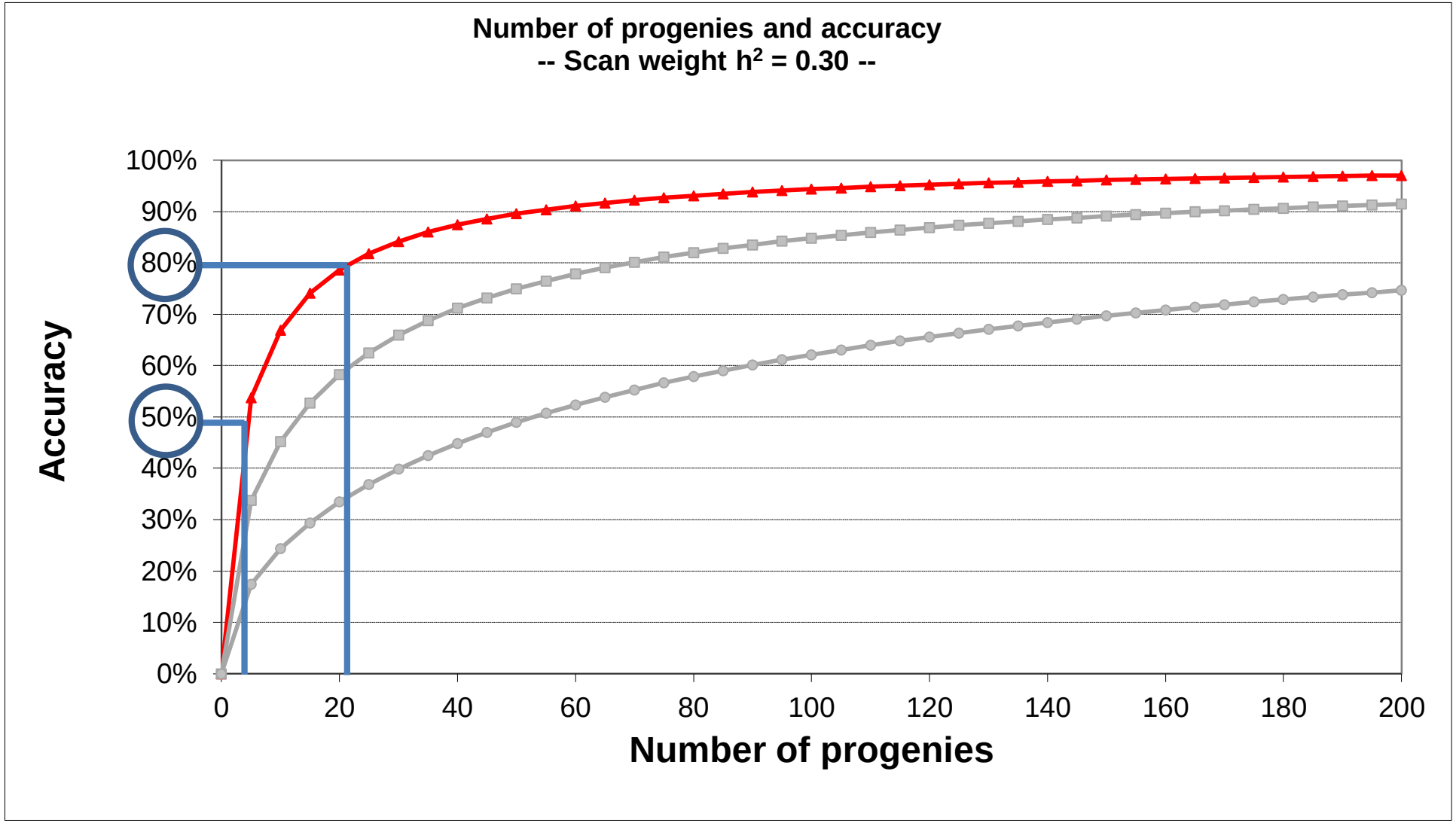
Why is increased Heritability Good?



Why is increased Heritability Good?

