

# The Multimeat Production System



Using Multimeat rams is a game changer for the lamb industry because it enables lamb producers to breed prolific ewes with a single cross. The crossbred ewes produced will lamb at over 200% and will wean 25-30% more lambs when coupled with the correct management system.

Weaning percentages in our industry have not changed for 30 years and we are now in the middle of another campaign trying to increase our turnoff rates by encouraging us to feed our sheep better. It is true that the industry should take steps to provide better nutrition in late pregnancy and increase the survival of lambs born as multiples but this by itself will do little to improve turnoff rates.

The feeding of ewes to increase fecundity, that is the number of lambs conceived per ewe, is seldom profitable. The feeding of ewes to increase fertility, that is the number of ewes pregnant, can be. Only ewe lambs and 1.5 year old ewes need additional feeding to increase the number of ewes pregnant in our system.

**What the industry needs is a quantum leap in scanning rates without using extra feed or hormones and this is provided by the Multimeat.**

**Multimeat crossbred ewes with 170% lambs at foot.  
These ewes were not scanned prior to lambing.**



## MULTIMEAT RAMS



**Multimeat rams are DNA tested and only those that carry two copies of the Booroola gene are supplied to our clients. Every daughter of these rams carries one copy of the gene which acts on the ovary causing the release of more eggs. The daughters of Multimeat rams scan at 60% higher rates at the same mating weights.**

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# Comparison of Maternal genotypes for lamb production

## ELMORE EWE TRIAL RESULTS

Genotypes involved-**Border Leicester-Merino (BlxMo)**, **Multimeat-Merino (MxMo)**, **Cashmore Oakley (CO)** and 3 merino genotypes. The average results of the merino genotypes are presented as **(Mo-Av)**.

The results below are from their second lambing (2016) after lambing as ewe lambs.

	<b>BlxMo</b>	<b>MxMo</b>	<b>CO</b>	<b>Mo-Av</b>
<b>Wool Returns</b>	<b>\$32</b>	<b>\$32</b>	<b>\$16</b>	<b>\$54</b>
<b>Lambs Born</b>	<b>153%</b>	<b>215%</b>	<b>136%</b>	<b>118%</b>
<b>Lambs Marked</b>	<b>116%</b>	<b>158%</b>	<b>117%</b>	<b>100%</b>
<b>Ewe Weight Oct</b>	<b>69 kg</b>	<b>65 kg</b>	<b>79 kg</b>	<b>58 kg</b>
<b>Lamb Weights</b>	<b>44 kg</b>	<b>41 kg</b>	<b>44 kg</b>	<b>41 kg</b>

The results above are very similar to those reported previously when direct comparisons have been conducted.

The results confirm three important points about lamb production.

**Wool is an important contributor to returns.**

**Prolific ewes can markedly improve the number of lambs sold.**

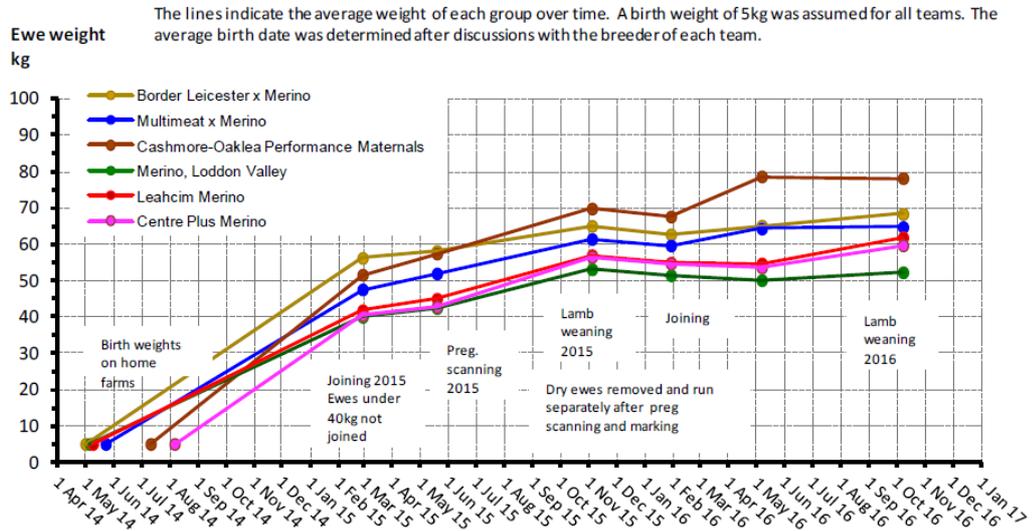
**The total weight of lamb sold is increased greatly by using prolific ewes.**

The most important thing to note is the poor performance of the composite ewes in this trial. These composites have very poor wool returns and there is no compelling evidence they have any more lambs than Border Leicester merino ewes when run under the same conditions.

