



Sheep5K

June 2016

zoetis

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Why are we here?



Sheep farming is a great industry and its an exciting time to be part of it. We all are responsible for progressively lifting the bar on lamb production by acting as genetics champions for all farmers in New Zealand.

Zoetis is invested in your breeding program. We turn data into information and provide value oriented ram breeders with accurate estimates of genetic merit to inform selection, mating, and marketing decisions that impact profitability.

				Breeds			
Trait		Units	Definition	Romney	Coopworth	Perendale	Composite
Production	CWT	Kg	Carcass weight				
	WWT	Kg	Lamb weaning weight - direct effect				
	WWTM	Kg	Lamb weaning weight - maternal effect				
	LW8	Kg	Live weight at 8 months				
	LW12	Kg	Live weight at 12 months				
	EWT	Kg	Adult ewe live weight				
	EMAC	Cm	Ultrasonic Eye Muscle Area, weight adjusted				
	NLB	#	Number of alive lambs at birth				
Wool	LFW	Kg	Lamb fleece weight (Greasy)				
	FW12	Kg	Fleece weight at 12 months (Greasy)				
	EFW	Kg	Ewe fleece weight (Greasy)				
Meat Yield	SHLY	Kg	Shoulder Lean Yield, weight adjusted				
	LPLY	Kg	Loin Lean Yield, weight adjusted				
	HQLY	Kg	Hind Quarter Lean Yield, weight adjusted				
	FATY	Kg	Fat Yield, weight adjusted				
	LEANY	Kg	Lean Yield, weight adjusted				
Health	FEC1	%	Faecal egg count (end of first challenge)				
	FEC2	%	Faecal egg count (end of second challenge)				
	AFEC	%	Adult ewe faecal egg count				
	LDAG		Lamb dag score				
	ADAG		Adult dag score				
	GGT21		Facial Eczema				



Trait	Progeny Equivalents
CW	5
WWT	12
WWTm	8
EMAc	4
NLB	16
EWT	2
FW12	5
LEANY	4
GGT21	3
FEC1	15
ADAG	5

