

1998 Drop Hogget progeny

Alfoxtton Ambassador 95-391

Aries 446

Currawong Blue 10

Greenland SN 60

Gringegalgonna 30-1292

Kerrsville NB50

Kurra Wirra Silver 885

Lynburn L5012

Merinotech Vic 94-425

Nerstane 92 00 02

The Grange 68 0052

The Springs W22

What is a Sire Evaluation Scheme?

Sire evaluation schemes compare the genetic merit of Merino rams by assessing their offspring side by side after they have been reared under identical pasture and environmental conditions. Ram buyers need good information on which to base purchasing decisions. Individual rams can have outstanding attributes, but these are of little value to the wool industry if they are not passed on to their offspring. The real value of a ram can only be assessed by comparing its progeny against those of other rams in the same environment.

Estimated Progeny Values (EPVs) – Production Traits and 12% Index

Sire	GFW %		CFW %		FD µm		Body Weight %		12% Index
	Hogget	Adult	Hogget	Adult	Hogget	Adult	Hogget	Adult	
Alfoxton Ambassador 95-391	-3.1	-2.7	-1.9	-1.2	-0.7	-0.7	0.7	0.2	107.7
Aries 446	-6.7	-7.2	-6.7	-7.7	-0.3	-0.4	-2.1	-1.7	92.2
Currawong Blue 10	-3.7	-6.4	-2.8	-7.0	-0.5	-0.8	-2.8	-1.7	109.0
Greenland SN 10	-6.4	-5.1	-9.6	-8.2	0.5	0.4	-2.4	-1.7	60.0
Gringegalgon 30-1292	9.9	7.7	9.3	6.2	0.8	1.1	5.9	5.6	103.1
Kurra Wirra SV885 (Silver)	7.6	11.6	8.4	12.0	-0.2	0.2	-1.9	-1.6	121.8
Kerrsville NB-50 (Harvey)	1.9	4.2	2.3	4.9	-0.4	-0.2	0.7	0.5	113.9
Lynburn L5012	5.6	1.4	4.7	2.2	0.3	0.2	4.3	2.6	97.3
Merinotech Vic 94-425	7.4	9.0	9.3	10.5	0.4	0.4	-0.7	-1.0	112.8
Nerstane 02	-2.3	-1.5	-2.1	-0.4	0.2	0.4	-1.5	-1.8	86.2
The Grange 680052	-5.7	-6.1	-5.1	-4.2	-0.3	-0.3	1.3	1.6	102.7
The Springs W22	-4.7	-4.9	-6.0	-7.1	-0.1	-0.3	-1.6	-1.0	93.2

At “South Roxby”, Gnarwarre, Victoria, rams from the world’s most distinguished Merino studs are being evaluated and compared through their progeny. Each year semen from 12 rams is inseminated into a flock of fine wool ewes. All progeny from that joining are run and managed together under the same paddock conditions for the next two years.

Over two years, the sheep sired by these elite rams are subjected to a comprehensive range of scientific measurements. Each sheep is assessed for all important fine wool fibre characteristics as well as being visually assessed by leading sheep classers and tested for internal parasite resistance.

The World's Finest Ram Project is affiliated with the Central Test Sire Evaluation and is accredited with the Australian Merino Sire Evaluation Association (AMSEA). The conduct of the project is the responsibility of an independent committee that includes representatives from the Victorian Department of Natural Resources and Environment, the Victorian Stud Merino Sheepbreeders Association and The Mackinnon Project of the University of Melbourne.

The project is sponsored by AWTA Ltd, Lempriere (Aust) Ltd, and the Victorian Department of Natural Resources and Environment. The project has the support of the Victorian Association of Stud Merino Breeders.

The Benefits

Sire evaluation schemes identify *individual* rams with the genetic capacity to sire superior Merino sheep. Rams, which perform well in sire evaluation schemes, are proven as superior sires. Sire evaluation schemes should not be used to assess the *overall* performance of a stud.

Sire evaluation schemes throughout Australia and New Zealand are *linked* by rams that are used in more than one scheme. Linking allows comparisons to be made between sires that have been progeny-tested in different areas, and in different years.

The wool industry must identify and more extensively use its elite rams if we are to ensure maximisation of genetic progress. Other livestock industries, such as dairy, pig and poultry, have identified and used elite animals for many years and have been rewarded with rapid advances in productivity.

Sire evaluation schemes allow breeders to benefit from more intensive, but more expensive, breeding technologies such as artificial insemination and embryo transfer. Artificial insemination is only profitable when using semen from rams that are identified as substantially superior to those available for natural mating. Proven rams from progeny testing schemes can be used with confidence in artificial breeding programs because their genetic superiority has been established. Participating studs can use the results of sire evaluation schemes to benchmark their own performance.

Conduct of the scheme

The Ewe Base

The ewes used as dams in the 1998 WFR progeny trial were stud Merino ewes from Mr Austen Eagles "Glenara North" Merryville based finewool stud. Nine hundred ewes were purchased and all were side sampled and tested for fibre diameter. Ewes were culled from the flock firstly for faults, of which there were few, and for broader fibre diameter. 650 ewes were left in the flock for joining. These were the same ewe base used in the 1997 joining of the World's Finest Ram Project.

