

Elders VP Victoria Sire Evaluation Group

2002 Drop 2nd Evaluation of Progeny at 23 months

11 Months Wool Growth



Conducted by:

The Elders VP Victoria Sire Evaluation Group
under the auspices of the
Victorian Stud Merino Sheepbreeders' Association
& Balmoral P & A Society



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November 2004

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The information in this booklet should not be read in isolation – 2002 drop progeny at the time of their second assessment were 23 months of age and shorn with 11 months wool growth. This is the second assessment of the 2002 progeny in the Central Test Evaluation trials and results from this assessment will be reported in *Merino Superior Sires*.

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CONDUCT OF SIRE EVALUATION SCHEMES

This evaluation is an accredited sire evaluation program run under the guidelines of the Australian Merino Sire Evaluation Association (AMSEA). The established guidelines have been followed to enable an accurate and fair comparison of the Merino rams entered allowing the results to be published in the Merino Superior Sires report.

Elders VP Victoria Sire Evaluation Group - Balmoral

The Elders VP Victoria Sire Evaluation Trials aim to evaluate and promote leading sires suited to fine wool production in Western Victoria.

This goal is achieved by informing participants, their clients and interested woolgrowers on events surrounding the trials and in addition to this; produce and distribute annual reports and periodic newsletters. To further promote the evaluation, displays of progeny, data and their fleeces have been on show at the Australian Sheep & Wool Show (1998-2002), Balmoral and Horsham Shows and Hamilton Sheepvention. Participating studs have also provided static displays for viewing during field days. Since April 2000 successful annual Open Days have been held at 'The Mountain Dam', 'Kerrsville' and 'Gringegalgonna' to inspect progeny and to discuss the sire evaluation program with interested woolgrowers.

Prior to 1998, there were three previous trials in the Balmoral/Hamilton district which are recorded in Merino Superior Sires as B95, HT93, HT94. In 1998 a small group of stud breeders met to form what is now known as the Elders VP Victoria Sire Evaluation Group. The Sire Evaluation Trials commenced in 1998 and there are now 7 progeny drops – 1998, 1999, 2000, 2001, 2002, 2003 & 2004. All trials are run for a minimum of 2 years.

- 1998 & 1999 drop – Host property 'The Mountain Dam', Balmoral
- 2000 & 2002 drop - Host property 'Kerrsville', situated between Balmoral and Coleraine
- 2002 & 2003 drop – Host property 'Gringegalgonna' at Balmoral.
- 2004 & 2005 drop – Host property 'Arundale' at Balmoral

The 1998 drop wethers continued to be assessed for the further 2 years (a total of 4 assessments) outside the Central Test Evaluation program as part of a PIRD (Producer Initiated Research Development) Program which determined that mature age assessments averaged across each sire group provide similar information to the two-year trial data and in particular show clear trends and confidence with the second year assessment information.

Planning and direction is developed by the Sire Evaluation Group Management Committee.

The Management Committee:

Robert Plush	(Chairman)	03 5575 0208	plush1@anson.com.au
Robert Close		03 5570 4238	kurrawirra@anson.com.au
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David Whyte		03 5572 2266	dwhyte@elders.com.au
Colin & Jill Frawley		03 5578 6334	wirra@anson.com.au
Angela Byron	(Manager)	03 5570 0590	manager@balmoralbreeders.com.au

Host Property for 2002 drop progeny

The Gringegalgonna property, run by Stephen and Judith Silcock is located in the Dundas Highlands. It lies on shallow clay and sandy loams in undulating tableland red gum country on the midway between Cavendish and Balmoral, 48kms northwest of Hamilton. The average annual rainfall at Gringegalgonna is 675mm (27"). Progeny are managed under strict commercial conditions.

UNDERSTANDING THE RESULTS

TABLES

Sire Identity:	Identity of breeder and the sire's number and/or name and code number located on some tables and graphs.																
No. of Progeny:	Number of progeny assessed at time of event																
Estimated Progeny Values:	Estimated progeny values (EPVs) express the expected performance of progeny of a sire relative to another sire in the evaluation when mated to a random allocation of ewes. EPVs are used to describe the performance of the major measured traits (see information on accuracy over page). They are expressed as deviations (dev) from the average of sires in the evaluation. Fibre Diameter, Yield and Coefficient of Variation of Fibre Diameter EPVs are presented as deviations from the average, expressed in the same units as they were measured. Greasy and Clean Fleece Weights and Body Weights are percentages – 0% equals average and, for example, 10.0 is 10% above average performance of the group.																
Measured traits:	<table><tr><td>GFW%</td><td>Greasy Fleece Weight (percentage)</td></tr><tr><td>CFW%</td><td>Clean Fleece Weight (percentage)</td></tr><tr><td>FD μm</td><td>Average Fibre diameter (micron)</td></tr><tr><td>BWT%</td><td>Body Weight (percentage)</td></tr><tr><td>CV%</td><td>Co-efficient of variation of fibre diameter</td></tr><tr><td>Yld%</td><td>Washing yield of the midside sample</td></tr><tr><td>SL</td><td>Staple Length (mm)</td></tr><tr><td>Str</td><td>Staple Strength (N/Ktex)</td></tr></table>	GFW%	Greasy Fleece Weight (percentage)	CFW%	Clean Fleece Weight (percentage)	FD μ m	Average Fibre diameter (micron)	BWT%	Body Weight (percentage)	CV%	Co-efficient of variation of fibre diameter	Yld%	Washing yield of the midside sample	SL	Staple Length (mm)	Str	Staple Strength (N/Ktex)
GFW%	Greasy Fleece Weight (percentage)																
CFW%	Clean Fleece Weight (percentage)																
FD μ m	Average Fibre diameter (micron)																
BWT%	Body Weight (percentage)																
CV%	Co-efficient of variation of fibre diameter																
Yld%	Washing yield of the midside sample																
SL	Staple Length (mm)																
Str	Staple Strength (N/Ktex)																
Sire Averages:	Sire averages are the average performance of all the progeny assessed. No account is made for factors that can improve the accuracy such as birth type or sex.																
Visual Traits: <i>Conformation</i>	<p>Most traits are scored 1 to 5, with '1' being best and '5' being worst. Many animals were scored '3', being neither bad nor outstandingly good.</p> <p>Face – Scored 1 to 5. Scores of 2, 3, or 4 are most acceptable; scores of 1 (bare) or 5 (muffled) are less acceptable.</p> <p>Shoulders/back – Reported as percentage of the progeny with a negative expression.</p> <p>Feet/legs – Scored 1 to 5. (1 being best)</p> <p>Neck/body development – Scored 1 to 5. Scores of 2, 3 or 4 are most acceptable, scores of 1 or 5 are less acceptable (too heavy or too plain).</p> <p>Mouth/Jaw – Reported as percentage of progeny with a negative expression.</p>																
<i>Wool Quality</i>	<p>Wool Colour – Scored 1 to 5. (1 being best)</p> <p>Wool Character – Scored 1 to 5 (1 being best)</p> <p>Dust penetration/staple weathering - Scored 1 to 5, where '1' is best.</p> <p>Fleece Rot – Scored 0 to 5, '0' is no fleece rot, '1' slight fleece rot, '5' is extreme.</p>																
<i>Pigmentation</i>	<p>Black Lambs are the result of a black recessive gene being present in both the sire and the dam (both sire and dam being Bb, or heterozygous). There is a 25% chance that the progeny of the Bb x Bb mating will be a 'black lamb' (bb). That any 'black lambs' resulted from a sire confirms that the sire carries the black recessive gene. When a sire does not produce any 'black lambs' is no guarantee that it does not carry the black recessive gene, as it requires the ewes he is mated to be carriers for this 25% chance of expression to occur.</p> <p>Skin Pigmentation: significant degree of pigmented skin on <u>non</u> wool growing areas (typically smutty nose/brown rimmed eyes), reported as percentage of progeny with skin pigmentation.</p> <p>Wool Pigmentation: pigmented wool in random spots <u>or</u> isolated pigment <u>or</u> pigmented birthcoat, halo-hair, <u>or</u> pigmented leg hair <u>or</u> black lamb, noted at tagging, visual classing or shearing and shown as a percentage of progeny with wool pigmentation.</p>																

