Genetic trends

Table 1 shows the recent Merino Breed MERINOSELECT genetic trends for a range of key traits. It shows that body weight, muscle, fleece weight, staple length, staple strength, scrotal circumference, weaning rate, wrinkle and the three indexes are all improving.

It is quite some achievement to make such gains across so many traits, while the number of animals recorded (both male and female) each drop is continuing to increase at about 5,500 animals per year, since 2000.

Individual ram breeders are making faster gains in specific traits by concentrating of fewer traits, collecting more data more often to improve the data reliability, and using elite sires in AI and ET programs.

These trends are for the whole Merino breed, but there are large differences between Merinos based on their micron. This is highlighted by grouping sires according to their fibre diameter ASBV and comparing the performance of these sires.

Sire performance according to micron ASBV ranges

Table 2 shows the performance of 1,748 MERINOSELECT sires with 2020 progeny that had Early Breech Wrinkle records, grouped into their fibre diameter ASBV ranges. For example:

- 260 sires had a fibre diameter ASBV from -2 to -3 averaging -2.4. They had an average +0.3 breech wrinkle ASBV, +0.1 breech cover, +18 adult fleece weight, -0.5 yearling fat, yearling weight of 4.4, 0.02 weaning rate, +161 Dual Purpose index and +168 for the Merino Production index.
- 185 sires had a fibre diameter ASBV from 0 to +1 averaging +0.4. They had an average -0.6 breech wrinkle ASBV -0.3 breech cover, +17 adult fleece weight, +0.9 yearling fat, yearling weight of 8.0, 0.15 weaning rate, +171 Dual Purpose index and +153 for the Merino Production index.

Low fibre diameter sires have higher wrinkle, dag and breech cover and it is why it will take longer in the lower diameter types to achieve the natural resistance to breech strike that higher diameter types have. This is due to the different breed types that have been used since the development of the Australian Merino to breed sheep targeted at a broad range of fibre diameter and wool-growing regions.

Table 1: Annual genetic trend of key MERINOSELECT ASBVs and animals recorded

Year of birth drop	Animals recorded	YWT kg	YFAT mm	YEMD mm	YGFW %	ACFW %	YFD micron	YDCV %
2000	44,331	0.1	0.0	0.1	1.1	3.1	-1.2	-0.1
2001	74,379	0.1	0.0	0.1	0.4	2.8	-1.3	-0.2
2002	78,836	0.5	0.1	0.2	0.3	2.5	-1.3	-0.3
2003	83,924	0.4	0.0	0.2	0.5	2.7	-1.3	-0.4
2004	73,912	0.8	0.1	0.3	0.6	2.7	-1.3	-0.4
2005	66,721	1.1	0.0	0.2	1.8	3.4	-1.3	-0.5
2006	63,023	1.4	0.1	0.2	2.5	4.1	-1.2	-0.6
2007	63,792	1.7	0.0	0.2	3.1	4.4	-1.2	-0.6
2008	67,946	1.9	0.1	0.3	4.0	5.2	-1.2	-0.6
2009	62,761	2.2	0.1	0.3	4.0	5.0	-1.2	-0.7
2010	70,027	2.5	0.1	0.4	5.1	6.2	-1.2	-0.6
2011	84,421	2.6	0.1	0.4	5.2	6.5	-1.1	-0.7
2012	99,428	2.8	0.1	0.3	5.7	7.2	-1.2	-0.7
2013	107,467	2.9	0.0	0.3	6.6	8.1	-1.1	-0.7
2014	116,769	3.0	0.0	0.3	7.2	8.6	-1.1	-0.7
2015	113,901	3.4	0.1	0.3	8.2	9.6	-1.1	-0.7
2016	121,105	3.6	0.1	0.4	8.6	9.9	-1.1	-0.7
2017	134,054	4.0	0.1	0.4	9.9	11.1	-1.1	-0.7
2018	136,114	4.1	0.1	0.4	10.4	11.6	-1.0	-0.7
2019	149,561	4.5	0.1	0.4	11.7	12.7	-1.0	-0.6
2020	156,611	4.8	0.1	0.5	12.6	13.4	-1.0	-0.7

Table 2: Average ASBV performance of Australian MERINOSELECT sires, with 2020 born progeny, by micron range – filtered for sires with EBWR records

ASBV micron range	YFD	No of Sires	EBWR	LDAG	EBCOV	YGFW	AGFW
<-3	-3.4	55	0.6	0	0.2	14	9
-2 to -3	-2.4	260	0.3	0	0.1	18	12
-1 to -2	-1.5	630	-0.1	0	0	18	12
0 to -1	-0.5	601	-0.4	-0.1	-0.2	18	11
1 to 0	0.4	185	-0.6	-0.2	-0.3	17	10
>1	1.3	17	-0.9	-0.1	-0.4	12	6
Tot/Ave	-1.1	1,748	-0.2	0	-0.1	18	11

The genetic trends and performance of sires by fibre diameter are averaged results. They do hide the performance of individual AI sires that can be significantly better than these averages.

