



In this edition...

	PAGE
Narrogin Agricultural College maternal breeds evaluation	1
Feeding systems for grain finishing prime lambs	4
Accreditation of deliverers gives WA lamb producers the leading Edge	7
LAMBPLAN and VIAscan working for you	8
The LambMax Project	9
Increasing lambing percentages with Ovastim	10
New reference book released	11
Contact list	12

Editor:

Dr Sarah Wiese

Ph: 08 9885 9070

Fax: 08 9885 9060

Email:

twiese@treko.net.au

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Narrogin Agricultural College maternal breeds evaluation

Rob Davidson

Department of Agriculture, Nedlands and Steve Madson

Narrogin Agricultural College

Email: rdavidso@agric.uwa.edu.au

The Narrogin Agricultural College has been the site for a maternal breed's demonstration involving Merino and first cross South African Meat Merino (SAMM) and Dohne ewes since January 2000. The demonstration had two key objectives, to compare the growth and carcase attributes of the Merino and first cross wether progeny and to compare the performance of the first cross South African breeds as prime lamb dams in terms of both reproduction and wool production with the typical Australian Merino. The following reports on the reproductive potential, lamb growth rate through to slaughter, carcase quality, wool production and overall economics of running either pure Merino or a crossbred ewe flock during 2002. Previous results from this demonstration have already been published in the *Ovine Observer* (issues 11, 14 and 19).

The black tag ewes of either pure Merino or Merino crosses of South African Meat Merino (SAMM) and Dohne genotypes were purposely born and reared at the college for this project. The ewes were teased by testosterone injected wethers and then mated to four Suffolk rams for 8 weeks commencing on 6th December 2001. The Suffolk rams were from the LAMBPLAN tested Cheeryna stud, Williams. Scanwest Livestock Services used real time ultrasound to determine the conception rate and the number of fetuses in utero in the ewes on 18th March 2001. The pre-joining liveweight and pregnancy scanning results along with the number of potential lambs for the Merino and first cross ewes are shown in Table 1.

Table 1. The pre-joining liveweight, number of ewes of each sire genotype with zero, single and multiple fetuses at scanning, ewe conception rate and the number of potential lambs per ewe mated

Genotype of ewe	Merino	SAMM	Dohne
Number of ewes	49	50	60
Liveweight (kg)	49.1 ^a	59.6 ^b	53.1 ^c
Dry ewes	9	0	5
Single fetus	37	45	44
Multiple fetuses	3	5	11
Potential lambs *	43	55	66
Conception rate (%)	82 ^a	100 ^b	92 ^{ab}
Potential lambs per ewe mated	0.88 ^a	1.10 ^b	1.10 ^b

* All ewes scanned with multiple fetuses were assumed to have twins.

^{ab} Means within a row with different superscripts are different (P<0.05).

At mating, the first cross ewes were significantly heavier than the pure Merino ewes. The SAMM cross ewes were significantly heavier than the Dohne cross ewes that were in turn heavier than the Merino ewes. All of the SAMM cross ewes were scanned as being pregnant whereas 5 Dohne cross ewes and 9 Merino ewes scanned as being dry. The conception rate (ewes pregnant per ewes mated) of the SAMM cross ewes (100%) was significantly higher than the conception rate of the Merino ewes (82%). Both the SAMM and Dohne cross ewes (1.1) were scanned as having significantly more potential lambs in utero per ewe mated than the Merino ewes (0.88).

The ewes commenced lambing in May in individual genotype lambing paddocks with similar pasture levels to determine lamb survival to marking. At marking (26th June 2002) all lambs (age approx 5 weeks) were tagged, vaccinated (Glanvac 6S), ear marked, tail docked (elastrator rings), castrated and weighed. The ewes and lambs were returned to the one mob to monitor lamb growth rates to weaning and slaughter.

Approximately 11% of the lambs scanned as being in utero to the Merino and SAMM cross ewes were either lost prior to birth or failed to survive to marking, however 29% of the lambs scanned as being in utero in the Dohne cross ewes failed to make marking. The Narrogin Agricultural College averages between 60 – 70% marking for the Merino maidens. By marking at 5 weeks of age the progeny from the

SAMM cross lambs were significantly heavier than the progeny from the Merino or Dohne cross ewes. This difference continued through to week 20 prior to the slaughter of the first draft of lambs (Table 2). There was no difference in the growth rate of the three groups of lambs post marking.

Table 2. The potential and actual number of lambs marked and the weight of lambs at marking and at 20 weeks

Genotype of dam	Merino	SAMM	Dohne
Potential lambs *	43	55	66
Actual lambs marked	38	49	47
Marking %	78 ^a	98 ^b	78 ^a
Marking weight	15.2 ^a	18.4 ^b	15.5 ^a
20 week weight	42.1 ^a	47.1 ^b	42.0 ^a
Growth rate (g/day) (marking to 20 weeks)	256	273	252

* All ewes scanned with multiple fetuses were assumed to have twins.

^{ab} Means within a row with different superscripts are different (P<0.05).