Insemination

Insemination of the ewes was conducted on 1st and 2nd of April, 1998, by Dr Colin Scrivener, Mackinnon Project, University of Melbourne.

Pastures and supplementary feeding

At weaning, they were a bit light, but because they were imprint fed three times while they were on their mothers, they adjusted to the grain feeding well, and soon picked up. Nearly 100mm of rain fell at South Roxby during February – March, 1999. They were fed 2kg of a grain mix of 25% lupins and 75% oats each week from the 2nd January until the end of March. Until the second week of May they were fed 3kg of the same ration each week.

Rainfall has been low at South Roxby during the last four years. The worst recorded spring occurred at South Roxby in 1999, and the sheep were grain fed for nearly six months. In 2000, there was good spring pasture growth.

Health Monitoring

The 1998-drop weaners averaged 16.8 kg at weaning in November 1998. Their autumn weight averaged 21.0 kg, on the 18th March 1999, an increase of 4.2 kg over the summer. In August 1999 they averaged 31.1 kg and following shearing in November averaged 37.5 kg.

Hogget and Adult Results (2000)

There were no health problems with worms or flies following the good spring pasture growth. The weaners were given their two summer drenches in November 1998 and January 1999. They were placed on to well prepared, low worm infestation paddocks.

Faecal egg counts (FECs) were monitored fortnightly after the autumn break and FECs were always less than 180 epg and no drenching has been necessary. FECs were taken from all progeny for analysis on 16th August 1998 and averaged 385 epg, ranging from 0 (in 11 progeny) to 4890 epg in individual sheep.

Shearing

The lambs were first shorn in November 1998. This shearing is used as an “even up” shearing, which minimises the effects on an individual’s wool growth by factors such as birth and rearing type (eg singles or twins).

Side samples were taken from all progeny on 21 October, 1999, for wool character measurement and all sheep were shorn on 23rd November 1999 at 15 months of age and with twelve months wool growth. Fleece weights were recorded at shearing and exclude belly wool, in line with the guidelines developed by the AMSEA. A second mid-side sample was collected 7 November, 2000 and was tested for fibre diameter, coefficient of variation of fibre diameter, and curvature. All sheep were shorn on 24th November, 2000, with twelve months wool growth. Fleece weights at shearing exclude belly wool, in line with the guidelines developed by the AMSEA.

Table 1: Twins and singles within each sire group.

Sire	Total progeny assessed	Number (%) of Singles	Number of Twins
Alfoxtton Ambassador 95-391	34	15 (44%)	19 (56%)
Aries 446	15	9 (60%)	6 (40%)
Currawong Blue 10	26	15 (58%)	11 (42%)
Greenland SN 10	18	11 (61%)	7 (39%)
Gringegalgon 30-1292	30	14 (47%)	16 (53%)
Kerrsville NB-50 (Harvey)	20	13 (65%)	7 (39%)
Kurra Wirra SV885 (Silver)	24	13 (54%)	11 (53%)
Lynburn L5012	34	15 (44%)	19 (56%)
Merinotech Vic 94-425	21	12 (57%)	9 (43%)
Nerstane 02	35	12 (34%)	23 (66%)
The Grange 680052	15	8 (53%)	7 (47%)
The Springs W22	27	16 (60%)	11 (40%)
Average	299	153 (51%)	146 (49%)

The Rams

The 12 rams involved in the competition represent some of the finest and most well known, superfine and ultrafine Merino studs from Australia and New Zealand.

Alfoxtton Ambassador 95-3991

Contact: Chris Clonan, 02 67 248 494

Semen Price: \$40 per dose

Aries 446

Contact: John Pratt, 03 6265 8568

Semen Price: \$50 per dose

Currawong Blue 10,

Contact: Geoff Phillips, 03 53 540 590 and Allan Phillips, 03 63 986 115

Semen Price: \$40/dose

Greenland S N 60,

Contact: John Alcock, 02 6454 6245

Gringegalgona 30-1291/91

Contact: Stephen Silcock, 03 5574 3202

Semen Price: POA

Kerrsville NB- 50 (Harvey)

Contact: Robert Plush, 03 5575 0208

Semen Price: \$40/dose

Kurra Wirra Silver 885

Contact: Robert Close, 03 55 704 238

Semen Price: \$30/dose

Merinotech Vic 94-425

Contact: Hugh and Sue Jarvis, 03 55 743 298 Limited quantities of semen available, \$50/dose

The Grange 68 0052

Contact: Lukis Blake, 089 9296 1880

Semen Price: \$30/dose

The Springs W22

Contact: Geoff Pollard, 03 5427 2451

Semen Price: \$15/dose

***Link Rams**

Link rams are rams that have been entered in sire evaluation schemes elsewhere throughout Australia and overseas and in different years. Link rams allow us to combine the results of sire evaluation schemes across different years and different sites.

Lynburn L5012 and Nerstane 92 0002 are being used in other sire evaluation schemes and form links to the National Central Test Sire Evaluation Programme.

Results

Results from the scheme fall into five categories:

1. Fleece Measurements
2. Animal Health and Bodyweights
3. Evaluating the index relationship between sires.
4. Estimated processing performance
5. Linking the results
6. Classing and visual assessment.