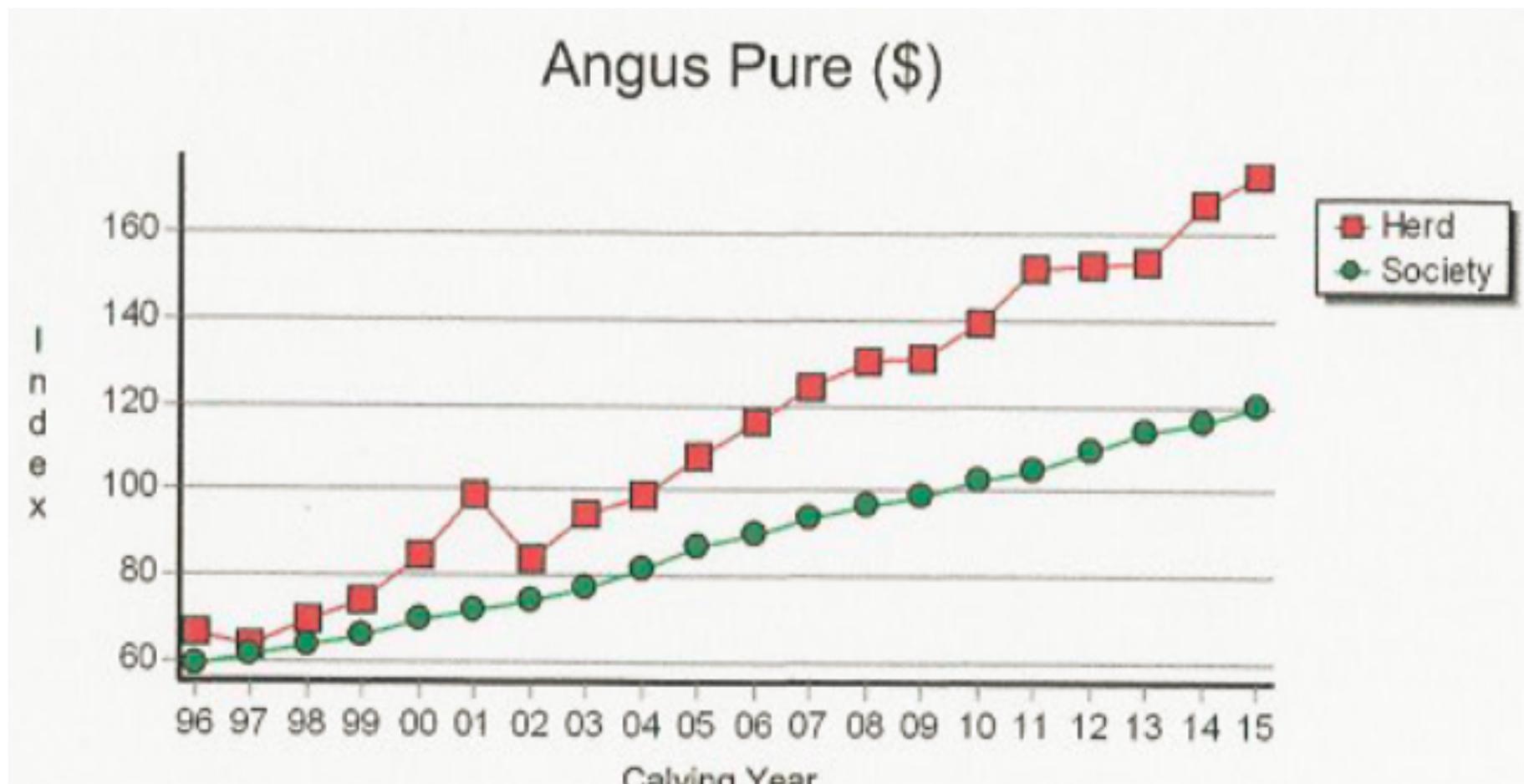
Next calibration September 2016 ish

Sire verification



- Pedigree error can be expensive
- ~8% Pedigree error is well reported
- Impact on genetic gain, time, effort, Ram sales
- Retrospective Sire verifying is very expensive

Sire verification



Sire verification



What are the DNA profiling options?

Shepherd[®]
PLUS

- Shepherd Plus Sire
 - A DNA profile only
 - Cost = \$50

- Whole flock
 - \$20

Sheep5^K

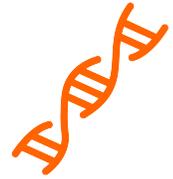
- Sheep5K
 - An imputed 50K genotype
 - Generates mBVs across 22 traits
 - Adds significantly to breeding value accuracy of young animals especially (see Progeny Equivalentents)
 - 50K genotype includes the Shepherd Plus DNA profile
 - 5 gene tests
 - MyoMAX
 - I-Scan
 - Inverdale
 - Yellow fat
 - LambMAX
 - Cost = \$69

Sire verification



- \$69 - \$50 = \$19
- Is there \$19 worth of value in:
 - Imputed 50K genotype
 - 5 gene tests
 - 22 mBVs
 - 22 gBVs
 - ?

Genomics ROI



- Genomics accelerates genetic gain
- Genetic gain is expressed economically
- How much extra gain do you need to achieve to break even on a \$69 Sheep5K test?

- $\$69 \times 100 / 230$ (M&A multiplier) = 30 cents

Genomics ROI



- What does 30cents Index actually mean?

Trait	Eco Wgt	BV	units
WWT	136	0.22	kg
CWT	374	0.08	kg
NLB	2230	0.01	% lambs
FW12	113	0.27	kg