Table 3. Final liveweight, carcass weight and fatness and dollar returns for 69 cross bred lambs sold in the first draft

Genotype of dam	Merino	SAMM	Dohne
Number of lambs	15	35	19
Final liveweight (kg)	48.0	51.2	47.7
Hot carcass weight (kg)	21.0 ^a	23.4 ^b	20.8 ^a
GR tissue depth (mm)	9.1 ^a	11.1 ^b	9.4 ^a
Dressing percent (%)	43.6 ^a	45.5 ^b	43.5 ^a
\$/head (incl. \$6 skin)	71.26 ^a	77.86 ^b	72.16 ^a

^{ab} Means within a row with different superscripts are different (P<0.05).

Mr Peter Trefort, proprietor of Hillside Meats Abattoir, Narrogin encouraged the project team to produce heavy sucker lambs. With this in mind the liveweight of the first draft of suckers averaged 49.5kg (Table 3). Seventy percent of the SAMM cross progeny, 42% of the Merino progeny and 41% of the Dohne cross progeny were slaughtered in the first draft. The SAMM cross progeny were significantly heavier, fatter, dressed higher and returned more per head than the Dohne cross or Merino progeny. Whilst being fatter the SAMM cross carcasses were still graded as being in the fat score 2/3 premium category. There were no differences in any of the carcass

attributes between the progeny of the Merino and Dohne cross ewes. During spring, Q Lamb's price schedule paid premium returns per kilogram for carcasses weighing 17-24 kg fat score 2 or 3. Some of the SAMM cross progeny were discounted up to 70 c/kg (approximately \$20/head) for being too heavy for market specifications. If the schedule did not discount the heavier lambs then the \$6.60 difference per head between the price received for the SAMM cross progeny and the Merino and Dohne progeny would have been even larger.

Table 4. Final liveweight, carcass weight and fatness and dollar returns for 52 cross bred lambs sold in the second draft

Genotype of dams	Merino	SAMM	Dohne
Number of lambs	18	14	20
Final liveweight (kg)	46.8 ^a	49.4 ^b	47.2 ^a
Hot carcass weight (kg)	18.9 ^a	20.7 ^b	19.0 ^a
GR tissue depth (mm)	8.9	10.6	9.4
Dressing percent (%)	40.4 ^a	42.0 ^b	40.3 ^a
\$/head (incl. \$6 skin)	\$65.67 ^a	\$71.80 ^b	\$65.54 ^a

^{ab} Means within a row with different superscripts are different ($P < 0.05$).

The lambs sold in the second draft were lighter, leaner and dressed lower than those slaughtered in the first draft (Table 4). The SAMM cross progeny however still produced heavier carcass weights, with higher dressing percentages and returned more per head than the Dohne cross and Merino progeny. As in the first slaughter, there were no differences in any of the carcass attributes measured between the progeny of the Merino and Dohne cross ewes. The lower dressing percentage recorded in the second draft of lambs may have been due to the sharp cut off to the season producing bulkier dry feed of lower nutritive quality.

The lambs failing to meet the Q Lamb market specifications were slaughtered at Narrogin Agricultural College on the same day as the second draft were slaughtered (20th November). Hot carcass weights and GR tissue depths were measured on all

carcasses. The WA Q Lamb price schedule was used to assign a value per head for the lambs slaughtered at the College (Table 5).

Table 5. Lambs not making market specifications (rejected)

Genotype of dam	Merino	SAMM	Dohne
Number of lambs	3	1	7
Final liveweight (kg)	40.3	39.8	38.9
Hot carcass weight (kg)	15.2	15.8	15.0
GR tissue depth (mm)	37.7	39.7	38.5
Dressing percent (%)	5.3	8	5.7
\$/head (incl. \$6 skin)	26.43	37.60	21.63

Table 6 provides a summary of the number of lambs of each genotype slaughtered per draft and their returns per head. Ninety-eight percent of the SAMM cross, 92% of the Merino and 85% of the Dohne cross progeny met the market specifications and were slaughtered at Hillside Meats Abattoir. The SAMM cross progeny were the most valuable over the 2002 season averaging \$75.36/lamb whilst the Dohne cross progeny returned the least \$61.59/lamb (Table 6).

Table 6. Number and percentage of lambs slaughtered on either of the two dates or rejected for not meeting market specifications and average dollar returns/head

Genotype of dam	Merino	SAMM	Dohne
Number of lambs in the first draft (%)	15 (42%)	35 (70%)	19 (41%)
\$/head (incl. \$6 skin)	71.26	77.86	72.16
Number of lambs in the second draft (%)	18 (50%)	14 (28%)	20 (44%)
\$/head (incl. \$6 skin)	65.67	71.80	65.54
Number of lambs rejected (%)	3 (8%)	1 (2%)	7 (15%)
\$/head (incl. \$6 skin)	26.43	37.60	21.63
Ave \$/head (incl. \$6 skin)	64.73	75.36	61.59

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Table 7. Greasy fleece weight, wool quality attributes from mid side fleece samples and the economic value of fleeces of Merino and SAMM and Dohne crossbred ewes