The results in each of these categories are summarised below with details shown in Tables 1 to 5.

1. Fleece Measurement Results - Hoggets

Important fleece characteristics can be directly measured from a mid-side fleece sample; a site that is generally an average of the entire fleece. Direct measurement is usually the most efficient method of selection and therefore offers the most rapid genetic gain.

Mid-side samples were collected from all 15 month old progeny on 23rd October 1998, for their hogget assessment. The samples were tested by the Australian Wool Testing Authority for fibre diameter (mean and coefficient of variation or CVFD), staple length and strength, yield, and “curvature”. For details, see Table 1 for wool production averages and table 2 for Estimated Progeny Values derived within this progeny trial.

Adult assessments occurred in November, 2000. Mid-side samples were collected on 7th November, 2000 and shearing was on 24th November, 2000, with twelve months wool growth.

Mean fibre diameter: the single most important determinant of wool price.

- The average fibre diameter across all progeny was 16.4µm, ranging from 13.9 µm to 20.8 µm in individual sheep. The average adult fibre diameter was 17.9µm, ranging from 14.8µm to 21.2µm.

Hogget FD

- 15.7 Alfoxton Ambassador 95-391
- 15.9 Currawong Blue 10
- 15.9 Kerrsville NB50

Adult FD

- 17.0 Currawong Blue 10
- 17.1 Alfoxton Ambassador 95-391
- 17.3 Aries 446

Clean fleece weight: the amount of clean wool per fleece ultimately determines the return per animal and greatly influences the total amount of wool produced per hectare.

- The average clean fleece weight as adults was 3.46kg.

Hogget CFW kg

- 2.7 kg Merinotech Vic 94-425
- 2.7 kg Gringegalgonia 30-1292
- 2.7 kg Kurra Wirra Silver 885

Adult CFW kg

- 4.0 Kurra Wirra Silver 885
- 4.0 Merinotech Vic 94-425
- 3.7 Gringegalgonia 30-1292

Coefficient of variation (CV) of fibre diameter: a measure of the variation in fibre diameter within a single fleece. Low CV is preferable, because it is usually associated with a lower coarse fibres (less prickle), greater staple strength, and a finer top. Spinning quality is effected by CVFD such that a decrease of 5% in CVFD is the equivalent of a 1 micron decrease in fibre diameter.

Hogget and Adult Results (2000)

- the average CV of fibre diameter across all progeny was 18.5% ranging from 14.1% to 27.1% in individual sheep.

Hogget CVFD %

- 19.3% The Springs W22
- 19.4% Currawong Blue 10
- 19.5% The Grange 68 0052

Adult CVFD %

- 16.9 The Grange 68 0052
- 17.8 The Springs W22
- 17.8 Gringegalgona 30-1292

Staple strength: an important determinant of wool price, especially for fine wools. Discounts usually begin when staple strength falls below about 35 N/ktex. The higher the staple strength, the higher the hauteur (mean fibre length in the top) and the lower the wastage as noil.

- The staple strength was only measured in the 15months old sheep. In that year, the tensile strength was low, averaging 22.5 N/ktex across all progeny, ranging from 8-45N/ktex.
- Half of the progeny had tender wool. Many of the sheep had a break in the tip, which was probably associated with the unseasonal rainfall which occurred at South Roxby over the autumn period last year. There were 83% tip breaks and only 16% mid breaks in the wool.

Hogget SS N/ktex

- 25.8 N/ktex Gringegalgona 30-1292
- 24.5 N/ktex Merinotech Vic 94-425
- 23.9 N/ktex Aries 446

Staple length: reflects the quantity of wool produced.

- The average staple length across all progeny was 82.0 mm, ranging from 52 mm to 113 mm in individual sheep. This is not too different from the results recorded for last year's hogget progeny, although they only had eight months wool growth.

Hogget mm

- 94mm Nerstane 92 0002
- 92mm M2erinotech (Jarvis) MT WR 94-425
- 90mm Lynburn L5012

Adult mm

Hogget and Adult Results (2000)

Table 1: Hogget and adult wool production (raw averages)

Sire	GFW Kg		CFW Kg		FD Micron		Off-shears Body Weight Kg	
	Hogget	Adult	Hogget	Adult	Hogget	Adult	Hogget	Adult
Alfoxton Ambassador 95-391	3.0	4.4	2.3	3.4	15.7	17.1	40.6	45.2
Aries 446	2.8	4.0	2.1	3.0	16.0	17.3	38.4	43.8
Currawong Blue 10	3.0	4.1	2.3	3.1	15.9	17.0	38.4	44.3
Greenland SN 10	2.8	4.1	2.0	3.0	17.0	18.3	38.5	44.3
Gringegalgona 30-1292	3.7	5.1	2.7	3.7	17.4	19.1	43.9	49.0
Kerrsville NB-50 (Harvey)	3.3	4.9	2.5	3.7	15.9	17.8	41.3	45.8
Kurra Wirra SV885 (Silver)	3.5	5.3	2.7	4.0	16.2	18.1	40.4	44.9
Lynburn L5012	3.5	4.7	2.6	3.5	16.8	18.0	43.4	46.5
Merinotech Vic 94-425	3.6	5.2	2.7	4.0	16.9	18.3	41.0	45.0
Nerstane 02	3.1	4.5	2.3	3.4	16.6	18.3	39.8	43.9
The Grange 680052	2.9	4.2	2.2	3.2	16.1	17.5	40.6	46.3
The Springs W22	3.0	4.3	2.2	3.1	16.3	17.5	39.1	44.5
Average	3.2	4.6	2.4	3.5	16.4	17.9	40.7	45.4

* Data for sex or birth type (single/twin) are not analysed in these raw averages.

