Leading Sheep MeatUp Forum

LONGREACH, FRIDAY 25 MARCH 2022

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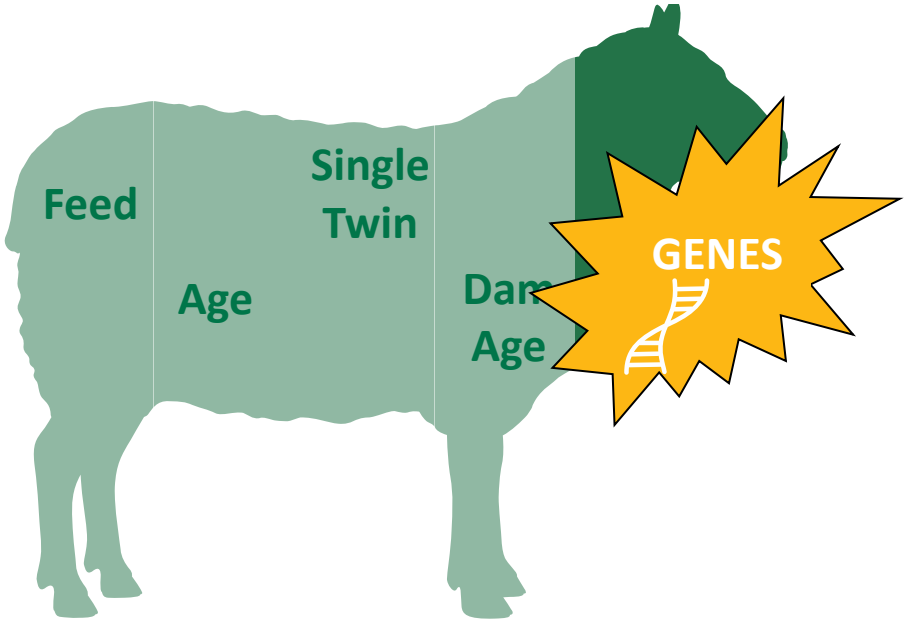
Combining subjective and objective measurements to make informed decisions when investing in genetics

Emma McCrabb

Meat & Livestock Australia

What impacts performance?



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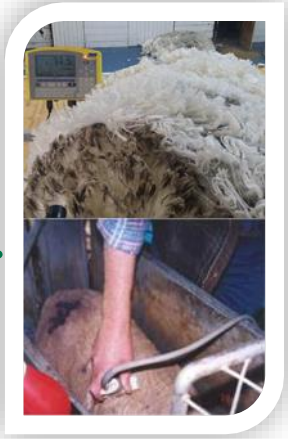
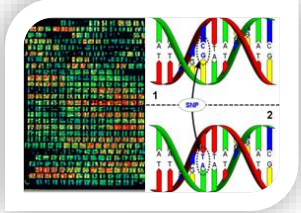
How are breeding values calculated?

Breeding value

Heritability





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Sheep Genetics role

- Program of Meat & Livestock Australia (MLA)
- Deliver the national genetic evaluation for sheep and goats
  - The evaluation is run by AGBU (Animal Genetics and Breeding Unit) at UNE using OVIS Software
- Breeding values are delivered as:

