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NEWSLETTER No 23
March 2003

STOCK PLAN ONE DAY WORKSHOP

Monday or Tuesday or Wednesday April 14th, 15th or 16th

NUMBERS STRICTLY LIMITED EACH DAY

BOOKINGS ESSENTIAL BY 27th MARCH

Phone 6778 3871 or fax details to 6778 3872

StockPlan is a suite of computer decision support tools that enable sheep and cattle producers to explore management options in the early stages, during and **in the recovery phase of a drought**.

The main aim of these decision tools is to assist producers make management decisions that minimize the environmental and financial impacts of drought.

How will my decisions affect my financial position this year and next year?
Is it better to buy or breed in the recovery phase?

The StockPlan package will assist producers to

- **improve their drought management skills,**
- **lower the risk of degrading pastures,**
- **lower the risk of financial losses,**
- **encourage proactive decision making, and**
- **provide a platform for producers to investigate the production and financial implications for their farm business.**

THE COURSE IS PROVIDED FREE OF CHARGE
thanks to the
Department of Education, Science and Training and NSW Agriculture

Morning tea and lunch provided FREE to MEMBERS,
There is a charge of $20 for NON MEMBERS

More on StockPlan

StockPlan is a new computer program designed to help livestock producers make some tough decisions. Developed by NSW Agriculture, it has the ability to model destocking and herd or flock rebuilding strategies. "It can look at whether it is better to buy breeders or trade stock after a drought breaks and what effect the age of the breeders will have on herd or flock recovery" according to NSW Ag Sheep and Wool officer Bob Marchant. "The program also looks at what effects those decisions will have on gross margins for the next 10 years."

For sale by Tender

Computer plus monitor plus keyboard (surplus to requirements since our upgrade).
Computer is Pentium II, originally purchased in November 1998
Monitor is a colour monitor, Phillips 105E, also purchased November 1998
Diamond Touch Keyboard is brand new
There are no programs and no cables with this equipment.

New Digital Mobile Phone, Nokia 3315 handset (this is a new phone but surplus to requirements since a change over to CDMA)
The phone is brand new, **there is no contract with the phone** so you would have to organize a contract with your preferred service provider.

Items can be inspected at the Cicerone office, please ring 6778 3871 to arrange a time.
Please send your tender to PO Box 1593, Armidale 2350 by **Friday 28 March 2003**
Remember to include your contact details.

The Cicerone Project gratefully acknowledges the funding support given to them by Australian Wool Innovation

LOCAL WEATHER WEB SITES

Armidale weather monthly summaries http://fehps.une.edu.au/x/weather/

Armidale airport automatic weather station for past 72 hours
www.bom.gov.au/products/IDN65092/IDN65092.95573.shtml

Up to the hour Rain Radar within 256 km radius of:-

Grafton http://mirror.bom.gov.au/products/IDR282.shtml

Moree http://mirror.bom.gov.au/products/IDR532.shtml

(Both of these show Armidale)

Rainfall probability www.longpaddock.qld.gov.au/SeasonalClimateOutlook/RainfallProbability

Climate variability www.cvap.gov.au

Weather forecasts, good section on finance www.inFARMation.com.au

Newsletter Editor: Caroline Gaden, Executive Officer of The Cicerone Project Inc.

Dear Member and Friend of The Cicerone Project

The Cicerone Project has been approached by representatives from Land and Water Australia to provide input into a new research program, the 'Land, Water & Wool' initiative, which focuses on productive and sustainable wool production systems in Australia and is a joint investment by Australian Wool Innovation Limited (AWI) and Land & Water Australia (LWA).

'Land, Water & Wool' is designed to provide wool growers with access to information on how to manage salinity, river health and native vegetation as well as addressing other issues such as climate variability, rangelands and future land management options. Some of the practices may have already been adopted by some growers, while other practices may not yet have been integrated. Either way the program is here to help make a difference for Australian wool growers and to provide easy access to practical advice on a range of natural resource management issues.

Part of delivering the program's outcomes includes the development of a "toolkit". The "toolkit" has been designed to provide growers with easy access to a range of information that can assist in the management of the wool growing business. To ensure the "toolkit" information is relevant and useful AWI/LWA wish to test its information with growers. They are seeking advice on whether the "toolkit" contents meets growers needs, and examining ways in which it may be improved, either through changes to the content or the style or through different ways of delivering the information.

The Cicerone Project has agreed to organise a focus group of about 15 members to discuss the 'toolkit' and we would like you to participate if you are available. It will be an informal discussion followed by refreshments. The details are:

Date: Monday 28th April
Time: 9.00 am to 12.00 noon
Refreshments will be served
Venue: The Liaison Centre, CSIRO, Chiswick

Your input into this discussion will help ensure the levy investment in this project delivers the right information to all wool producers.

If you accept this invitation you will be sent a package of information, comprising an overview of the project, sample "toolkit" materials and a summary of the communication products that have been proposed as part of the "toolkit". You will be asked to prepare for the discussion by reading the materials and forming an opinion on how they apply to your business. You will be provided with a series of questions to assist with this process and you will be asked to comment on how this program can deliver real outcomes to you.

The discussion will be conducted and moderated by Robbie Sefton from the rural public relations consultancy, Sefton & Associates. The proceedings of the focus group will be taped to ensure the accuracy of the subsequent data. All data gathered during the process will be collated and while the overall findings of the group may be released publicly, no individuals within the group will be identified unless specific permission is obtained.

As a participant you will be provided with formal feedback on the outcomes of the focus group discussions once the report has been finalised.

If you would like to participate but cannot attend this focus group you can chose to receive the information and either provide AWI/LWA with a written response or arrange for them to interview you at a mutually convenient time

This is a worthwhile opportunity that has been presented to **The Cicerone Project** members and I hope you consider participating. Please complete the form below to assist us with organisation and return it via fax to Robbie Sefton.

If you have any queries, or would like further information about the Land, Water & Wool project, please feel free to contact Fleur Flanery on (02 6263 6020).

Yours sincerely

Caroline Gaden
Executive Officer

Focus Group:	The Cicerone Project
Date:	Monday 28 April 2003
Time:	9.00am to 12 noon
Location:	Liaison Centre, CSIRO, Chiswick

Name:	Phone:
Address:	Fax:
	Email:

Yes I can attend the above focus group.
Please mail the necessary information to me at the above address.