Summary to December 2016

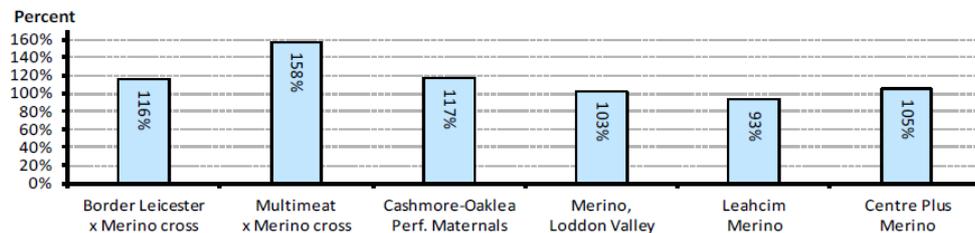
Ewe weight

Ewe weights, fleece free, from birth on farms of origin and after arrival at Elmore



Lambs marked

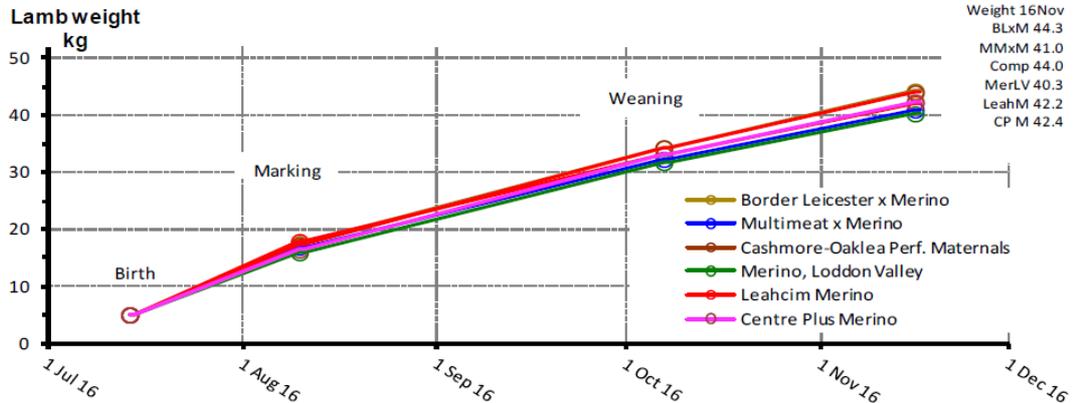
Lambing details 2016, Joining 26 Jan, Preg scan 20 Apr, Mid lambing 10 Jul.



Lamb weight

Lamb weights in the wool from birth, 2016 drop

Note: All lambs were by White Suffolk rams. Lambs were not weighed at birth, the assumed birth weight was 5 kg. There will be differences between the breeds and birth type (singles, twins or triplets). For example; it was obvious that the Multimeat x Merino cross ewes reared at least several sets of triplets that were lighter at birth.



Lamb weights, 2016 drop lambs. No adjustments have been made to account for more multiple births in some breeds. Twins and triplets grow slower than singles, especially up to weaning.

## Recent Scanning Results for Multimeat Crossbred Ewes

**Property 1** 1.5 year old crossbred ewes bred from merino ewes by Border Leicester or Multimeat rams and mated to Terminal sires. Results reported in percentages of each litter size.

Litter size	0	1	2	3	%
Border	10	50	40		129
Multimeat	5	17	46	31	203

**Property 2** 1.5 year old crossbred ewes bred from merino ewes by Border Leicester or Multimeat rams and mated to Terminal sires. Results reported in percentages of each litter size.

Litter size	0	1	2	3	%
Border	8	73	19		110
Multimeat	4	17	61	16	190

**Property 3** 1.5 year old ewes bred from composite ewes by either composite rams or Multimeat rams and mated to terminal sires. Results reported in percentages of each litter size.

Litter size	0	1	2	3	%
Composite	8	32	55	5	153
Multimeat	4	14	34	47	226

The inclusion of the Booroola gene adds 60-70% to scanning percentages

The effects of the gene and nutrition are additive. The ewes on property 3 were heavy at mating causing the number of ewes with triplets to be too high. In contrast to other ewes mature Multimeats should not be overfat at mating.

## On Farm Result 2012

The following results were achieved the property of John Mossop at Kalangadoo in the south east of South Australia. On this property Multimeats and Coopworth Composite rams were mated to a group of Coopworth composite ewes to create two genotypes which were mated to maternal rams. The ewes in the comparison are now 3.5 and 4.5 years old. The ewes were scanned and then combined to lamb in groups of singles, twins and triplets. The survival rates of the singles, twins and triplets were 88, 86 and 70% respectively. There were 475 Multimeat crossbreds and 987 Coopworth Composites in the groups. There were no supplements provided to the ewes but the twins and triplets were given preferential treatment and the best sheltered paddocks.