Genotype of ewes	Merino	SAMM	Dohne
Number of ewes	49	49	60
Greasy fleece weight (kg)	5.05 ^a	3.91 ^b	5.04 ^a
Micron (µm)	20.7 ^a	22.7 ^b	21.1 ^a
CV of micron	21.1 ^a	19.0 ^b	22.0 ^c
Comfort factor (%)	96.9 ^a	94.9 ^b	95.6 ^b
Staple length (mm)	92.0 ^a	81.7 ^b	88.7 ^c
Min micron (µm)	18.1 ^a	20.2 ^b	18.4 ^a
Max micron (µm)	23.2 ^a	24.8 ^b	23.8 ^c
Greasy price (c/kg)	750	720	745
Fleece value (\$/head)	37.88	28.15	37.55

^{ab} Means within a row with different superscripts are different (P<0.05).

The Merino and Dohne cross ewes cut more greasy wool of a finer micron than that produced by the SAMM cross ewe. The CV of micron, indicating the spread of micron variation in relation to the mean was lowest for the SAMM cross ewes and highest for the Dohne cross ewes. The Merino ewe produced the most comfortable fleece with the longest staple. The greasy price received (c/kg) was similar between the breeds however the heavier fleeces ensured that the Merino and Dohne cross ewes returned more per head than the SAMM cross ewes.

Table 8. Basic economic analysis for 100 ewes per breed group utilising reproduction, meat and wool trial data

Genotype	Merino	SAMM	Dohne
Marking %	78	98	78
Meat \$/head	64.73	75.36	61.59
Meat returns (\$)	5048.94	7385.28	4804.02
Wool \$/head	37.88	28.15	37.55
Wool returns (\$)	3788	2815	3755
Total returns (\$)	8836.94	10200.28	8559.02
Ave \$/head	88.37	102.00	85.59

The main profit drivers during the 2002 season were the higher marking percentage and carcase value per

head. The SAMM cross genotype per 100 ewes returned \$2581.26 more than the Dohne cross genotype for meat returns. Although the SAMM cross ewes returned approximately \$1000 less than both the Merino and Dohne enterprise for wool production, overall the SAMM cross ewes returned \$16.41 per ewe more than the Dohne cross enterprise and \$13.63 more than the Merino enterprise.

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Feeding systems for grain finishing prime lambs

Dr Rachel Kirby

Department of Agriculture, Beacon

Email: outback.solutions@westnet.com.au

Rodger Bryant

Department of Agriculture, Narrogin

Email: rbryant@agric.wa.gov.au

There are a wide variety of grain finishing systems currently used to successfully finish prime lambs. Feeding systems vary from traditional feedlots and semi-intensive confinement feeding to grain supplementation on pasture and stubbles. The Australian Sheep Industry Cooperative Research Centre (CRC) recently conducted a questionnaire to learn more about current on-farm feeding systems.

Permanent or opportunistic?

Of the 147 respondents, 82 (56%) said that they use a feedlot system to finish lambs and around 18% also use the feedlot to finish older sheep. Most producers described their feeding system as small paddock confinement with self-feeders (Figure 1.)

The feedlot system was considered to be a permanent part of the farming system by 69% of respondents. Some individuals commented that finishing lambs was a large part of the business eg. “Finishing lambs is our main enterprise”, “Only a small percentage will finish on pasture so need finishing every year to get dollars”, but several commented that although they have a feedlot they only use it strategically eg. “We have feedlot so that we can finish lambs if required”, “We consider feedlotting a permanent part of the system, however, the level of feeding is opportunistic”, “Lambs finished if dry spring”, “Necessary on a year like this (2002)”.

Figure 1. Respondents choice of best description for their grain finishing system.