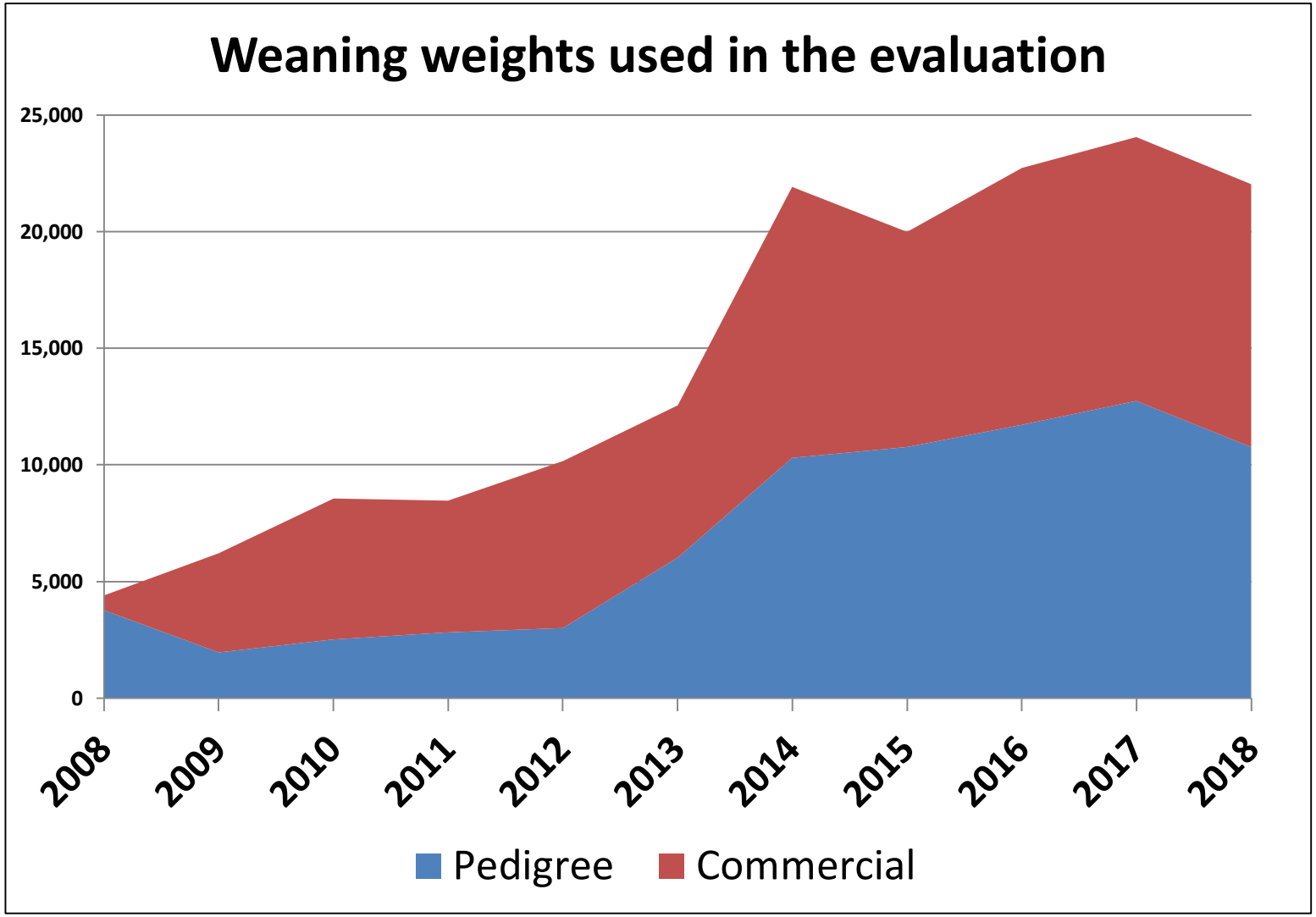


Why is increased Heritability Good?