The tables below show the scanning results, the number of lambs born and surviving for each genotype per 100 ewes mated.

### Coopworth Composites

Litter size	0	1	2	3	
Scanning results	6	34	57	3	157%
Lambs born		34	114	9	
Lambs surviving		27	98	6	131%

### Multimeat cross composite

Litter size	0	1	2	3	
Scanning results	3	9	48	40	225%
Lambs born		9	96	120	
Lambs surviving		7	82	84	173%

I have previously analyzed the survival of twins and singles born to multimeat crossbreds and normal crossbreds and found no difference and the triplets are predominately multimeats .

The results confirm that the turnoff rates and therefore the efficiency of lamb production can be substantially improved by the use of this prolific genotype. It is of interest that in the previous year the Multimeats marked 170% and the Coopworth Composites marked 150%. In 2011 the ewes were in much better condition and so the Coopworth Composites lambed at a higher rate and the difference between the two groups was reduced. In the tougher year in 2012 the Multimeats were still able to conceive more lambs due to the Booroola gene and therefore weaned 40% more lambs. These lambs will now be weaned early onto good clover pasture.

# Multimeat Ewe Lamb Management

Ewe lambs are the most difficult management group often delivering poor results. If a few simple rules are followed a 100% marking can be achieved most times.

These rules are:

- 1 Ewe lambs must be above 40 kgs at the start of the joining period.
- 2 They must be gaining weight at a rate of at least 100 gms per day during the mating period.
- 3 They should be 8 months of age at the start of mating.
- 4 Mating should not start until February.
- 5 The joining period should be no shorter than 8 weeks if you are not using teasers.
- 6 The ewe lambs should not get above condition score 3 at joining.

Where these rules were followed good results were observed. In our ewe lamb trial at John Mossop's the Multimeat ewe lambs scanned 183%, marked 115% and the control composite ewe lambs which scanned 133% , marked 111%. These results were very good and close to that predicted. Ewe lambs are poorer mothers and lamb survival of the multiples is lower. Unfortunately they have to be prolific as ewe lambs if they are going prolific later in life. They will however be better mothers as 1.5 yr olds as a result of the experience. One of the key factors in the success of these ewe lambs was that they were mated on stubbles ensuring good growth rates during mating.

If you are going to mate your ewe lambs then you should decide early and aim to achieve the pre-mating weight with as many ewe lambs as possible. Mating ewe lambs is not always the best thing to do. If there has been a poor spring they may be best left to mate as 1.5 yr olds. The cost of getting them up to the weight may not be worthwhile.

You need to be particularly aware they will not be cycling at the start of mating. They will begin cycling in response to ram introduction. So they need to be kept well apart from any ram exposure for at least 6 weeks before joining. When the rams are introduced they will not begin to conceive for 17-21 days. Their period in oestrus will also be shorter than mature ewes so if you put rams with them for 6 weeks then some will not cycle until day 21 and then again on day 38 and then day 55. If the rams were removed at 6 weeks on day 42 then the chances of conception are reduced. So mate for at least 8 weeks unless you are using teasers.

The reason for delaying mating of ewe lambs until February is that most ewe lambs will not be 8 months of age until then and also this is entering the more fertile season for sheep which is determined by daylength.

Good sheep management is just as involved as good crop production. Multimeats have the capacity to lift lamb production to a new level. If you adhere to the weight targets I will give to you for the different age groups I can predict with reasonable accuracy what the results will be. Our goals at weaning are:

Ewe lambs: 100%  
1.5: 140-%  
Mature: 165%

These results can be achieved by any genotype by feeding or lowering stocking rate. The difference with the Multimeat is that we can achieve these turnoff rates much more efficiently to boost per hectare productivity to new levels. The increase in scanning percentage comes from genetics, not feeding.

# Multimeat Management-1.5 year olds

## Introduction

It is not uncommon to find 10-15% of dries in this group of ewes. With attention to a few points this can be reduced to 5%. They need to be treated as a separate group because they are different in a few ways. Firstly they are unlikely to be cycling when the rams are introduced especially if this is in December or earlier. They still may not be cycling in January. They will also have shorter oestrus periods than mature ewes. When they do respond to the ram effect, 80% of them may cycle over a few days, so with this group it may pay to use a higher ram percentage. I strongly advise to mate this group for 8 weeks if you are not using teasers and keep them away from ram exposure prejoining.