Table 2: Hogget and adult wool quality measurements (averages)

Sire	CVFD %		Washing Yield %		SS N/ktex	SL mm
	Hogget	Adult	Hogget	Adult	Hogget	Hogget
Alfoxton Ambassador 95-391	21.1	19.4	75.7	76.8	20.9	77.5
Aries 446	20.6	19.0	73.9	73.8	23.9	70.3
Currawong Blue 10	19.4	18.0	75.8	74.4	23.5	73.0
Greenland SN 10	22.7	20.3	70.8	72.2	18.1	70.3
Gringegalgona 30-1292	19.8	17.8	74.1	74.0	25.8	86.6
Kerrsville NB-50 (Harvey)	21.0	18.2	74.9	75.9	23.1	75.8
Kurra Wirra SV885 (Silver)	21.4	18.3	75.3	75.6	23.7	79.2
Lynburn L5012	21.1	18.1	73.8	76.0	21.5	89.8
Merinotech Vic 94-425	19.7	18.3	76.4	76.8	24.5	92.1
Nerstane 02	20.3	17.9	75.0	76.6	20.4	94.0
The Grange 680052	19.5	16.9	75.0	77.0	23.6	78.9
The Springs W22	19.2	17.8	73.1	73.0	23.2	80.6
Average	20.5	18.4	74.6	75.3	22.5	82.0

Estimated Progeny Values - EPVs

The absolute value for each trait shown in table 2 is of interest within this progeny trial but cannot be extrapolated for other flocks or other environments. The figures shown in table 7 are the Estimated Progeny Value (EPV) for various traits – based on information within this progeny trial.

Estimated Progeny Values show the expected hogget performance of a sire's progeny relative to the other sires **with any given ewe base**. For example, the progeny of Alfoxton Ambassador 95-391 are expected to be 0.7µm finer than the average of this group of rams. Also, we can tell, that the progeny of this ram are expected to be 1.1µm finer than the progeny of Merinotech Vic 94-425, which is 0.4µm finer than average. However, we would expect the progeny of Merinotech Vic 94-425 to produce 11.2% more wool as a hogget than Alfoxton Ambassador 95-391 as it has a high EPV for CFW.

Data for sex or birth type (single/twin) is included in the analysis to determine the Estimated Progeny Values giving a more predictable value than a simple “average” shown in table 3.

Table 3: Estimated Progeny Values (EPVs) – Production Traits

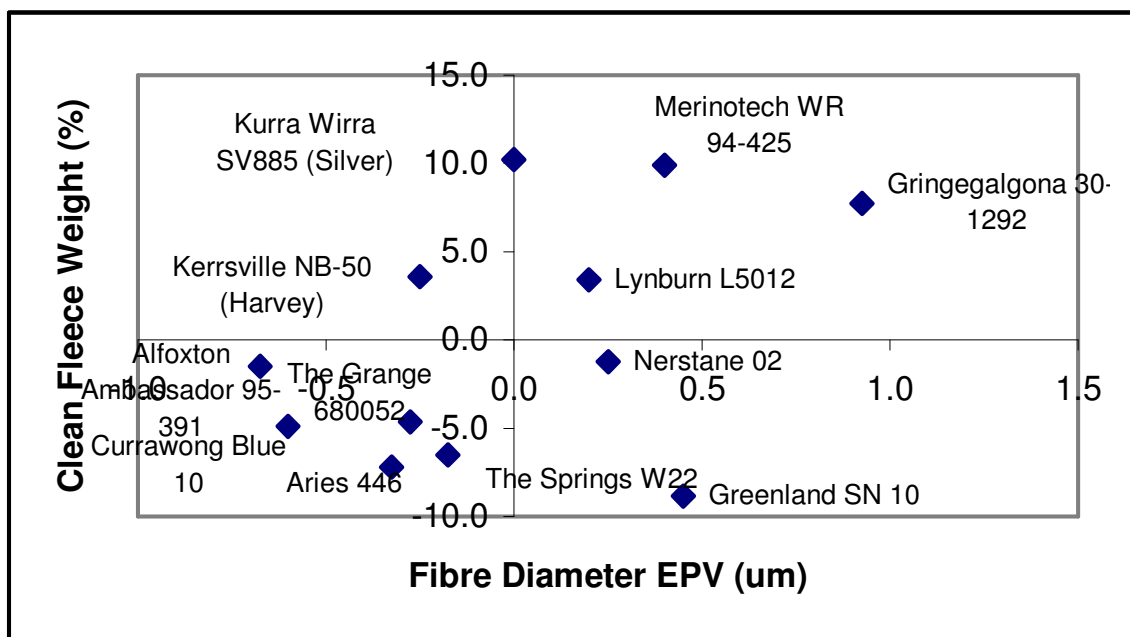
Sire	GFW %		CFW %		FD µm		BW %	
	Hogget	Adult	Hogget	Adult	Hogget	Adult	Hogget	Adult
Alfoxton Ambassador 95-391	-3.1	-2.7	-1.9	-1.2	-0.7	-0.7	0.7	0.2
Aries 446	-6.7	-7.2	-6.7	-7.7	-0.3	-0.4	-2.1	-1.7
Currawong Blue 10	-3.7	-6.4	-2.8	-7.0	-0.5	-0.8	-2.8	-1.7
Greenland SN 10	-6.4	-5.1	-9.6	-8.2	0.5	0.4	-2.4	-1.7
Gringegalgona 30-1292	9.9	7.7	9.3	6.2	0.8	1.1	5.9	5.6
Kerrsville NB-50 (Harvey)	1.9	4.2	2.3	4.9	-0.4	-0.2	0.7	0.5
Kurra Wirra SV885 (Silver)	7.6	11.6	8.4	12.0	-0.2	0.2	-1.9	-1.6
Lynburn L5012	5.6	1.4	4.7	2.2	0.3	0.2	4.3	2.6
Merinotech Vic 94-425	7.4	9.0	9.3	10.5	0.4	0.4	-0.7	-1.0
Nerstane 02	-2.3	-1.5	-2.1	-0.4	0.2	0.4	-1.5	-1.8
The Grange 680052	-5.7	-6.1	-5.1	-4.2	-0.3	-0.3	1.3	1.6
The Springs W22	-4.7	-4.9	-6.0	-7.1	-0.1	-0.3	-1.6	-1.0