Genomics ROI

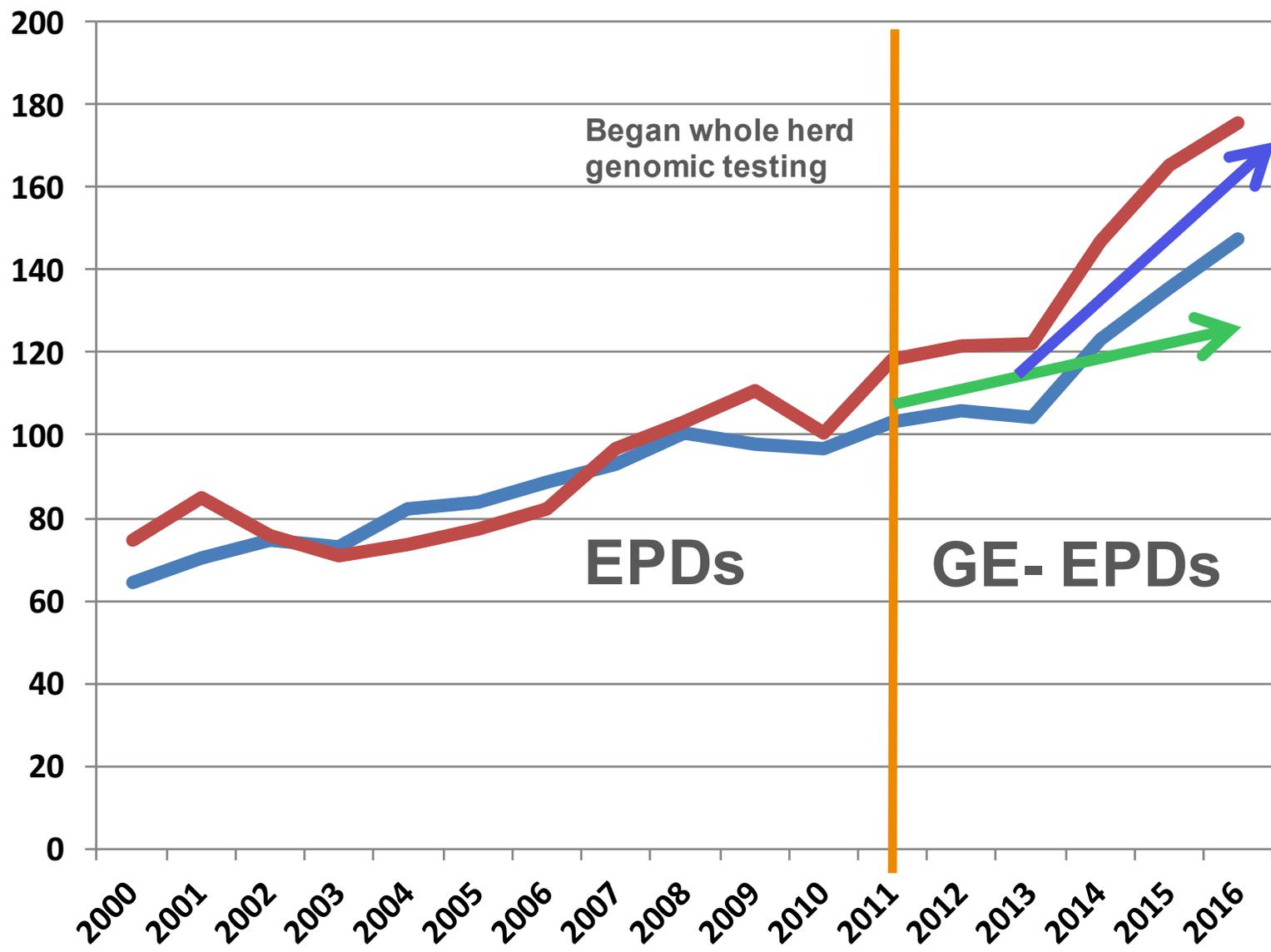


- Do we have any examples in NZ Sheep? Yes!
- Currently 45c more gain pa, average over 5 years!
- Investing \$13,000 pa
- Has produced \$126,000 of better genetics as rams sold
- ROI = 2:1