Just to warn you I will tell you of one event I am familiar with. The producer put the rams with this group of ewes in mid December and mated for 6 weeks. It became obvious later that very few of the ewes were pregnant. On investigation it was found that the ewes were running near rams. So when the rams were introduced no ram effect occurred. Then the ewes would not begin to cycle naturally until late January and by this time the rams had been removed.

## Prejoining

If ewes have been joined as lambs then it is important to wean the lambs early to allow the ewes to regain weight by next joining. They should be between 55 and 60 kgs at joining or condition score 3 if possible. If you achieve this they will scan around 200% with about 5% of dries. Keep them away from rams for 6 weeks before joining.

## Joining

Join this group for 8 weeks to a slightly higher percentage of experienced rams. Have them gaining weight slowly during the joining period. Again they should not be better than condition score 3 at joining. Fatter is not better with Multimeats.

If you do achieve these goals which are not easy, you will have a group of ewes which will scan 200%, 25% of which will be triplets.

## Prelambing

This group has more difficulty gaining weight than mature ewes. So you need to weigh them 6 weeks prior to lambing and feed to achieve the target weights set below. They need to be scanned into litter sizes if practical. The scanning and feeding appropriately for litter size I think is the key to achieving the best results from high performance ewes. Single bearing ewes should be 60 kgs, twins 65kgs and triplet bearing 70 kgs or condition scores 2.5,3 and 3.5 respectively. If you achieve these weights then the birth weights of singles will be above 5 kgs, twins 4.5 kgs and triplets 4 kgs. With these birth weights marking percentages of 150% and better will be achieved.. Be warned if you feed the ewes too much some of the ewes will develop prolapses of the uterus.

## Lambing

It is best to stay well away from them during lambing unless you have conditioned them to your presence. Intervene only when necessary. The more feed there is in the paddock the more time they will spend on the birth site which improves survival.

## **General**

What we are is about efficiency. The objective is to get as many lambs as possible to consume the excess spring feed. Do not get these ewes over heavy at mating as they will have too many lambs and as 1.5 year olds they can't manage them. Do not get them too heavy during mid pregnancy. It is important that they gain the weight during the later stages of pregnancy.

The biggest areas of failure with this group have been in not achieving the prelambing weights. This results in poor birth weight and poor survival.

If you obey these guidelines you will achieve the results indicated or better. We are moving into a period where lamb production is becoming more of a specialized art. It is as equally demanding as cropping, and the increases in production we will see in the future will be quite dramatic.

# Multimeat Management - Mature ewes

## Premating management

Do not time your lambing to occur when the ewes are going to be lambing on dry feed, unless you have a specific reason for doing so. In the Naracoorte region this means no earlier than the first of June, preferably later if you have a longer growing season.

Multimeat ewes are different than normal ewes because up to 80% of ewes will have multiple pregnancies. This is very dependent on ewe live weight at mating. Mating weight of mature ewes should not exceed 65 kilograms or be at condition score 2.5. They should be restricted to achieve this weight. By late January these ewes should be cycling naturally so a shorter joining period can be used. One cycle of the ewe takes 17 days. Three cycles takes 51 days. I suggest that 52 days is the minimum joining period to use. I am not sure where the 6 week joining idea originated or what physiology it was based on, and I know it works in most cases, but I also know there are reasons why it must fail occasionally. These are to do with variations in the onset of the natural breeding season from year to year due to variations in the hours of sunlight.

## Management during Pregnancy

During early pregnancy the ewe will lose weight on dry feed in our climate. Mature ewes have the ability to regain weight at a very fast rate because they do not have to use some nutrients for growth as younger sheep do. In one of our observations they gained 13 kilograms in 4 weeks when fed barley at a high rate during late pregnancy. Their rate of gain was over 400 gms per head per day. To successfully manage multimeat ewes they need to be scanned for litter size and managed accordingly. Six weeks before the start of lambing we have to find out where each litter size group is at. I am a strong advocate of doing this by weighing. Triplet bearing mature ewes need to be 70-75, twins 65-70 and singles around 60 kgs at the point of lambing to achieve good results. At these weights the triplets should be slightly better than condition score 3.5. To attain these weights you need to know how much gain is needed 6 weeks prior to lambing and devise a feeding regime to reach this goal. You must check to see whether your strategy is working along the way.

