Introduction to KIDPLAN

Genetic improvement within your goat herd

Are you getting the most bang for buck with your selection program?

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KIDPLAN EBV

SHEEP GENETICS

• mla • awi •

KIDPLAN EBV

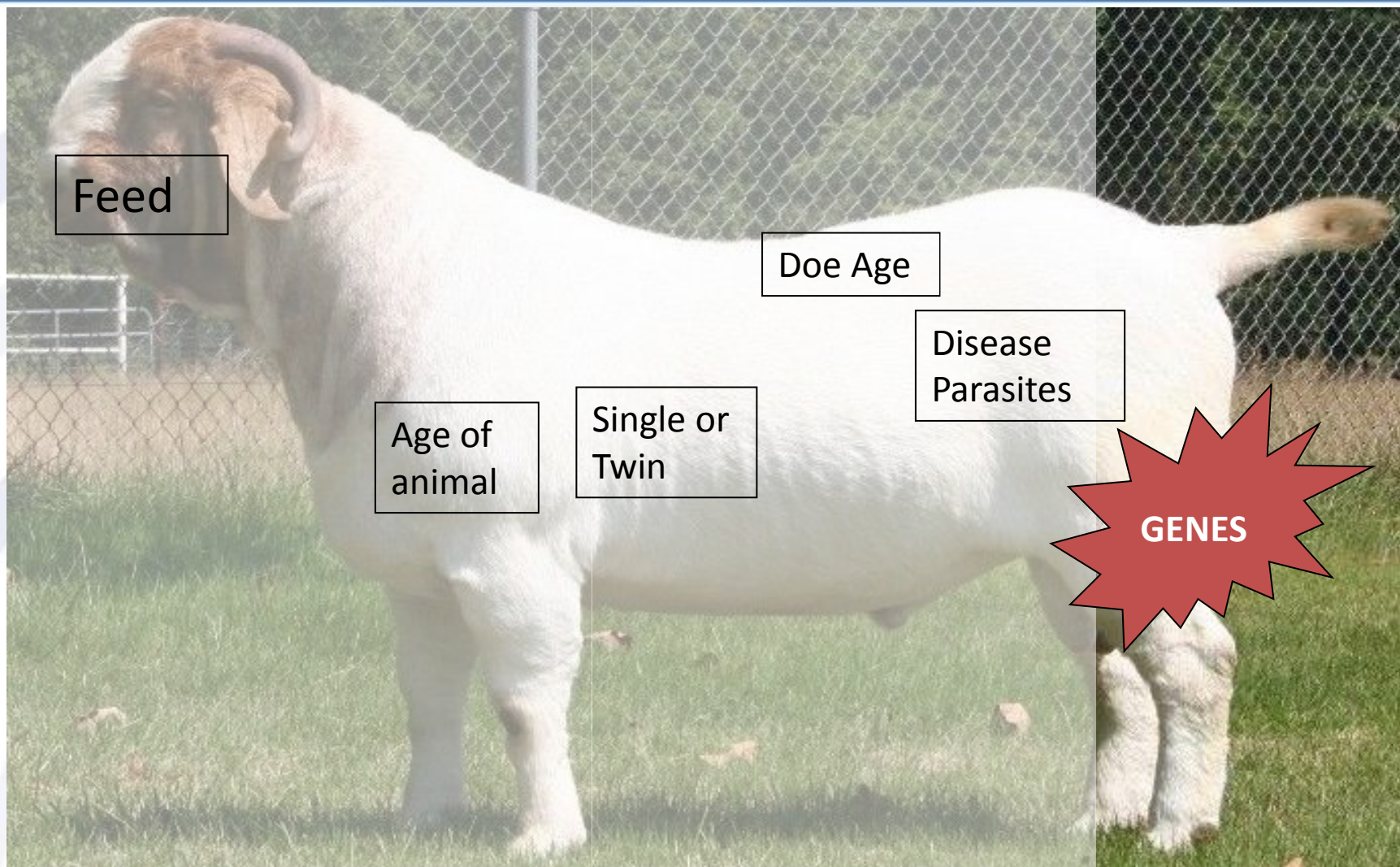# Who are SHEEP GENETICS ?