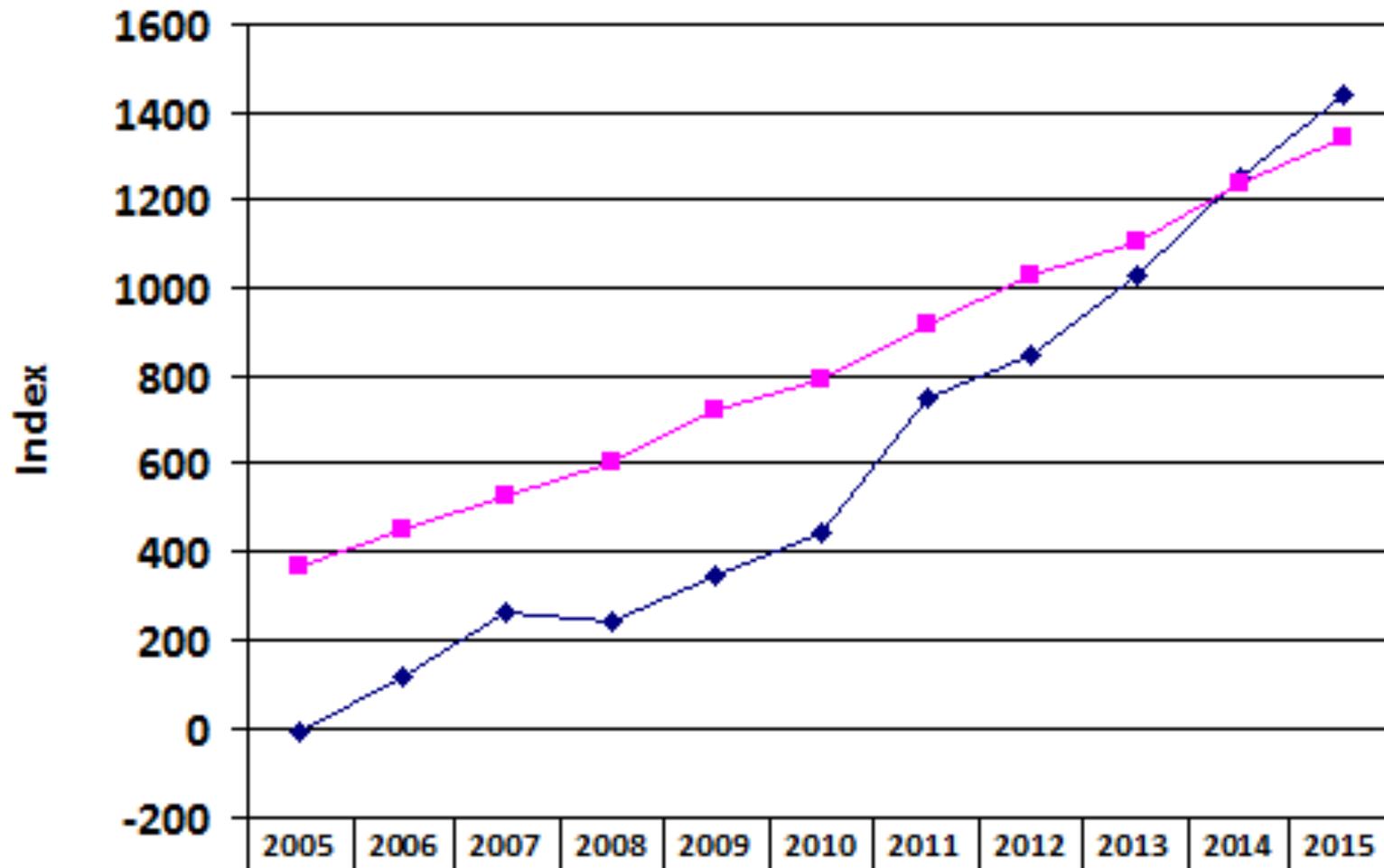
Express and Vintage genetic post-weaning (\$B) traits – before and after genomics



— Express
— Vintage



Genetic Progress - DPO Index



What does success look like?