No I am unable to attend the above focus group.
I would however like to participate – please send me the necessary information. I will provide a written response to the questions raised or make myself available for interview on the phone number above (please delete whichever is not applicable).
The most convenient time to contact me is _____ (Insert time)

Please complete and send to:

Sefton & Associates
Suite 7,
344 Conadilly Street,
Gunnedah, NSW 2380.

Fax: 02 6742 6600
Tel: 02 6742 6655
Email: robbie.sefton@seftonpr.com.au

Does the time of mulesing have any subsequent effect on the growth rate of the animals and wool characteristics of their first hogget fleece.

By Caroline Gaden* and Justin Hoad*

Rationale

The Cicerone Project is a producer-led organization which conducts trials that local wool producers have asked to be done. In the New England region some producers mules their lambs at marking time in spring and others will mark in spring but leave their lambs until autumn before mulesing. No one knew whether their choice of time was having an effect on the body weight gains or the characteristics of the wool produced in the hogget fleece. The Cicerone Project was asked to conduct a trial to see if any differences could be detected.

Background

The Cicerone Farm is divided into three 50 ha farms, A, B and C, as equal as possible in terms of soil type, slope and drainage, the things we cannot alter. Subsequent to subdivision each farm has had different treatments with variable fertilizer inputs and different grazing management systems. These differences are fully explained in the "Farm Guidelines" (available at www.cicerone.org.au) but briefly Farm A has high input of fertilizer with sown pasture in eight paddocks. Farm B has no sown pasture and much lower fertilizer input in its eight paddocks. The grazing management is similar in these two, with 4 or 5 mobs per farm. Farm C has similar fertilizer inputs as Farm B but the grazing management is different as this farm has 33 paddocks, so pasture rest periods are much longer, up to 200 days between grazings, and mobs of stock are boxed together. There has to be no more than 3 mobs run on Farm C. Each farm runs Merino breeding ewes (of CSIRO and Wilson's Creek bloodlines) that remain on their own farm and it is the 2001 drop lambs from each farm that were used in this trial.

Method

Lambing was from 12 September 2001 for six weeks, the ewes running on their own farms. All lambs were mustered for the first time on 15 November 2001for marking. There were 100 from Farm A (88% lambing per cent), 90 from Farm B (84%) and 81 from Farm C (83%). At this time all were individually identified with a coloured (A pink, B green, C blue) and numbered ear tag, weighed and docked and all males were marked. They were divided by sex and half the lambs of each sex were mulesed at marking time and the other half were not mulesed until they were several months older on 27 April 2002.

Lambs grazed on their separate A, B and C farms all the way through the trial and were weighed monthly throughout the year.

All mulesing was done by an accredited and experienced mulesing contractor Gordon Godson, President of the Livestock Contractors Association who has mulesed over 14 million sheep. He performed the 'modified radical' method of mulesing.

Clik® (Novartis) was used on each lamb at marking in November 2001 with 10ml placed on the wool round the mulesing wound, not on the wound itself, and over the breech area. The lambs were vaccinated with 1 ml GlanVac.

At weaning in late December 2001 each lamb was given Weanerguard and also given 20 ml Clik as a backline spray. The C farm lambs were given 12 ml Maxi Pro in early January 2002.

At the late mulesing in April all lambs received a Levamisole but no animal was given Clik or any other fly-preventative. At no time did we have any problems with fly strike. All Cicerone animals received a quarantine drench of Abamectin, BZ and Levamisole prior to our use of the CSIRO shearing shed in August 02. In October 02 these 01 drop hoggets were all drenched with closantal and levamisole.

Just prior to weaning the ewes and lambs were given lupins to imprint the lambs for future supplementary feeding. Pastures dried off dramatically in December 2002 and, as the drought developed, it became necessary to feed the lambs as set out in Table 1 for Farms A and B and Table 2 for Farm C. As can be seen, the Farm A and B animals were fed on a per head basis whereas the Farm C animals were in boxed mobs and the feed was on offer to all, including adult sheep and cattle.

Table 1 Feed for Farm A and Farm B lambs

Week ending	**Farm 'A' feed**	**Farm 'B' feed**
	amount per hd per wk	*amount per hd per wk*
21-Dec-01	0.3kg lupins	0.3kg lupins
28-Dec-01	0.4kg CSM+0.2kg lupins	0.4kg CSM+0.2kg lupins
04-Jan-02	0.8kg CSM+0.4kg lupins	Didn't eat supplement
11Jan 2002 to	*Nil*	*Nil*
19-Jul-02	*Nil*	*Nil*
26-Jul-02	0.2kg lupins	0.2kg lupins
02-Aug-02	0.2kg lupins	0.2kg lupins
09-Aug-02	0.3kg lupins	0.3kg lupins
16-Aug-02	0.4kg lupins	0.4kg lupins
23-Aug-02	0.6kg lupins	0.6kg lupins
30-Aug-02	0.8kg lupins	0.8kg lupins
06-Sep-02	0.8kg lupins	0.8kg lupins
13-Sep-02	1.0 kg lupins	1.0 kg lupins
20-Sep-02	1.2 kg lupins	1.2 kg lupins
27-Sep-02	Nil	1.2 kg lupins
04-Oct-02	Nil	1.2 kg lupins
11-Oct-02	Nil	1.6 kg lupins
18-Oct-02	Nil	1.6 kg lupins
25-Oct-02	Nil	1.2 kg lupins
01-Nov-02	Nil	1.2 kg lupins
08-Nov-02	Nil	1.5 kg lupins
15-Nov-02	Nil	1.2 kg lupins
Total	**6.4kg lupins + 1.2kg CSM**	**16.7kg lupins +0.2kg CSM**

Prior to shearing mid-side wool samples were taken for OFDA analysis and wool was also sent to AWTA for their standard tests on staple length, staple strength, and tip, mid and base point of break.
Shearing was in early August with individuals fleece weights being measured. Lambs were vaccinated with 5 in 1 and rugged to give them some protection from the cold New England winter weather. The rugs were removed seven weeks later, in the week ending 20 September 2002.

The total number of moves from one paddock to another from marking in November 2001 to the end of the trial was 7 for Farm A, 4 for Farm B while the Farm C animals were moved every few days resulting in 73 paddock moves (See Table 3). These animals were also run with other classes of sheep or cattle as can be seen from Table 2 and 3. Wool sampling, shearing and weighing days caused additional movements.