The long and short of Farm production

- Farm production is an interaction of Genetics and Environment

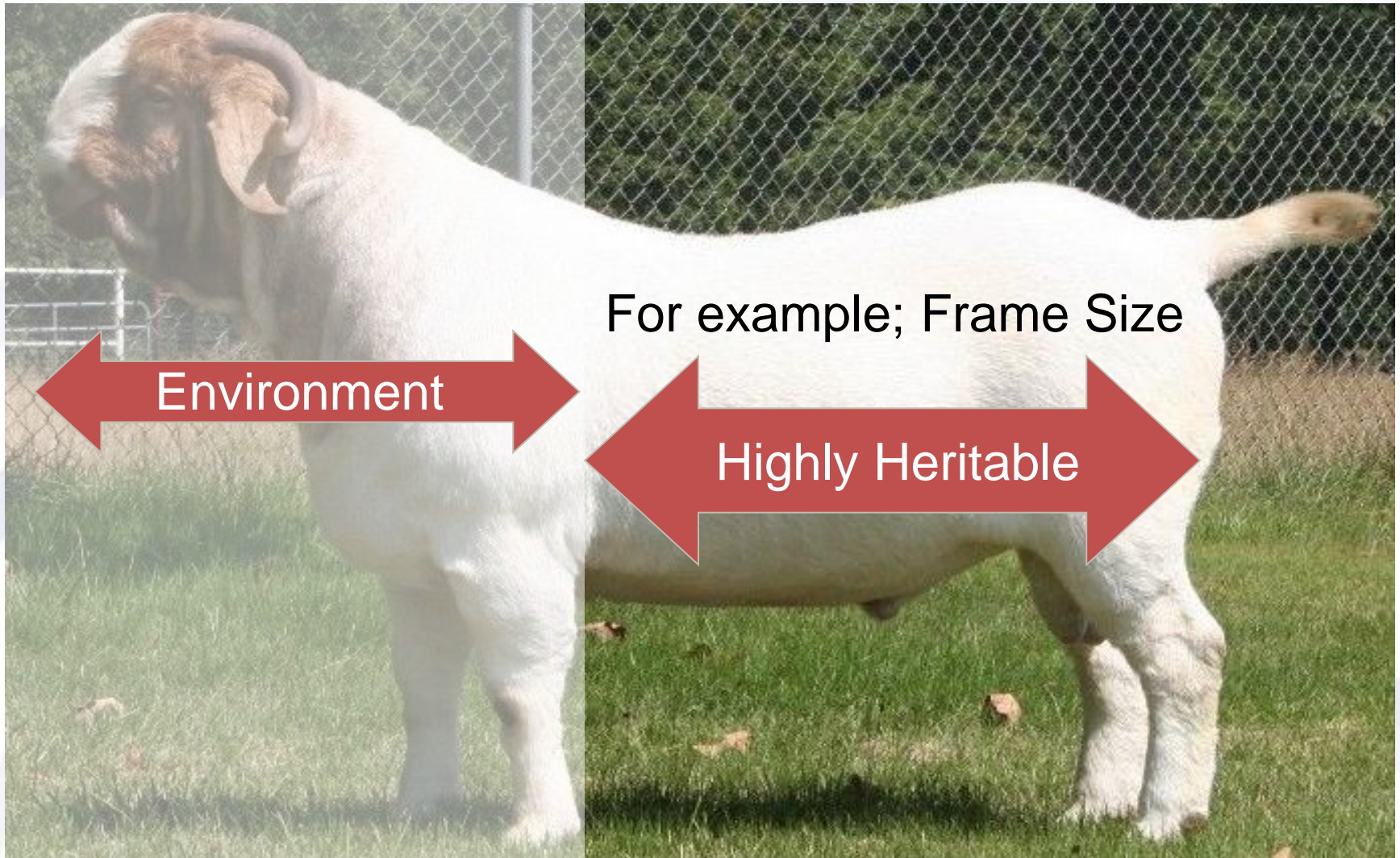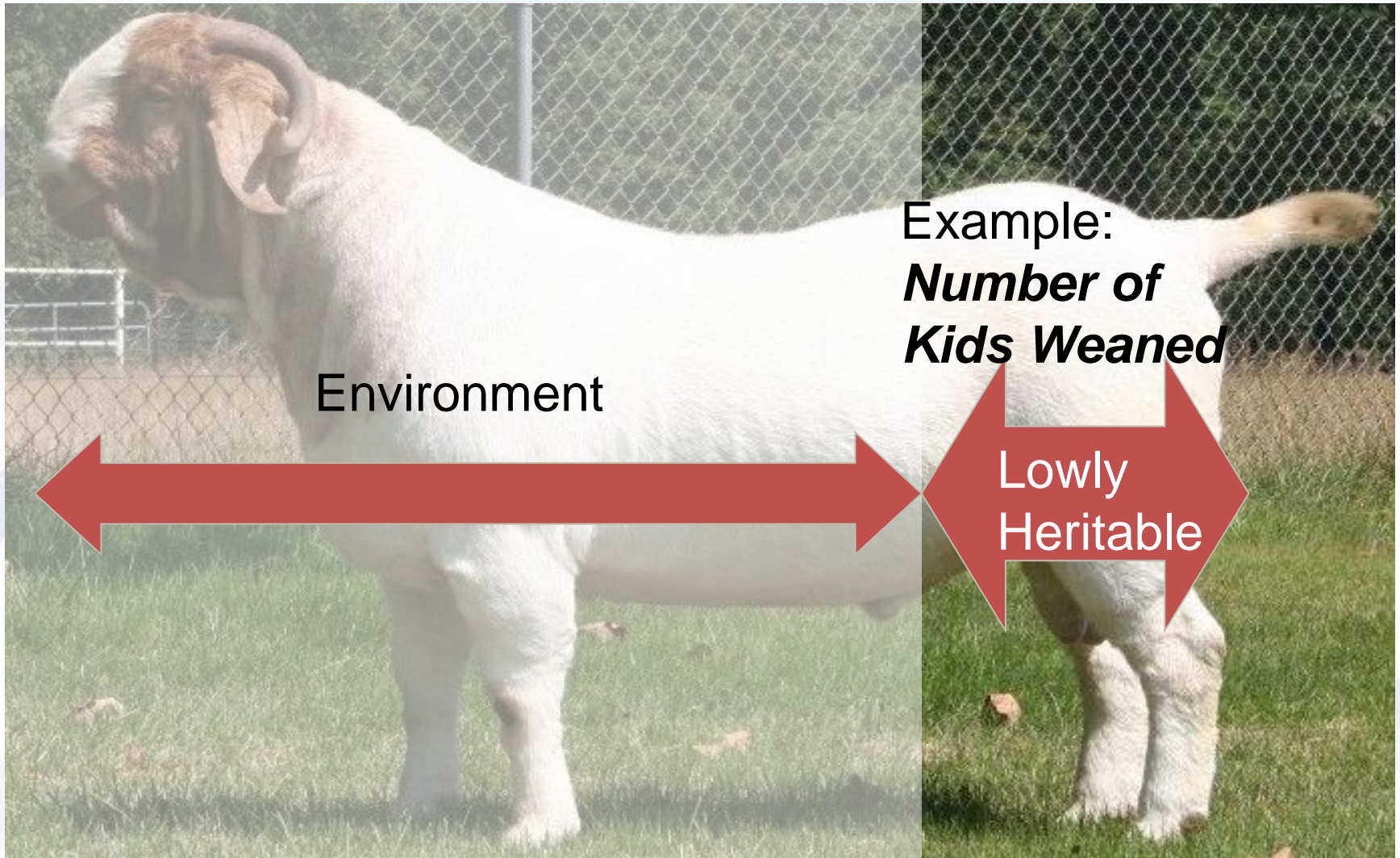Performance =   Genetics   X   Environment