The triplet bearing ewes may need to be supplementary fed to gain the weight required even on green pasture. One week before lambing they **need to be consuming 24 mega joules of energy per head per day**. It is unlikely that they can consume enough pasture for them to meet these requirements and if they don't, lamb birth weights will not be high enough for good survival rates of triplets. It is important to separate them and feed them to get them to 75 kgs. This will still mean the actual ewe weight is around 55 kgs the rest is fetuses, placenta and fetal fluids. Follow these guidelines and your triplet bearing ewes should wean over 190%. The growth rate of the lambs will be determined by the stocking rate of the ewes. The triplet bearing ewes need to be stocked at a lower rate than the twins and singles. How much lower I do not know but we will try and find out more about it this season. If asked to guess I would say that the triplets needed to be run at 65-70% of the rate of the singles and the twins somewhere in between

One of the biggest losses with multiple bearing ewes is separation. This can be reduced by lambing them in a paddock with plenty of feed so they do not have to travel far to get enough feed. Smaller paddock sizes also help because the ewe is more likely to find the separated lambs. What you must not do is increase the stocking rate of multiple bearing ewes. They need space for bonding between ewe and lamb to occur. This is particularly true for multiple bearing ewes.

Foxes are the enemy of multiple lambers because the lambs are smaller and more vulnerable. All of your good work can be undone if adequate fox control is not carried out. The losses can be extreme and the lambs just disappear. If you are not prepared to control foxes there are little point in having multiple bearing ewes. I have heard it said recently that foxes are not a problem because they only take the weaker lambs. In a well conducted trial using alpacas the weaning rate was increased by 15% so there was obviously a major problem in this area.

### **During Lambing**

During lambing you either have to stay almost completely away only intervening when you see a problem, or condition the ewes to your presence so they are not disturbed when you go around them. The longer a ewe can stay close to the place where she gives birth the better the bonding is between ewe and lamb. If feeding is still required then it is probably best done using lick feeders.

### **Post Lambing**

In the triplet mob there will be some rearing triplets and some rearing singles so there will be a large variation in the size of the lambs. The difference between the single and triplet reared will be about 14 kilograms. The triplet bearing ewes should wean around 190% of lambs, twins 175% and singles 95%. The biggest determinants of the result will be pre-mating weight, weather conditions at the time of lambing and fox numbers.

### **Summary**

This is a very concise report on what we consider are the main points to achieving good results from mature ewes. One of people's biggest concerns is the smaller weights of multiple born lambs. The fact is they are and always will be smaller. The most profitable producers are not the ones who get the highest price per head, but those who produce the greatest number of kilograms per hectare. This said, it requires a fine balance between litter size, stocking rate and supplementary feeding to achieve a good result. Each property is different and each year is different. These sheep are unique and it will take you a few years to adjust your management to get the best out of them.

**Multimeat rams are leased to our clients rather than sold. The main reason for this is so we can keep contact with our clients and to protect our interest in the genetics. This is done by insisting that our clients agree to castrate all male progeny. The details of the lease agreement are outlined on the next page.**

**Book your rams early by calling Colin on 0428647457 or emailing earl.kerami@bigpond.com.**



# Multimeat Lease Agreement

**This agreement outlines conditions for lease of rams from the Multimeat Company to Producers.**

## Multimeat Company

1. The number of rams requested by the producer will be supplied by the Multimeat Company.
2. If a ram dies, is injured, is faulty, or cannot work for any reason he will be replaced by the Company.
3. The Company will provide ongoing management advice to producers using the rams.
4. The lease agreement is for a minimum of 2 years, after which it can be terminated by either party.
5. The lease fee is \$450 plus GST per year per ram, and will be invoiced annually. Those who already have rams will be invoiced at \$400 per year for their existing rams but \$450 for new rams.

## Producer

1. The Producer will care for the rams to the best of their ability.
2. The rams will be for the exclusive use of the Producer who has leased the rams.
3. No leased ram can have semen collected for use by the producer or any other entity.
4. All male progeny of the rams will be castrated.
5. Rams no longer needed remain the property of the Multimeat Company. To end lease of rams, notify the Company and arrange for rams to be sold for meat at market.

## ***Producer Details:***

Trading Name: \_\_\_\_\_

Total no. of Rams Leased \_\_\_\_\_ Nos. \_\_

Contact Name: \_\_\_\_\_

PIC NO: \_\_\_\_\_

Postal Address: \_\_\_\_\_

ABN: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_

Mobile: \_\_\_\_\_

Fax: \_\_\_\_\_

## ***I agree to abide by the conditions outlined above:***

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## ***Multimeat Company confirmation of rams***

***leased:*** Signed: \_\_\_\_\_

Date: \_\_\_\_\_

Dr Colin Earl spent many years working for SARDI at Struan, S.A undertaking research on sheep reproduction. In 1999 Colin left SARDI and set up his own consultancy business, Multimeat, developing and marketing high fecundity prime lamb genetics.

## **The Case for the Multimeat Dr Colin Earl**

### **Key points**

- Kilograms of lamb produced per hectare is the most important profit driver of lamb production.
- Increasing the number of lambs weaned per ewe can increase per hectare productivity.
- Multiple bearing sheep must be managed to optimize lamb survival.