Table 2 Feed on offer on Farm C

Week ending	Farm 'C' feed on offer
21-Dec-01	0.3kg lupins per head
28-Dec-01	0.3kg CSM+ 0.15kg lupins per head per week
04-Jan-02	Nil
11-Jan-02	0.8kg CSM per head per week
18-Jan-02	1.0 kg CSM per head per week
25-Jan-02	1.2 kg CSM per head per week
01-Feb-02	1.4 kg CSM per head per week
08-Feb-02	1.4 kg CSM per head per week
15-Feb-02	1.0 kg CSM per head per week
22-Feb-02	0.6kg CSM per head per week
01-Mar-02	0.5kg CSM per head per week
08-Mar-02	0.7kg CSM per head per week
15-Mar-02	0.3kg CSM per head per week
22-Mar-02	0.3kg CSM per head per week
29-Mar-02	0.3kg CSM per head per week
05-Apr-02	0.2kg CSM per head per week
12 April to	*Nil*
12 Jul 02	*Nil*
19-Jul-02	0.15kg CSM + salt per head per week
26-Jul-02	0.15kg CSM + salt per head per week
02-Aug-02	0.1kg lupins for 01 + 80 kg CSM + 40 kg salt on offer to mob of 93 ewes, 55 wethers, 80 01 drop, 15 calves
09-Aug-02	On offer 80 kg CSM, 50 kg salt, 40 kg lupins, 40 kg Dri Lic, 20 kg zeolite to ewes, wethers, 01 drop, calves
16-Aug-02	On offer 80 kg CSM, 200 kg Dri Lic, 30 kg zeolite to ewes, wethers, 01 drop and calves
23-Aug-02	On offer 120 kg Dri Lic, 10 kg zeolite to ewes, wethers, 01 drop and calves
30-Aug-02	On offer 160 kg Dri Lic, 120 kg CSM to wethers, 01 drop and calves
06-Sep-02	On offer 80 kg CSM to 01 drop, wthrs, calves
13-Sep-02	On offer 40 kg CSM to 01 drop, wthrs, calves
20-Sep-02	On offer 80 kg Dri Lic, 40 kg CSM to wethers, 01 drop and calves
27-Sep-02	On offer 120 kg Dri Lic, 40 kg CSM to wethers, 01 drop and calves
04-Oct-02	Nil
11-Oct-02	Nil
18-Oct-02	40 kg Dri Lic to 01 drop and 11 calves
25-Oct-02	40 kg Dri Lic and 40 Kg CSM to 01 drop and 11 calves
01-Nov-02	80 kg CSM and 40 kg Dri Lic to 01 drop and 11 calves
08-Nov-02	160 kg Dri Lic and 40 kg CSM to 01 drop and calves
15-Nov-02	40 kg CSM, 40 kg Dri Lic, 20 kg lupins to 01 drop and calves

