



## **Merial Romney Saleable Meat Yield Project**

The 2006/2007 results were presented at our recent conference in Gore. The trial was run on John Jackson's property in the North Island and Hugh Taylor's property in the South Island. Both these farmers have supplied their property and time free of any charges and without their support this trial would have been far more costly. The very generous support that Merial gives us for this trial is also appreciated.

This trial has as its primary objective to: Identify superior dual purpose sires that have higher saleable meat yield value than their contemporaries.

It will also look at the maternal traits through female progeny

Provide linkages that will give more accurate across flock reporting

Potentially provide linkages to other trials.

### **Review of the project to date.**

- On Hugh's property we were able to shepherd the ewes over lambing thanks to Lincoln University and Tom Broughton. This has meant that birth weight, lamb survival data and mothering effect were able to have analyses done. In the North Island this was not possible
- Lambing conditions in the North Island were particularly difficult with large lamb losses over approximately 6 days of intense storms. While lamb numbers are still sufficient for the trial we did not have enough ewe lambs for maternal trait research. In the South this has been done and we will be linking this information into SIL as will the ewe flock. We will look to do this in the North Island next year.
- We are still awaiting the final data from Progressive Meats before we can have a full summary of North Island data.

### **What we will improve.**

- Data must be available before mating to ram breeders (not after like this year). We will be looking at taking on someone to help us in this area.
- North Island data must be processed faster. We are meeting with Progressive Meats to discuss this issue and will also look at the alternatives
- We will review the involvement of our eartag provider as we have not been able to link the electronic ear tags to the freezing works.
- We had hoped that we would have a sire in the CPT trial this year but the proposed ram we had selected did not have viable semen after freezing. The plan is to have one next year.

### **This year**

- A total of 24 sires were used over the two properties with 1 link sire which was also one of the link sires used last year.
- In the South Island ewe hogget's from the sires used last year have been mated and we are in the process of putting the ewes on SIL
- We are working on implementing the improvements mentioned above

## **2006/2007 Trial Results**

### **Introduction**

1. A total of 37 sires were used (including 2 link sires used on both properties)
2. Each sire was mated to 60 ewes
3. All ewes were scanned and dry ewes removed
4. In the South Island lambs were identified at birth, in the North Island they were DNA profiles by GTG.
5. Lambs were processed through Alliance (using Viascan) in the South Island and through Progressive Meats in the North Island using manual weighing systems.

## North Island Results

**Table 1 (% lambs drafted at weaning)**

<b>Sire Prefix/Code</b>	<b>Sire ID</b>	<b>% Draft of Mother</b>
	<b>25</b>	<b>53%</b>
	<b>28</b>	<b>37%</b>
	<b>26</b>	<b>36%</b>
	<b>30</b>	<b>31%</b>
	<b>34</b>	<b>29%</b>
	<b>36</b>	<b>29%</b>
	<b>31</b>	<b>28%</b>
	<b>37</b>	<b>27%</b>
	<b>29</b>	<b>25%</b>
	<b>33</b>	<b>25%</b>
	<b>21</b>	<b>20%</b>
	<b>23</b>	<b>20%</b>
	<b>22</b>	<b>18%</b>
	<b>24</b>	<b>18%</b>
	<b>32</b>	<b>16%</b>
	<b>20</b>	<b>15%</b>
	<b>35</b>	<b>15%</b>
	<b>38</b>	<b>12%</b>
	<b>39</b>	<b>6%</b>
	<b>27</b>	<b>5%</b>
		<b>Range 5%-→53/5</b>

The table shows the % of lambs (both male and female) that were or could have been drafted based on their body weight. Generally this is mainly affected by how well the ewe milks. However in this trial we see a very big difference between sire groups.

**Table 2 weaning weight (all lambs)**

<b>Sire Code</b>	<b>WWT</b>
30	36.1
25	35.7
38	35.5
24	35.3
36	35.3
34	34.7
33	34.4
26	34.3
21	34.1
31	34.1
28	33.8
29	33.8
22	33.5
20	33.3
23	33.2
37	33.2
35	33.1
32	32.7
27	31.6
39	31.3

The important data here is the extremes, sires groups 27, 32 and 39 weaned at significantly lower average weights than sire groups 25, 30 and 38. All other sire groups were considered to be similar and within the standard error of the data.

**Table 3**

<b>Sire Prefix/Code</b>	<b>Sire ID</b>	<b>Ave age at Drafting (Days)</b>
<b>28</b>		<b>104</b>
<b>25</b>		<b>108</b>
<b>30</b>		<b>110</b>
<b>33</b>		<b>111</b>
<b>37</b>		<b>117</b>
<b>36</b>		<b>118</b>
<b>29</b>		<b>119</b>
<b>31</b>		<b>120</b>
<b>24</b>		<b>122</b>
<b>20</b>		<b>124</b>
<b>26</b>		<b>126</b>
<b>39</b>		<b>128</b>
<b>34</b>		<b>129</b>
<b>38</b>		<b>134</b>
<b>32</b>		<b>135</b>
<b>21</b>		<b>136</b>
<b>23</b>		<b>136</b>
<b>27</b>		<b>143</b>
<b>35</b>		<b>143</b>
<b>22</b>		<b>146</b>

The table shows that there were four sire groups that were much quicker to reach draft weight than the other sires.

The meat yield data and the ranking between the North Island and South Island have still to be completed. We are expecting this to arrive shortly and it will be sent out to you in hopefully the next three week.