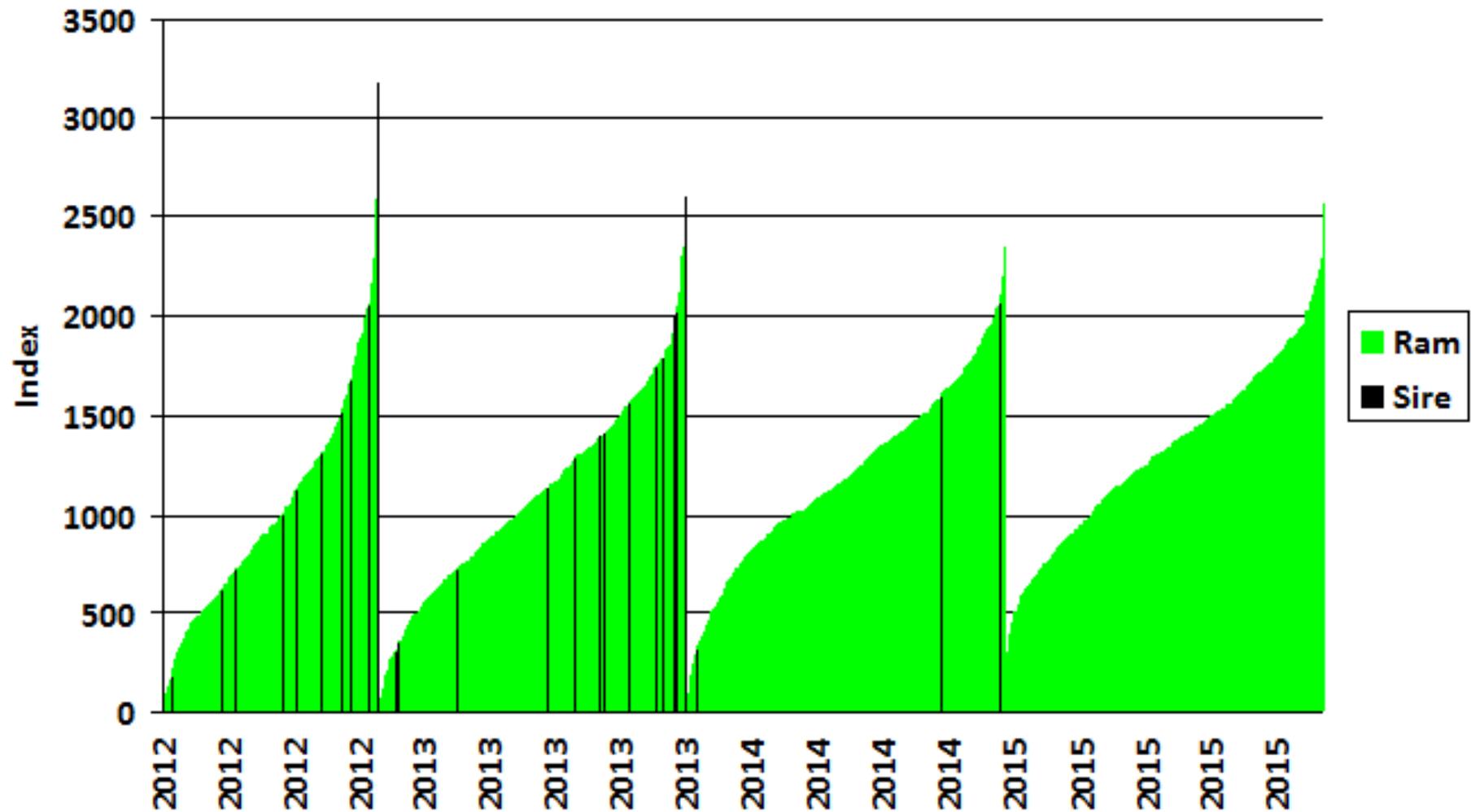
- BLG, BLG, BLG
- Record well
- DNA Sire verify with Sheep5K or Shepherd Plus
- Sire selection policy
 - Why shouldn't I, vs. Why should I
- Use Indexes/BVs more
 - A lot of emphasis on Type currently
- Sheep5K males
 - Early
 - 2 stage selection
 - Use as a screening tool
 - Before selection decisions, not after
- Sheep5K females
 - Before replacement candidates