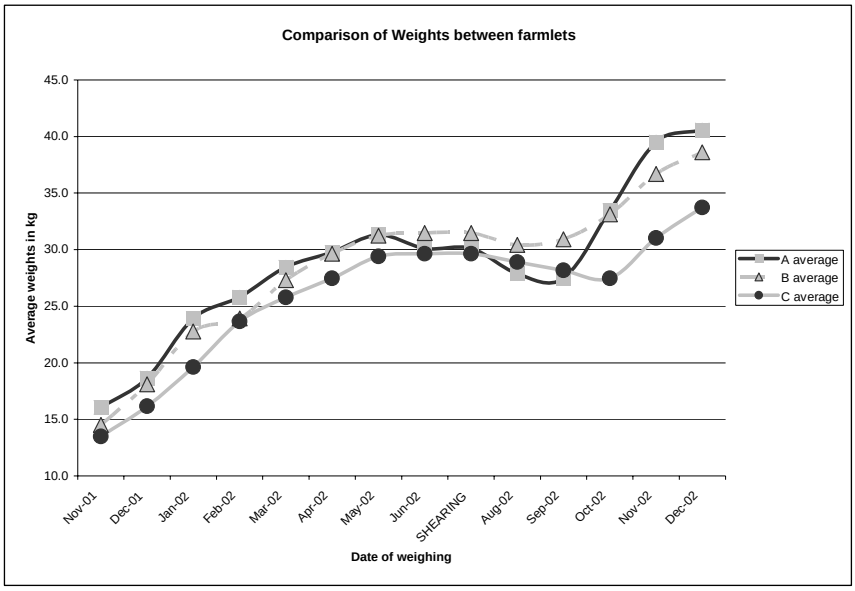
Table 3 Paddock moves on the C farm

Week ending	Farm A	Farm B	Farm C	
16-Nov-02	A6	B6	C11x/y to C6x to C6y (ewes and their lambs pre-weaning)	
23-Nov-02	A6	B6	C6y to C7x to C7y to C8x	
30-Nov-02	A6	B6	C8x to C8y to C12x	
07-Dec-02	A6	B6	C12x to C12y to C13x (ewes and lambs mixed with '00 drop)	
14-Dec-02	A6	B6	C13x to C13y to C14x (ewes and lambs mixed with '00 drop)	**ALL WEANED**
21-Dec-01	A6 to A3	B6 to B1	C14x to C14y to C15x (ewes, lambs, '00 drop) then C16x to C16y (with 00 drop)	
28-Dec-01	A3	B1	C16y to C2x (run with 2000 drop)	
04-Jan-02	A3	B1	C2x to C2y (run with 2000 drop)	
11-Jan-02	A3	B1	C2y to C3y to C6x (run with 2000 drop)	
18-Jan-02	A3	B1	C6x to C6y to C7y (run alone)	
25-Jan-02	A3	B1	C7y to C8x to C9x to C9y	
01-Feb-02	A3	B1	C9y to C10x to C10y	
08-Feb-02	A3	B1	C10y to C11x to C11y	
15-Feb-02	A3	B1	C11y to C12x to C12y to C13x to C13y	
22-Feb-02	A3	B1	C13y to C14x	
01-Mar-02	A3	B1	C14x to C15x to C15y	
08-Mar-02	A3	B1	C15y to C16x to C16y	
15-Mar-02	A3	B1	C16y toC1x to C1y to C2x	
22-Mar-02	A3	B1	C2x to C2y to C3x	
29-Mar-02	A3	B1	C3x to C3y (run with ewes and '00 drop)	
05-Apr-02	A3	B1	C3y to C4x (run with ewes and '00 drop)	
12-Apr-02	A3	B1	C4x to C4y (run with ewes and '00 drop)	
19-Apr-02	A3 to A4	B1 to B8	C4y to C4z (run with ewes and '00 drop) then to C5y alone	
26-Apr-02	A4	B8	C5y (alone)	
03-May-02	A4	B8	C5y to C6x	
10-May-02	A4	B8	C6x to C6y	
17-May-00	A4	B8	C6y	
24-May-02	A4	B8	C6y to C12x	
31-May-02	A4	B8	C12x	
07-Jun-02	A4	B8	C12x to C12y to C13x	
14-Jun-02	A4	B8 to B7	C13x to C13y to C14x to C14y	
21-Jun-02	A4 to A6	B7	C14y to C15x	
28-Jun-02	A6	B7	C15x to C15y	
05-Jul-02	A6	B7	C15y to C16x to C16y to C1x	
12 Jul 02	A6	B7	C1x to C1y	
19-Jul-02	A6 to A4	B7	C1y to C2x	
26-Jul-02	A4	B7	C2x to C2y	
02-Aug-02	A4	B7	C2x	**ALL SHORN**
09-Aug-02	A4	B7	C2x to C2y (run with ewes, '00 wethers & calves)	
16-Aug-02	A4	B7&8	C2y to C3x (run with ewes, '00 wethers & calves)	
23-Aug-02	A4	B7&8	C3x to C3y (run with ewes, '00 wethers & calves)	
30-Aug-02	A4	B7&8	C3y to C4x (run with ewes, '00 wethers & calves)	
06-Sep-02	A4	B7&8	C4x (run with '00 wethers and calves)	
13-Sep-02	A4	B7&8	C4x (run with '00 wethers and calves)	
20-Sep-02	A4 to A1	B7&8	C4x to C4y (run with '00 wethers and calves)	
27-Sep-02	A1	B7&8	C4y to C4z (run with '00 wethers and calves)	
04-Oct-02	A1	B7&8	C4z (run with '00 wethers and calves)	
11-Oct-02	A1 to A2	B7&8	C4z to C5x (run with '00 wethers and calves)	
18-Oct-02	A2	B7&8	C5x to C5y (run with calves)	
25-Oct-02 to	A2	B7&8	C5y (run with calves)	
08-Nov-02	A2 to A1	B7&8	C5y to C6x (run with calves)	
Total in year	**7 moves**	**4 moves**	**73 moves**	

RESULTS

Animals were weighed monthly and the average weights of lambs on each farm are shown in Figure 1.

Figure 1 Comparison of Weights on the three farms



Note the weight change at shearing. Farm A fleeces were 2.2 kg, Farm B fleeces 2.1 kg and Farm C fleeces 1.9 kg on average.

Farm A lambs were heavier at marking and had a weight advantage over the other farms as hoggets one year later. The supplementary feed was a contributing factor to the weight gains especially for Farms A and B which received lupins. However the differences in the nutrition gained from the pasture is reflected in CSIRO cattle which grazed for 6 months from April to October 2002. Farm A ran 15 head with an average increase of 109kg, Farm B ran 12 head which showed an average increase of 55 kg and Farm C grazed 15 head with an average increase of 55kg.

The lower weight of the Farm C lambs at marking and weaning is also a reflection of that is happening with the ewes prior to lambing and during lactation when they are forced to eat what is available in the paddock, they are not able to pick and choose the best plant material. On many commercial properties it has been shown that cell grazing results in some production loss in the preliminary years of establishment and lambs are not usually used as 'grazing machines' or grazed with older stock.

Farm C animals had many paddock moves which may have increased the stress level in these young stock. They were also nutritionally stressed after marking as they were rotationally grazed onto pasture feed which was insufficient and unsuitable. For much of the time they were grazed with older stock or cattle and this high stock density with older stock would affect their ability to obtain water and the supplementary feed on offer.

During January to March the Farm C lambs were grazed in front of the ewes in a leader follower system and showed an obvious improvement in daily weight gain

Average Daily Weight gains	Jan 02	Feb 02	Mar 02
Farm A	176g	63g	90g
Farm B	160g	36g	113g
Farm C	115g	130g	60g

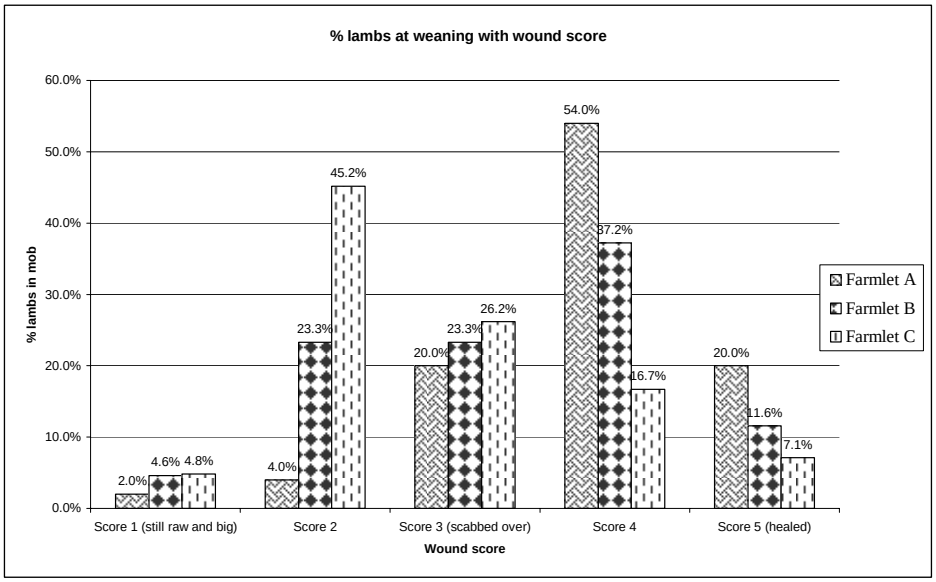
Despite reasonable weight gains during this time, the Farm C animals never fully recovered from their lower starting weight.