- EPV figures are expressed in their base units for FD, CV, SS and SL and on a % basis for CFW and BWT.
- The Estimated Progeny Values included in these results are ‘with-in’ flock and have not been linked to the Central Test Sire Evaluation scheme at this time.
- EPVs linked to the CTSE will be included in this report as an appendix when they become available.

Table 4: Estimated progeny values – wool quality traits

Sire	Coefficient of Variation of FD %		Staple Strength N/ktex	Staple Length mm
	Hogget	Adult	Hogget	Hogget
Alfoxtton Ambassador 95-391	0.6	0.8	-2.0	-2.5
Aries 446	0.2	0.3	1.3	-5.7
Currawong Blue 10	-0.7	-0.5	1.5	-5.4
Greenland SN 10	1.4	1.4	-3.8	-5.8
Gringegalgon 30-1292	-0.5	-0.5	2.8	3.5
Kurra Wirra SV885 (Silver)	0.5	0.3	0.7	-1.5
Kerrsville NB-50 (Harvey)	0.2	0.1	0.3	-3.4
Lynburn L5012	0.3	0.0	-1.8	6
Merinotech Vic 94-425	-0.3	-0.1	1.3	6.6
Nerstane 02	-0.2	-0.2	-2.5	9.4
The Grange 680052	-0.8	-0.9	1.6	-1.3
The Springs W22	-0.8	-0.6	0.6	-0.3

Figure 1: Estimated progeny values for Clean Fleece Weight and Fibre Diameter
1998 drop World's Finest Ram Progeny



2. Animal Health and Bodyweight Results - Hoggets

Sheep must be healthy to achieve the high production sought by woolgrowers. Certain aspects of sheep health are inherited. These can be measured and incorporated into breeding programs.

Fleece rot

Fleece rot is a major cause of body strike in sheep. Fleece rot occurs when wool is wet for a prolonged period, causing an infection of the skin and staining of the wool. The moisture and smell associated with fleece rot attracts flies.

Susceptibility to fleece rot is associated with body conformation and fleece type. It is strongly heritable. So, if sheep are consistently selected because they are less prone to fleece rot, the incidence of fleece rot and therefore body strike will be gradually reduced.

There was no fleece rot observed in these sheep at classing.

Internal parasites (worms).

Some sheep are more resistant to worms than others with differences both within and between sire lines. Breeding worm-resistant sheep is seen as one way of countering the growing problem of drench resistance. Resistance is measured in the hoggets before they are drenched in the autumn.

Faecal Egg Counts

How do we measure the worm resistance of individual sheep? One indicator that has been studied is faecal egg count. Faecal egg count is a heritable trait in sheep. Some rams consistently produce offspring that have low faecal egg counts. A low faecal egg count means less contamination of pastures and is therefore a desirable genetic attribute.

Faecal samples are taken from individuals when faecal egg counts are high overall, to allow a reasonable differentiation between them. Weaner FECs were monitored fortnightly and individual samples were collected from each of the weaner progeny in July. The results are shown in table 3.

Dag Scores

The amount of dag carried by sheep is also a heritable trait. Dag is an indicator of scouring, which is most commonly associated with existing worm burdens or new larvae that are being picked up off the pasture. Dag is undesirable because it necessitates crutching and the loss of fleece wool into discounted “stain” lines.