Sheep5K: A working example

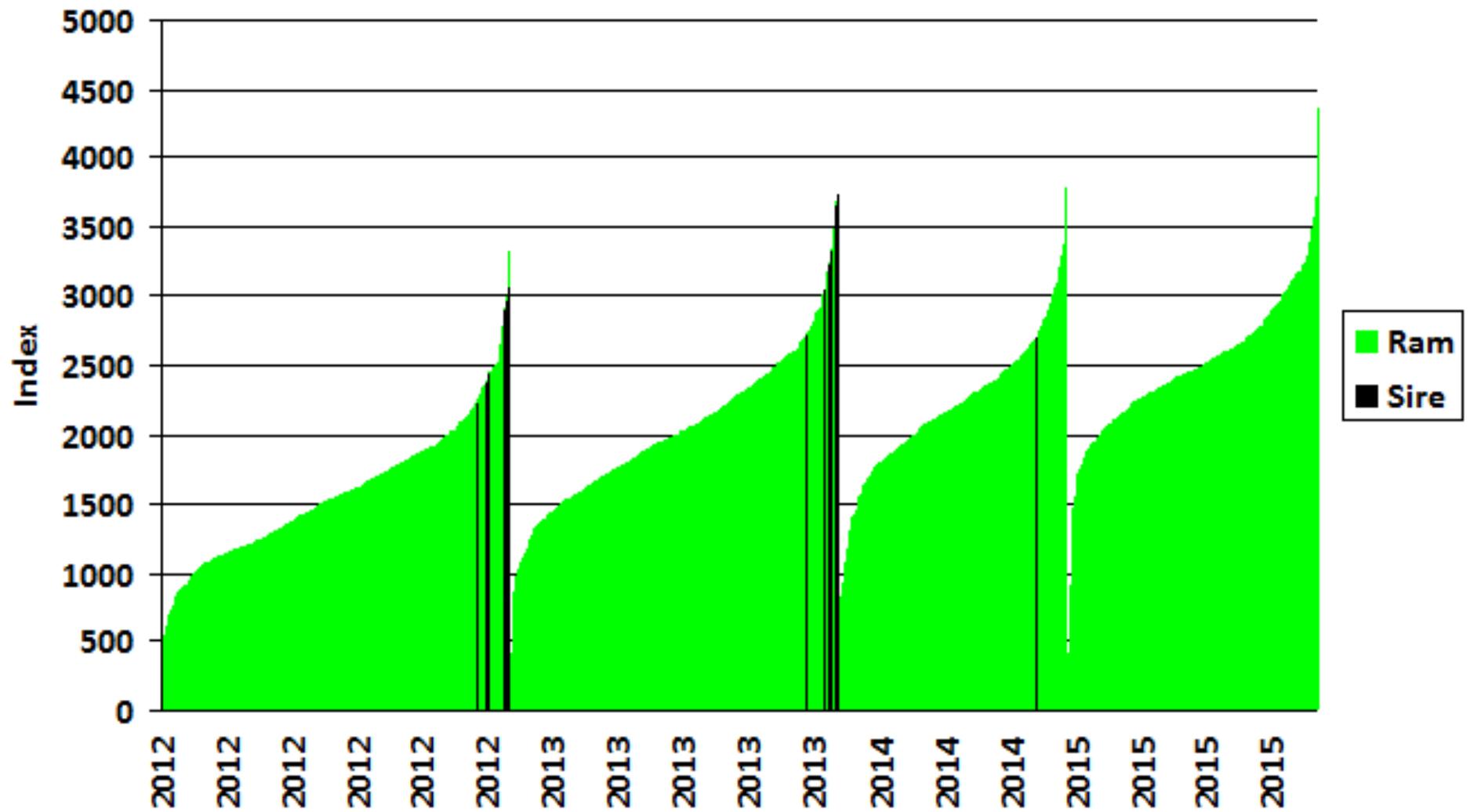


- 2014
 - Sire team 100% genomically enhanced
 - Lambs born august/september
 - Recording
 - Dag, WWT, LW6
- 2015
 - FEC, FW12
 - Sheep5K @ 15% of first cut
 - Screening tool for RamGuard
 - Results into SIL
 - RamGuard @~ 50% Sheep5K
 - Results into SIL
 - Selection list from NGE
 - Sire team candidates selected
 - Sale Rams identified
- 2016
 - Sire team 100% genomically enhanced

