zoetis

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MEAT & LIVESTOCK AUSTRALIA

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For the latest in red meat research and development

Broken Hill, NSW – 14 October 2026

Genetics, breeding & flock productivity

Sally Martin, SheepMetriX, Young NSW

filling in for Gordon Refshauge, SheepMetriX

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Genetics – some excellent tools available

- ASBVs – Australian Sheep Breeding Values
- Ram Team Manager – tracking your ram teams over time (RamSelect)
- Benchmarking your ram team – genetic trend
- Having a clear breeding objective

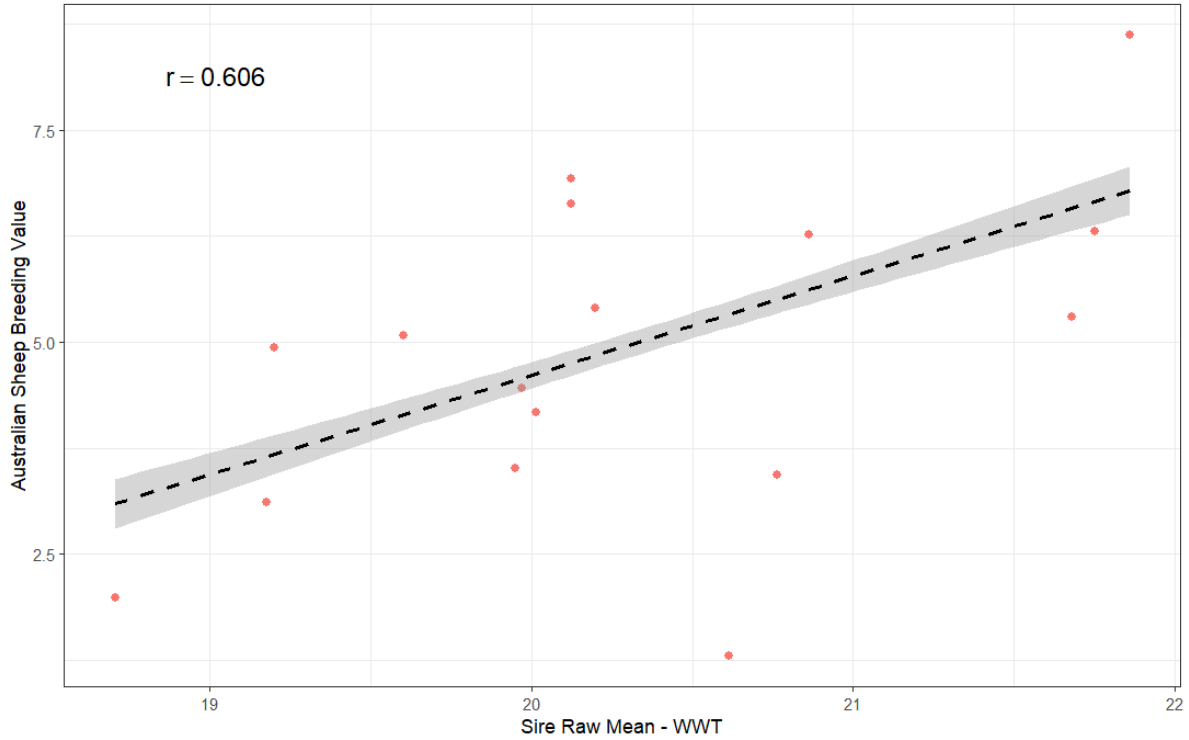
ASBVs work

- The relationship between raw data from progeny and the sires ASBV
  - South West Slopes Sire Evaluation
  - **16** sires – artificially inseminated
  - All progeny run together



- Measured for a lot of traits
  - Lamb marking (EBWR, EBCOV, FPIG, SPOT, BLK, BCOAT, Sex, TSU)
  - Weights (WWT, PWT , PSWT, YWT)
  - Visual (COL, CHAR, WEATH, DUST, SSTR, GRADE, JAW, FROT, PASTERN, HOCKS, DAG, URINE, FTOE, BTOE, HORN, FACE, BDWR, NKWR, BACK)
  - Fleece (FD, GFW, CFW, YLD, SL, SS, CURV, SD, CV, COMF, SPFine)
  - Carcase (CS, YEMD, YFAT, CCFAT, CWT, LMY, IMF, DRESS)
  - Health (WEC, CONSIST, SwabTec, FLY)
  - Reproduction (CON, LS)
  - Environmental impact (METHANE)

Raw data and Sire ASBV – Weaning weight

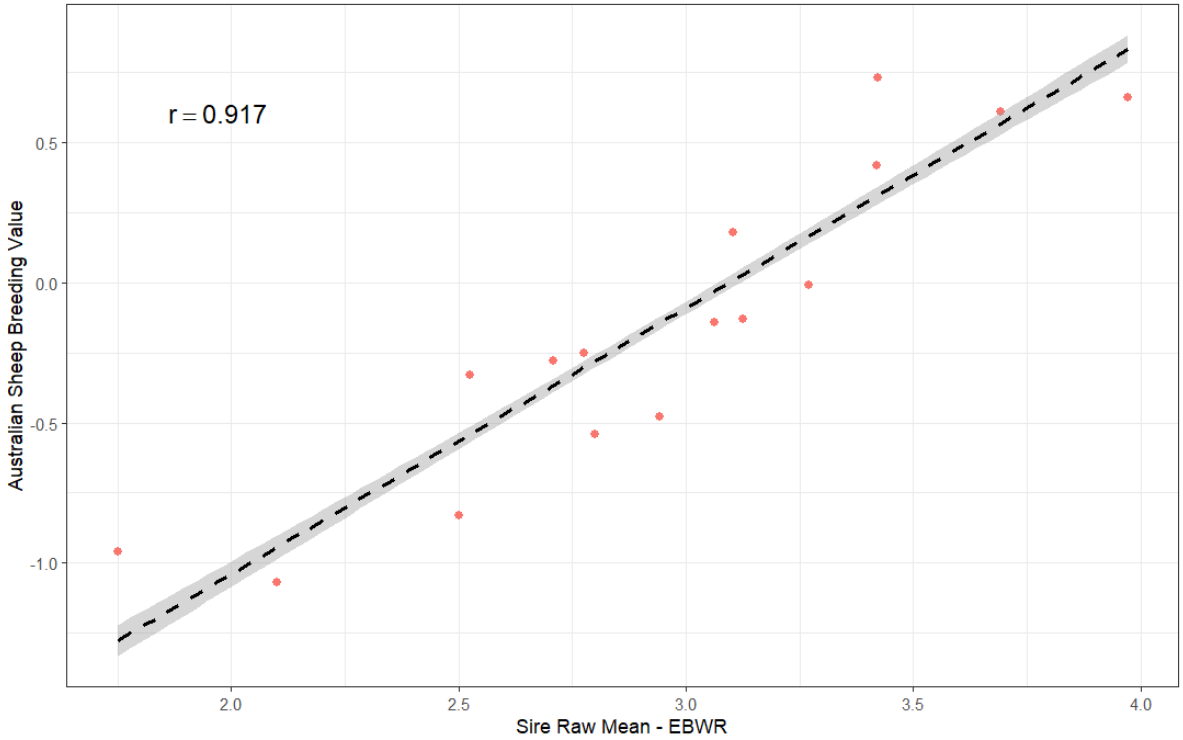


Data source: SWS SE (AMSEA). Graphics by SheepMetriX

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Raw data and Sire ASBV – Early Breech Wrinkle