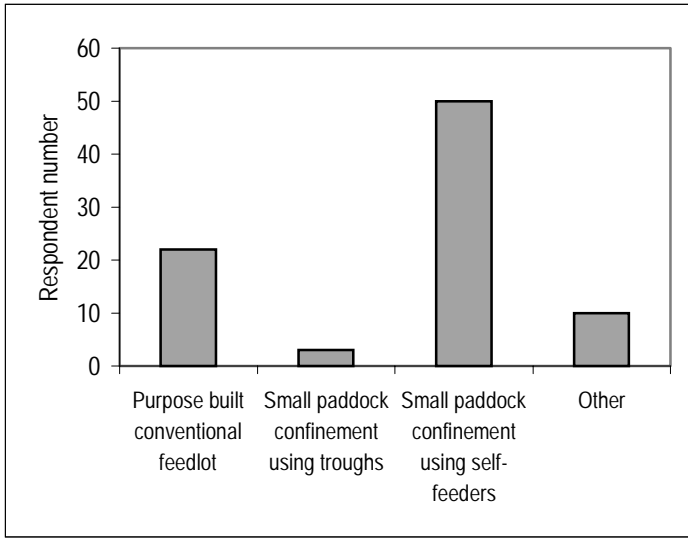
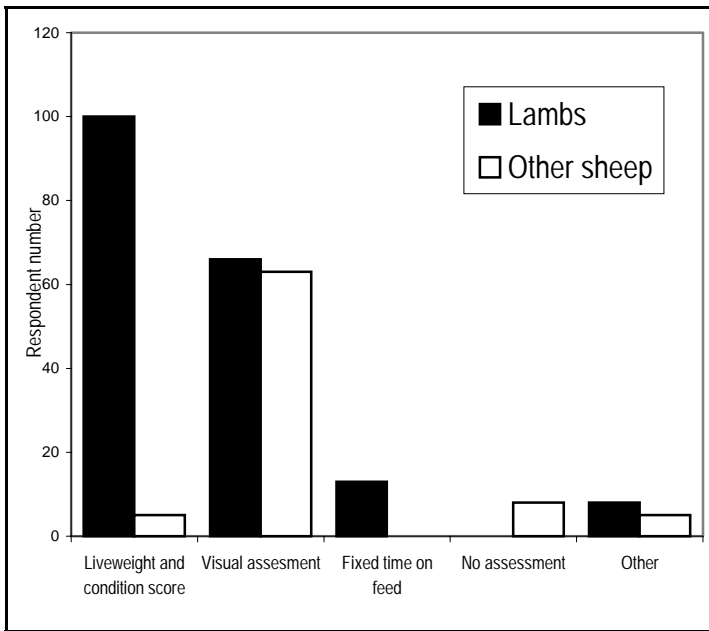


Figure 2. Assessment method used to determine when lambs or other sheep were ready for sale or slaughter



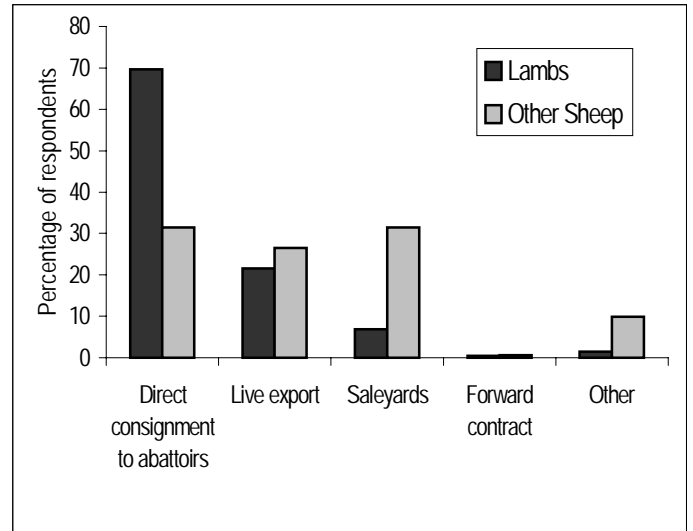
Marketing methods

Many producers indicated that they were aiming for a specific market specification so they used scales to make sure they hit the grid. Sixty-eight percent of respondents said they used liveweight and fat score to decide when lambs were ready for slaughter (Figure 2). Visual assessment was also popular. Quite a few respondents ticked both visual and liveweight

suggesting that their strategy was to visually assess first, and then liveweight and fat score were measured as confirmation. In contrast, older sheep were generally only visually assessed prior to sale.

The average target specification for lambs was 43 kg liveweight and fat score 3 but the range of target liveweight was from 33 kg to 55 kg. Several producers were aiming for heavier weight markets of 50+ kg liveweight.

Figure 3. Method of marketing for lambs and other sheep



Direct consignment to abattoirs was the primary method of marketing lambs for 70% of producers (Figure 3).

The marketing method also reflects the fact that many of the questionnaire respondents were targeting specific markets. When lambs are marketed over-the-hooks, it is important to meet the processor's specifications to get the best price. Monitoring liveweight and fat score is the best way to ensure that the lambs that are delivered will hit the grid. Around 22% of lambs were sold for live export and a further 14% through saleyards. In comparison, there was an even split between direct consignment, live export and saleyards (~30% each) as the marketing strategy for older sheep (Figure 3).

Performance monitoring

Almost three quarters of the producers who responded

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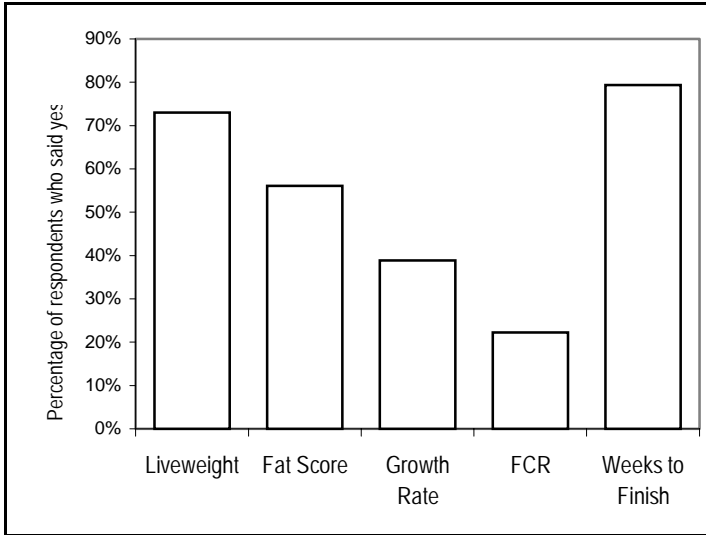
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to the questionnaire said that they measure liveweight (Figure 4). In most cases, liveweight was recorded at feedlot entry and exit or fortnightly during the feeding period. Some producers indicated that they weigh lambs just prior to or at sale, or after visual assessment.