Index Options:	<p>Breeding Objective index options provide the relative value of sires based on a combination of the measured traits. It should be noted that these are only some of the many indexes which can be used to describe an individual breeder's objective for measured traits. If a breeder uses a sire, the relative performance of the flock must be considered to establish the change that can be expected.</p> <p>The RAMPOWER standard indexes – 3%, 6% and 12% Micron Premium (MP) – have been endorsed by Central Test Sire Evaluation as the base indexes for sites to provide combined measured trait results.</p> <p>3% MP Index: Maintain fibre diameter (FD) while maximising the increase in Clean Fleece Weight (CFW), maintaining body weight (BWT) and CV of FD.</p> <p>6% MP Index: A moderate level of downward pressure on FD, while maintaining a high level of increase in CFW, maintaining BWT and improving CV of FD.</p> <p>12% MP Index: A high level of downward pressure on FD, while obtaining a small increase in CFW, maintaining BWT and improving CV of FD.</p>
Classer's Grade:	<p>In the 2000 drop Assessment the Committee changed to one Classer to grade all assessed progeny as Tops, Flocks or Culls, based on visual assessment of all traits. The percentage of Tops, Flocks and Culls is presented. This change is in line with changes to Sire Evaluation requirements.</p>
Combined Traits:	<p>The performance for a comprehensive list of traits is scored by the classer as described in Visual Traits above.</p>
Progeny Group Classing:	<p>Assessment of the evenness of sire progeny groups is carried out as a separate assessment to individual classing and is conducted in the 2nd year of assessment.</p>

SUMMARY GRAPHS

Performance distribution graphs provide a summary of performance of sires for two traits such as Fleece Weight and Fibre Diameter. Use the labels on the graph to obtain a general idea of the performance of sires in that area of the graph, e.g. High Fleece Weight/Low Fibre Diameter (see Figure 2).

ACCURACY OF ESTIMATED PROGENY VALUES

Estimated Progeny Values (EPVs) express the expected performance of progeny of a sire relative to performance of progeny of another sire in the evaluation when mated to the same standard of ewes.

EPVs are a more accurate indicator of a sire's relative genetic merit than simple sire averages as they take into account:

- how much of the superiority is actually due to the sire's genes and can be passed on to its progeny;
- the number of progeny a sire has in the analysis;
- the measurements of other related traits.
- non-genetic effects such as whether animals are born as singles or twins.

True progeny values would be achieved if the number of progeny evaluation for each sire was infinite. Because the number of progeny in the evaluation is not infinite, performance shown in this report is described as *Estimated Progeny Values*.

The correlation (similarity) between the *Estimated Progeny Value* and the *True Progeny Value* increases as

- i) the number of progeny is increased, and
- ii) the heritability of the trait is greater.

If the number of progeny were infinite the correlation between the *Estimated* and *True Progeny Value* would be perfect (described as 100%). Without progeny test information the correlation between the *Estimated* and *True Progeny Value* of sires from different sources would be zero (0.0%). The correlation between *Estimated* and *True Progeny Value* improves rapidly from 0.0% with no progeny to 77% with 10 progeny. The rate of improvement in correlation slows from 86% with 20 progeny, to 90% with 30 progeny and 92% with 40 progeny. Note the correlation used in this example is for a trait such as fibre diameter with a high heritability (0.5). Traits with lower heritabilities require more progeny to reach the same level of accuracy.

ALLOWANCE FOR TWINS/TRIPLETS

Visual Assessment:

No allowance was made in the visual assessment for multiple births.

Objective Analysis:

An allowance was made by CTSE analysis program for twins and triplets when analysing measurement data for the following traits – GFW%, Yield%, CFW%, BWT%, FD and CV of FD.

LINKING CENTRAL TEST DATA USING LOCAL SITES

Link sires provide the “link” between other local sites and are used in combined Central Test Sire Evaluation reports to report across sites and across years. These “link sires” are a vital component of the Central Test Sire Evaluation. To become a “link sire”, the ram must have participated in evaluation of their progeny across more than one site. Each year the publication *Merino Superior Sires* is produced which reports the combined analysis of rams participating across all Australian Local Sites.

The information in this booklet therefore should not be read in isolation. These progeny are now reported in this document for their second assessment in 2004.

CHANGES TO THE CENTRAL TEST GROUP

In 2000 the Central Test Sire Evaluation Committee run under the auspices of the Australian Association of Stud Merino Breeders voted to become an independent group and is now known as the Australian Merino Sire Evaluation Association (AMSEA). Updated CTSE accreditation requirements were adopted in April 2000.

The Victorian Stud Merino Sheepbreeders’ Association continues to support Victorian Sire Evaluation Trials and the Elders Victoria Sire Evaluation Trial is conducted under the auspices of both the Victorian Stud Merino Sheepbreeders’ Association and the Balmoral Pastoral and Agricultural Society.