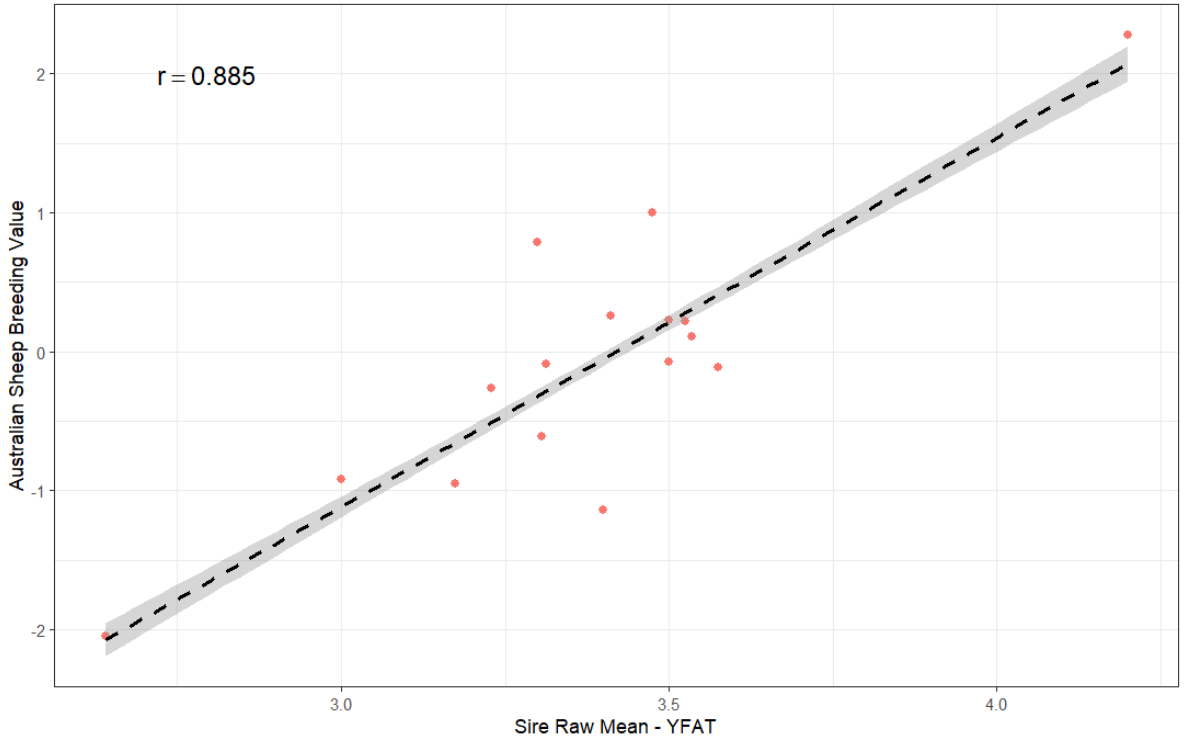


Data source: SWS SE (AMSEA). Graphics by SheepMetriX

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Raw data and Sire ASBV – Yearling Fat Depth

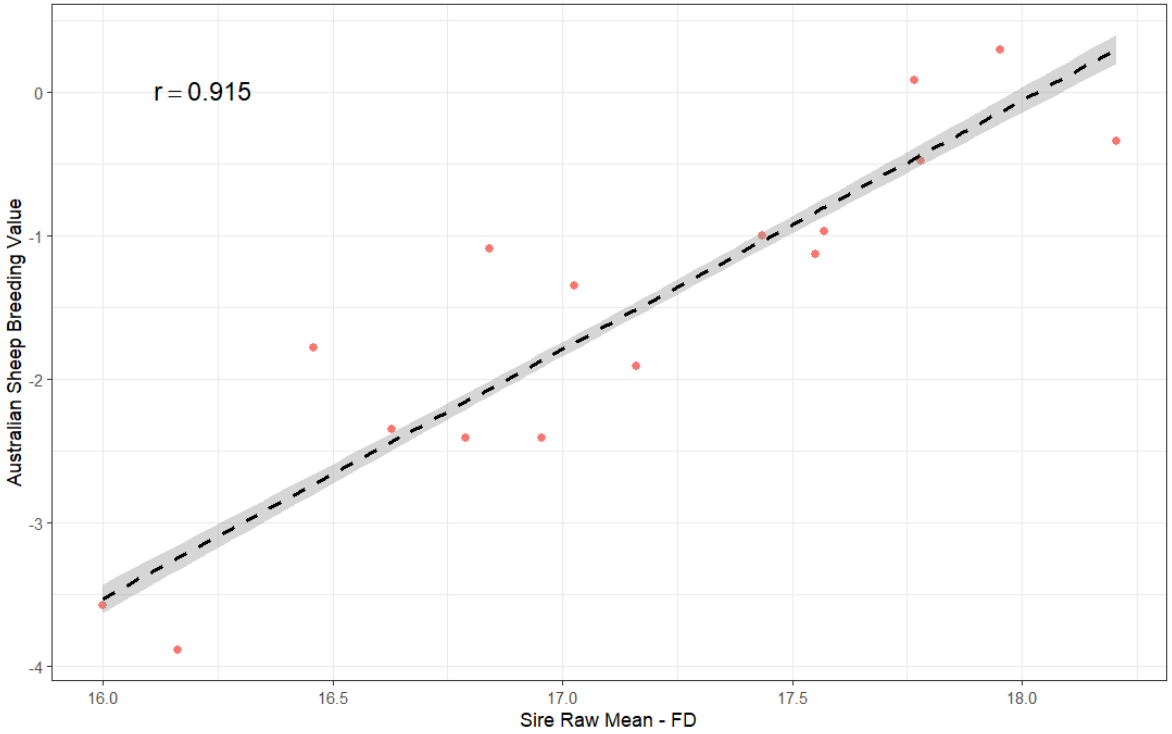


Data source: SWS SE (AMSEA). Graphics by SheepMetriX

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Raw data and Sire ASBV – Yearling Fibre diameter