The progeny were assigned a “dag score” of between 0 and 5 when they were weighed at 13 months (0 = no dag, 5 = very heavy dag). The average dag score over all progeny was 2.1, with only small differences between groups. Dag was lightest on Kurra Wirra Silver 885 and Aries 446. Results are shown in detail in the table 8.

Table 5: Animal health results.

Sire	Worm egg count (FEC):		Mean dag score on a 0 to 5 scale	% of progeny with fleece rot	
	epg	(EPV)*		Adult	Hogget
Alfoxton Ambassador 95-391	387	0.21	1.5	0	9
Aries 446	502	0.06	1.1	0	20
Currawong Blue 10	404	-0.09	3.3	0	15
Greenland SN 10	340	-0.28	2.1	0	6
Gringegalgon 30-1292	327	-0.21	2.2	0	13
Kerrsville NB-50 (Harvey)	337	-0.08	2.1	0	21
Kurra Wirra SV885 (Silver)	520	0.52	1.0	0	58
Lynburn L5012	467	0.25	2.6	0	18
Merinotech Vic 94-425	428	0.28	2.2	0	18
Nerstane 02	358	0.06	2.5	0	20
The Grange 680052	344	-0.03	2.3	0	0
The Springs W22	245	-0.70	2.3	0	15
Average	385	0.0	2.1	0	18

*The actual faecal egg count in eggs per gram, shown first, means little outside this trial.

The figure in brackets is the EPV (Estimated Progeny Value) for faecal egg count. A negative EPV for FEC indicates a low egg count and that progeny is regarded as having a higher resistance to worms. Sheep with negative values are the most desirable.

The EPV will be used in an index to select sheep for low faecal egg count.

In this sire evaluation project *Haemonchous contortus* (Barber's pole worm) is unlikely to be a significant parasite of the sheep.

3. Putting it all together – The index

There is no such thing as the ‘perfect’ ram. All rams have attributes and faults. Moreover, there is no single answer to what is the ‘best’ ram of those tested. Breeders have different objectives, so the assessment of which is the ‘best’ sire depends on the breeder’s objectives. In practice, breeders want to select for a complex of characters. It is not simply a matter of fleeceweight and fibre diameter, but also the frame, skin and perhaps several attributes, some of which are of economic significance, others which may not be.

Most breeders informally weigh up various characteristics in their head as they are examining an animal. A more formal way of doing this is through a selection index. An index is a single figure calculated from all the information available for each individual. The bigger the number, the better the ram is on that index and there may be different indexes for different breeding purposes.

Numerous indexes can be used, depending upon the breeding objectives and the measurements taken. In table 6, three different index options are given for each of the rams. Each of these index options is based around different emphasis placed on fleece weight and fibre diameter, while maintaining other traits, such as staple strength, and body weight. The higher the micron premium used in the index, the higher the emphasis placed on fibre diameter, relative to fleece weight. For example, if you selected sheep using a 3% index, over time, this would result in no change to fibre diameter, while fleece weight increased. Alternatively, you may wish to select using an index with emphasis on increasing disease resistance (such as FEC) or increasing staple strength.

Remember that sire evaluation schemes identify *individual rams* with a genetic capacity to sire superior merino sheep. They should not be used to assess the *overall* performance of a *stud* or *bloodline*.

Table 6: Putting it together: Rampower Index* - Breeding Objectives.

Sire	Index Values		
	3% Maintain FD increase CFW	6% Decrease FD increase CFW	12% Max decrease FD small increase CFW
Alfoxton Ambassador 95-391	104.7	98.7	107.7
Aries 446	80.1	73.0	92.2
Currawong Blue 10	98.0	88.4	109.0
Greenland SN 10	57.2	59.6	60.0
Gringegalgon 30-1292	116.4	129.7	103.1
Kerrsville NB-50 (Harvey)	117.6	117.9	113.9
Kurra Wirra SV885 (Silver)	135.3	142.3	121.8
Lynburn L5012	102.6	105.9	97.3
Merinotech Vic 94-425	125.4	134.4	112.8
Nerstane 02	86.6	87.4	86.2
The Grange 680052	93.6	87.0	102.7
The Springs W22	82.6	75.8	93.2

* Selection on the 6% index - breeding objective (BO) - will result in a reduction in fibre diameter, a gain in fleeceweight and maintain bodyweight. Selection using the 12% breeding objective will result in a large reduction in fibre diameter, while maintaining fleeceweight and bodyweight.

4. Predicted Processing Performance

Top Performance – TEAM predictions

Bob Couchman of the Woolmark Company has conducted an analysis, based on the TEAM formulae, to predict the performance of the fleece wool from each sire group when it is processed into top. Table 5 shows the predicted performance values in terms of the top fibre diameter, the Hauteur and the romaine and noil loss. Spinners use these top characteristics and along with noil costs these ultimately control the economic value of the top. The top prices given here are based on the clean wool price, plus the cost of processing (ie combing tariff) and the noil loss. This does not include costs from auction to mill, any combing profit or any costs from the combing mill to the spinner.