PARTICIPANTS IN THE 2002 TRIAL

SIRE & OWNER DETAILS

Stud Sire Identity	Contact Name, Address, Phone & Fax No. & Email
Bindawarra 703 5038922000000703	Murray & Janet Toland, PO Box 131, Omeo 3898 Ph. 03 5159 1362, Fax 03 5159 1361
Donley Park W.32 504643199797W032	Don McFarlane, Donley Park, Branhholme 3302 Ph. 03 5578 8251
Gringegalgonna O3A2420/97 50309719973A2420	Stephen Silcock, Gringegalgonna Stud Partnership, RMB 365, Balmoral 3407 Ph. 03 5574 3202, Fax 03 5574 3239 Email: sjsilcock@bigpond.com
Havilah North 99-299 5039341999990299	Andrew and Kate White, 'Welshville' Stoneycreek Rd Mudgee NSW 2850 Ph 02 6373 5265, Fax 02 6373 5400 Email: merinos@havilahnorth.com.au
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Nerstane N-121 5032981998980121	John McLaren, Nerstane Merino Stud, Woolbrook NSW 2354 Ph 02 6777 5881, Fax 02 6777 5922 Email: nerstane@northnet.com.au
The Mountain Dam NI 011 50457219960NI011	Tom Silcock, T & A Silcock, RMB 8401, Horsham 3401 Ph. 03 5388 2238, Fax 03 5388 2235 Email: silcock@netconnect.com.au
Toland G299 * 504485199700G299	Philip Toland, PC & G Toland, Feltrim Road, RMB 2005, Violet Town 3669 Ph. 03 5798 1605, Fax 03 5798 1404, Email: toland@origin.net.au
Toland W611 504485200200W611	Philip Toland, PC & G Toland, Feltrim Road, RMB 2005, Violet Town 3669 Ph. 03 5798 1605, Fax 03 5798 1404, Email: toland@origin.net.au
Windarra 96/1115 5043381996961115	Dr Tom Hansen, PMB 109 Naracoorte SA 5271 Ph. 08 8757 3023, Fax 08 8757 3013 Email: tomhanson@ozemail.com.au

* Link Sires — these sires provide the “link” between other accredited Sire Evaluation Sites and Years and have participated in evaluation of their progeny across more than one site.

MANAGEMENT REPORT – 2002 Drop Progeny

Ewe Base:

Ewes for the 2002 trial were selected from “Gringegalgona” mixed aged commercial, fine wool Merino breeding ewes. The average adult flock micron at “Gringegalgona” over the last 10 years is 19.2.

2002 Progeny Location:

The Gringegalgona property, run by Stephen and Judith Silcock is located in the Dundas Highlands. It lies on shallow clay and sandy loams in undulating tableland red gum country on the midway between Cavendish and Balmoral, 48kms north west of Hamilton. The average annual rainfall at Gringegalgona is 675mm (27”). Progeny are managed under strict commercial conditions.

Seasonal Conditions:

From 2002 drop 1st Assessment Report: The Spring of 2003 saw a return to a normal season with above average rainfall of 690 mm recorded for the year, the average rainfall is 650 mm at ‘Whiteoaks’. The 2002 drop have benefited from a good season, and are currently being supplemented with half a kg of beans per head per week and are stocked at 14 D.S.E.

These sheep were Clicked and drenched at the end of October and were crutched and drenched mid February.

The 2003 Drop lambs were mulesed, marked and vaccinated early October and were weaned late November and received their second vaccination and first Summer Drench and Clicked. They are away to a good start after being imprint fed while on the ewes and continued with a small ration of grain being progressively increased to match their needs. Currently these lambs are being stocked at 18 lambs per hectare and are being fed 2kg of oats and approx. 3kg of silage per head per week. These lambs were crutched mid February and received their second summer drench at this time.

Current: All sire evaluation sheep were supplementary fed through until the middle of May. Rainfall for April was 9mm, May 63mm and June 155mm. This is the wettest June on record for us for more than 150 years. The final classing was done on 21 May, shearing completed 26 May and body weights taken 9 June.

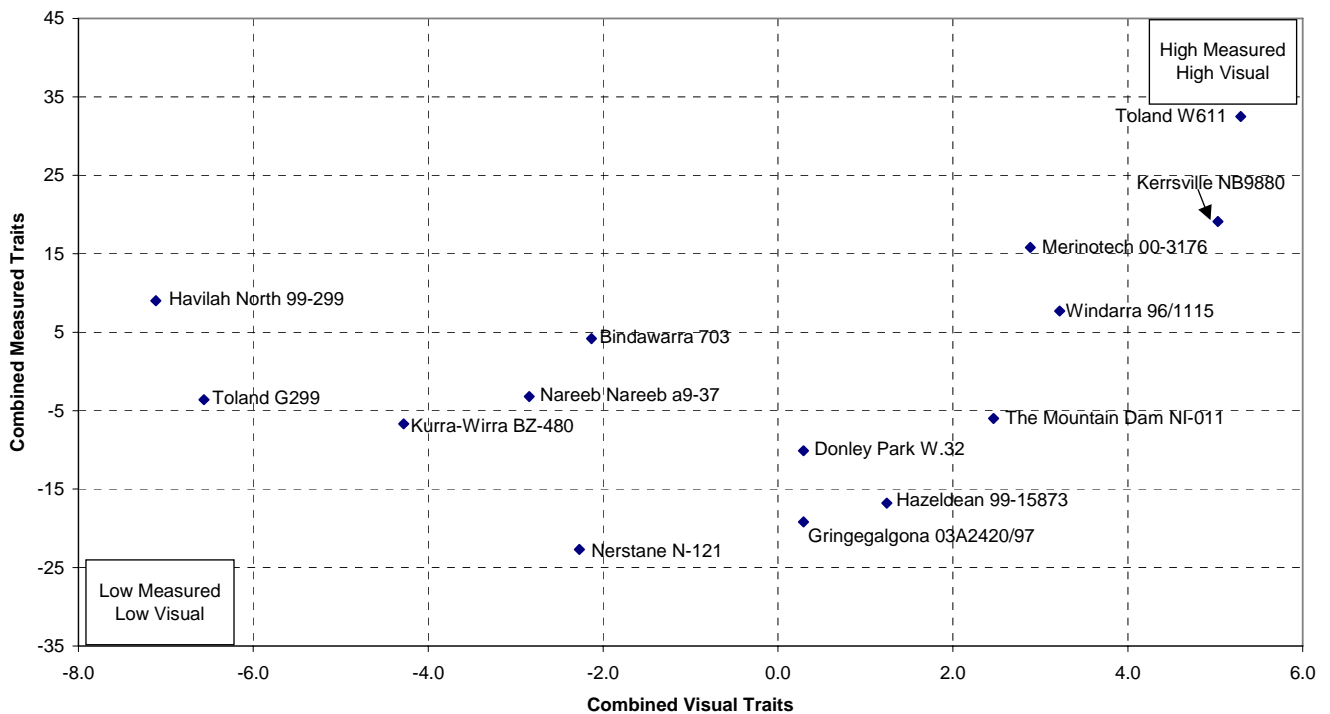
The Evaluation & Management Program 2002 drop progeny:

13 th /14 th March 2002	Commenced AI program - Ewes sponged & teasers injected
27 th /28 th March 2002	Laparoscopic insemination of 860 ewes, conducted by Genstock
20 th May 2002	Ultrasound/scan ewes by Mark Jenkinson
early July 2002	Ewes drafted into groups of singles & twins
20 th –22 nd July 2002	Ewes drafted into 28 groups for lambing
21 st August 2002	Ewes commenced lambing
4 th September 2002	Lambing complete
12 nd September 2002	Lambs tagged & scored, vaccinated and returned to one mob
19 th October 2002	Marked & mulesed lambs, vaccinated
29 th November 2002	Weaned lambs, drenched and Clicked
3 rd December 2002	Lambs body weighed (weaning weight)
28 th January 2003	Lambs drenched, bulleted with Cobalt & Selenium.
20 th March 2003	Lambs crutched
1 st April 2003	Progeny on display at Open Day
30 th June, 2003	1st visual classing of progeny and midside samples taken
14 th July, 2003	1st shearing (10.5 months wool)
15 th August 2003	Body weighing (yearling weight)
30 October 2003	Clicked and drenched
15 February 2004	Crutched and drenched
21 May 2004	Final classing
26 May 2004	Final shearing
9 June 2004	Final body weights

Classer for 2002 Drop Progeny: Mr Bill Hosking, EldersVP

Figure 1: Summary Graph – Combined Measured Traits and Classer's Grade
2002 drop – 2nd Evaluation

Summary graph using the 6% Breeding Objective Index Option has been used to combine Measured Traits and classer's Tops & Culls has been used to combine Visual Traits.



The RAMPOWER standard indexes:

3% Index MP: Maintain FD while maximising the increase in CFW, maintaining BWT and CV of FD.

6% Index MP : A moderate level of downward pressure on FD, while maintaining a high level of increase in CFW, maintaining BWT and improving CV of FD.

12% Index MP: A high level of downward pressure on FD, while obtaining a small increase in CFW, maintaining BWT and improving CV of FD.

Table 1 – RAMPOWER Standard Index Options and Classer's Grade 2002 Drop - 2nd Evaluation

Sire Identity	No of progeny	RAMPOWER Standard Index Options			Classer's Grade %		
		3% MP	6% MP	12% MP	Tops %	Flocks %	Culls %
Bindawarra 703	33	98	104	108	9	70	21
Donley Park W.32	32	95	90	86	9	81	9
Gringegalgon O3A2420/97	35	77	81	88	9	83	9
Havilah North 99-299	27	103	109	113	11	41	48
Hazeldean 99-15873	42	85	83	86	19	67	14
Kerrsville NB9880	38	125	119	110	29	66	5
Kurra-Wirra BZ-480 *	35	97	93	91	0	77	23
Merinotech 00-3176	54	111	116	116	26	61	13
Nareeb Nareeb a9-37	51	100	97	94	18	49	33
Nerstane N-121	39	77	77	82	15	56	28
The Mountain Dam NI-011	46	84	94	104	28	54	17
Toland G299 *	35	97	96	98	11	43	46
Toland W611	40	147	133	113	35	55	10
Windarra 96/1115	41	104	108	110	29	56	15
Average	39	100	100	100	19	61	20

* Link Sires

Classer's Assessment is expressed as a percentage of a sire's progeny.

Figure 2 - Summary Graph Fleece Weight/Fibre Diameter - 2002 drop - 2nd Evaluation