What influences an animal's performance?

Feed

Doe Age

Disease Parasites

Age of animal

Single or Twin

GENES

What influences an animal's performance?

Environment

For example; Frame Size

Highly Heritable

What influences an animal's performance?

Environment

Example:
Number of Kids Weaned

Lowly Heritable

How can we *predict* an animal's performance?

Environment

GENES

KIDPLAN

Estimated Breeding Values

(EBVs)
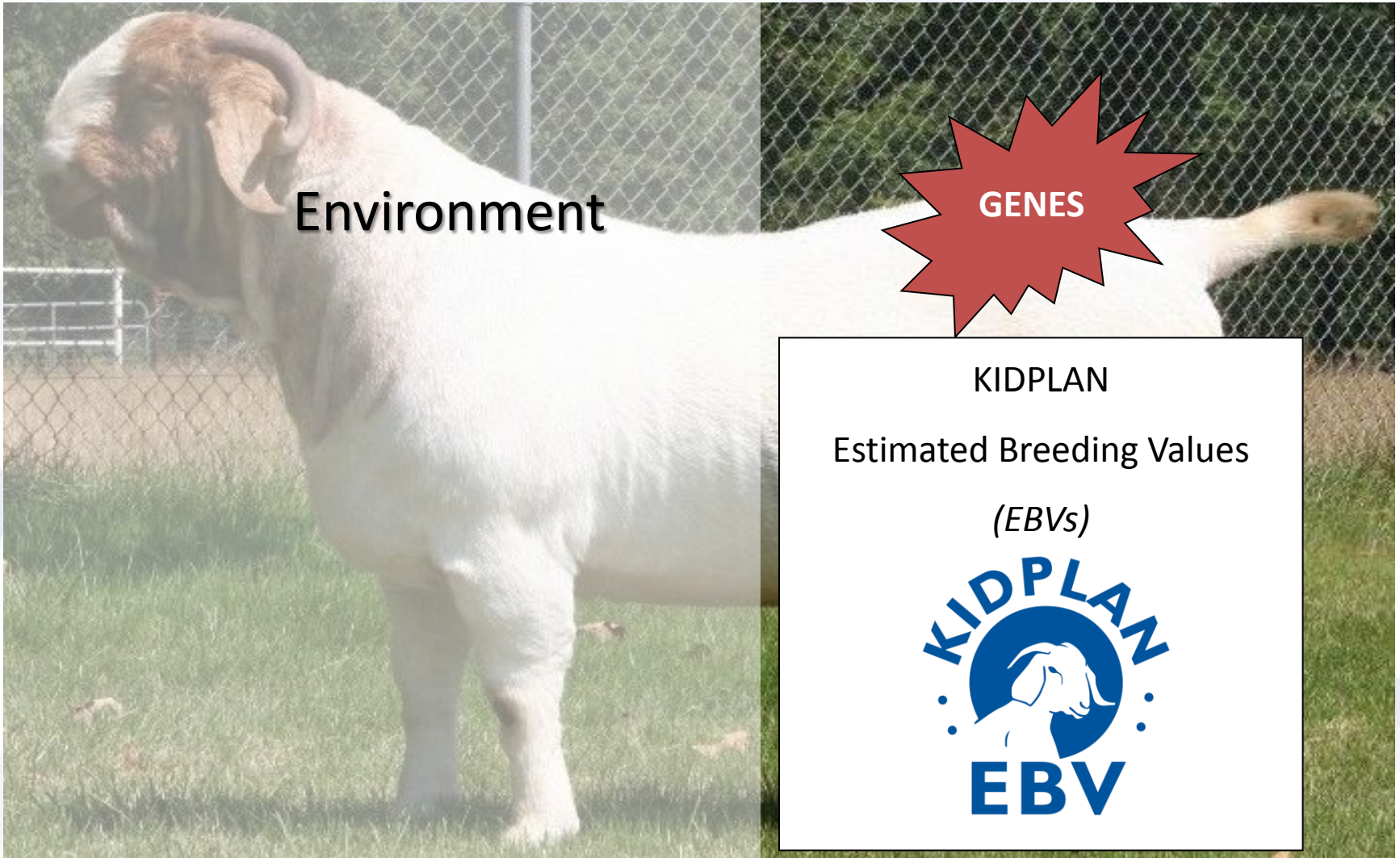
Calculating Breeding Values

Siblings

Sire

Dam

Animal

BREEDING VALUE

Heritability of trait

Environmental influences

Correlated traits

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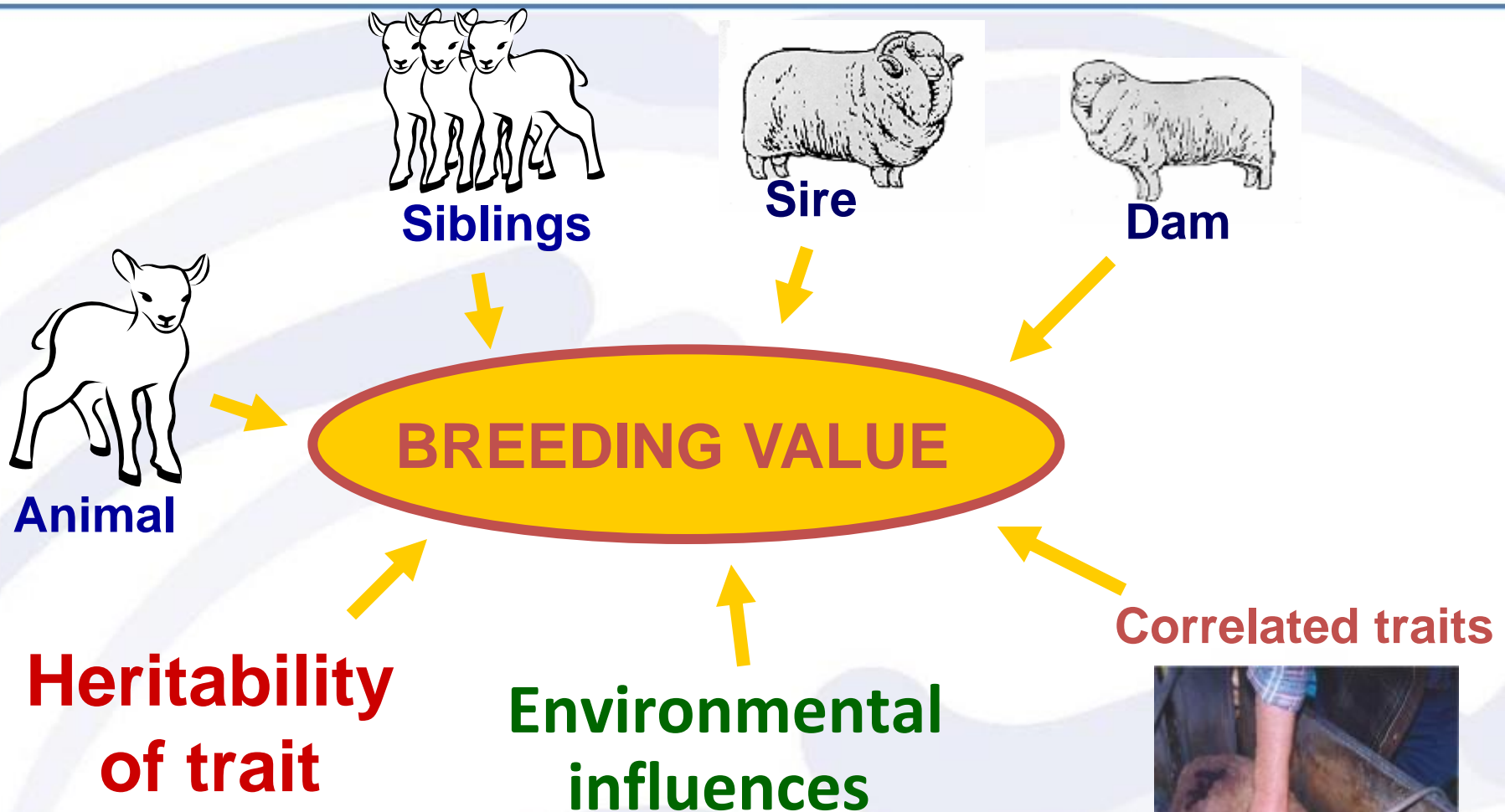
Accuracy of breeding values

Accuracy of a breeding Value is affected by:

- The proportion of the herd being recorded.

- How many records are collected.

- How much information is available on the relatives.

- Heritability of the trait.

What EBVs are available?

- EBVs for major production areas
  - Weight - wt