Figure 4. Proportion of questionnaire respondents who monitor different performance parameters of lambs in their feedlot.



The majority of respondents (56%) also measured fat score (Figure 4). This was usually done at the same time as weighing. The importance of fat scoring depends on the market that lambs are being produced for. Fat score is important for over-the-hook marketing but not as critical for live export or saleyards. Most producers who said that they don't fat score thought that it wasn't necessary in their system.

Weighing and fat scoring lambs serves two purposes. Firstly, lambs can be assessed to determine whether they are going to hit the target grid or market; and secondly, if multiple weights are recorded, the growth rate of lambs can be calculated. The responses to the questionnaire suggest that some producers are simply using their scales as a measure of when lambs are finished, while others are taking the next step and using the liveweights to calculate growth rate. Almost three quarters of producers weighed sheep and just over half of these producers indicated that they calculate the growth rate of their lambs.

Even fewer respondents took the next step to work out how much feed they used to finish lambs. Feed conversion efficiency is arguably the most important thing to measure because it is directly linked to profit. The profitability of lamb finishing is related to how efficiently the animals convert feed to meat (feed conversion ratio or FCR) and how fast they grow (growth rate). Feed is the biggest cost in a grain finishing system so a lamb that eats 5 kg feed to gain



Lambs in a permanent indoor feedlot on self feeders

1 kg of liveweight is going to cost less to produce than a lamb that eats 8 kg of feed to gain 1 kg of liveweight.

Intensive grain finishing of lambs is a high-risk enterprise. It is not a guaranteed way of making money so it is important to understand the economics. If growth rate and FCR, are measured then it is possible to work out the profitability of the enterprise and set production targets to increase profit.

Introductory feeding

Producers were asked whether they use an introductory feed or introduction program in their feedlot to allow lambs to adapt to grain. Thirty-six percent of respondents said they did not use an introduction program. Most producers who said that they did not use an introduction program indicated that they used a safe grain or pellet that did not require slow introduction. Encouragingly, no one indicated that they were not aware of the need for an introductory program.

Although 64% said they did introduce feed, the descriptions of introductory programs varied from one day of hay feeding to a full 2-week introductory program for high starch grains. Some producers commented that their introduction was inadequate because lambs performed badly during the first two weeks or they had high losses.

Correct introduction of lambs to grain is critical for successful grain finishing. If grain is introduced too quickly then animals may suffer from acidosis. Even if the acidosis is not severe enough for lambs to die, it can cause damage to the rumen so that lambs never reach their full potential.

Conclusion

The primary objective of the questionnaire was to gain a better understanding of current industry practice and

issues that face lamb producers. This goal was achieved and the producers who responded to the survey raised many interesting issues. The Department of Agriculture and other institutions in the Sheep CRC grain feeding project will be investigating some of these issues in the coming year.

Accreditation of deliverers gives WA lamb producers the leading Edge

Eliza Dowling

Department of Agriculture, Narrogin

Email: EDowling@agric.wa.gov.au

A three-day training workshop in Kojonup saw seven sheep meat industry development officers and consultants become accredited to run Edge network workshops for lamb producers. Consultants Tamesha Gardiner, Adrian Baker and Liz Rogers and Department of Agriculture WA development officers Lock Butler, Ashe Briscoe, Sandra Brown and Eliza Dowling attended the accreditation course run by South Australian sheep meat project officer, Elke Hocking. Elke Hocking has refined the courses on behalf of Meat and Livestock Australia and has been delivering them to South Australian and Victorian lamb producers. She lead the accreditation by going through the courses and helping to customise them for the Western Australian lamb industry.

Currently two Edge network courses are available to WA lamb producers;

Effective Breeding

The Effective Breeding Workshop helps participants to evaluate the effectiveness of their existing breeding program and to determine strategies to better match market requirements. It also explores how to boost profitability through the use of proven genetic techniques. The Effective Breeding course has been very well received, particularly by seed stock producers who are keen to improve their clients' understanding of Lambplan and set breeding objectives with their clients needs in mind.

Improving Lean Meat Yield

The Improving Lean Meat Yield Workshop is

designed to help producers understand the relationship between lean meat yield and the profitability of their enterprise, to enable them to analyse feedback and identify how to increase lean meat yield. The Lean Meat Yield course has been popular with processors wanting to help their suppliers understand feedback sheets and develop strategies to deliver a better product.