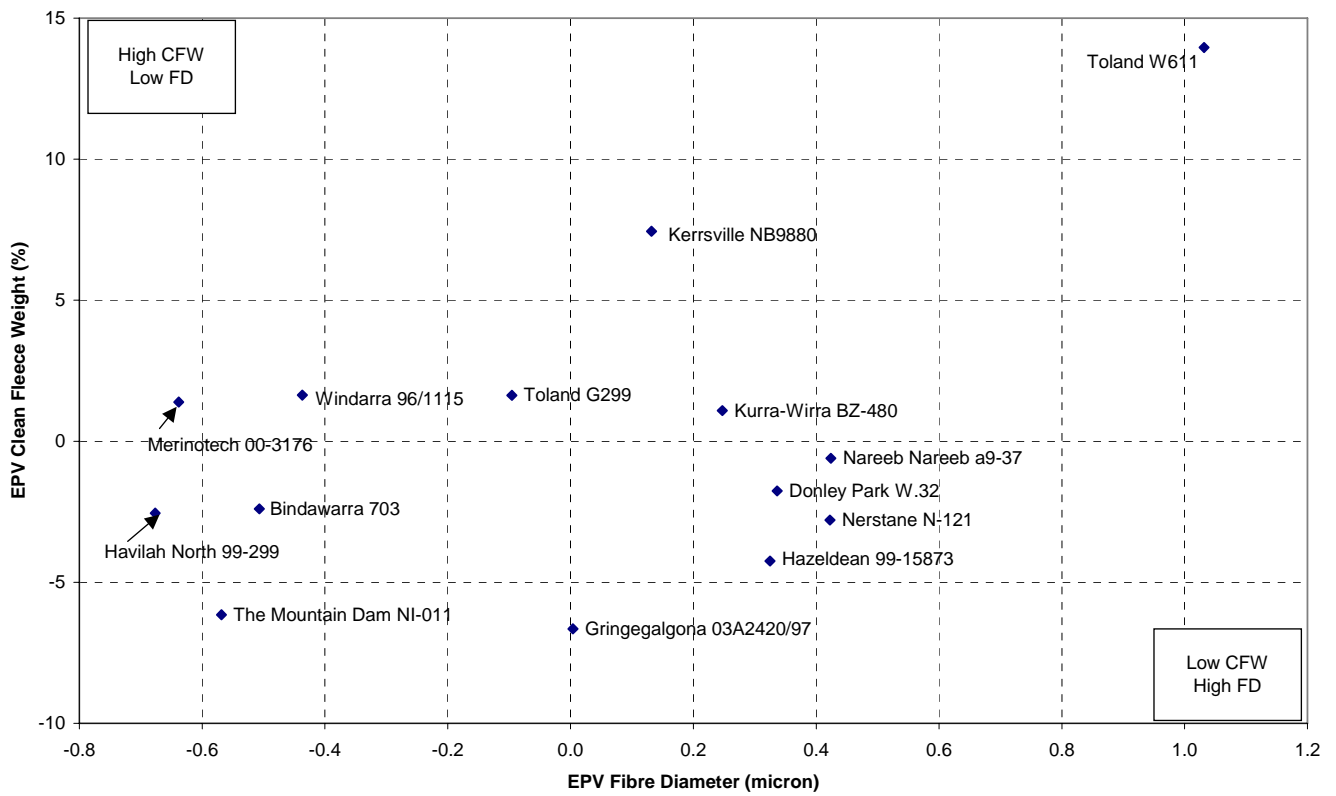


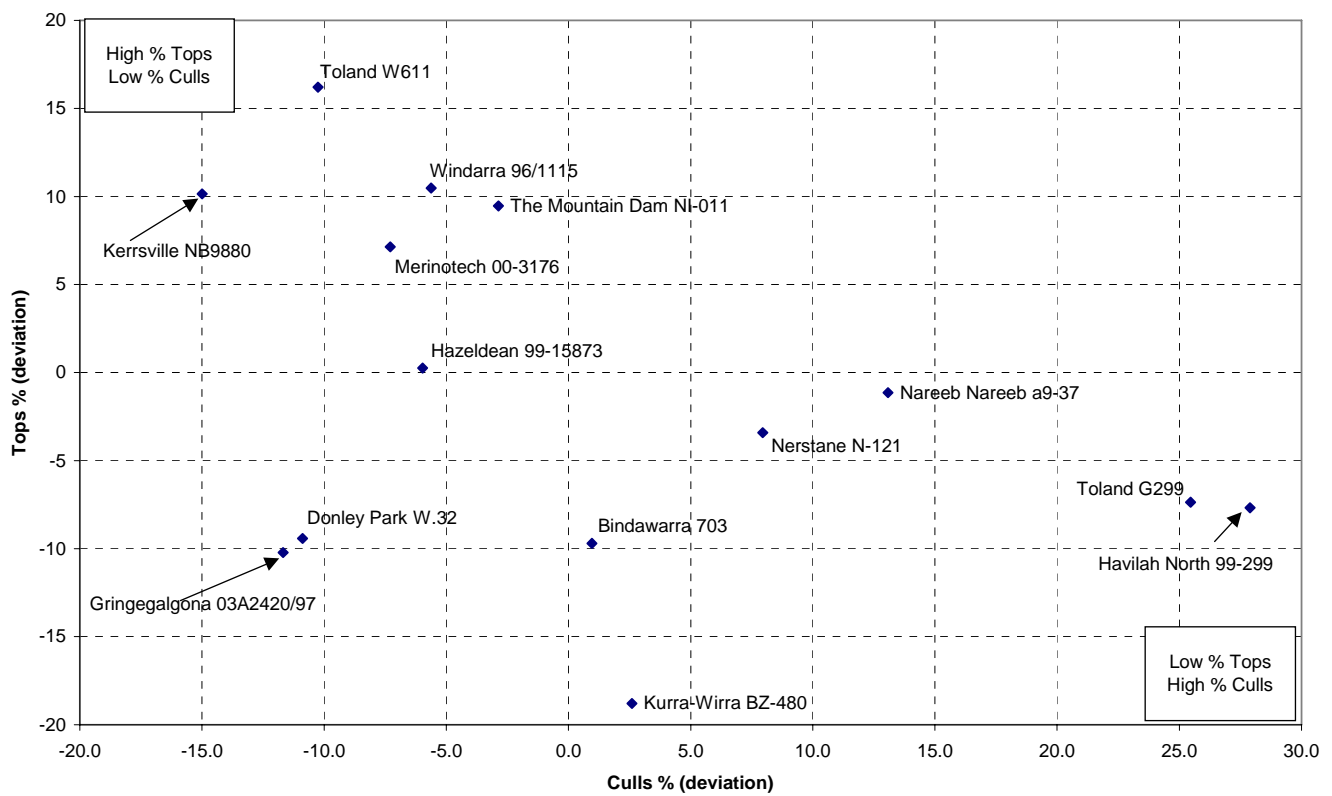
Table 2. Major Measured Traits – Estimated Progeny Values and Classer’s Grade %

Sire Identity	No of progeny	Estimated Progeny Values								Classer’s Grade %		
		GFW %		CFW %		FD μ m		BWT %		Tops %	Flocks %	Culls %
		1 st	2 nd	1 st	2 nd	1 st	2 nd	1 st	2 nd			
Bindawarra 703	33	-1.2	-4.0	-1.8	-2.4	-0.3	-0.5	4.7	4.2	9	70	21
Donley Park W.32	32	0.0	-2.3	0.8	-1.8	0.1	0.3	0.3	1.4	9	81	9
Gringegalgonia O3A2420/97	35	-0.3	-3.9	-0.4	-6.7	0.0	0.0	0.9	-0.5	9	83	9
Havilah North 99-299	27	-1.2	-0.8	-1.9	-2.5	-0.7	-0.7	0.4	2.5	11	41	48
Hazeldean 99-15873	42	-2.5	-2.2	-3.2	-4.2	0.3	0.3	-3.6	-2.3	19	67	14
Kerrsville NB9880	38	3.6	6.4	4.3	7.4	0.3	0.1	3.1	1.8	29	66	5
Kurra-Wirra BZ-480 *	35	0.0	0.2	0.4	1.1	0.3	0.2	-2.1	-2.4	0	77	23
Merinotech 00-3176	54	0.8	1.8	0.5	1.4	-0.4	-0.6	-0.5	-0.3	26	61	13
Nareeb Nareeb a9-37	51	-0.2	2.6	-2.0	-0.6	0.4	0.4	2.3	2.8	18	49	33
Nerstane N-121	39	-2.2	-3.7	-2.3	-2.8	0.3	0.4	-4.0	-4.8	15	56	28
The Mountain Dam NI-011	46	-5.0	-8.1	-4.6	-6.1	-0.4	-0.6	-1.7	-1.1	28	54	17
Toland G299 *	35	3.0	4.0	2.6	1.6	-0.3	-0.1	-2.2	-3.1	11	43	46
Toland W611	40	4.0	7.2	6.9	14.0	0.6	1.0	4.1	3.8	35	55	10
Windarra 96/1115	41	1.1	2.7	0.7	1.6	-0.3	-0.4	-1.7	-2.2	29	56	15
Average	39	2.8 kg	4.4 kg	2.1 kg	3.2 kg	16.5 μ	17.9 μ	31.1 kg	36.1 kg	19	61	20