At the initial mulesing a number of producers commented on the perceived large size of the wound and they were keen to see the animals again 4 weeks later at weaning. At this time we took a wound score as a number of animals did appear to still have open wounds. The results are shown in Figure 2 where we can see that 50% of the Farm C animals still had raw wounds of score 1 and 2 whereas the Farm B animals had 28% with raw or open wounds but the Farm A animals had only 6% with open wounds and most were healed. This reflects the better quality nutrition of the Farm A animals, the initial smaller size

of the Farm C lambs and the number of moves made by them. The early mulesed C animals moved 13 times in the first four weeks after the operation, whereas the later mulesed C animals moved just 4 times in the month after their operation and they appeared to heal more quickly.

When a measure was done in October 2002 to compare the size of the healed mules, it was found that the early mulesed animals had an average mules size of 7.8 cm wide and the later mules was 7.5 cm wide. This indicates that mules size is not affected greatly by the age at which it is done.

Figure 2 Wound score at weaning



Wound Score
1 raw and sore
2 mostly scabbed over
3 scabbed over
4 almost healed
5 completely healed.

The overall effect of early or late mulesing on the weight of the two treatments is seen in Figure 3 where it can be seen that there is no significant difference. Initially the early mulesed animals were left behind, but they caught up when the other group were mulesed in April. By the end of a year there was no significant difference between the weights of the two groups.

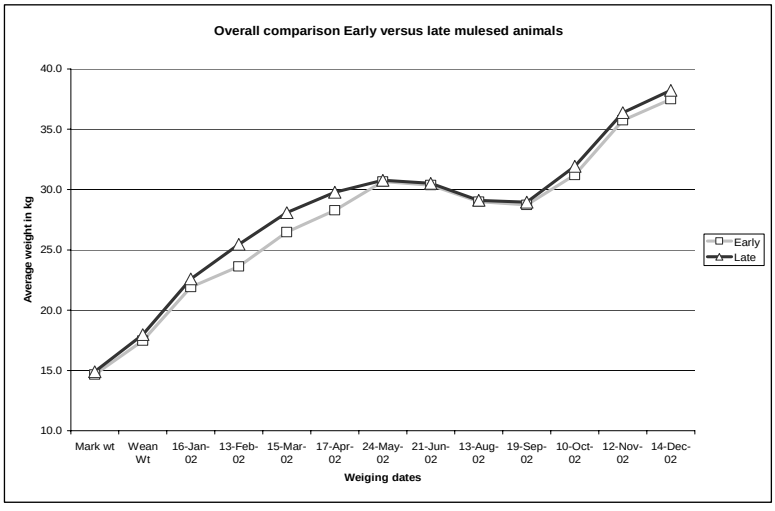
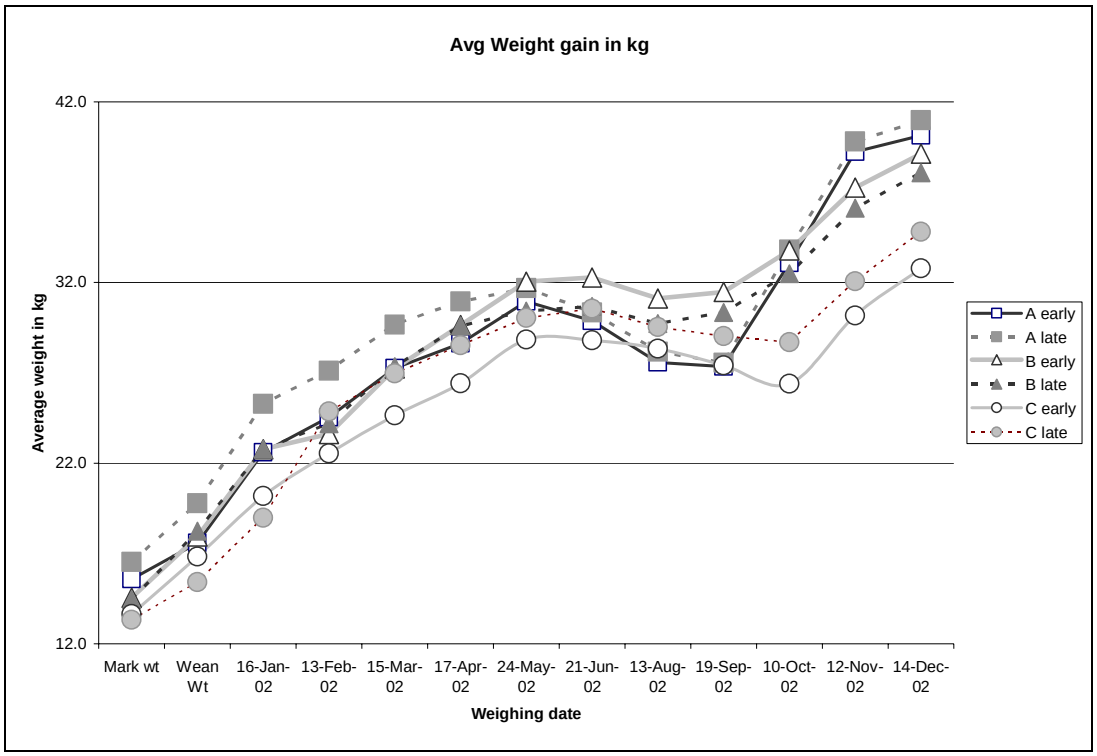


Figure 3 The comparison of weight gain in the early and late mulesed lambs. Note the post shearing dip due to fleece weight

The across farm comparison is shown in Figure 4 which gives the comparison of the early and late animals on all three farms. The solid lines represent the early mulesed animals, the dotted lines show the late mulesed. The squares are for farm A, the triangles for farm B and the circles for farm C. This shows the early mulesed animals were at an initial disadvantage on Farm A but not so on Farm B and C. These weight changes need to take into account the differences in supplementary feed fed on each farm. Farm C lambs were lighter in weight from marking onwards and although they had good growth rates they never

caught up to the weights of the Farm A lambs. Thus the weight changes were affected more by the farm management and nutrition than the time of mulesing.