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MERINOSELECT ASBV

LAMBPLAN ASBV

KIDPLAN EBV

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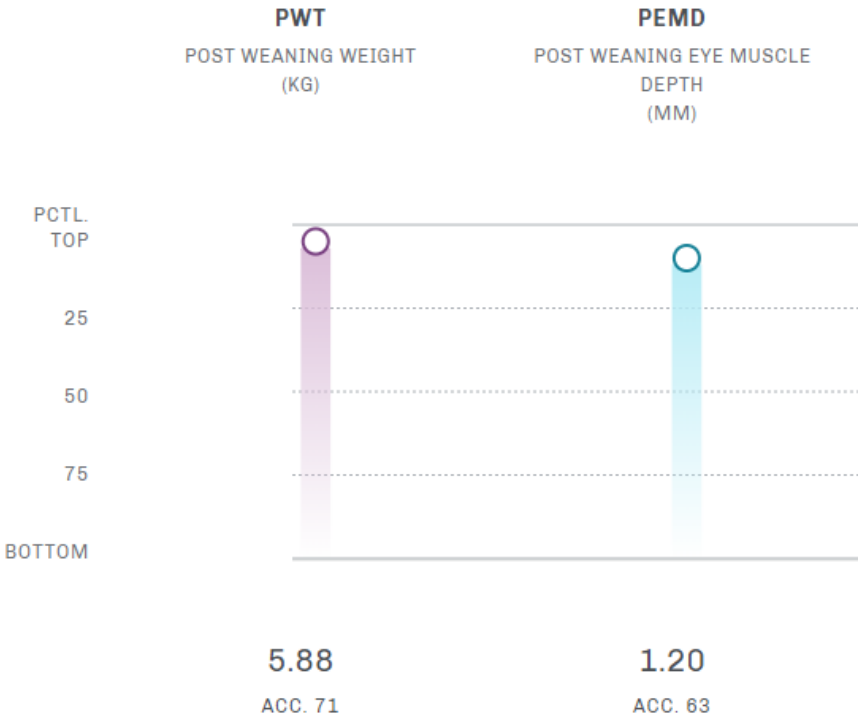
Genetic benchmarking tool

- ASBVs (Sheep) and EBVs (Goats)
- Negative ASBVS are not always bad
- Accuracy is a reflection of the amount of info used
- ASBVS need to be compared to the current average (percentiles)



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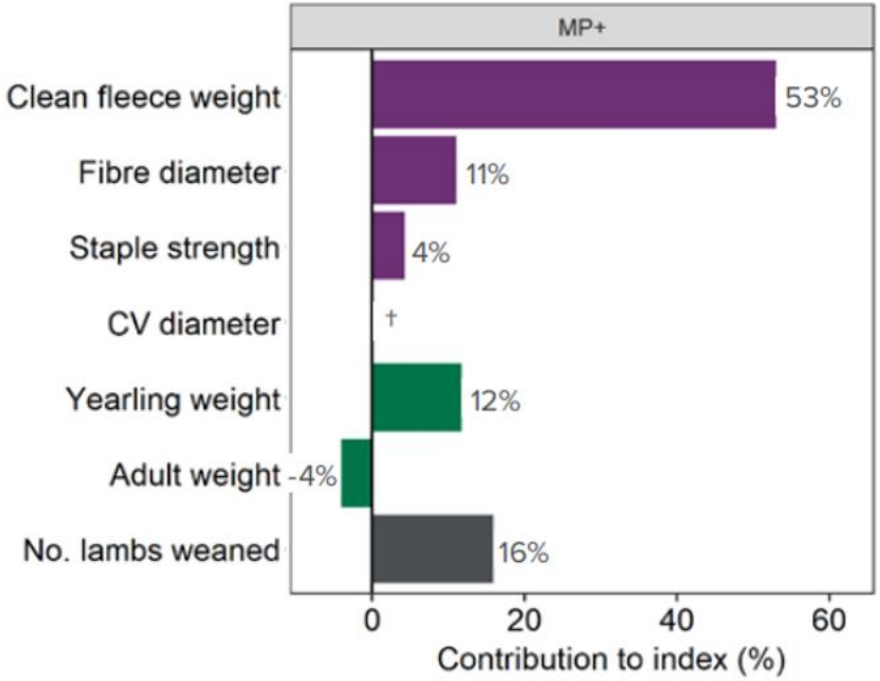
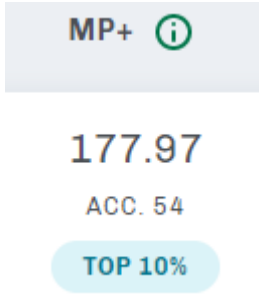
Selection indexes