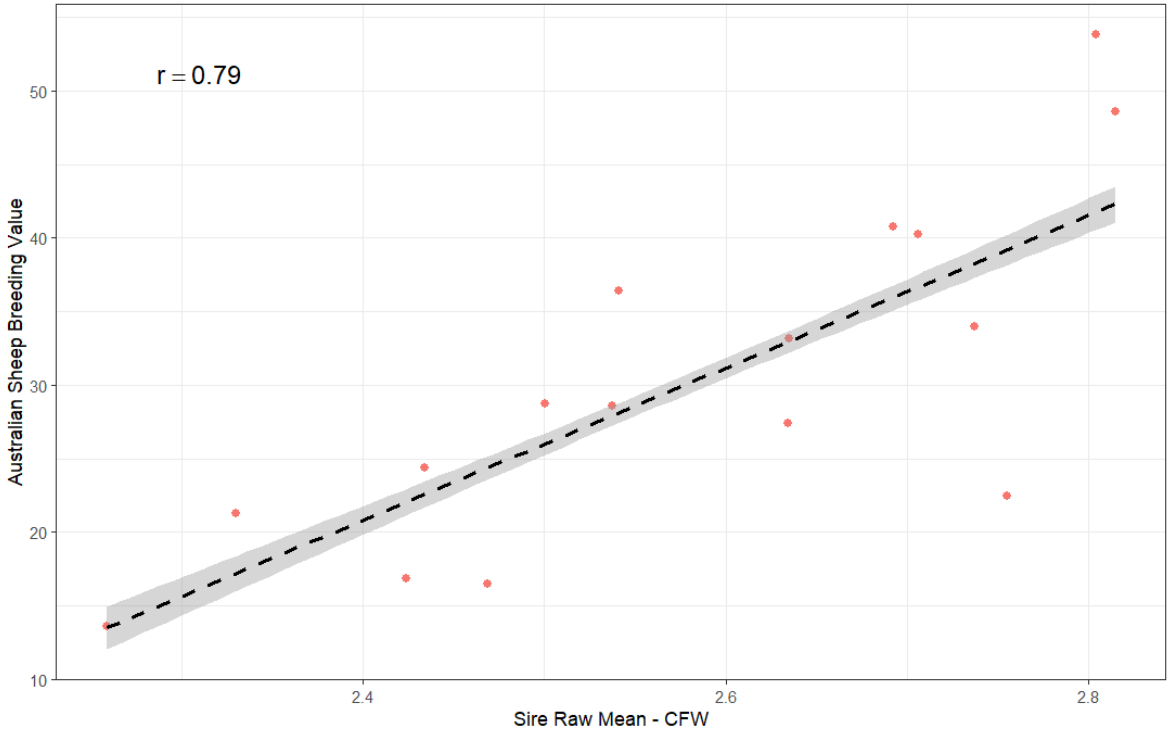


Data source: SWS SE (AMSEA). Graphics by SheepMetriX

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Raw data and Sire ASBV – Yearling Clean Fleece Weight



Data source: SWS SE (AMSEA). Graphics by SheepMetriX

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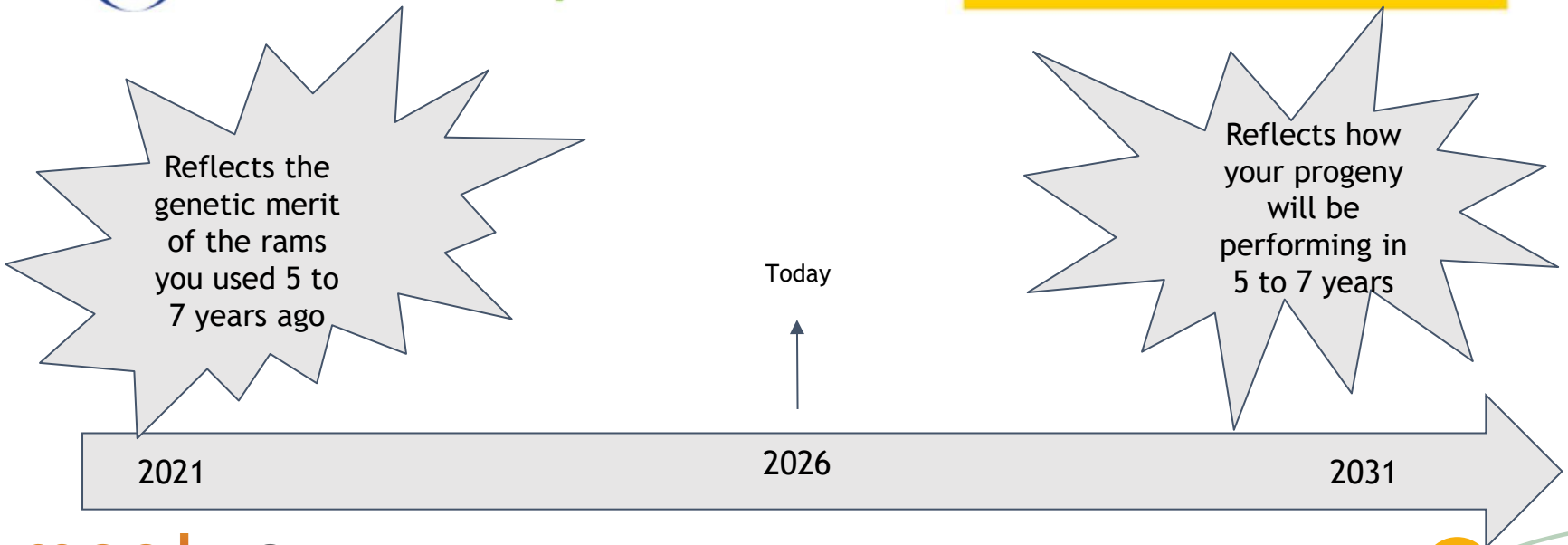
Genetic Benchmarking

Flock Profile ~ $850 to $900/(3 to 5 yrs)

FlockProfileReport

Ram Team Manager - $25/year

RamSelect Plus



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Example – Ram Team Manager & Flock Profile summary table