Efficiency of lamb production is influenced by a number of interacting factors such as litter size, stocking rate, genotype, soil type and management decisions. For the purposes of this discussion I will assume that pasture production has been optimized and only the animal related effects will be focused on. This paper aims to look at various factors affecting efficiency and how the Booroola gene can be used to improve it.

### **The Booroola Gene**

In the 1960s the CSIRO discovered that there was a gene in our sheep flocks which increased the number of lambs born by 60%. This was a single dominant gene. What we have done is combine this gene with the genetics from elite terminal sires into the multiple bearing meat sheep the Multimeat. The rams supplied from this flock produce daughters with one copy of the gene causing them to lamb at a rate 60% higher than those without the gene. As the graph 1 shows the effects of the gene are additive to the effects of live weight. All Multimeat rams for lease are DNA tested to confirm the presence of 2 Booroola genes meaning every daughter sired by these rams will have one copy of the gene and lamb at the higher rate.

### **Litter Size**

The number of lambs reared has a strong influence on efficiency of lamb production. Studies have shown that ewes rearing twins are 46% more efficient at converting feed into lamb than ewes rearing singles. These studies calculated that ewes rearing singles produced 90gm of lamb per kg of feed consumed compared with 135gm from the twin reared lamb. This difference in efficiency is because the maintenance cost of feed for the ewe is only slightly increased to produce two rather than one lamb.

The greater the number of lambs weaned per ewe the more efficient the production system will be since the maintenance cost of the ewe is shared over the greater number.

### **Ewe live weight**

Ewe live weight is determined by the producer's decisions about stocking rate, supplementary feeding and the genetic makeup of the ewe. The weight of the ewe at mating and the season of mating determine the number of lambs conceived per ewe. As shown in graph 1 below the heavier the ewe at mating the more lambs are conceived. The lambs born per ewe increases linearly with live weight and ewes with the Booroola gene have 60% more lambs than the normal crossbred ewes. These effects are shown in the graph below.

As mating is delayed from December to March the number of lambs conceived also increases. No sensible discussion about weaning percentages can take place without reference to stocking rate and time of mating. The stocking rate is normally determined by how many ewes can be carried through the time of lowest feed availability which in southern Australia is wintertime.

The mature live weight of the ewe also has a significant effect on the efficiency of the system. The larger the genotype of the ewe the more feed she will consume and the lower the stocking rate will have to be for them to reproduce successfully. It is a difficult decision to determine the best mature size ewe to aim for. Too heavy is definitely inefficient and too light is likely to have a detrimental effect on reproductive capacity. We are trying to take the middle road with the Multimeat.

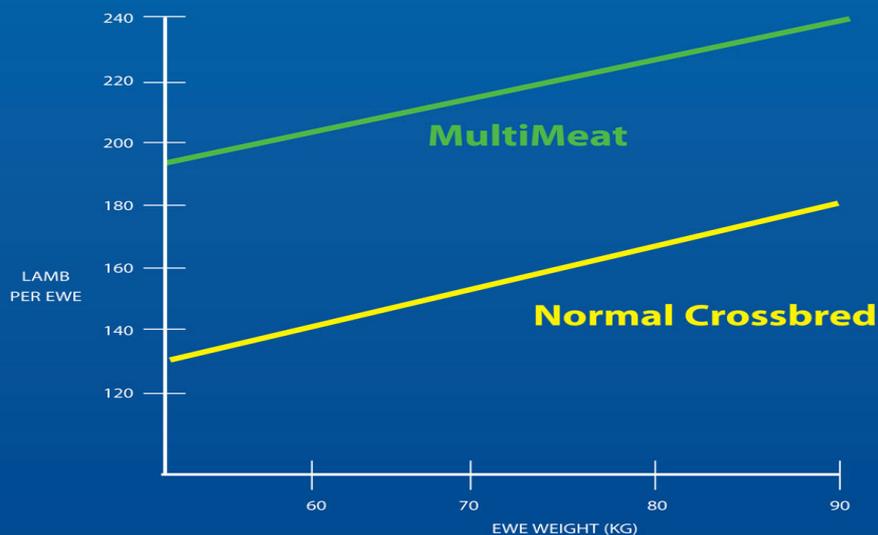
The producer also influences efficiency by the way live weight of the ewe is managed throughout the production cycle. Since feed consumption is almost directly correlated with live weight the heavier we have them at any stage of the cycle the more feed they will be consuming. With the Multimeat there is no need to have them heavy at mating to achieve high lambing percentages. It is therefore possible to run them at lower live weights through much of the year and thereby achieve efficiency gains.