  - Carcase – emd, fat
  - Fertility – nkb, nkw
  - Fleece – gfw, cfw, fd, sl, ss (Angora).
  - Parasite Resistance - wec

What EBVs are available?

- EBVs for a number of ages
  - Birth - **B**

  - Weaning – **W** (42-120 Days)

  - Post-weaning – **P** (120 – 300 Days)

  - Yearling – **Y** (300 – 400 Days)

  - Hogget – **H** (400 – 540 Days)

  - Adult – **A** (>540 Days)

e.g. PWT = Post-Weaning Weight

PEMD = Post – Weaning Eye Muscle Depth

Some Common Traits for you:

- **<u>WWT</u>**: Weight of animal at Weaning age stage.
- **<u>PWT</u>**: Weight of animal at Post Weaning age stage.
  - Unit: KG

- **<u>PEMD</u>**: Post Weaning Eye Muscle Depth.
  - Unit: mm, on the 12th/13th rib

- **<u>PFAT</u>**: Post Weaning Fat Depth.
  - Unit: mm, on the 12th/13th rib

- **<u>NKW</u>**: Number of Kids Weaned
  - Unit: %

Percentile Band

- Accessible from Sheep Genetics Website.
- Helps you benchmark what is better for each trait.
- Doesn't necessarily have to be the same animal across each row.