Both courses are short one day courses that are exceptionally practical and hands-on. The focus is on producers' individual lamb production systems and helping them to develop strategies and action plans to make their own enterprises more profitable.

Edge network is a series of structured learning workshops that can give producers a recognised qualification. It is an initiative of Meat and Livestock Australia and the Victorian Department of Primary Industries. In Western Australia the Kondinin Group is coordinating the delivery of Edge network courses. The courses cost \$280/day plus GST including catering and workshop manuals. They are currently being subsidised 75% by Farmbis, though this may change at the end of the financial year.

Two other workshops in the pipeline for lamb producers are a maternal breeding course (provisional title "Money Making Mums") which will be available in July and a Merino genetics course that will be piloted before the end of the year.

Anyone interested in attending or hosting these courses should contact Kondinin Group Training Coordinator, Kareena May on (08) 9478 8330 or 0419 246 045.

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LAMBPLAN and VIAscan working for you

Sandra Brown

Department of Agriculture, Esperance

Email: SBrown@agric.wa.gov.au

MLA has developed VIAscan technology based on Video Image Analysis. A colour video camera captures images of carcasses at line speed in the abattoir, the computer receives the image, stores and then processes these images. This information is combined with other kill floor data such as body identification and carcass weight to produce a series of objective measurements and predictions about the carcass.

VIAscan has been installed and is in use in some abattoirs in the eastern states but is yet to be installed in an abattoir in Western Australia. VIAscan provides a feedback sheet for every load sold over the hooks. The most important number on the feedback sheet is the lean meat yield. This is an estimate of the total meat the carcass will yield. Currently WA producers may receive a feedback sheet detailing carcass weight and fat score but information on lean meat yield is not available.

Advantages of VIAscan

One of the main advantages of using VIAscan in payment schedules is that you get paid on the lean meat yield. In the example below, through a traditional system both animals would have been given the same value over the hooks, because their weight and fat score were the same. But from a VIAscan feedback sheet carcass 1 would have produced a more profitable carcass, because the amount of meat yielded from the carcass was higher. This is a fairer system because it means that a producer growing “meatier” lambs should be paid more than the producer with lower yielding lambs where the same carcass weight is made up of more

bone and fat.

Carcass 1 - 22 kg carcass weight, fat score 3, lean meat yield 53%

Carcass 2 - 22 kg carcass weight, fat score 3, lean meat yield 50%

Another advantage is that specifications can be created for producers that are based on the needs of the final consumer. Producers are given feedback and rewarded on the basis of their performance, because the product meets consumer specifications.

How can LAMBPLAN be used to improve Lean Meat Yield?

Post weaning weight, fat and eye muscle depth Estimated Breeding Values (EBVs) all contribute to the lean meat yield of a carcass. A high lean meat yield will be expected from a lamb that has a lean, heavy carcass and thicker muscles.

It isn't always easy to know what rams to buy to produce progeny with high lean meat yields. Checking your feedback sheets regularly will give you a pretty good indication of how your animals have performed. If your animals are consistently too fat, then next time you are buying rams you could buy a ram that has figures showing greater pressure on reducing fat. The same applies for weight and eye muscle depth.

When your feedback sheets are returned to you, your results will be one of four types.

- ¶ Low carcass weight, high yield
- ¶ Low carcass weight, low yield
- ¶ High carcass weight, low yield
- ¶ High carcass weight, high yield

For each of these categories you can select (and buy) better genes so that more of your animals meet the market specifications, and you can improve the profitability of your meat enterprise.

Feedback information	Improvement required	Target Traits
Low cwt, high yield	Improve growth rate of sires and improve maternal characteristics of ewes	Post weaning weight (PWWT), maternal weaning weight (MWWT)
Low cwt, low yield	Improve growth and carcass characteristics of rams, improve carcass and maternal characteristics of ewes	PWWT, post weaning fat (PFAT), post weaning eye muscle depth (PEMD), maternal weaning weight (MWWT)
High cwt, low yield	Improve carcass characteristics of both rams and ewes	post weaning fat (PFAT), post weaning eye muscle depth (PEMD)
High cwt, high yield	More lambs	Focus on number of lambs weaned

The LambMax project

*Dr Keith Croker, Rob Davidson and Ken Hart
Department of Agriculture, South Perth, Nedlands
and Narrogin*

There has been a build up in pressure for an increase in the sheep population recently to meet the demands for both more sheep meat and wool. The decrease in the sheep population over the last 10 years or so resulting from the poor wool market has meant that it is now difficult to find enough ewes to produce the sheep to meet these competing demands.

To increase the sheep population it is necessary to increase weaning percentages.

A range of strategies and technologies to improve the reproductive performances of sheep have been available for a number of years. However, for a variety of reasons these have not been widely used and so WA's average marking percentage has remained between 75 – 80% over the last 20 years.

A group of producers around Narrogin with a considerable interest in the production of grain have also recognised the need to improve the productivity from their sheep flocks. Following a meeting last November it was decided to establish a group to provide the basis for a submission to obtain funds from the MLA to support on-farm investigations of strategies to increase their lambing percentages.

