

**RECENT DEVELOPMENTS IN MERINO SIRE EVALUATION.
THE STORY OF MERINO RAM SIRE EVALUATION IN NEW SOUTH WALES.**

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SUMMARY

The New South Wales Sire evaluation (Progeny Test) Manual is based on five years of successful comparisons of merino rams on four central test locations. This paper highlights the aspects of the Manual which describe the New South Wales program and which have helped it succeed with a reasonable chance of continuing over the next five years.

INTRODUCTION

The University of New South Wales (NSW) in conjunction with the NSW Stud Merino Breeders and NSW Agriculture, have published the most recent (1990) drop evaluation of merino sires by the measurement and classing of their progeny.

Stuart Beveridge, former President, NSW Stud Merino Breeders & President, Australian Association of Stud Merino Breeders has listed the following principles of evaluation.

1. That only those results which have been obtained on an independent central test station will be accredited by the NSW Stud Merino Breeders.
- 2a. That each sire is to be mated to a common line of ewes acceptable to the district committee overseeing the program.
- 2b. That all progeny of a sire must be kept uncullled for two shearings and classings.
3. That the results of hogget and adult performance are to be presented in the Manual, which is updated annually for Hay/Deniliquin, New England and Macquarie 1990 drop mixed sex hoggets. From 1992 these results will be combined into a combined estimated percentage progeny value (approximately 50% of an estimated breeding value).
4. That the sire evaluation program recognises that different emphasis will be given to a number of traits by persuaded breeders, for example "if some breeders want the CV% (coefficient of variation for fibre diameter) then measure it, if costs are not prohibitive".

Hence at present the results include or will include :

- the evaluation by two recognised classers of hoggets and by a team of breeders and classers (the progeny group evaluation) as rising 4 tooth.
- standard wool and body measurements plus the new wool traits of fibre diameter variability and percentage of fibres above 30 micrometers (μ m).
- a range of new traits which will be measured if research or economic emphasis suggest - e.g. measures of internal parasite resistance.

QUESTIONS WHICH ARE BASIC TO THE N.S.W. MERINO SIRE EVALUATION PROGRAM

What constitutes a trait leader? I will tell you of an outstanding ram (4.139) Ram 9 in Table 1 which was found among 10 rams compared in our 1987 drop - the first year of progeny testing and follow his performance through later years of progeny testing.

Table 1. Four tooth shearing results from the 1987 sire evaluation program conducted at Hay Research Station (Hoggets shearing 28.6.88; 4 tooth shearing 28.6.89)

Sire Code	No of Progeny	GFW	YLD (%)	CFW (Dev)	FD (%)	BWT (Dev)	Culled (%)	Accuracy (%)
1	18	105	2.0	108	0.0	98	58	0.82
2	21	87	-1.2	86	-1.1	104	33	0.84
3	22	100	-0.2	100	-0.9	103	18	0.84
4	25	91	1.8	93	1.2	108	64	0.86
5	18	101	0.2	101	-0.7	108	36	0.82
6	33	102	-0.4	101	0.7	92	43	0.89
7	10	96	0.4	97	0.1	91	65	0.73
8	23	104	-2.1	101	0.4	99	41	0.85
9	24	111	2.5	115	-0.2	103	26	0.85
10	32	104	-3.4	99	0.5	94	50	0.88
Mean	226	7.37	75.0	5.35	24.1	49.6	42.7	

Are the results what the ram breeders want to know?

Table 2. Hogget results derived from least squares analysis for the 1990 drop Hay sire evaluation

Sire	No	GFW (%)	YLD (Dev)	CFW (%)	FD (Dev)	HWT (%)	Top (%)	Cull (%)	Index 5%FD
Boonoke B2.807	21	96.0	0.68	97.1	-0.02	98.5	7	48	95.7
Goolgumbula T. B. Son	42	98.2	-0.50	97.4	-0.16	98.6	12	42	97.9
Illawarra Y3	26	107.1	0.61	107.9	0.17	99.1	24	24	109.3
Lone Pine 7.4	36	95.6	1.27	97.1	0.29	99.8	4	49	91.2
Lowanna Y454	35	101.1	-1.75	98.9	0.79	97.8	14	49	86.0
Meadow View 8.2	37	102.8	-0.95	101.4	-0.43	100.7	15	30	109.4
One Oak G2	41	97.9	-0.66	97.1	-0.18	97.9	13	36	97.3
Old Cobran Big Mac	24	99.8	1.64	102.0	-0.81	101.0	21	38	114.2
Pooginook 8.11	45	97.5	0.21	97.7	0.17	97.7	12	48	92.9
Wanganella W6377	36	97.2	0.19	97.4	-0.59	96.3	17	35	102.8
Willurah 6.1	41	101.9	0.28	102.2	0.62	103.9	18	38	96.8
Hazeldean 4.139	20	109.1	2.51	112.7	-0.49	103.5	30	15	125.5
Strathcluan W305	36	98.0	-1.87	95.5	-0.10	100.8	17	38	95.1
NRF 6.066	24	97.7	-1.69	95.6	0.74	104.4	13	38	85.8
Mean		2.57	78.7	2.02	19.05	44.1	16	38	100.0