Current Team Averages

Export to Excel | Export to PDF

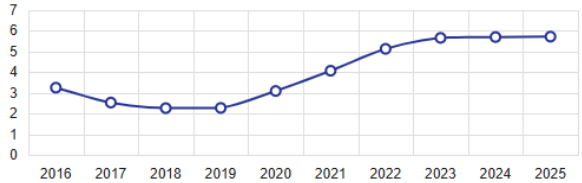
Description	Units	Team Avg.	Team Percentile	Team Min.	Team Max.	Industry Avg.	Industry Min.	Industry Max.
Yearling Fibre Diameter	µm	-1.75	30	-3.19	0.12	-1.05	6.22	-6.78
Yearling Staple Strength	N/ktex	0.74	55	-3.05	7.49	1.03	-13.20	14.20
Yearling Fibre Diameter Coefficient of Variation	%	-0.82	60	-2.33	1.10	-0.98	3.89	-4.68
Yearling Staple Length	mm	5.99	75	-0.34	16.38	9.55	-25.80	43.40
Yearling Clean Fleece Weight	%	18.11	55	9.35	31.39	18.46	-38.98	57.45
Post Weaning Weight	kg	3.99	70	-2.39	9.92	5.59	-9.60	17.68
Yearling Weight	kg	5.42	75	-2.31	13.31	7.32	-10.48	22.69
Yearling Eye Muscle Depth	mm	0.43	65	-1.59	3.29	0.92	-3.61	6.16
Yearling Fat Depth	mm	0.08	60	-0.60	1.92	0.26	-2.76	4.66
Early Breech Wrinkle	score	-0.02	75	-0.38	0.78	-0.39	2.09	-2.10
Yearling Worm Egg Count	%	-53.38	15	-66.27	-34.56	-18.69	189.44	-98.70
Weaning Weight	kg	3.15	70	-0.02	6.63	3.93	-6.93	14.17
Intramuscular Fat	%	-0.09	35	-1.11	0.68	-0.28	-2.26	2.32
Weaning Rate	score	0.11	65	-0.05	0.29	0.15	-0.34	0.62
Fine Wool	score	159.89	55	141.23	184.59	162.34	10.44	247.42

1 | 15 items per page | 1 - 15 of 18 items

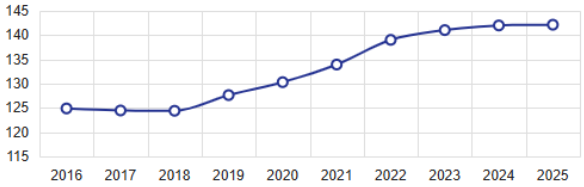
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Ram Team Manager – genetic trends

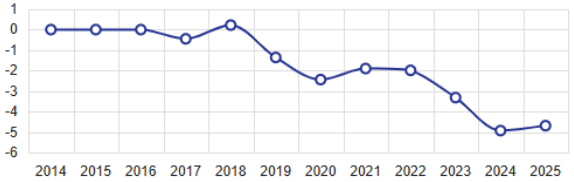
Post Weaning Weight (kg)



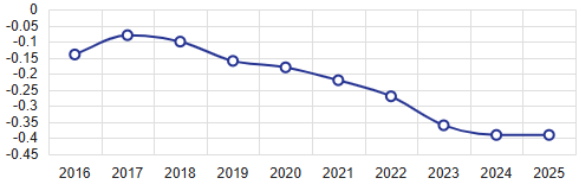
Sustainable Merino (score)



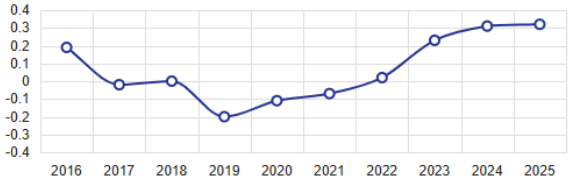
Yearling Worm Egg Count (%)



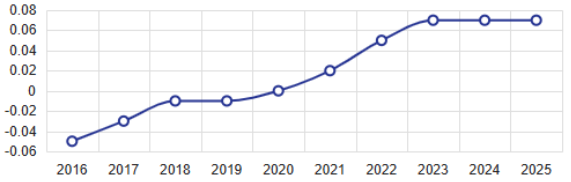
Early Breech Wrinkle (score)



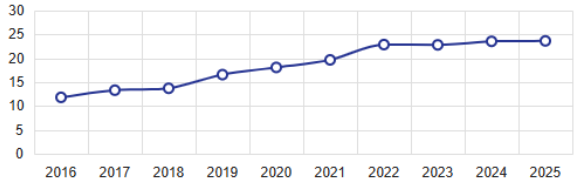
Yearling Eye Muscle Depth (mm)



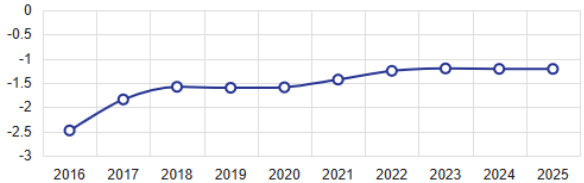
Weaning Rate (score)



Yearling Clean Fleece Weight (%)



Yearling Fibre Diameter (µm)