A lot more data now available

- ~50% weaning weights from commercial animals



Genetic parameters Update

Heritability estimates (direct effect)				
	Pedigree		Commercial	
	Current	**New**	Current	**New**
Age at slaughter (days)			-	**26%**
Live weight @ 40 Days (kg)	10%	**20%**	25%	**23%**
Live weight @ 100 Days (kg)	10%	**21%**	25%	**23%**
Live weight @ 150 Days (kg)	12%	**22%**	20%	**32%**
Muscle Depth (mm)	16%	**19%**	16%	**31%**
Fat Depth (mm)	11%	**20%**	11%	**12%**
Ewe mature weight	16%	**18%**	16%	**20%**

- Pedigree: 2009 ⇨ 2019 : better quality data
- Commercial: 2009 ⇨ 2019 : more data

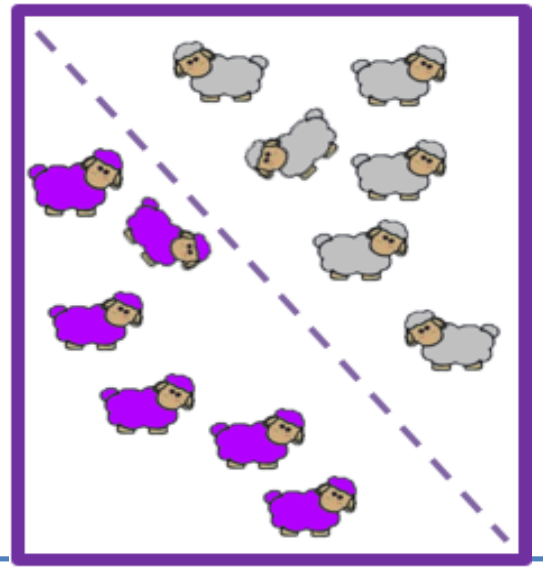
Advantage of an Across-breed Model

Within-breed eval

Flock A

2 breeds of ram =

2 comparison groups

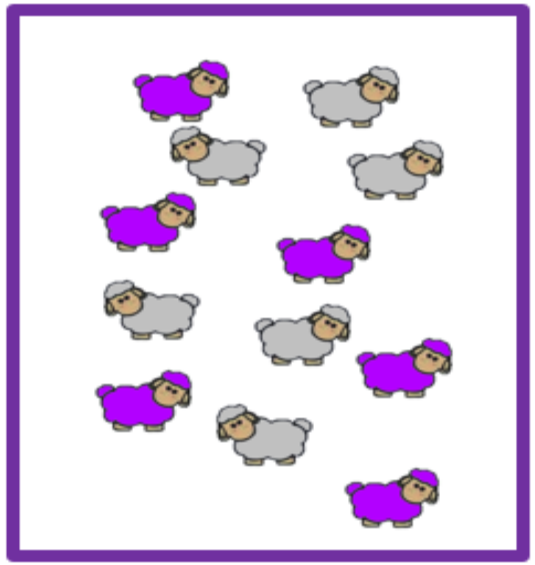


Across-breed eval

Flock A

2 breeds of ram =

1 comparison group



Who's crossed?

Lambs with weaning weight recorded in the evaluation

Dam \ Sire	BL	BR	CL	LY	MC	RL	SU	TX	VN
BL		✓	✓✓	✓	✓	✓	✓✓	✓✓	✓
BR	✓		✓✓✓✓	✓✓	✓	✓✓	✓✓✓✓✓	✓✓✓✓✓	✓✓✓
CL	✓	✓✓		✓	✓	✓	✓✓	✓✓	✓✓
LY	✓	✓	✓✓		✓	✓	✓✓	✓	✓
MC	✓✓	✓✓	✓	✓		✓	✓	✓✓	✓
RL	✓	✓✓	✓	✓	✓		✓	✓	✓
SU	✓✓	✓✓✓✓✓	✓✓✓✓	✓✓	✓	✓		✓✓✓✓✓	✓✓✓
TX	✓✓	✓✓✓✓	✓✓✓	✓✓	✓	✓	✓✓✓✓		✓✓
VN	✓	✓✓	✓✓	✓	✓	✓	✓✓	✓✓	

Conclusion

- Current genetic evaluation has 4 modules
  - Growth, Lambing, Litter size, & Health
  - 3 / 4 have now been updated
- 2019 updates:
  - Carcass data
  - New heritability for growth
  - Across-breed for all modules
- Better evaluation
  - Recording carcass goal trait
  - Increased accuracy