The LambMax Resource Group, which is currently chaired by Tim Wiese from Highbury, was established to provide guidance on the issues of relevance to farmers around Narrogin. It was planned to investigate these in a series of trials. Initially it was thought that there would be at least one trial on each of the farms of the members of the group. These trials were to be done under the guidance of officers from the Department of Agriculture.

The project has since been expanded to involve collaboration with the Animal Biology Group at the University of WA under Professor Graeme Martin's leadership. At the University researchers are investigating specific aspects of reproduction with the intention that the results will eventually lead to

changes in what is done on farms to increase lambing performances.

The farmers in the LambMax project (there are 11 and one person from agri-business in the Group) will find out about new strategies more quickly, be able to help evaluate them under commercial conditions and also will be able to raise issues that they think should be looked at in more detail by researchers at the University. The people at the University have the facilities to do more basic research than can be done by the Department of Agriculture and so are in a position to conduct detailed research.

The outcomes from the work done within the LambMax project will flow on to the wider agricultural community.

The submission to the MLA for financial support for the project has only been sent to the MLA recently. However, members of the LambMax Resource Group have met three times since the initial meeting and have come up with a list of issues that they would like to be looked at on their farms.

One of the main areas that the farmers wanted to get more information on was where the most significant losses were occurring in the reproductive process. The starting date of the project placed some restrictions on what could be looked at this year. However, it is expected that the project will continue for four or five years and in future years we will be in a better position to arrange investigations and trials as there will be a longer period for preparation.

Even with the limitation of the late start this year we have been able to start trials on five farms. In these we are investigating a number of the components of the reproductive process. It will be late in the year before we get all the results of the trials.

The trials underway are:

A study of the performances of different aged Merino ewes mated and lambing together. Farm A, Narrogin. These ewes which were mated as one flock will be lambed separately starting in late July to obtain the lambing data for each age. Another group of the youngest ewes (2-tooth) will be monitored in another flock to see if the survival of their lambs is better

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where they lamb with older ewes.

The fertility of Merino ewe weaners. Farm B, Highbury. 400 of the better looking weaners were selected from a flock of about 1300 weaners following shearing in February. White Suffolk rams were joined with the weaners (aged 9-10 months) in early March and their lambing performances will be monitored. In addition, the subsequent reproductive performance of the ewes will be monitored because there will only be a short period between when their lambs are weaned and when they are re-joined at the usual time for the 2-tooth ewes (December). The growth of the surviving lambs from these young ewes will also be studied.

Nutrition of twin-bearing ewes. Farm C, Highbury. If higher lambing percentages are to be obtained ewes need to have more twin pregnancies, but there is no point in inducing twin births if the resulting lambs do not survive. This trial is investigating if the supply of extra high energy feed to twin-bearing ewes in the period leading up to lambing and during the early stages of lactation will result in a higher survival of the twins.

1600 five year old ewes were scanned to identify the twin-bearing ewes. 100 of the twin bearing ewes are being run under the usual practice used on Farm C along with 100 identified single-bearing ewes. The rest of the twin-bearing ewes are being fed a high energy sheep pellet for four weeks before lambing commences (in mid June) and for the first four weeks of lambing. Marking and weaning percentages will be obtained for these groups.

Nutrition of twin-bearing ewes and the growth of their lambs. Farm D, Williams. This trial is similar to the one at Farm C, but in this case South Suffolk rams were joined with the ewes for a late June lambing. The twin-bearing ewes were identified and these will be given the same high energy pellets as used at Farm C. In addition to measuring lamb survival, the lambs from these ewes will be monitored to measure their growth to see if the extra feeding of the multiple bearing ewes results in growth rates of the twin born lambs similar to that of single-born lambs.

Response to treatment with Ovastim. Farm E, Kojonup. A vaccination treatment to increase ovulation rates, and so twinning rates, in ewes was developed in the 1980s and sold as Fecundin. Fecundin has not been available for many years but the same product has recently be re-released by another company and called Ovastim. In this trial we aimed to demonstrate that vaccination with Ovastim provided a method of increasing the proportion of

ewes with twin lambs. More details of this trial are reported in the next article in this issue of the *Ovine Observer*.

For more information about the LambMax project, or any of the trials outlined above contact;
Keith Croker, 9368 3512, kcroker@agric.wa.gov.au
Rob Davidson 9380 1953 rdavidso@agric.uwa.edu.au
Ken Hart, 9881 0244, khart@agric.wa.gov.au

Increasing lambing percentages with Ovastim

Dr Keith Croker, Rob Davidson, David Highman and Ken Hart

Department of Agriculture, South Perth, Nedlands, Albany and Narrogin

During the 1980s Glaxo produced a vaccine (Fecundin) following its development by CSIRO. The treatment of ewes with Fecundin produced more multiple ovulations and resulted in higher lambing percentages than were obtained in non-treated flocks. The treatment of ewes comprised of two injections in the first year with one booster injection in subsequent years to again get increases in lambing percentages.