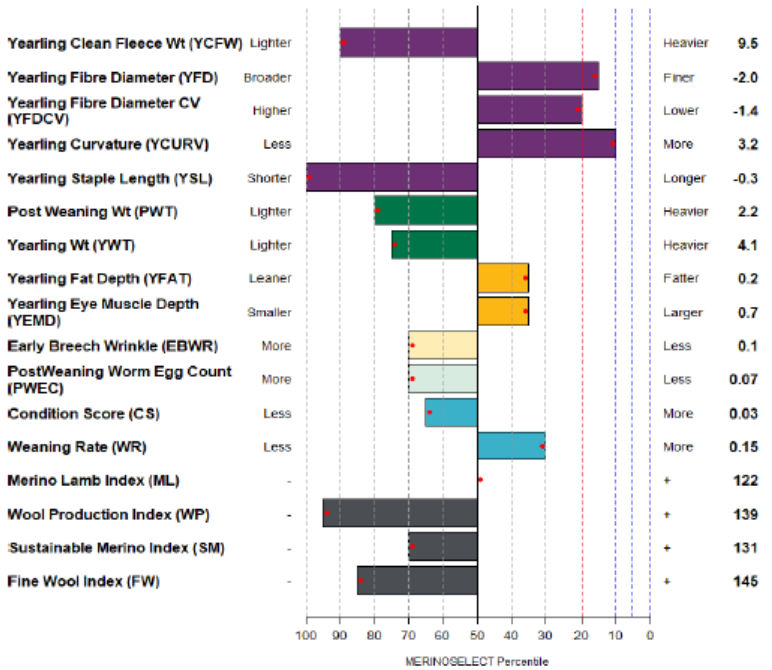


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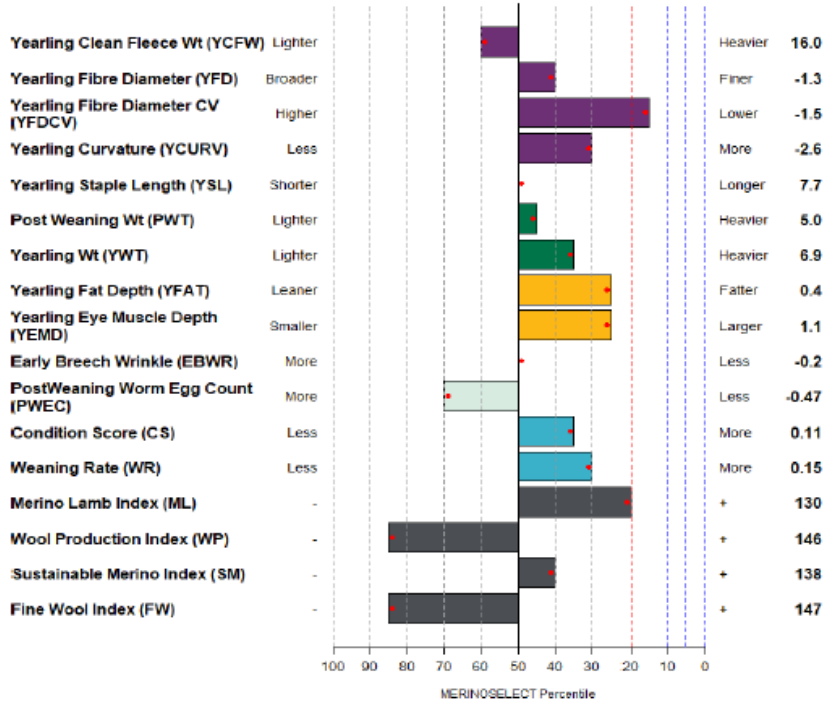
Client:
Date: 09/04/2026
Flock Drop: 2025

Flock Profile



Client:
Date: 09/04/2026
Flock Drop: 2025

Flock Profile



Genetics – some excellent tools available

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Breeding objective

- It is really important to capture your breeding objective and have a clear goal on how you are going to use your data.

- SMART
  - Specific
  - Measurable
  - Attainable
  - Relevant
  - Time Based

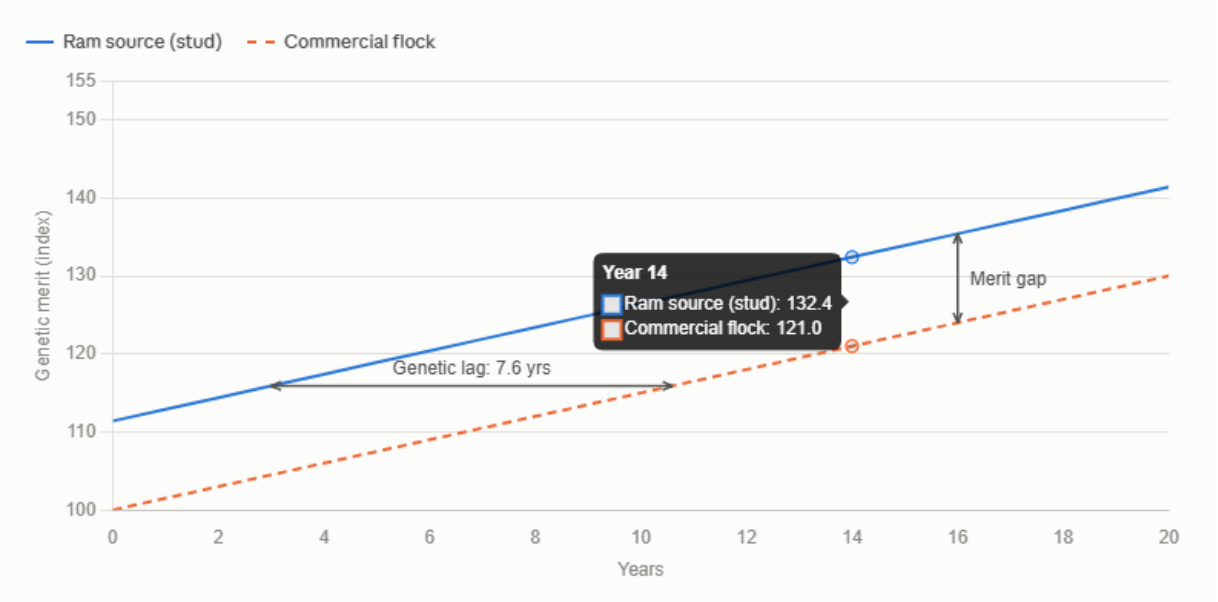
Breeding Objective				
Traits	Increase	Maintain	Decrease	Measure
Fleece Weight		✓		Maidens
Micron			✓✓	Maidens
Growth Rates	✓✓✓			All up to 300 days
Mature Size		✓		Joining Wts
Reproduction	✓✓✓			Preg Scan; Wet & Dry
Muscle & Fat	✓	✓		**Rams**
Worms			✓✓	**Rams**
Wrinkle			✓✓✓	Marking

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Ram selection and your genetic progress