Table 7: Predicted processing performance of the each of the progeny groups

Sire	Raw Wool Characteristics				Predicted Top Performance								
	FD (µm)	SL (mm)	SS (N/ktex)	GFW (kg)	Top FD (µm)	Predicted Hauteur (mm)	CV Hauteur	Romaine (%)	% Fibres <30mm	Top Weight (kg/head)	Noil Loss (c/kg)	Top Value (c/kg from average)	Top Value / Head (\$/Head)
Alfoxton Ambassador 95-391	15.7	78	21	3.0	15.8	53.1	53.6	11.2	18.7	2.02	-262	266	3.47
Aries 446	16.0	70	24	2.8	16.1	50.6	51.3	11.5	20.7	1.82	-252	119	-4.21
Currawong Blue 10	15.9	73	23	3.8	16.0	51.6	52.1	11.4	19.8	2.01	-255	173	1.35
Greenland SN 10	17.0	70	18	2.8	17.1	48.7	53.4	12.0	16.3	1.73	-210	-277	-13.1
Gringegalgaona 30-1292	17.4	87	26	3.6	17.5	61.7	52.0	8.9	12.7	2.44	-143	-355	-1.16
Kerrsville NB-50 (Harvey)	15.9	76	23	3.2	16.0	53.2	52.4	11.0	17.8	2.16	-248	185	5.23
Kurra Wirra SV885 (Silver)	16.2	79	24	3.5	16.37	55.5	52.3	10.5	16.6	2.35	-222	80	7.37
Lynburn L5012	16.8	90	21	3.4	16.9	60.4	54.6	9.4	12.7	2.29	-176	-137	1.01
Merinotech Vic 94-425	16.9	92	25	3.5	17.0	63.4	53.2	8.6	8.9	2.46	-157	-158	4.07
Nerstane 02	16.6	94	20	3.0	16.7	61.8	55.6	9.2	11.5	2.06	-179	-58	-2.20
The Grange 680052	16.1	79	24	2.9	16.2	55.4	52.3	10.5	11.7	1.91	-227	122	-2.03
The Springs W22	16.3	81	23	3.2	16.4	56.1	52.9	10.3	16.3	2.08	-214	40	0.28
Average					15.24	51.65	48.9	9.58	16.44	1.95	-196		

Please note that mill adjustments are not taken into account in these calculations.

5. Linking the results

The Central Test Sire Evaluation (CTSE) program coordinates sire evaluation schemes throughout Australia. Currently there are 12 regional organisations that conduct these schemes and the number of sites is increasing. The World's Finest Ram Project is one of three sire evaluation schemes in Victoria with another five sites in NSW and one each in South Australia, Western Australia, Queensland, and Tasmania.

Results from sire evaluation schemes at different sites and from different years can all be combined in the one list by the use of link rams. A 'link' sire is a ram already mated at a CTSE site of that wool type (Medium or Fine), has 25 progeny at that site and has been evaluated at least once. These link sires act as the genetic-links, which allow analyses and reports to combine year and site information and thus allow the direct comparison of sires.

All CTSE sites provide their data free of charge to allow the across site analysis of the measured and visual traits to be performed. Processing of data is carried out independently by NSW Agriculture and CSIRO and is reported publicly. The combined results are presented in "Merino Superior Sires" published by The Australian Merino Sire Evaluation Association.

The average for each measured or visual trait has been set to an average of zero based on the Fine Wool base of the New England CTSE 1990 to 1992.

Many rams from the World's Finest Ram Project have made their way into the "Top 20's" for the fine wool sire evaluation over the years. It is also important to remember that the rams evaluated in this trial are compared to a superior group of rams. This means that even though their performance amongst this group of rams may be low, their performance against those tested in central test is probably quite high. Also, rams entered into central test sites generally undergo a rigorous selection process. From this, we can deduce that the rams evaluated in central test schemes across Australia are literally the "Best of the Best".

Merino Superior Sires is published annually and the latest report should be available early 2001. Copies of this report are available from Advanced Breeding Services, NSW Agriculture, Orange, NSW. Email: abs@agric.nsw.gov.au

Alternatively, you can look up the web site at <http://mss.anprod.csiro.au>.

6. Classing

New guidelines for classing the progeny were introduced in 2000 by the Australian Merino Sire Evaluation Association. The World's Finest Ram Project committee decided to undertake the classing in line with the guidelines established. This changed the classing format compared to previous years. In 2000, John Williams of Cooma was the only classer grading the sheep. Each sheep was scored on a 1-5 basis for face cover, feet / legs, neck/body development, jaw conformation, back / shoulders conformation, wool colour, wool character, dust penetration / weathering, fleece rot and pigment. Few of the sheep in this group were extreme for neck/body development, and dust penetration / weathering. Therefore, these traits are not reported, as there were no significant differences between the sires.

a. Individual classing results

Tops and Culls

The classers were asked to class each sheep into 'top', flock, or 'cull' grades, based on the above breeding objective. Overall, 18% of sheep were classed as 'tops', with 31% classed as 'culls'.