Figure 4 Comparison of Early and late mulesed lambs in the three farms



Fleece values

At shearing individual fleeces were tagged and weighed. Each fleece was then given a value according to a price grid (Table 4) calculated on the Northern Market Indicator for December 2002 based on micron, staple length and fleece weight. Staple strengths were relatively even so were taken into account for the overall setting of values. Averages were calculated for the fleeces on each farm as well as comparing early and late mulesed animals.

Staple length also had an effect with 20% of Farm A animals below 60mm, Farm B had 22% with under 60mm and Farm C had 25% fleeces with under 60mm staple length. This short staple length is partly a reflection of the early shearing due to restrictions on when we can use the CSIRO shearing shed. The variation between the farms is a reflection of their different nutrition and management.

When the two mulesing treatments were compared over all, the micron average and fleece weights were very even and the short staple length was also spread more evenly with 21.8% fleeces in the early mulesed animals and 24.6% in the late mulesed ones.

It can be seen from Table 5 that there is a difference in fleece value between the farms, the Farm A fleeces were worth around $28 with Farm B fleeces $2.50 lower and Farm C fleeces $3..50 lower in value. The higher fleece weight from Farm A countered the increased value for lower micron in the Farm C animals. This difference was consistent when comparing both early and late mulesed animals from each farm. The later mulesed lamb fleeces gave an average of 50c more per fleece for Farm A, $1 more per fleece for Farm B and 30c per fleece for Farm C. These figures show that nutrition and management had a greater influence on fleece values than the time of mulesing.

Table 4 Grid of Fleece values

SL under 60mm Micron	c/kg	SL 65 and over Micron	c/kg	SL 65 and over Micron	c/kg
15.5	1050	15.5	2350	19.1	946
15.6	1040	15.6	2290	19.2	942
15.7	1030	15.7	2230	19.3	938
15.8	1020	15.8	2170	19.4	934
15.9	1010	15.9	2110	19.5	930
16.0	1000	16.0	2050	19.6	926
16.1	990	16.1	1990	19.7	922
16.2	980	16.2	1930	19.8	918
16.3	970	16.3	1870	19.9	914
16.4	960	16.4	1810	20.0	910
16.5	950	16.5	1750	20.1	909
16.6	940	16.6	1790	20.2	908
16.7	939	16.7	1630	20.3	907
16.8	920	16.8	1570	20.4	906
16.9	910	16.9	1510	20.5	905
17.0	900	17.0	1450	20.6	904
17.1	895	17.1	1415	20.7	903
17.2	890	17.2	1380	20.8	902
17.3	885	17.3	1345	20.9	901
17.4	880	17.4	1310	21.0	900
17.5	875	17.5	1275	21.1	898
17.6	870	17.6	1240	21.2	896
17.7	865	17.7	1205	21.3	894
17.8	860	17.8	1170	21.4	892
17.9	855	17.9	1135	21.5	890
18.0	850	18.0	1100	21.6	888
18.1	845	18.1	1085	21.7	886
18.2	840	18.2	1070	21.8	884
18.3	835	18.3	1055	21.9	882
18.4	830	18.4	1040	22.0	880
18.5	825	18.5	1025		
18.6	820	18.6	1010		
18.7	815	18.7	995		
18.8	810	18.8	980	**Discount**	**By200c/kg**
18.9	805	18.9	965	**SL 40 and lower**	
19.0	800	19.0	950		

Table 5 Fleece values between early and late on the three farms

Treatment	Mic Avg	Avg Cents/kg	Avg Fl wt in kg	Average value of fleeces
A Early	17.0	1271.4	2.2	$28.34
B Early	17.3	1192.2	2.2	$25.87
C Early	16.6	1333.6	1.9	$24.87
A Late	16.9	1297.1	2.2	$28.82
B Late	17.1	1270.0	2.1	$26.78
C Late	16.7	1305.5	1.9	$24.54

Standard AWTA tests for micron. Staple length, staple strength and tip, mid and base were run on side samples from each fleece. The average results are shown in the two figures below (Figure 5 and 6). Farm A had the best staple length and Farm B showed the best staple strength. The Point of Break was more

likely at the tip for Farms B and C and at the mid point for Farm A, there were very few fleeces with a Point of break at the base.

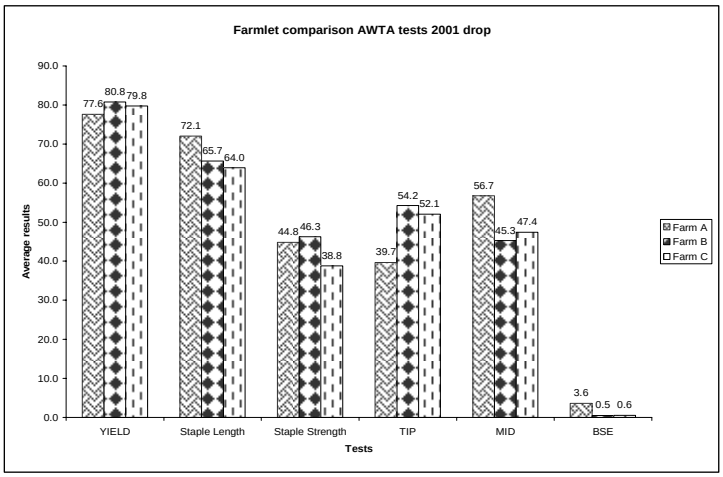


Figure 5 AWTA test results between the three farms, comparison of average results for Yield, Staple Length, Staple Strength and Tip, Mid and Base

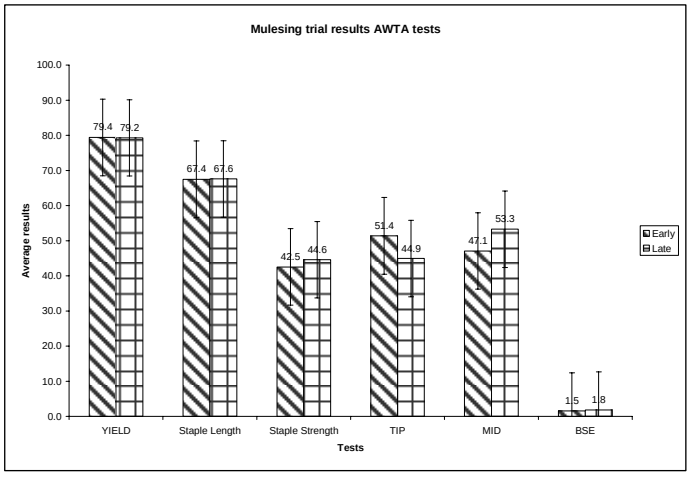


Figure 6. AWTA tests Comparison between early and late mulesed animal average results for Yield, Staple Length, Staple Strength and Tip, Mid and Base

There was no great difference when comparing the results for early and late mulesed animals (Figure 6)

When the OFDA results are examined, similar results are obtained, with Figures 7 to 8 showing there are some differences between the Finest Point From Tip and between the Fibre Curvature (CRV) between the three, but little difference in the other characteristics measured.