- Genetic lag – ram selection
- Genetic lag – ewe replacement selection

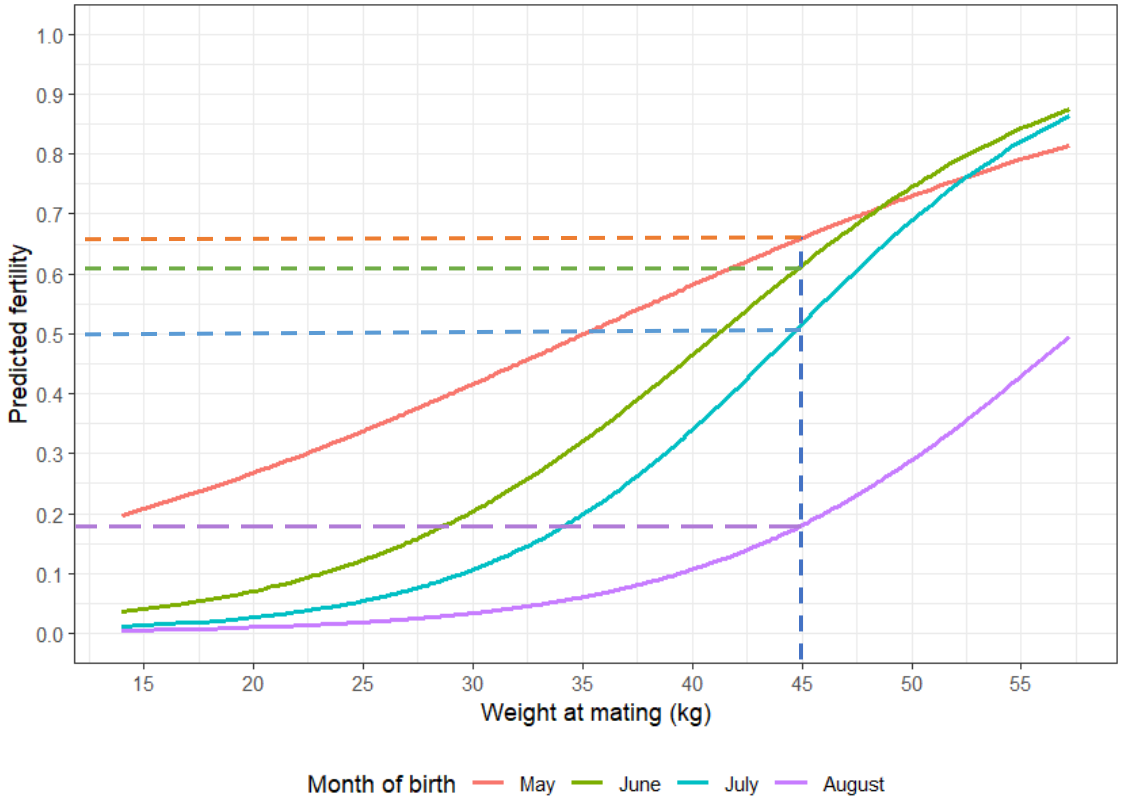


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Lifting reproductive success – Ewe age

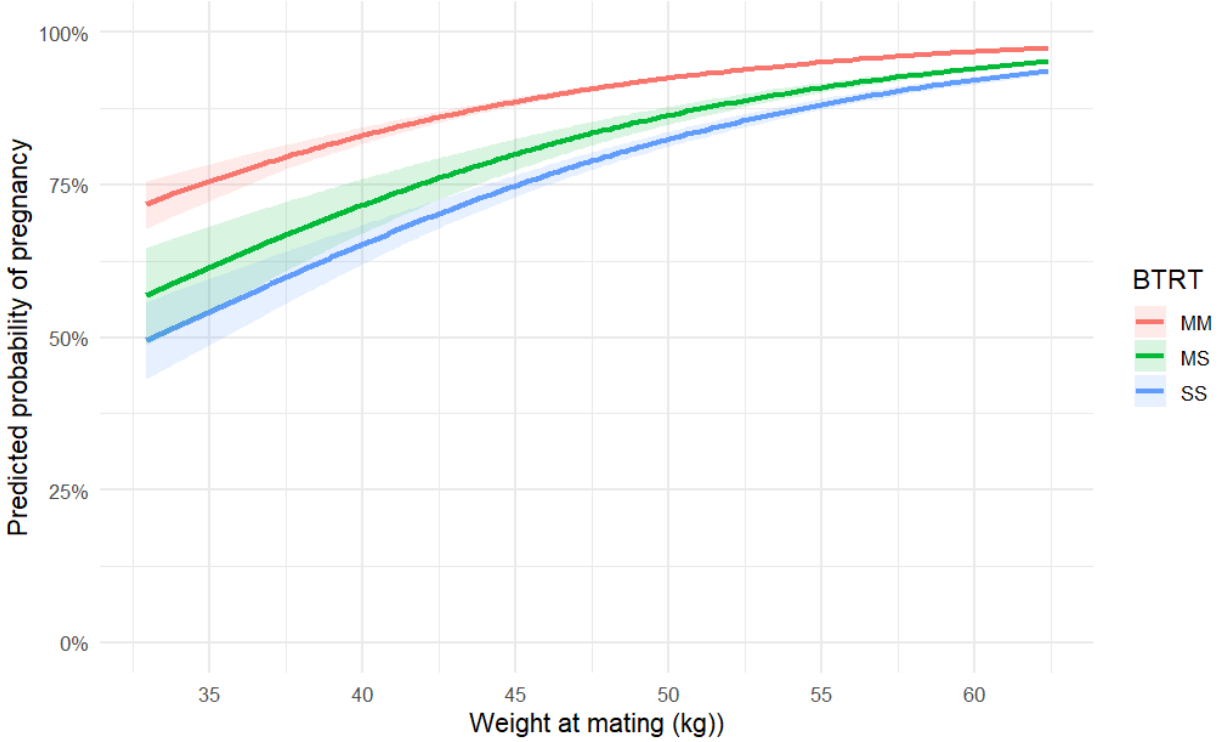
- Ewe lambs
- Age and weight matter



Data source: Elise Kealy. Graphics by SheepMetriX

Lifting reproductive success – Birth type effects

- Ewe lambs born as twins had a higher predicted fertility rate than those born as a single



Data source: Kambah. Graphics by SheepMetriX

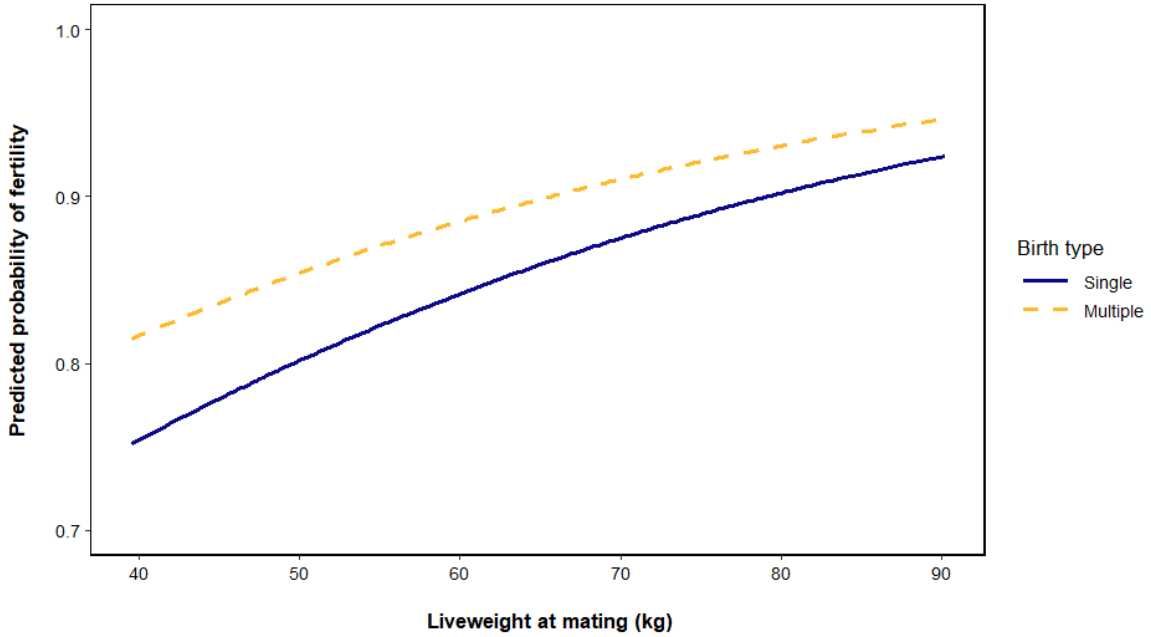
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Lifting reproductive success – Birth type effects