MERINOSELECT percentiles

The MERINOSELECT percentile table shows that there is a broad range of Merino trait performance. **There are ram breeders trying to create and breed animals that have many of the top percentile trait attributes bundled up in an individual animal. Increasingly there are some AI sires that are getting close to having all the top 20 percentile trait attributes. There are leading AI sires that are pushing the boundaries for production and welfare traits.** B

More information

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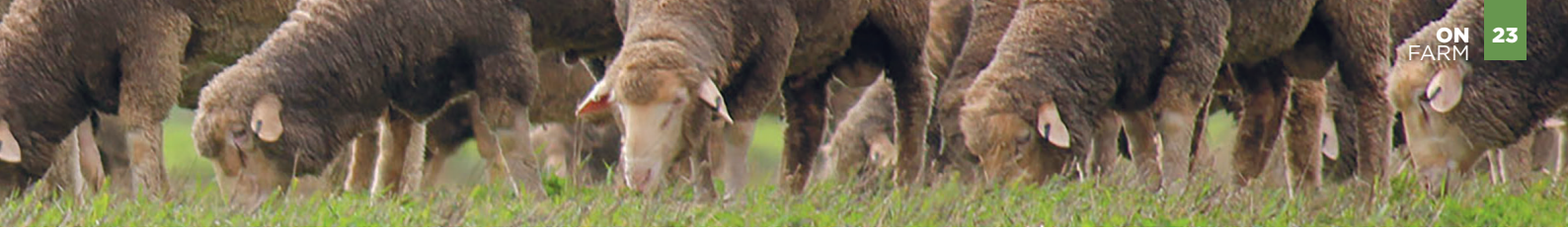

YCUR degrees	YSL mm	YSS N/Kt	YWEC %	YSC mm	WR lambs per ewe	EBWR score	EBCOV score	LDAG score	FP+ points	MP+ points	DP+ points
1.1	0.3	-0.7	4	0.0	0.00	-0.1	0.0	0.1	119	117	116
1.2	0.1	-0.6	2	0.0	0.01	-0.1	0.0	0.0	121	118	116
1.1	0.2	-0.6	2	0.1	0.01	-0.1	0.0	0.1	121	119	118
0.9	0.8	-0.3	-1	0.1	0.02	-0.1	-0.1	0.0	122	120	119
0.3	1.2	-0.4	-4	0.2	0.03	-0.1	-0.1	0.0	122	121	120
0.0	1.7	0.1	-3	0.2	0.03	-0.1	0.0	-0.1	124	123	123
-0.2	2.0	0.1	-5	0.3	0.03	-0.1	-0.1	0.0	125	125	124
0.0	2.3	0.1	-6	0.4	0.03	-0.1	0.0	0.0	126	126	126
-0.3	2.7	0.2	-6	0.4	0.04	-0.1	0.0	0.0	127	128	128
-0.4	2.9	0.4	-8	0.5	0.03	-0.1	-0.1	0.0	127	129	129
-1.3	3.8	0.2	-9	0.6	0.03	-0.1	-0.1	0.0	128	130	131
-1.8	4.3	0.3	-9	0.7	0.03	-0.1	-0.1	0.0	128	130	132
-1.9	4.5	0.3	-10	0.7	0.03	-0.1	-0.1	0.0	130	132	133
-2.2	4.8	0.4	-13	0.7	0.03	-0.1	-0.1	0.0	130	133	134
-2.5	5.1	0.4	-13	0.8	0.04	-0.1	-0.1	0.0	131	135	135
-2.8	5.4	0.5	-12	0.9	0.04	-0.1	-0.1	0.0	132	137	138
-3.0	5.5	0.5	-13	0.9	0.05	-0.1	-0.1	0.0	133	138	140
-3.5	6.0	0.4	-11	1.0	0.05	-0.2	-0.1	-0.1	135	141	143
-3.7	6.2	0.5	-13	1.1	0.06	-0.1	-0.1	-0.1	136	142	144
-4.1	6.6	0.5	-12	1.2	0.07	-0.2	-0.1	-0.1	137	145	148
-4.5	7.4	0.6	-12	1.3	0.09	-0.2	-0.1	-0.1	138	148	151

Source: Sheep Genetics, June 2022

YWT yearling body weight
YFAT yearling fat
YEMD yearling eye muscle depth
YGFW yearling greasy fleece weight
ACFW adult clean fleece weight
YFD yearling fibre diameter
YDCV yearling fibre diameter coefficient of variation
YCUR yearling curvature
YSL yearling staple length
YSS yearling staple strength
YWEC yearling worm egg count
YSC yearling scrotal circumference
WR weaning rate
EBWR early breech wrinkle
EBCOV early breech cover
LDAG late dag
FP+ fibre diameter plus
MP+ merino production plus
DP+ dual purpose plus

YCFW	ACFW	YDCV	YSS	YEMD	YFAT	YWT	YWEC	WR	DP+	MP+	FP+
16	13	-0.4	-1.3	-0.4	-0.5	1.5	-1	-0.02	155	167	166
20	18	-0.5	-1	-0.4	-0.5	4.4	7	0.02	161	168	159
21	18	-0.7	0	0.2	-0.1	6.1	1	0.06	164	163	150
21	17	-1	1.3	0.8	0.4	7	-9	0.11	167	158	143
21	17	-1.3	2.3	1.5	0.9	8	-13	0.15	171	153	134
17	13	-1.4	2.4	2.1	1.3	8.1	-20	0.12	159	134	117
21	17	-0.8	0.5	0.4	0.1	6.2	-3	0.08	165	161	147

Source: MERINOSELECT web search, run 7 June 2022

Table 3: Merino ASBV percentiles

Percentile Band	Yearling Fibre Diameter	Adult Clean Fleece Weight	Yearling Weight	Weaning Rate	Worm Egg Count	Early Breech Wrinkle	Late Dag	Early Breech Cover
Top 5%	-2.7	29	10	0.23	-54	-1.1	-0.4	-0.7
Top 20%	-1.8	22	8	0.15	-37	-0.7	-0.3	-0.4
Top 40%	-1.2	16	6	0.09	-22	-0.4	-0.1	-0.2
Top 60%	-0.8	11	5	0.05	-8	-0.1	-0.0	-0.0
Top 80%	-0.2	6	3	0.00	10	+0.3	+0.1	+0.2

Source: MERINOSELECT website July 2022