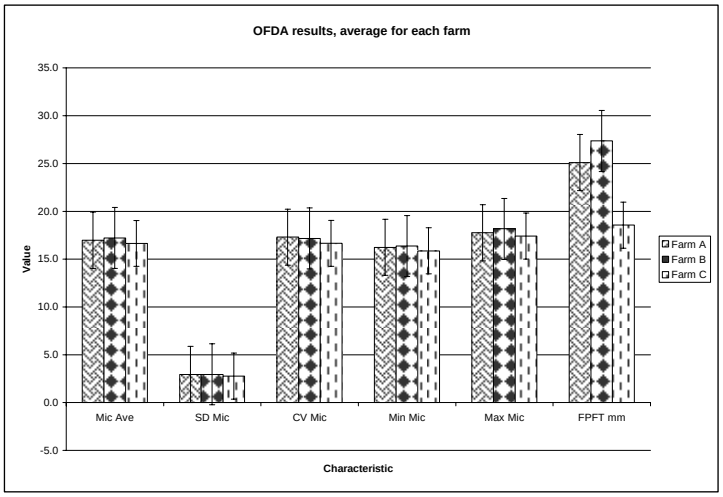


Figure 7 OFDA tests, comparison of averages between farms

Micron Average
Standard deviation of micron
Minimum microns, the finest point along the staple
Maximum micron, the broadest point expressed in microns along the staple.
Finest Point From Tip in mm to the finest micron in the staple

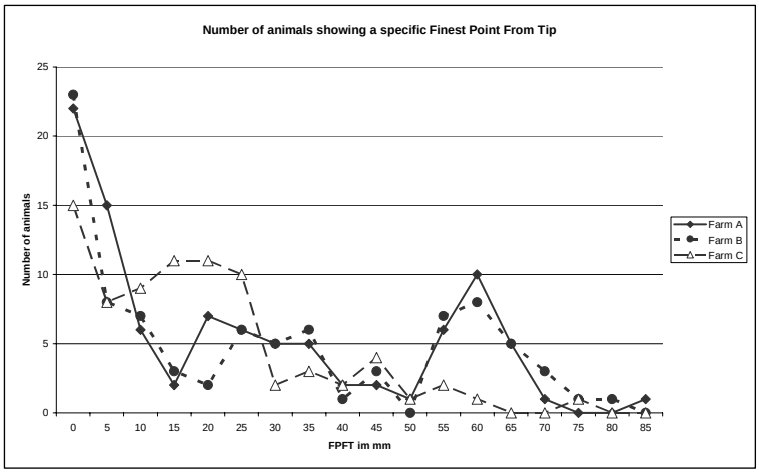


Figure 8 Comparison of farm with the position of the OFDA Finest Point From Tip. Most animals had a FPFT measure from 0 to 10mm with 38% Farm A animals, 35% Farm B animals and 29% Farm C animals falling in this range. Farm C had 51% of its animals in the 10 to 25 mm range. Farms A and B had an interesting 'blip" from 55 to 65 mm with 22% of both having FPFT in this range

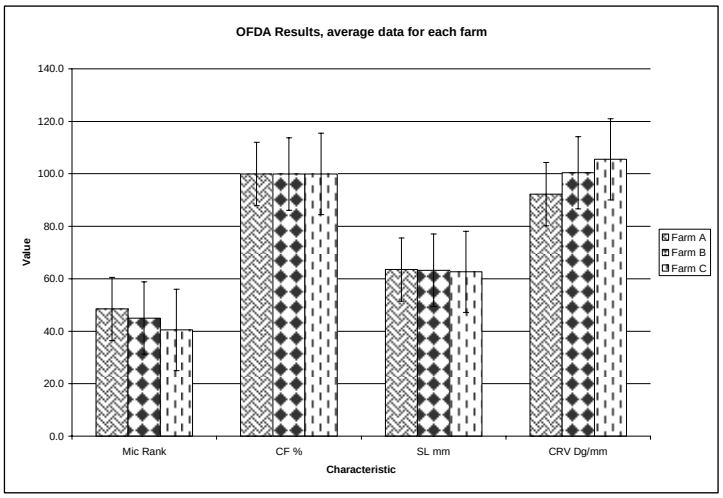


Figure 9 OFDA tests, comparison between farms for average of
Micron Rank
Comfort factor
Staple length
CRV Fibre Curvature expressed in degrees per mm, related to crimp frequency

When the early and late treatments were compared, Figures 10 to 12 show there was some variation between the Finest Point From Tip (FPFT) with the early mulesed animals averaging 20mm and the late mulesed animals average 28mm.

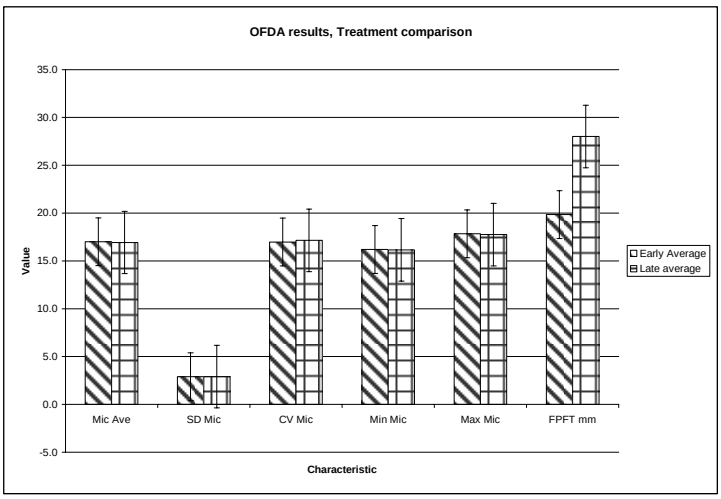


Figure 10 OFDA tests, comparison between averages for early and late mulesed animals
Micron Average
Standard deviation of micron
Minimum microns, the finest point along the staple
Maximum micron, the broadest point expressed in microns along the staple.
Finest Point From Tip in mm to the finest micron in the staple