GFW = Greasy fleece weight; YLD = Yield; CFW = Clean fleece weight; FD = Fibre diameter

Top and cull percentages : Classers recorded the overall visual assessment of progeny by recording each as either a "Top" (top flock quality), "Cull" (unacceptable flock quality) or second (flock quality).
 Index 5% Micron premium : A financial index score based on performance in clean fleece weight, fibre diameter and body weight, with the micron premium per micron set at 5% of the wool value in %/kg. This is analogous to the old WOOLPLAN Option 1. It should be emphasised that the index is not a percentage - 100 has been added to each to eliminate negative values.

Table 3. Hogget results for the 1990 drop sire evaluations for visually assessed trait groups

Sire	No	Trait Group Percentages							
		Conformation		Quantity		P	Quality		Pigment N
		P	N	P	N		P	N	
Boonoke B2.807	21	0	26	2	5	7	19	0	7
Goolgumbra T. B. Son	42	7	30	11	8	10	15	0	5
Illawarra Y3	26	11	15	20	6	19	11	0	0
Lone Pine 7.4	36	0	31	3	15	4	24	0	9
Lowanna Y454	33	4	32	11	8	14	24	0	6
Meadow View 8.2	37	8	19	15	4	11	11	0	4
One Oak G2	41	6	26	11	7	11	12	0	2
Old Cobran Big Mac	24	12	27	19	6	19	4	0	2
Pooginook 8.11	45	8	21	9	19	10	26	0	4
Wanganella W6377	36	10	26	17	4	17	10	0	7
Willurah 6.1	41	10	16	16	12	13	22	0	0
Hazeldean 4.139	20	15	8	25	5	27	3	0	0
Strathcluan W305	36	8	28	17	10	13	13	0	0
NRF 6.066	24	6	21	13	10	13	19	0	4
Mean		8	23	13	9	13	15	0	4

Trait group percentages : Classers recorded traits that were either higher ("P"ositive) or lower ("N"egative) performance compared to an acceptable flock level. Traits recorded have been grouped into conformation (eg. body size, legs/feet, body development); wool quality (eg. style, colour, nourishment); wool quantity (ie. staple length, density and coverage) and pigment (ie. pigmented markings on wool and non-wool areas). Individual trait information is available on request.

Table 4. Comparison of mean fibre diameter of sire groups (1990 drop Hay sire evaluation)

Sire	No.	FD ()	FD (Dev)	CVFD (%)	%>30
Boonoke B2.807	18	23.0	0.12	24.9	11.39
Goolgumbia T. B. Son	39	22.8	-0.07	24.5	10.94
Illawarra Y3	22	22.75	-0.13	24.1	10.35
Lone Pine 7.4	35	23.14	0.26	25.2	13.01
Lowanna Y454	31	23.42	0.54	25.1	13.95
Meadow View 8.2	32	22.47	-0.41	23.2	8.69
One Oak G2	35	22.40	-0.47	23.8	9.06
Old Cobran Big Mac	23	22.85	-0.03	23.5	10.65
Pooginook 8.11	40	23.31	0.44	23.4	11.82
Wanganella W6377	33	22.25	-0.62	26.1	10.29
Willurah 6.1	38	23.59	0.72	23.5	13.44
Hazeldean 4.139	20	22.39	-0.49	23.7	8.47
Strathcluan W305	35	22.47	-0.40	23.5	9.17
NRF 6.066	23	23.42	0.54	25.7	14.54
Mean	424	22.88	22.88	24.3	11.13

Breeder involvement To maintain good feeding and management; to make the participants proud of the appearance of all progeny and to give the test station staff a high morale and an indication that the program is going well - "good looking stock persuade breeders!".

Three stages of evaluation

- a) Independent classing by two sheep classers for type, before the first shearing (Sire of each sheep unknown to the classers).
- b) A series of measurements which are economically important
- c) A final group classing by a breeder committee on the 2nd fleece.