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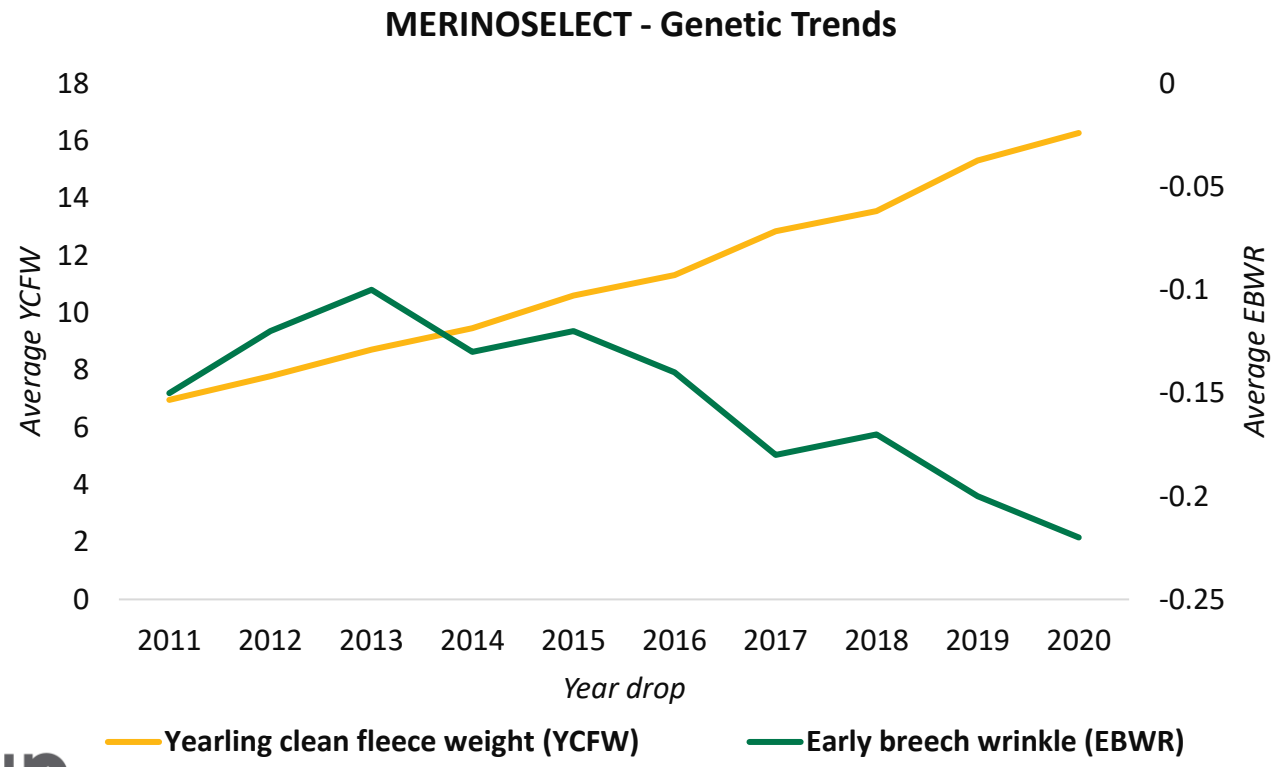
Using ASBVs in selection



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Putting this in practice

1. What are the main profit drivers in your business?
2. Match these to an index
3. Sort animals on the index you've chosen
4. Look at the individual traits that are important to your business
5. Short list animals at the sale. Visually appraise these animals

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Breeding objectives

1. What are your profit drivers or costs to your business?
2. Match these production traits to breeding value traits and indexes
3. Where do you currently sit?
4. Where do you want to get to?
5. When will you get there?

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Matching profit drivers with traits

Live weight (WT)

Fleece weight (FW)
Fibre Diameter (FD)

Number of Lambs Weaned (NLW)

Worm Egg Count (WEC)
Breech Wrinkle (BWR)
Dag (DAG)

Eye muscle depth (EMD)
Fat depth (FAT)
Intramuscular fat (IMF)

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Reproduction - now and into the future

- There are a number of factors that influence how many lambs a ewe might rear

- New traits available for merino and maternal breeders

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Reproduction - NLW

Two ewes

But how did they get there?