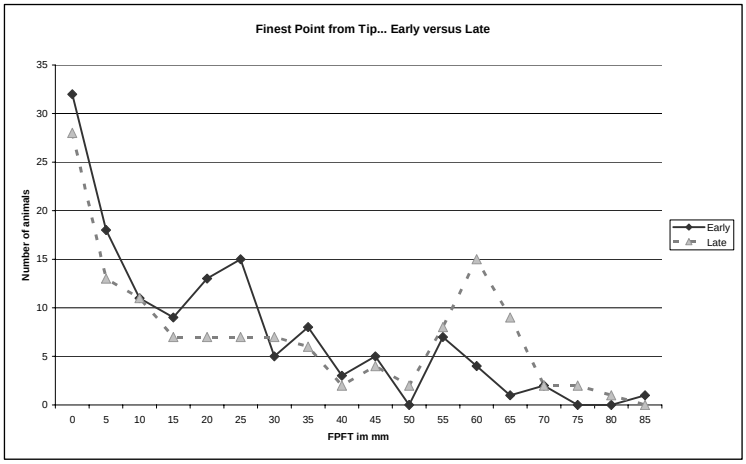


Figure 11 Comparison of Finest Point From Tip between early and late mulesed animals. Most animals were in the range of 0 to 5 mm but 21% of the early animals had a blip in the graph at 20-25 mm and 28% of the late animals had a blip in their graph at 55 to 65mm. These blips appear to coincide with those of the three farms as shown in Figure 8 and are more likely due to nutrition rather than time of mules.

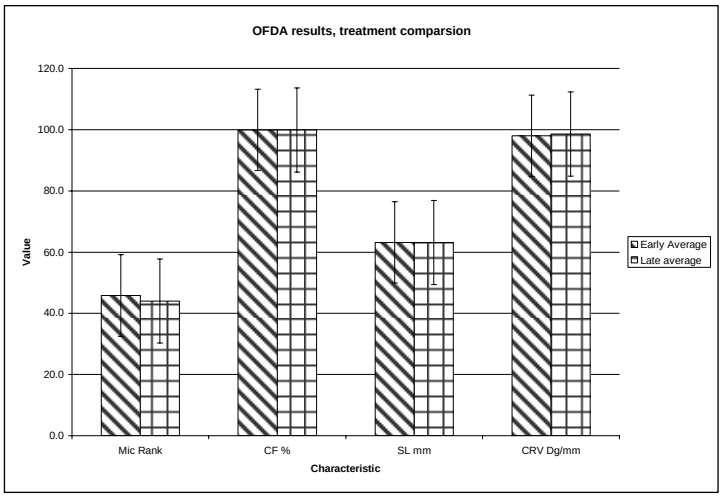


Figure 12 OFDA test comparison between treatments
No differences are obvious between the average results of these OFDA characteristics between early and late mulesed stock

Micron Rank
Comfort Factor
Staple Length
CRV fibre curvature

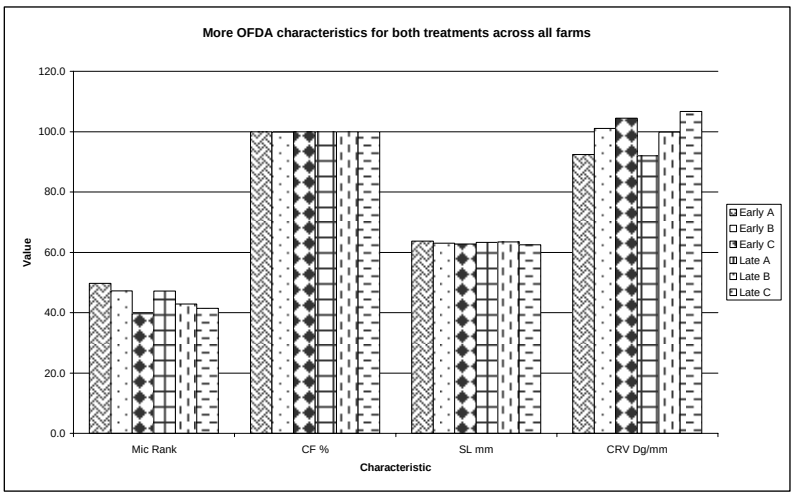


Figure 13 Early and late mulesed comparison across the farms, the differences are in the Micron rank and the CRV measures

Micron Rank
Comfort Factor
Staple Length
CRV fibre curvature

The OFDA and the AWTA results were run through the statistical analysis program Minitab for data analysis. There was no significant difference between the wool characteristics of the early and late

mulesed animals. There were differences between the wool from the three farms. This reflects farm nutrition differences already noted with the animals' weight gain.

Discussion

The comparatively high number of moves for the C animals is probably one contributing reason for their lower growth rate. There was the stress factor of the move but the higher grazing pressure also forced the animals to eat all pasture species and not just select those they found the most palatable and so nutritious.

The benefit of the long rest period between grazing and then returning to a paddock may be producing beneficial effects the control of barber's pole worm which will be discussed in a later paper.

The differing amounts of supplementary feed also affected the animal growth rates. Farm A and B were fed lupins on a per head basis and were run on their own. Farm C animals were often run with older sheep and cattle and feed was in a trailer on the basis of being 'on offer' at all times so the young stock would have had to compete with the older animals.

Farm C animals were at a weight disadvantage as early as marking and despite acceptable growth rates during most of the year they continued to be lower in weight when compared to the other farms. At the end of a year the A animals were 40.2 - 41.1kg in weight, the B animals were 38.1 - 39.1 kg and the C animals were only 32.8 - 34.8kg, considerably further behind.

The wool characteristics showed slight variation between the farms but little between the treatments suggesting that it is nutrition which plays a more important part in the wool characteristics than the time of mulesing.

Conclusions

Good nutrition and as few paddock moves as possible is essential to help the healing of the mulesing wound.

The variations found in both animal growth rates and wool characteristics were more due to nutrition and management than to the timing of the early or late mulesing operation.

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