Table 3. Other Measured Traits – Estimated Progeny Values

Sire Identity	No of progeny	Estimated Progeny Values					
		CV %		Yld %		Staple Strength N/ktex	Staple Length mm
		1st	2nd	1st	2 nd		
Bindawarra 703	33	-0.2	0.1	0.5	1.0	-1.2	-2.6
Donley Park W.32	32	1.2	1.1	0.5	0.2	-0.9	1.0
Gringegalgonia O3A2420/97	35	-0.5	-0.6	-0.2	-1.6	-1.3	5.5
Havilah North 99-299	27	0.6	0.8	-1.6	-1.1	0.7	-5.9
Hazeldean 99-15873	42	0.2	-0.2	-0.2	-1.2	0.5	-1.3
Kerrsville NB9880	38	-0.3	0.4	0.2	0.5	0.7	-1.4
Kurra-Wirra BZ-480 *	35	0.1	0.7	1.0	0.5	0.4	-1.1
Merinotech 00-3176	54	0.1	-0.1	-1.1	-0.1	-1.8	1.2
Nareeb Nareeb a9-37	51	-0.5	-0.7	-1.7	-1.6	-0.3	-2.2
Nerstane N-121	39	-0.5	-0.6	0.2	0.6	0.0	3.1
The Mountain Dam NI-011	46	-0.8	-0.9	1.4	1.2	-0.5	2.6
Toland G299 *	35	1.5	1.1	-1.6	-1.5	2.1	-6.0
Toland W611	40	-1.4	-1.3	3.7	3.6	1.3	10.6
Windarra 96/1115	41	0.5	0.2	-1.1	-0.5	0.4	-3.2
Average	39	20.4 %	20.2 %	73.2 %	73.6 %	41.6 N/ktex	82.6 mm

Figure 3 - Summary Graph Classer's Grades - 2002 drop - 2nd Evaluation



Tables 4 – Measured traits – 2002 drop – 2nd Evaluation

Table 4a. Other Measured Traits – Sire Least Square Means*. - 2002 Drop - 2nd Evaluation

Sire Identity	No of progeny	Spin. F.	Std. Dev.	Curvature	Comfort Factor
Bindawarra 703	33	17.0	3.6	78.6	99.8
Donley Park W.32	32	18.1	3.9	75.4	99.3
Gringegalgona O3A2420/97	35	17.4	3.5	79.9	99.8
Havilah North 99-299	27	17.1	3.7	77.9	99.7
Hazeldean 99-15873	42	17.7	3.6	81.7	99.7
Kerrsville NB9880	38	17.7	3.8	80.8	99.5
Kurra-Wirra BZ-480 *	35	18.0	3.9	77.8	99.6
Merinotech 00-3176	54	16.9	3.5	80.9	99.8
Nareeb Nareeb a9-37	51	17.8	3.6	79.9	99.7
Nerstane N-121	39	17.7	3.6	77.6	99.6
The Mountain Dam NI-011	46	16.8	3.3	85.7	99.8
Toland G299 *	35	17.6	3.8	83.1	99.5
Toland W611	40	18.4	3.6	71.4	99.4
Windarra 96/1115	41	17.0	3.5	87.2	99.8
Average	39	17.3 μ m	3.6 μ m	79.1 deg / mm	99.7 %

* Least Square Means – corrected for number of progeny, sex and birth type

Table 4b. Measured Traits¹ – Sire Least Square Means*. - 2002 Drop - 2nd Evaluation

Sire Identity	No of progeny	GFW	CFW	FD	BWT	CV	YLD	Staple Strength	Staple Length
Bindawarra 703	33	4.2	3.1	17.6	37.7	20.5	74.6	38.7	77.8
Donley Park W.32	32	4.2	3.1	18.5	36.5	21.2	73.7	40.3	83.1
Gringegalgona O3A2420/97	35	4.2	3.0	18.1	35.8	19.2	71.4	40.4	89.5
Havilah North 99-299	27	4.3	3.1	17.6	37.2	21.1	72.0	43.0	74.4
Hazeldean 99-15873	42	4.1	3.0	18.4	34.8	19.7	72.0	42.3	80.8
Kerrsville NB9880	38	4.6	3.4	18.2	36.5	20.7	74.1	42.7	80.7
Kurra-Wirra BZ-480 *	35	4.3	3.2	18.4	34.7	21.1	74.1	41.8	81.0
Merinotech 00-3176	54	4.4	3.2	17.6	36.1	19.7	73.3	39.5	83.8
Nareeb Nareeb a9-37	51	4.5	3.2	18.5	37.1	19.3	71.4	41.0	79.4
Nerstane N-121	39	4.1	3.1	18.5	33.4	19.2	74.2	40.7	85.4
The Mountain Dam NI-011	46	4.0	3.0	17.6	35.3	18.9	74.9	40.3	85.6
Toland G299 *	35	4.5	3.2	18.0	34.3	21.2	71.5	45.0	74.0
Toland W611	40	4.6	3.6	19.3	37.5	18.4	78.1	42.1	96.2
Windarra 96/1115	41	4.5	3.2	17.6	35.0	20.1	72.7	42.3	78.0
Average	39	4.4 kg	3.2 kg	17.9 μ m	36.1 kg	20.2 %	73.6 %	41.6 N/ktex	82.6 mm

¹ Measured traits presented as EPVs in Tables 1 and 2

* Least Square Means – corrected for number of progeny, sex and birth type

Tables 5. Classer's assessment – 2002 drop - 2nd Evaluation

A sire's average score and the percentage of a sire's progeny for each score are reported.

