AWI Breech Strike R&D Technical Update
Maritime Museum, Sydney
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Australian Wool Innovation

Industry Progress Breeding for Breech Strike Resistance

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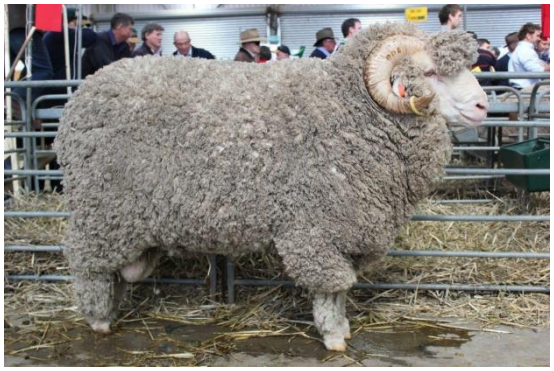
Industry Progress Update

- Breed mix has been changing
- Wethers now sold much younger
- Pain Relief rapid adoption
- Major on farm change in short time
- What about the key breech strike indicator traits in merino x merinos?

1980's



2010's

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- Merinos have got bigger with less wrinkle over the last 30 years; anecdotal.
- Objective evidence of changes hard to obtain; 25% of Merino Studs members of MERINOSELECT
- These studs use Breeding Value technology
  - well used rams joined every site to create linkage so all site results can be aggregated for across flock breeding values
  - technology has its limitations but best system we have for objectively assessing changes for this subsector of Merino Flocks

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10 Year Merino “Breeding Value” Trends

- Up for Body Weight
- Flat for Fat
- Flat for Muscle
- Up for Fleece Weight
- Slightly up for Fibre Diameter
- Up for Staple Length
- Up for Staple Strength
- Down for Worm Egg Count
- Flat for Wrinkle
- Flat for Breech Cover
- Flat for Dags
- Up for Key Indexes

<u>Many Qualifiers</u>;

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Many qualifiers re breech trait trends;

- *Profit drivers, Fleece Weight, Fibre Diameter, Fertility*
- New flocks last 5 years, tend higher FW, higher breech traits
- New traits take time to increase data volume, accuracy & robustness and get change in large numbers of sheep
- Still only “second generation” of selection with breech trait ASBVs released in 2009
- Breeders need confidence to minimise “consequences”
- There are differences in the 3 different merino “types”

  2014 drop ave Wrinkle ASBV; Super fine type 0.0, Fine type -0.14; Medium type -0.33
- Dags low heritability and expression in range of environments

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Current R&D project

"Predicting Rates Of Genetic Gain in Key Breech Traits" Dr Forbes Brien

- Final results from the Breech Strike Flocks at Armidale and Mt Barker will be used to better predict rates of gain in key breech strike and welfare traits and their consequences on other traits

However there are some high performing medium wool type sires at or tending to non mules option

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Medium Wool Sires - MERINOSELECT WebSearch

Search Criteria

Dual Purpose Plus Production System; Merino Self Replacing, 25% ewes to Terminals

Sires Ranked on Dual Purpose Plus Index

Yearling fibre diameter; stronger than -1.2 FD

Wrinkle Score; less than - 0.6, Cover less than 0.0, Dags 0.0 or less

5 highest ranked sires using criteria in table below

	Sire Rank	Sire Drop	No of Progeny	No of Flocks	AWT (kg)	ACFW (%)	YFD Mic	YWEC (%)	NLW (%)	BWR Score	BCOV Score	DAG Score	DP+ Index
	2	2008	893	16	10.3	10.1	-0.1	-36	21%	-1.0	-1.6	-0.1	215
	14	2011	101	2	8.4	10.1	-0.7	-36	16%	-0.6	-1.3	-0.1	190
	17	2011	206	1	8.9	4.6	-0.8	0	–	-0.6	-0.9	-0.1	188
	18	2009	717	12	10.9	-6.1	-0.3	-18	–	-1.5	-0.3	-0.4	187
	20	2013	44	2	11.2	13.5	-0.9	10	6%	-0.9	-0.2	-0.1	187
Ave	**14**		**392**	**7**	**9.9**	**6.4**	**-0.6**	**-16**	**14%**	**-0.9**	**-0.9**	**-0.2**	**193**

Fine Wool Sires - MERINOSELECT WebSearch

Search Criteria

Merino Production Plus System; Merino Self Replacing, Wool emphasis

Ranked sires on MP + Index

Y Fibre Diameter; between -1.2 and -2.4,

Wrinkle Score; less than - 0.6, Cover less than 0.0, Dags 0.0 or less

5 Highest ranked sires using criteria listed below

	Sire Rank	Sire Drop	No of Progeny	No of Flocks	AWT (kg)	ACFW (%)	YFD Mic	YWEC (%)	NLW (%)	BWR Score	BCOV Score	DAG Score	MP+ Index
	27	2012	21	1	3.4	11.3	-1.4	-4	9%	-0.6	-0.9	0.0	179
	53	2010	108	17	7.3	18.0	-1.7	-30	7%	-0.7	-0.4	0.1	176
	54	2013	105	2	12.1	3.0	-2.0	24	11%	-0.6	-0.4	-0.1	176
	66	2012	94	1	2.0	22.3	-1.4	-	-	-0.6	-0.2	0.0	175
	96	2011	797	8	7.3	7.6	-1.9	17	-	-0.8	-0.1	-0.1	171
Ave	**59**		**225**	**6**	**6.4**	**12.4**	**-1.7**	**2**	**9%**	**-0.7**	**-0.4**	**0.0**	**175**

Super Fine Wool Sires - MERINOSELECT WebSearch

Search Criteria

Fine Wool Production Plus System ; Merino Self Replacing, fine wool emphasis

Sires listed on FP+ Index

Y Fibre Diameter; less than -2.4,

Wrinkle Score; less than - 0.6, Cover less than 0.0, Dags 0.0 or less

No sires in the top 150 sires met the above criteria

	Sire Rank	Sire Drop	No of Progeny	No of Flocks	AWT (kg)	ACFW (%)	YFD Mic	YWEC (%)	NLW (%)	BWR Score	BCOV Score	DAG Score	FP+ Index
Ave													

Summary - MERINOSELECT WebSearch

	Top 5 Sire Ave Rank	No of Progeny	No of Flocks	AWT (kg)	ACFW (%)	YFD Mic	YFAT (mm)	EMD (mm)	YWEC (%)	NLW (%)	BWR Score	BCOV Score	DAG Score
FP+ Ave													
MP+ Ave	59	225	6	6.4	12.4	-1.7	0.1	-0.1	2	9%	-0.7	-0.4	0.0
DP+ Ave	14	392	7	9.9	6.4	-0.6	0.4	1.3	-16	14%	-0.9	-0.9	-0.2

- There are some high performing medium type sires at or tending to non mules option. It then takes more time to get dam, and then more time to get progeny ASBVs down
- Little progress with dags, difficult trait to measure & get gain
- Progress to genetic based non mules will take even longer in fine and super fine wool types and for all sheep in dag regions. Need all “tools”

“Genetic Non Mules” What ASBV Breech Scores are required?

Wrinkle -1.0 to -1.5?; Cover -0.6 to -1.5?; varies between regions

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*This publication is based on information presented at the Australian Wool Innovation Limited (**AWI**) National Wool Research and Development Technical Update on Breech Flystrike Prevention held on 12th July 2016. Some information in this publication has been contributed by one or more third parties and licenced to AWI, and AWI has not verified whether this information is correct.*

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