There is no more inefficient system than running huge crossbred ewes at low weaning percentages.

In a normal crossbred ewe flock weaning 115% of lambs, 85% of the feed is consumed by the ewe and only 15% by the lamb. Thus the bulk of the feed is used for ewe maintenance. To improve efficiency it was necessary to produce a genotype which could have more lambs without having to increase live weight. The graph below illustrates this.



**MultiMeat crosses produce  
60% more lambs  
than normal crossbreds**

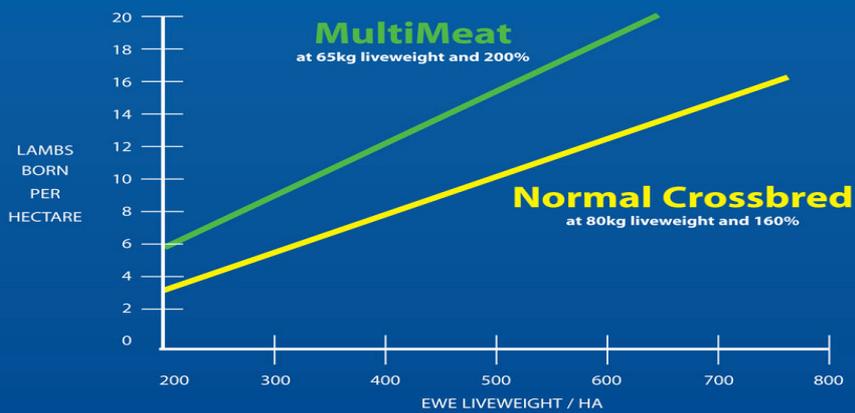


Graph 1

The new genotype makes it possible to increase the number of lambs born per hectare without increasing the ewe live weight per hectare. Since the MultiMeat crosses will produce 200% percent fetuses at a weight of 65kg and the normal crossbreds will produce 160% at a live weight of 80kg we can construct a new graph showing the number of fetuses produced per hectare as in graph 2 below.



**For the same ewe bodyweight,  
MultiMeats give a significantly greater  
number of lambs born per hectare**



Graph 2

At any particular live weight the number of lambs born per hectare will be greater than the normal crossbreds.

### Litter Distribution

As litter size is increased the number of single bearing ewes decreases and the number of multiple bearing ewes increases. As shown in graph 3 below as litter size increases above 1.5 the number of triplet bearing ewes starts to increase. Mature ewes carrying the Booroola gene will have a litter size above 2 lambs per ewe so many of the ewes will be carrying triplets and quads. There is no greater inefficiency than to lose the ewe or for her to rear no lambs so lamb survival becomes very important.