The progeny groups with the highest percentage of 'tops' were:

Hogget

- Gringegalgon 30-1292 (35%)
- Aries 446 (30%)
- Kerrsville NB50 (25%)

Adult

- Merinotech Vic 94-425 (71%)
- Nerstane 02 (65%)
- Currawong Blue (62%)

The groups with the lowest percentage of 'culls' were:

Hogget

- Gringegalgon 30-1292 (15%)
- Lynburn L5012 (18%)
- Kerrsville NB50 (20%)

Adult

- The Grange 680052 (0%)
- Merinotech Vic 94-425 (5%)
- Aries 446 (3%)

Table 8: Results of finewool Merino classing – hoggets

Sire	No Progeny	Destination			
		Tops %		Culls %	
		Hogget	Adult	Hogget	Culls %
Alfoxtton Ambassador 95-391	34	18	44	34	15
Aries 446	15	30	53	27	7
Currawong Blue 10	26	25	62	27	12
Greenland SN 10	18	6	39	50	33
Gringegalgon 30-1292	30	35	53	15	13
Kerrsville NB-50 (Harvey)	20	25	55	20	15
Kurra Wirra SV885 (Silver)	24	19	43	38	22
Lynburn L5012	34	16	53	18	15
Merinotech Vic 94-425	21	24	71	29	5
Nerstane 02	35	7	65	36	13
The Grange 680052	15	3	59	42	0
The Springs W22	27	13	35	37	23
Total	299	18	53	31	14

* Values shown are the percentages of each progeny group that were assigned to the ‘tops’ or to the ‘culls’ (the rest were categorised as ‘flock’).

** Values shown are the percentages of each progeny group that had positive or negative comments recorded against them for each of the categories of conformation, wool production and wool quality.

Table 9: Results of finewool Merino classing - conformation comments

	Face Cover				Neck Develop't	Feet / Legs	Pigment
	% Bare	% Normal	% Muffled	% Very Muffled	% Neg	% Neg	% Neg
Alfoxtton Ambassador 95-391	0	94	6	0	0	3	0
Aries 446	0	73	20	7	0	0	0
Currawong Blue 10	0	77	15	8	12	4	0
Greenland SN 10	0	78	17	6	6	0	0
Gringegalgon 30-1292	07	90	0	3	7	10	3
Kerrsville NB-50 (Harvey)	5	85	10	0	0	0	30
Kurra Wirra SV885 (Silver)	0	70	30	0	9	4	9
Lynburn L5012	12	85	3	0	0	3	38
Merinotech Vic 94-425	0	76	14	10	0	5	14
Nerstane 02	0	97	3	0	0	0	16
The Grange 680052	6	82	6	6	0	0	18
The Springs W22	8	65	12	15	0	15	19
Average	3	82	10	4	3	4	13

Table 10: Results of finewool Merino classing - wool colour

Sire	% 1	% 2	% 3	% 4
Alfoxtton Ambassador 95-391	65	29	6	0
Aries 446	80	20	0	0
Currawong Blue 10	88	12	0	0
Greenland SN 10	50	44	6	0
Gringegalgonna 30-1292	70	27	3	0
Kerrsville NB-50 (Harvey)	60	35	0	6
Kurra Wirra SV885 (Silver)	43	52	4	0
Lynburn L5012	71	26	3	0
Merinotech Vic 94-425	57	43	0	0
Nerstane 02	58	32	10	0
The Grange 680052	82	18	0	0
The Springs W22	42	50	8	0
Average	64	32	4	0

A score of 1 indicates the sheep was acceptable for this character, while a score of 4-5 indicates the sheep had extreme colour in its wool.

Table 10: Results of finewool Merino classing - wool character

Sire	% 1	% 2	% 3	% 4	%5
Alfoxtton Ambassador 95-391	24	26	35	15	0
Aries 446	47	33	20	0	0
Currawong Blue 10	69	19	4	8	0
Greenland SN 10	39	17	39	6	0
Gringegalgonna 30-1292	47	17	17	20	0
Kerrsville NB-50 (Harvey)	45	20	25	10	0
Kurra Wirra SV885 (Silver)	17	48	22	13	0
Lynburn L5012	26	21	32	21	0
Merinotech Vic 94-425	19	33	38	10	0
Nerstane 02	16	35	32	13	3
The Grange 680052	41	18	35	6	0
The Springs W22	46	27	23	4	0
Average	35	26	27	12	0

A score of 1 indicates the sheep was acceptable for this character, while a score of 4-5 indicates the sheep had no character in its wool.

Table 10: Results of finewool Merino classing – spinning quality counts and measured curvature

Sire	Spinning Count		Measured Curvature	
	Hogget	Adult	Hogget	Adult
Alfoxton Ambassador 95-391	70s	66s	101.2	102.1
Aries 446	70-74s	66s	106.7	112.1
Currawong Blue 10	74s	70s	105.4	113.0
Greenland SN 10	70s	66s	109.7	113.3
Gringegalgonia 30-1292	70s	66s	101.7	108.7
Kerrsville NB-50 (Harvey)	70s	66s	94.6	98.1
Kurra Wirra SV885 (Silver)	66-70s	64-66s	96.8	97.1
Lynburn L5012	66-70s	66s	95.5	103.5
Merinotech Vic 94-425	66s	64s	90.5	95.3
Nerstane 02	66s	64-66s	90.5	93.9
The Grange 680052	70-74s	66s	101.7	108.3
The Springs W22	70-74s	66s	107.6	107.7
Average	70s	66s	99.6	103.9

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To all, thank you very much.

Interested in sire progeny trials ?

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