Table 5a. Scored Wool Quality Traits

	Colour					Character					Staple Weathering					Fleece Rot									
	best		worst			best		worst			best		worst			best		worst							
Sire Identity	Avg	1	2	3	4	5	Avg	1	2	3	4	5	Avg	1	2	3	4	5	Avg	0	1	2	3	4	5
Bindawarra 703	2.8		27	64	9		2.8		30	67	3		2.8		30	64	6		1.1	27	45	21	3	3	
Donley Park W.32	2.6		47	50	3		2.6		56	44			2.6		44	53	3		1.1	22	56	19			3
Gringegalgon O3A2420/97	2.7		31	63	6		2.7		31	69			2.8		26	69	6		0.7	43	43	11	3		
Havilah North 99-299	2.7		41	48	11		2.7		52	44	4		2.3		70	26	4		1.6	11	41	37	4	7	
Hazeldean 99-15873	2.4		60	40			2.4		48	48	5		2.6		50	43	7		0.6	51	42	2	2	2	
Kerrsville NB9880	2.4		61	39			2.4		42	53	5		2.6		45	55			1.1	24	50	18	5	3	
Kurra-Wirra BZ-480 *	2.6		43	51	6		2.6		23	74	3		2.8		26	71	3		1.3	20	43	29	3	6	
Merinotech 00-3176	2.6		50	41	9		2.6		44	54	2		2.4		63	37			1.3	17	48	24	9	2	
Nareeb Nareeb a9-37	3.0		29	41	27	2	3.0		51	45	4		2.6		45	53	2		1.5	33	22	24	10	12	
Nerstane N-121	2.5		54	44	3		2.5		56	38	5		2.6		41	56	3		0.5	51	46	3			
The Mountain Dam NI-011	2.2		78	22			2.2		59	41			2.5		50	48	2		0.8	39	43	15	2		
Toland G299 *	2.7		37	57	6		2.7		40	57	3		2.4		60	37	3		1.1	40	34	11	6	6	3
Toland W611	2.5		60	35	5		2.5		50	50			2.8		20	78	3		0.7	40	53	8			
Windarra 96/1115	2.3		73	27			2.3		63	37			2.3		71	29			1.3	22	41	27	5	5	
Average	2.6		50	43	6		2.6		47	51	2		2.6		46	51	3		1.0	32	43	17	4	3	

Table 5b. Scored Conformation Traits

	Face					Neck / Body Development					Feet / Legs					Jaw	Back / Shoulder			
	* acceptable		*			* acceptable		*			best		worst							
Sire Identity	Avg	1	2	3	4	5	Avg	1	2	3	4	5	Avg	1	2	3	4	5	Neg ¹	Neg ¹
Bindawarra 703	2.5		61	30	9		3.0		6	85	9		3.0			97	3			24
Donley Park W.32	2.5		59	31	9		2.9		13	81	6		3.1			91	9			13
Gringegalgon O3A2420/97	2.3		71	23	6		3.1		3	89	9		3.1			91	9			20
Havilah North 99-299	2.7		56	22	19	4	3.1		4	81	15		3.1			85	15			59
Hazeldean 99-15873	2.6		62	19	12	7	3.0		12	74	14		3.0			98	2			5
Kerrsville NB9880	2.2		84	11	5		3.0		11	82	8		3.0		5	92	3			16
Kurra-Wirra BZ-480 *	2.3		80	6	14		3.0		6	86	9		3.0			97	3			23
Merinotech 00-3176	2.4		70	20	9		3.0		7	89	4		3.0		2	94	4			13
Nareeb Nareeb a9-37	2.3		78	16	6		3.1		6	82	12		3.1			90	10			27
Nerstane N-121	2.5		67	21	13		3.1		5	77	18		3.1			95	5			18
The Mountain Dam NI-011	2.3		78	13	7	2	3.0		7	85	9		3.1			87	13			28
Toland G299 *	2.6		63	14	20	3	3.1		14	69	14	3	3.1		3	86	11			31
Toland W611	2.4		73	15	13		2.9		18	80	3		3.0		5	88	8			5
Windarra 96/1115	2.1		90	7	2		3.0		5	88	7		3.1			88	12			10
Average	2.4		72	17	10	1	3.0		8	82	9		3.1		1	91	7			20

* For Face and Neck/Body Development, scores of 2,3 and 4 are most acceptable, scores of 1 and 5 are less acceptable

¹ The percentage of progeny with negative expression of the trait is described

Table 5c. Pigmentation

	Black Lamb	Wool	Skin
Sire Identity	Neg ¹	Neg ¹	Neg ¹
Bindawarra 703		8	34
Donley Park W.32		3	36
Gringegalgona O3A2420/97		15	44
Havilah North 99-299		9	68
Hazeldean 99-15873		18	36
Kerrsville NB9880		5	16
Kurra-Wirra BZ-480 *		3	14
Merinotech 00-3176		2	19
Nareeb Nareeb a9-37		9	31
Nerstane N-121		20	41
The Mountain Dam NI-011		8	49
Toland G299 *		3	26
Toland W611		4	40
Windarra 96/1115		8	29
Average		8	34

¹The percentage of progeny with negative expression of the trait is described

Pigmentation Definitions

Black Lambs: recessive coloured: largely pigmented wool or if extensively white, are pigmented around the eyes and more of less symmetrical pigmentation on the rest of the body; noted as the number of lambs recorded as such and the percentage of incidence within each sire group.

'Black Lambs' are the result of a black recessive gene being present in both the sire and the dam (both sire and dam being Bb heterozygous). There is a 25% chance that the progeny of the Bb x Bb mating will be a 'Black Lamb' (bb). That any 'Black Lambs' resulted from a sire confirms that the sire carries the black recessive gene. When a sire does not produce any 'Black Lambs' is no guarantee that it does not carry the black recessive gene as it requires the ewes he is mated to be carriers for this 25% chance of expression to occur.

Skin Pigmentation: significant degree of pigmented skin on non wool growing areas. (typically smutty nose/brown rimmed eyes), reported as percentage of progeny with skin pigmentation

Wool Pigmentation: pigmented wool in random spots or isolated pigment or pigmented birthcoat, halo-hair, or pigmented leg hair or Black Lamb, noted at shearing and shown as a percentage of progeny with wool pigmentation.