- Hoggets

- Analysis
  - Merino ewes
  - Maidens
  - 6 drops
  - Mer & PD sires

- Holly Bennett, Kinross-Walaroi



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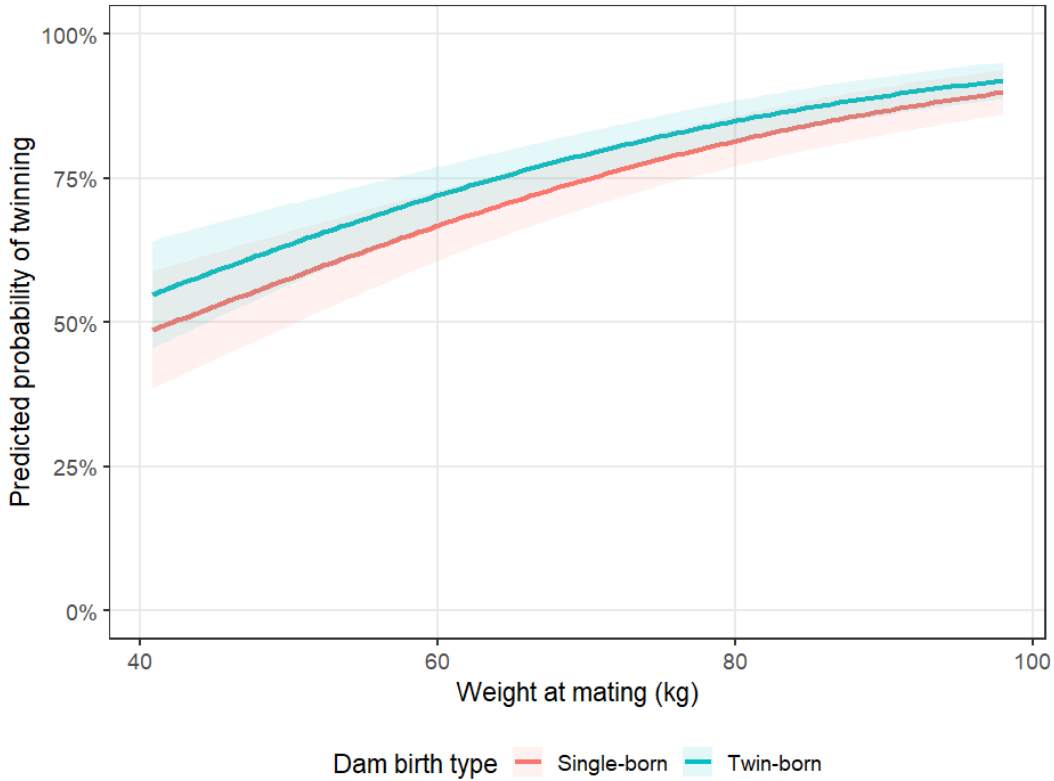
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Lifting reproductive success – Birth type effects

- Adults

- Analysis:
  - Merino adult ewes
  - 8 yrs
  - 6 age groups
  - Mer or PD sires

- Audrey Pearce, Kinross-Walaroi



Capturing birth type at lamb marking

- Tags 260001 to 260250 – Twins, Maiden dams, Hill Paddock
- Tags 260251 to 260700 – Single, MA dams, Dam Paddock
- Add these columns in your bucket file – BT, Dam Age, Paddock

	A	B	C	D	E	F
1	EID	VID	YOB	BT	DAM AGE	BT PDK
2	940 110029951161	220001	2022	2	Maiden	HILL
3	940 110029951162	220002	2022	2	Maiden	HILL
4	940 110029951163	220003	2022	2	Maiden	HILL
5	940 110029951166	220251	2022	1	MA	DAM
6	940 110029951167	220252	2022	1	MA	DAM

Lifting reproductive success – Classing

- Pregnancy scanning
  - Timing & ewe preparation increase accuracy
  - Ensure all ewes have RFID / eID before entering scanning crate
  - Allows you to capture data year on year (lifetime)

- Udder assessment at marking
  - Just get it done then !
  - Use RFID to note DRY, LL, WET & teat/udder faults

- When to cull first time fail?

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How many females can you cull?

- Culling strategies – reproduction + breeding objective priorities
  - How many can you cull for each category?
    - Breeding program – structure + other production traits
    - Pregnancy scanning – dries
    - Has been pregnant but lost lamb(s) – Lambed and Lost or dry at marking

- Weaning rate is the key driver to the number you can cull
  - Number ewe lambs/hoggets available
  - Replacements needed
  - Making your replacement selections

Cull rate calculator

- Assumptions
  - Weaning % = 85% (NLW/EJ)
  - Weaner mortality = ~5 to 15%
  - MA mortality = ~ 2 to 4%
  - Cull based on structure = ~ 10%
  - Cull empty ewes @ preg scan = ~ 10 to 15%
  - Cull ewes lambed and lost = ~ 15%

INPUTS (edit yellow cells)	
Flock size (breeding ewes joined)	1,000
Age at first lambing (years)	2
Number of lambings	5
Weaning % (lambs weaned / ewes joined)	85.0%
Mortality - 1st year (weaning to 18 months)	10.0%
Mortality - mature ewes (per year)	3.0%
First cull - classing at 18 months (breeding objective)	10.0%
Cull - scanned dry (empty) ewes, per year	10.0%
Cull - lambed and lost (wet/dry), per year	15.0%
Proportion of weaners that are ewe lambs	50.0%
WORKINGS	
Oldest age at lambing (cull-for-age after this)	6
Annual survival of a breeding ewe in the flock	72.8%
Ewe-years from each replacement (sum of survival)	2.922
Replacements needed each year	342
Extra years held between 18 months and first joining	0
OUTPUTS	
Ewe weaners	425
18-month-old ewes	383
18-month-old ewes after first (classing) cull	344
Replacements available at first joining	344
Replacements needed each year	342
Surplus (+) or shortfall (-) of young ewes	2
Retention % (needed / available)	99.4%

INPUTS (edit yellow cells)	
Flock size (breeding ewes joined)	1,000
Age at first lambing (years)	2
Number of lambings	5
Weaning % (lambs weaned / ewes joined)	80.0%
Mortality - 1st year (weaning to 18 months)	10.0%
Mortality - mature ewes (per year)	3.0%
First cull - classing at 18 months (breeding objective)	0.0%
Cull - scanned dry (empty) ewes, per year	10.0%
Cull - lambed and lost (wet/dry), per year	15.0%
Proportion of weaners that are ewe lambs	50.0%