Age effect In spite of reassurance that repeatability is adequate in current merino circles, with emphasis on finer wools, many breeders view the classing and measurement of the 2nd fleece (the Adult fleece) as a more important guide to mature wool and body traits than the first fleece - after all a sheep is going to produce only one hogget fleece but 4-5 adult fleeces!

Table 5. Comparison of mean fibre diameter of sire groups across years (1990 drop Hay sire evaluation)

Sire	No	FD	FD	FD	FD
		1st yr ()	2nd yr ()	1st yr (Dev)	2nd yr (Dev)
Boonoke B2.807	18	19.1	23.0	-0.02	0.12
Goolgumbia T. B. Son	39	18.9	22.8	-0.16	-0.07
Illawarra Y3	22	19.3	22.8	0.17	-0.13
Lone Pine 7.4	35	19.4	23.1	0.29	0.26
Lowanna Y454	31	19.9	23.4	0.79	0.54
Meadow View 8.2	32	18.7	22.5	-0.43	-0.41
One Oak G2	35	18.9	22.4	-0.18	-0.47
Old Cobran Big Mac	23	18.3	22.9	-0.81	0.03
Pooginook 8.11	40	19.3	23.3	-0.17	-0.44
Wanganella W6377	33	18.5	22.3	0.59	0.62
Willurah 6.1	38	19.7	23.6	-0.62	-0.49
Hazeldean 4.139	20	18.6	22.4	-0.49	-0.40
Strathcluan W305	35	19.0	22.5	-0.10	-0.40
NRF 6.066	23	19.8	23.4	0.74	0.54
Mean	424	19.1	22.9	19.1	22.9

Who pays for the costs? A self-funding scheme in which user pays (currently it costs A\$2,000 for a ram's progeny to be evaluated over two years). We and NSW Agriculture envisage a rise in our costs and fees in 1993.

Breeding goals for a sheep breed society Although I have described goals of the current program for merinos in New South Wales, I must acknowledge also the work of the Merino Breeders Society of South Africa (MBSS) (Lewer 1992) which commenced progeny testing in 1984. The Australian Combedale Society is also now deciding on young ram comparisons which will help define its breed goals for future improvement and help stimulate the popularity of the breed.

Link sires and trait leaders are methods of defining what a breed's goals are, but remember some breeders don't like winners and losers! To facilitate the use of highly productive rams of good breed type, the NSW Stud Merino Breeders have accredited a number of link sires whose use is recommended to allow comparison of home progeny tests and central progeny tests over locations and years. They also serve as the overall trait leaders for commercial value. In the tables, trait leaders for individual traits are printed in bold. In South Africa, Golden rams achieve the same status (Lewer, 1992).

Table 6. Hogget results for 1991/1992 reference sires in the NSW stud merino breeders link evaluation

Sire	Year/Loc	No	CFW (%)	FD (Dev)	Cull% (Dev)	Index (5%FD)
Hazeldean 6.40	D1990	29	105.9	-0.67	-12	120
Old Cobran Big Mac	H1990	24	102.0	-0.81	0	114
One Oak 009	D1990	26	101.9	-0.60	-7	112
Wanganella 6.596	D1989	31	106.7	-0.38	-15	118
Woolaroo 237	D1990	40	96.4	-0.72	-9	104

D1990 = Deniliquin 1990 drop; H1990 = Hay 1990 drop; D1989 = Deniliquin 1989 drop.

The above results have been calculated separately from the results peculiar to each location and year.

Table 7. Results for the 1990 drop link sires in the New England merino sire evaluation

Sire	No	CFW (%)	FD (Dev)	Cull% (Dev)	Index (5%FD)
Nerstane 697	22	111.0	-0.54	-18	126.0
Ruby Hills 225	22	105.1	0.00	-11	109.8
Mirani 214.5	24	98.7	-0.78	-3	107.0
Roseville Park 69	22	101.9	-0.15	-11	105.7
Mean		2.5	17.6	20	100.0

CONCLUSION

The story which I have presented today is offered to you as a review of the issues which are important to practical ram breeders in sire evaluation. It's success depends on the possibility of the participants making money from their rams' competitive performance.

Litchfield (1990 pers. comm.) "I believe these three procedures ie. pre-shearing and classing measurement and progeny group assessment at 16 months are all that is needed to make sound judgements about the sires concerned". How would you, as a prospective semen buyer, view these guides to the value of a ram of your choice?

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