The Department of Agriculture did a lot of work in WA to confirm the response to treatment with Fecundin in our Merinos and to refine the injection schedule for an optimum response. As a result of the studies we concluded that for best results ewes should be injected 8 and 4 weeks before the entire rams were joined with the ewes in the first year and 4 weeks before the start of joining in subsequent years. We also concluded that maiden ewes should not be treated with Fecundin.

Production of Fecundin was stopped in the 1990s. However, recently another company (Virbac) has started manufacturing the product again and it is now marketed as Ovastim.

Because of the current interest in increasing lambing percentages in WA we decided to look at the use of Ovastim and to measure the increase in lambing percentage that follows the vaccination of mature aged ewes.

On a farm north-west of Kojonup, half the Merino ewes in 2 flocks (3 to 6 years old) were vaccinated with Ovastim (8 and 4 weeks) before Poll Dorset rams were joined with the ewes in late January 2003. The rams were with the ewes for 6 weeks.

Genstock scanned the ewes on 23 April to determine the number of dry, single and twin-bearing ewes. The results indicate that there are more twin pregnancies in the ewes treated with Ovastim. The proportions of

dry, single and twin-bearing ewes along with the percentages of potential lambs are shown in Table 1.

Table 1. Average liveweight of ewes at joining, percentages of dry, single and twin-bearing ewes, and percentages of lambs present at scanning in the control and Ovastim treated ewes in two flocks of mature aged ewes at Kojonup.

	Average weight at joining (kg)	Dry ewes (%)	Single ewes (%)	Twin ewes (%)	Potential lambs (%)
Flock 1					
Control	63.1	15.2	61.6	23.2	108.0
Ovastim	62.5	15.0	48.7	36.3	121.2
Flock 2					
Control	61.0	12.6	63.0	24.4	111.8
Ovastim	59.1	12.3	42.2	45.5	133.1

Table 1 shows that the average liveweights at joining were similar for both ewe flocks. Therefore, the differences in the percentages of twin pregnancies were not due to differences in the ewe liveweights at the start of joining.

The flocks will be split into the treatment groups about 10 days before lambing is due to start (early June) so that marking percentages for each treatment can be determined. There is no point in treating ewes with Ovastim if there is not an increase in the weaning percentage. We need these data so that the cost-benefit of the vaccination can be assessed.

In an endeavour to improve the survival rate of the twins, the ewes in flock 2 will be offered the PP pellet from the day they are split into their treatment groups before lambing for a period of about 4 weeks. This is a very preliminary look at the possibility of supplying more energy to ewes during the critical periods of just before lambing and during early lactation.

Some results from studies done at the University of Western Australia have shown that an increased production of colostrum with an improvement in the ewe-lamb bond and higher survival of the lambs can follow supplementing ewes at these crucial times. We

are looking at getting some early field evidence to back this observation.

The lambs will be marketed towards the end of the year at WAMMCO International, Katanning where carcass weights and fatness measurements will be recorded.

New reference book released

*Sandra Brown, Department of Agriculture, Esperance
Email: SBrown@agric.wa.gov.au*

A new reference book for sheep meat producers has recently been completed and released entitled 'A guide to improving performance and increasing value through a partnership with Fletcher International WA'. The guide identifies management issues that can be addressed to maximise product output and product quality from your sheep at slaughter. The Department of Agriculture WA compiled the book with production supported jointly by Fletcher International WA and Meat and Livestock Australia

The guide makes sheep producers aware of industry losses due to downgrading of products, and provides guidelines on how to prevent recurrent losses. It will enable producers to improve their bottom line by meeting Fletcher International specifications.

Most problems which cause carcasses to be downgraded can be prevented through on farm vaccination programs or by meeting animal husbandry and nutritional requirements. This will improve supplier relationships between sheep producers and Fletcher International WA.

Contributing authors from the Department of Agriculture included - Sandra Brown, Roy Butler, Dr John Snowden, Dr Brown Besier and Di Evans. External authors included Dr Sue Hatcher, Dr John Milton, Dr Sarah Wiese, Dr Alex Ball and Bruce Hancock. The final manuscript was edited by Vicki Noy from Alliance Consulting and Management.

Books are available on request from Fletcher International abattoir by phoning (08) 9892 4000 and are intended specifically for sheep producers.

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Contact List

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Albany	Rob Woodgate	(08) 9892 8444
Esperance	Kira Buttler Sandra Brown Matthew Ryan	(08) 9083 1111
Katanning	Beth Paganoni	(08) 9821 3333
Narrogin	James Skerritt Ken Hart Ned Crossley Eliza Dowling	(08) 9881 0222
Merredin	Roy Butler	(08) 9081 3111
Northam	Ashe Bricoe	(08) 9690 2000
Corrigin	Alison Slade	(08) 9063 2681
South Perth	Bronwyn Clarke Keith Croker	(08) 9368 3470 (08) 9368 3512
Geraldton	Matthew Young	(08) 9921 0506
Beacon	Rachel Kirby	(08) 9686 1160
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