Both wean two lambs each

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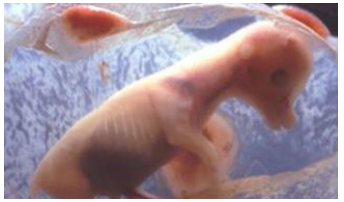
The component reproduction evaluation

- Conception (CON)
  - Did the ewe conceive?
- Litter size (LS)
  - How many lambs were born?
- Ewe rearing ability (ERA)
  - How successfully did the ewe rear her lamb(s)?
- And now… Weaning rate (WR)
  - Number of lambs weaned per ewe joined



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Using genetic tools to benchmark and track progress:

1. Flock Profile
2. Sire team tracking

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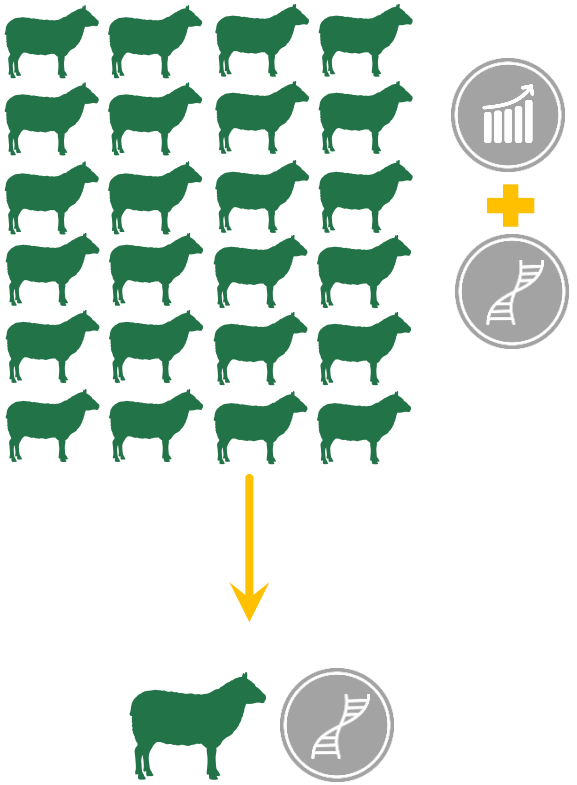
Flock profile

- Commercial merino producers
- DNA test 20 lambs
- Provides flock average ASBVs

- Industry recording and genotyping (reference populations) underpin Flock Profile