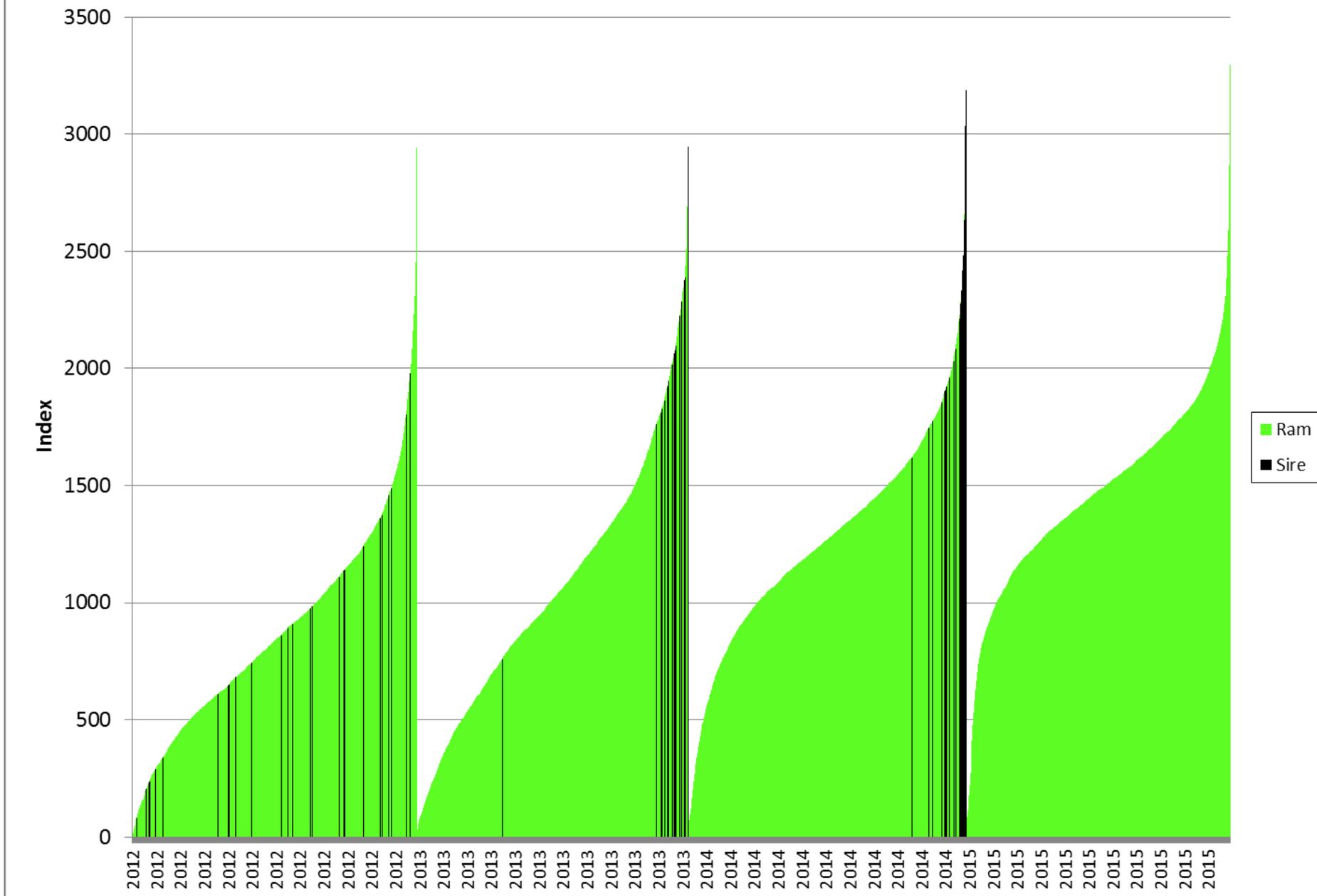
Position of Rams used as Sires - DPO



Position of Rams used as Sires - DPO



Position of Rams used as Sires - DPO



A model: Integrating RamGuard and Sheep5K



Rams to test per sire		5
Sires		8
Rams to phenotype		40
Price to Phenotype	\$	250.00
Cost to Phenotype	\$	10,000
Ewes		850
Ram Candidates		396
Sheep5K		15%
\$69.00		59
	\$	4,095
Sire Lines Tested		12
Equivalent Progeny		178
RamGuard	\$	5,905
\$250		24
Sires		5

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