WORKINGS	
Oldest age at lambing (cull-for-age after this)	6
Annual survival of a breeding ewe in the flock	72.8%
Ewe-years from each replacement (sum of survival)	2.922
Replacements needed each year	342
Extra years held between 18 months and first joining	0

OUTPUTS	
Ewe weaners	400
18-month-old ewes	360
18-month-old ewes after first (classing) cull	360
Replacements available at first joining	360
Replacements needed each year	342
Surplus (+) or shortfall (-) of young ewes	18
Retention % (needed / available)	95.1%

INPUTS (edit yellow cells)	
Flock size (breeding ewes joined)	1,000
Age at first lambing (years)	2
Number of lambings	5
Weaning % (lambs weaned / ewes joined)	90.0%
Mortality - 1st year (weaning to 18 months)	10.0%
Mortality - mature ewes (per year)	3.0%
First cull - classing at 18 months (breeding objective)	15.0%
Cull - scanned dry (empty) ewes, per year	10.0%
Cull - lambed and lost (wet/dry), per year	15.0%
Proportion of weaners that are ewe lambs	50.0%

WORKINGS	
Oldest age at lambing (cull-for-age after this)	6
Annual survival of a breeding ewe in the flock	72.8%
Ewe-years from each replacement (sum of survival)	2.922
Replacements needed each year	342
Extra years held between 18 months and first joining	0

OUTPUTS	
Ewe weaners	450
18-month-old ewes	405
18-month-old ewes after first (classing) cull	344
Replacements available at first joining	344
Replacements needed each year	342
Surplus (+) or shortfall (-) of young ewes	2
Retention % (needed / available)	99.4%

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Lifting reproductive success – Classing

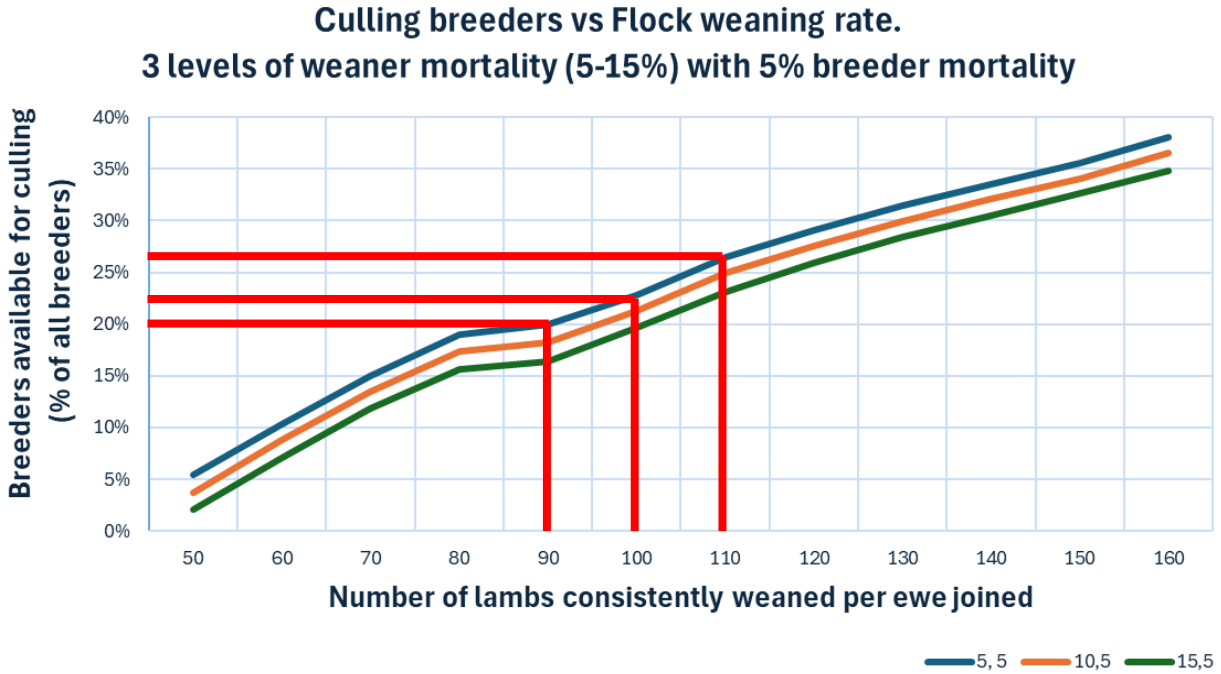
Best NRR gains in SRF:

- Culling twice empty &
- Culling twice fail to rear &
- Keeping lifetime records

Source: Hatcher *et al.* (2018)

Repro ASBVs:

- CS
- CON
- LS
- ERA
- BWT
- LE
- WR
- *EMD, FAT, BRWR*



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Rebuilding after drought

- Do you retain or sell older ewes?
- Is the options to join ewes lambs available – need to get weight + management spot on
- Focus on increasing reproduction rates – work by Young et al found whole farm profit could increase by $100/ha when weaning rate above 83% achieved

Economics of running large or small ewes

- **Selecting for mature size** - +ve correlation with growth rate but –ve on increased energy requirements
  - Moderate correlation with mature size and reproduction
- **Stocking rate equivalents** – eg 128 Peppin Merino to 100 1st Cross ewes
  - Atkins found different size breeds produced similar output when stocked to the same total liveweight per hectare
- **Growth to sale** – PWT is a key trait to select for – will be +ve correlated to mature size – less time on farm and reduced costs to finishing but bigger mature ewes
- **Trade offs** – income from higher growth rates at younger age and feed costs of mature ewe

Take home messages

- Use ASBVs to select rams and track your progress
- Reproduction success is an outcome of nutrition, management with a small (but important) genetic component
- There is value in recording birth type and using when selecting replacement ewes
- If joining ewe lambs increased age and weight of ewe lambs
- Increase weight of hoggets, weight and CS in adults
- Cull empty and dry ewes rationally – match with your weaning %

MLA and relevant tools and resources

- Webinar on ewe lamb joining – Producer Demonstration Project – **23/10/2026**
  - https://www.mla.com.au/news-and-events/events-and-workshops/pds-updates-webinar-optimising-ewe-lamb-joining-outcomes/
- Making More From Sheep
  - https://www.makingmorefromsheep.com.au/manual/module-9-boost-business-with-breeding/tool-9-7-ewe-retention-and-culling-plan/
- Lifetime Ewe Management course
  - https://rist.edu.au/lifetime-ewe-management/
- Sheep Genetics
  - https://www.sheepgenetics.org.au/

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- At **SheepMetriX**, in addition to genetics service provision, we offer other training:

- EID adoption
- TruTest training
- Neonatal lamb autopsy
- Udder assessment
- Lifetime Ewe Management
- Bred Well Fed Well



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Closing slide

Sally Martin, SheepMetriX, Young NSW

0400 782 477

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