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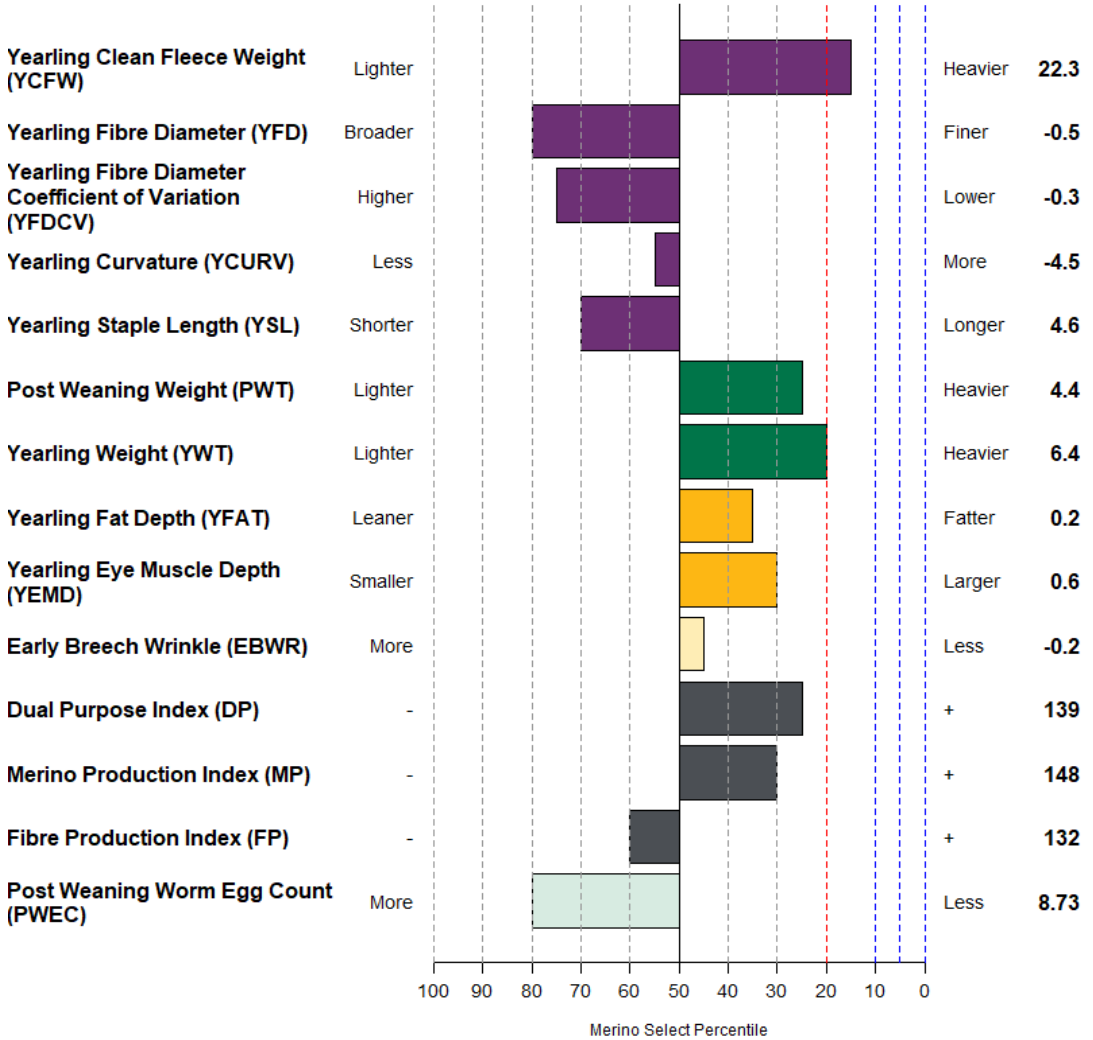
Flock profile outputs



Sire team tracking

- All breeds/species
- All traits
- For your breeding objective:
    1. Average the ASBVs of the sire team each year
    2. Track this overtime and use to inform selection decisions

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Using breeding values in selection

	↓ MP+	YWT	YCFW	YEMD	YFAT	EBWR
RAM 1	168.80 ACC. 48 TOP 20%	8.05 ACC. 94	32.55 ACC. 87 TOP 5%	0.67 ACC. 93	0.14 ACC. 90	-0.87 ACC. 90 TOP 20%
RAM 2	168.78 ACC. 63 TOP 20%	5.28 ACC. 97	30.19 ACC. 94 TOP 10%	1.78 ACC. 92 TOP 20%	0.75 ACC. 89	0.49 ACC. 93

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Take home messages

- Breeding values describe the genetic merit an animal will pass on to its progeny.
- New reproduction breeding values allow merino and maternal producers to target and improve specific areas of reproduction.
- Consider flock profile testing or sire team tracking to benchmark your genetics and inform sire selection decisions.

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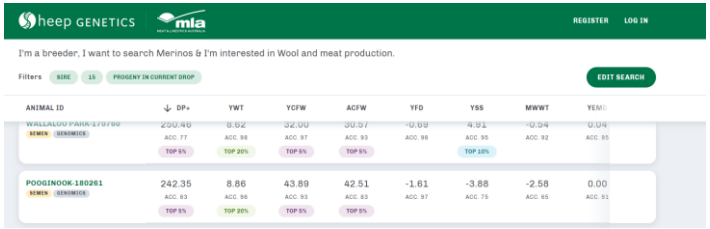
Tools and resources

- **Sheep Genetics**: (www.sheepgenetics.org.au)
- **MLA Genetics Hub** (https://genetics.mla.com.au/)
- AWI Genetics
- Bred Well, Fed Well Sheep – workshop
- Sheep Reproduction Strategic Partnership



Links to all resources can be found in the Forum proceedings

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