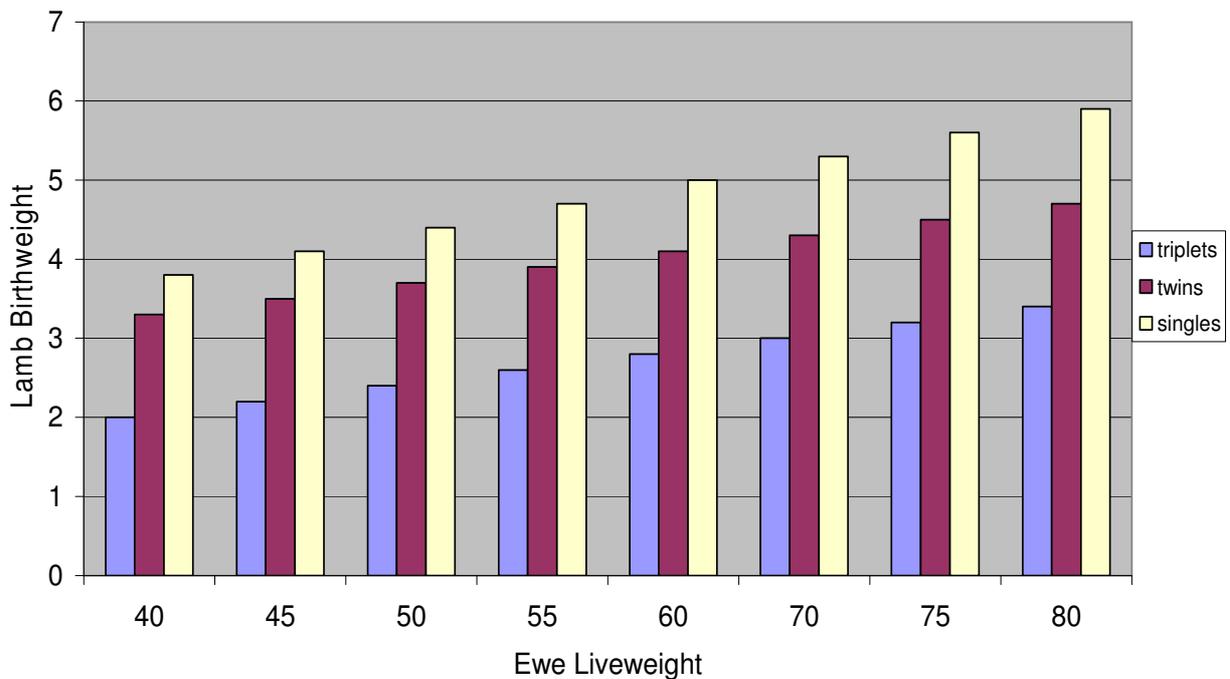


Graph 3

### Lamb Survival

In multiple bearing flocks lamb survival is probably the most important factor affecting efficiency. The principal factor influencing lamb survival is lamb birth weight. Birth weight to a large extent is controlled by pre-lambing ewe live weight as depicted in graph 4 below.

### Ewe Liveweight and Lamb Birthweight



**Graph 4**

For Multimeat ewes pre-lambing live weight needs to be above 70kg. At this weight the survival of single, twins and triplet born lambs will be 95, 85-90 and 65% respectively. This will result in Multimeat sired ewes lambing over 200% to have a weaning percentage of 170% or better. Scanning and managing different litter sizes to achieve different pre-lambing ewe weights will improve the efficiency of feed use and lamb growth.

### Lamb Growth

In a Multimeat flock where all lamb growth rates were recorded for lambs born and reared the relative growth rates for single, twin, triplet and quad reared lambs were 346, 307, 246 and 238gm per day respectively. This means at weaning at 16 weeks the single, twin, triplet and quad bearing ewes would wean 38, 68, 82 and 106kg of lamb respectively. From this it is easy to see how multiple bearing ewes greatly increase the weight of lamb produced per hectare of grazing land.

This also means that some lambs will be sold unfinished. This is a situation that a lot of producers cannot handle. They believe that they have failed if all lambs are not fat so they reduce stocking rate and increase feeding to achieve their goal. In the majority of cases the price per kilogram is not much different during different years or seasons so profitability is most often determined by kilograms produced per hectare. Price per head is very poorly correlated with profitability.

The optimum stocking rate for high lambing percentage flocks will be lower than that for low lambing percentage flocks.

### **Climate Change and Multiple bearing sheep**

Over the last ten years we have experienced more variable seasonal conditions. The response I often hear is that under these conditions multiple bearing ewes could be too risky. I contend that the opposite is the case. To illustrate this I will examine a theoretical example.

In the Naracoorte region crossbred ewes are often run at 5 ewes to the hectare weaning 120% of lambs to produce 6 lambs per hectare. From 100 hectares 600 lambs are produced from 500 ewes. Mature Multimeat ewes managed properly can wean 170% of lambs. Thus only 353 Multimeat ewes are needed to produce 600 lambs. A system which uses 41% less ewes to wean the same number of lambs will be much safer because in the event of a late break there are a lot less ewes to use what pasture is available. In the spring there will be a lot less ewes to compete with the lambs.

### **New Genotypes**

I share similar views to Holmes and Sackett on the Dohne and South African Mutton Merinos (SAMM).

Undoubtedly these genotypes will produce greater meat sales but less wool returns. Maybe you end up slightly in front. My problem is more with the time it takes to make the changeover of genotype. If you start using these rams this year, then in 5 years time you will have converted all of your ewes to 50% SAMM or Dohne. In another 5 years they will be 75%. Even if the new genotype is slightly better it will take you forever to achieve the benefits unless you sell all your sheep and buy in the new genotype, which people are reluctant to do.

The other genetic change has been to the use of maternal composites to breed self replacing ewe flocks with a percentage mated to terminal sires. This is being driven by the cost of buying in replacement ewes. This is likely to succeed if these genetics also increase lambing percentage and lamb growth rates to offset the loss in wool income from normal crossbred ewes. From the Maternal Central Progeny Test (MCPT) we know that the only crosses that produce more lambs than the Border cross are those based on either the Finn or the Booroola. Reproductive attributes also have very low heritability so selection for them is very slow. To improve them you have to use prolific genotypes and then if you infuse terminals into the mix you will lose the very attributes you are after.

### **The future**

I believe that the efficiencies obtainable through using the Booroola gene that is being able to obtain high litter sizes at lower bodyweights, will eventually see widespread use of the gene in the lamb industry. This requires a serious change in mindset of some producers so it may not happen quickly. Producers using the Multimeat are developing management systems to achieve the best out of them. Scanning and stricter control of ewe live weight throughout the production cycle is important.