Table 5d. Progeny Group Visual Classing

Sire Identity	Evenness	Conformation	Wool Quality	Positives & Negatives
Bindawarra 703	3	3	3	Vary in staple length, not doing well
Donley Park W.32	3	3	2	Excellent outlook, stand well with good wools
Gringegalgon O3A2420/97	3	3	3	Good even group, plain in head
Havilah North 99-299	3	3	4	Could be longer in barrel and staple
Hazeldean 99-15873	3	3	2	Long bodied sheep, good style and crimp
Kerrsville NB9880	3	2	3	Very even conformation, great size and type
Kurra-Wirra BZ-480	3	3	4	Could be longer and more even in staple length and crimp
Merinotech 00-3176	3	3	3	Some variation in size and wool quality
Nareeb Nareeb a9-37	3	4	4	Bad shoulders, off wool types, mixed body size
Nerstane N-121	3	3	3	Average group
The Mountain Dam NI-011	3	3	3	Good evenness, good length and type, best handling group, good tips
Toland G299	3	3	3	Even group with good short wools
Toland W611	2	2	3	Big sheep with good style, exceptionally even
Windarra 96/1115	3	3	4	Staple length below average, group showing some good wools, some not doing well
Average	2.9	2.9	3.1	

Explanation of Estimated Breeding Values, Estimated Progeny Values and Indexes

What are Estimated Breeding Values (EBVs) and Estimated Progeny Values (EPVs) ?

An Estimated Breeding Value (EBV) is an estimate of the genetic worth, or merit, of an animal for a particular trait. It can be thought of as a picture of an animal's genes for that trait.

Estimated Progeny Values (EPVs) express the expected performance of progeny of a sire, relative to that of other sires in the evaluation. EPVs are simply EBVs divided by two.

EPVs can be calculated for many of the measured traits, eg:

GFW	%	Greasy Fleece Weight (percentage)
CFW	%	Clean Fleece Weight (percentage)
BWT	%	Body Weight (percentage)
FD	µm	Fibre Diameter (micron)
CV	%	Coefficient of Variation of fibre diameter (percentage)
SS & SL		

The Greasy Fleece Weight, Clean Fleece Weight and Body Weight EPVs are expressed as a percentage deviation from the average. However, EPVs for these traits could also be expressed in the units of the traits, eg, kgs of wool or kgs of liveweight. Fibre diameter EPVs are expressed in microns as a deviation from the average. Coefficient of Variation of Fibre Diameter EPVs are expressed in percentage units as a deviation.

EPVs are a more accurate indicator of a sire's relative genetic merit than simple sire averages as they take into account:

- the heritability of the trait, ie, how much of the superiority is actually due to the sire's genes and can be passed on to its progeny;
- the number of progeny a sire has in the analysis;
- the measurements of other traits. Where two traits are affected by the same genes (ie, the traits are genetically correlated) the progeny records for both traits give us additional information to make the EPVs for both traits more accurate.
- Non-genetic, or environmental effects. These are factors that influence performance but are not passed on to the progeny. A simple example is that twins tend to be smaller (on average) and cut less wool than single-born lambs: This is not because they have poorer genes for body weight or fleece weight, but because they have had to share their dam's uterus (maternal nutrition) and milk supply (pre-weaning nutrition) with another lamb. Their environment has not (on average) been as good as that experienced by single lambs - this is a non-genetic influence that we need to account for in getting an accurate picture of the value of the genes.

Accuracy

The accuracy of the assessment of the genetic merit of an individual sire by progeny testing is a function of both the heritability of the trait and the number of the sire's progeny assessed.

No of progeny	Heritability					
	0.1	0.2	0.3	0.4	0.5	0.6
5	0.34	0.46	0.54	0.60	0.65	0.68
10	0.45	0.59	0.67	0.73	0.77	0.80
20	0.58	0.72	0.79	0.83	0.86	0.88
30	0.66	0.78	0.84	0.88	0.90	0.92
40	0.71	0.82	0.87	0.90	0.92	0.94
50	0.75	0.85	0.90	0.92	0.94	0.95
100	0.85	0.92	0.94	0.96	0.97	0.97

It should be noted that well designed and run progeny trials should have adequate progeny per sire.

Examples of using EPVs

	EPV CFW %	EPV FD
Ram 1	+8	-1.2
Ram 2	+1	+0.8

Ram 1 has an EPV for Clean Fleece Weight of +8%. That is, the progeny of Ram 1 are expected to be 7% superior (8.0 - 1.0) for Clean Fleece Weight than the progeny of Ram 2 with an EPV of 1%.

Similarly, Ram 1 has an EPV for Fibre Diameter of -1.2 μ . Ram 2 has an EPV for Fibre Diameter of +0.8 μ . The progeny of Ram 1 are expected to be 2 μ finer (-1.2 - 0.8) than the progeny of Ram 2.

Sire Averages

Sire Averages are the average performance of all the progeny of a sire. No account is taken of the heritability of the characters. Sire averages are much less reliable predictors of sire performance than are EPVs.

Breeding Objectives and Index Values

The breeding objective is what you want your breeding program to achieve.

Indexes are just a way of determining which animals most closely match your breeding objective. Three different breeding objectives are:

Breeding Objective or Aim	Index	Micron Premium
Near maximum increase in fleece weight, maintaining fibre diameter	3% MP	3%
Reduce fibre diameter and increase fleece weight	6% MP	6%
Greater reduction in diameter and maintain fleece weight	12% MP	12%

The 3% micron premium index ranks animals with high fleece weights more highly. It is valuable for those breeders who wish to maintain their fibre diameter and place maximum emphasis on increasing the fleece weight of their flock. The 12% micron premium index is useful for breeders who wish to place maximum emphasis on decreasing their flock fibre diameter, without losing fleece weight. A middle view is to use the 6% micron premium index which simultaneously increases fleece weight and decreases fibre diameter.

Explanation of Micron Premium

Micron premiums are derived from market values and are set by the market. The micron premium tells you how much the price of wool increases if the fibre diameter decreases by one micron.

For example, what is an 8% micron premium? If 20 μ wool is worth \$5.00/Kg clean and 19 μ wool is worth \$5.40/kg (a difference of \$0.40) then the micron premium is 40 divided by 500 x 100 = 8%

Calculation of Index

To calculate an index, the Estimated Breeding Value for each trait is multiplied by its Economic Value (EV). These products are then summed and then added to 100. This can be described mathematically as:

$$\text{Index} = 100 + (\text{EBV}_{\text{trait 1}} \times \text{EV}_{\text{trait 1}}) + (\text{EBV}_{\text{trait 2}} \times \text{EV}_{\text{trait 2}}) + \dots + (\text{EBV}_{\text{trait n}} \times \text{EV}_{\text{trait n}})$$

where there are n traits to be included in the index.

EBV means Estimated Breeding Value

EV means Economic Value.

For further help or explanation please contact:

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