	BWT	WWT	PWT	YWT	HWT	AWT	PFAT	PEMD	PWEC	NKW	Carcase Plus	SRC
Top value	-0.28	4.3	7.6	9.1	10	9.3	0.9	2.3	-45	7%	157	123
Top 1%	-0.19	3.3	5.7	7.1	8.3	8	0.8	2	-32	5%	144	117
Top 5%	-0.12	1.6	3.5	4.7	6	6	0.6	1.5	-14	1%	118	108
Top 10%	-0.08	1.2	2.5	3.6	4.3	4.8	0.3	1	-8	0%	113	105
Top 20%	-0.03	1	1.8	2.6	3.1	3.7	0.1	0.1	-4	-1%	109	103
Top 30%	-0.01	0.8	1.4	2.2	2.5	2.8	0.1	0.1	-1	-2%	107	102
Top 40%	0.02	0.6	1.1	1.7	2.1	2.3	0.1	0	2	-3%	105	100
Top 50%	0.04	0.5	0.8	1.4	1.7	1.9	0	-0.1	5	-4%	103	99
Top 60%	0.06	0.3	0.5	1	1.3	1.6	0	-0.1	10	-5%	101	99
Top 70%	0.08	0.2	0.2	0.5	0.9	1.2	-0.1	-0.2	13	-6%	99	97
Top 80%	0.11	-0.1	-0.3	0.1	0.4	0.6	-0.3	-0.3	18	-8%	97	96
Top 90%	0.15	-0.4	-1	-0.8	-0.4	0	-0.6	-0.3	23	-9%	93	94
Bottom value	0.43	-1.5	-3.6	-3.5	-3.7	-3.7	-0.9	-0.7	122	-17%	79	86

Dollars and cents on PWWT.

- Two bucks, A and B:

  – Buck A. = EBV for PWWT of **3.5 kg**
    » Top 5 % for KIDPLAN

  – Buck B. = EBV for PWWT of **0.8 kg**
    » Trait Average for KIDPLAN

Buck A. vs Buck B.

Buck	A. (top 5%)	B. (avg)
PWWT **EBV**	**3.5kg**	**0.8kg**
PWWT passed onto Progeny	1.75kg	0.4kg
Dressing percentage	48%	48%
Kg of added Carcase	0.84kg	0.2kg
$/KG of Carcase	$3.00	$3.00
Value in $/hd =	$2.52 per Kid	$0.6 per Kid
60 Kids per Year	$151.2	$36
60 Kids per year for 4 years	**$604.8**	**$144**

- Assumptions: *Dressing % = 48%* and *$/KG of Carcase = $3.00*

What is NKW worth?

Top of drop has NKW of 7% compared to a buck at *0%.*

7% difference

3.5% improvement for every daughter sired

Average Buck gets 60 progeny per year
(Half females, means 30 Does per year)
Over 4 year lifetime is 120 Daughters

20 extra Kids or $900 per buck
over his daughters lifetime (4 years each)

Putting them together makes a difference!

1000 Does herd using av. Bucks	1000 Does herd using top Bucks
↓	↓
Marking 1200 Kids	Marking 1242 Kids
↓	↓
Average carcase wt 15kg	Average carcase wt 16.75kg
↓	↓
Total value $54,000	Total value $62,410
	↓
	Added value $8,410

Indexes

- Breeding values on many traits can be combined into one figure – a 'selection index'

- The index gives the overall merit, or score, to achieve a certain production goal

- The emphasis put on each trait depends on the breeding objective

Indexes, and how to use

- Identify the most appropriate index for **you**.
  - » SCR
  - » Carcase Plus

- Rank Animals on an index

- Look at EBVs within the index

- Look at other traits important to you which may **not** be in that index

SRC Index

- SRC
  - Self Replacing Carcase index.

Trait	Relative Emphasis	Gain over 10 years
BWT (Kg)	11%	0.2
WWT (Kg)	23%	3
MWWT (Kg)	5%	0.4
PWT (Kg)	26%	4.3
PFAT (mm)	5%	0.1
PEMD (mm)	10%	0.6
NKW (%)	14%	9%
PWEC (%)	6%	-13

Carcase Plus Index

- ## C+
  - Carcase Plus.
  - No WEC, BWT, NKW or MWWT.

Trait	Relative Emphasis	Gain over 10 years
WWT (Kg)	30%	2.2
PWT (Kg)	35%	3.4
PFAT (mm)	5%	0.2
PEMD (mm)	30%	1.2

Sheep Genetics KIDPLAN database search

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Where to find more information?

- Sheep Genetics website,
    - http://www.sheepgenetics.org.au

- Will Chaffey
    - LAMBPLAN (KIDPLAN), Development Officer.

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