## South Island Data

**Table 1 Mean birth weights and growth rates (until weaning) for each sire-line.**

<b>Sire-line</b>	<b>Average birth weight (kg)</b>	<b>Average growth rate until weaning (g/day)</b>
<b>1</b>	<b>5.65</b>	<b>268</b>
<b>2</b>	<b>5.60</b>	<b>264</b>
<b>3</b>	<b>5.52</b>	<b>263</b>
<b>4</b>	<b>5.44</b>	<b>273</b>
<b>5</b>	<b>5.39</b>	<b>263</b>
<b>6</b>	<b>5.61</b>	<b>255</b>
<b>7</b>	<b>5.42</b>	<b>267</b>
<b>8</b>	<b>5.53</b>	<b>274</b>
<b>9</b>	<b>5.16</b>	<b>257</b>
<b>10</b>	<b>5.59</b>	<b>261</b>
<b>11</b>	<b>5.37</b>	<b>253</b>
<b>12</b>	<b>5.47</b>	<b>259</b>
<b>13</b>	<b>5.80</b>	<b>262</b>
<b>14</b>	<b>5.48</b>	<b>270</b>
<b>15</b>	<b>5.35</b>	<b>266</b>
<b>16</b>	<b>5.26</b>	<b>258</b>
<b>17</b>	<b>5.15</b>	<b>254</b>
<b>Total</b>	<b>5.46</b>	<b>262</b>

This table showed that there was a significant difference between the top three and bottom three rams as relates to the average birth weight of their progeny. Interestingly even at these high average birth weights a very low level of dystocia was diagnosed (all dead lambs were autopsied to ascertain cause

of death). Generally if dystocia is not a problem lamb survival and growth rates to weaning are improved with higher birth weights. In cattle breeding many breeders are now trying to identify low birth weight high growth rate calves so that they get ease of calving but good weaning weights. The growth rate is corrected for birth weight and reflects the ewes influence mainly (and the slow spring)

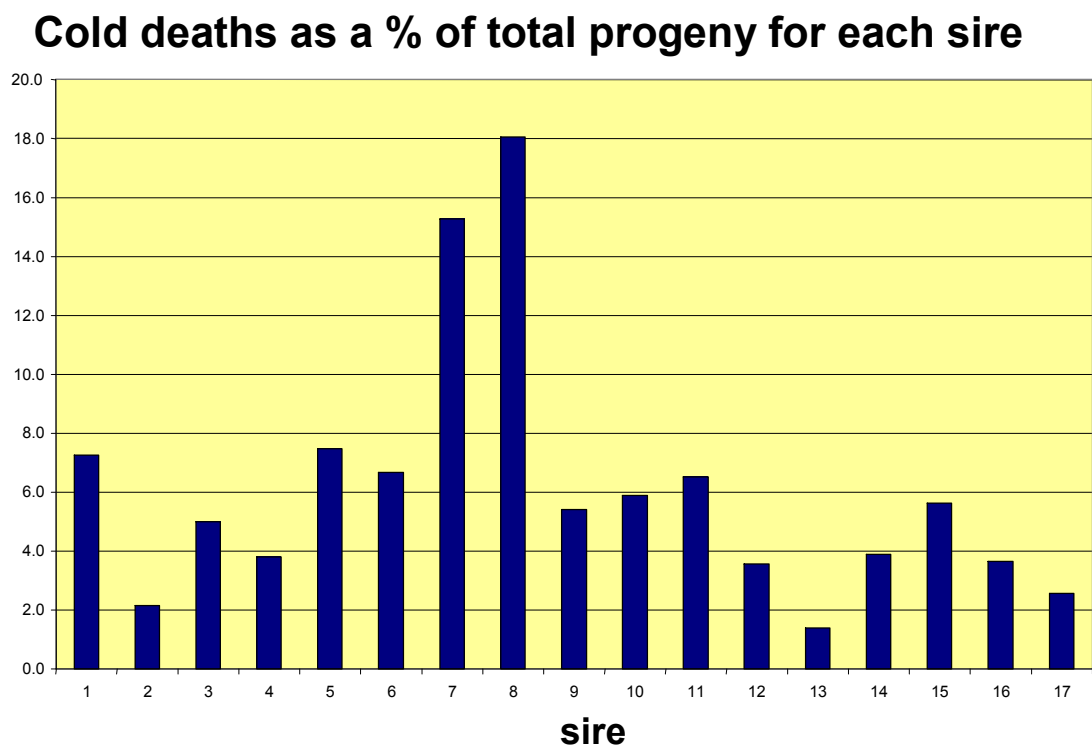
**Table 2** – Total mortality and cold-related mortality for lambs in each sire-line.

Sire-line	number (progeny)	Deaths		Cold deaths		
		Total number	% of total progeny	Total number	% of total progeny	% of total deaths
1	69	10	14.5	5	7.2	50
2	93	7	7.5	2	2.2	29
3	80	6	7.5	4	5.0	67
4	79	7	8.9	3	3.8	43
5	67	8	11.9	5	7.5	63
6	105	11	10.5	7	6.7	64
7	72	15	20.8	11	15.3	73
8	72	15	20.8	13	18.1	87
9	74	7	9.5	4	5.4	57
10	85	9	10.6	5	5.9	56
11	92	10	10.9	6	6.5	60
12	84	7	8.3	3	3.6	43
13	72	2	2.8	1	1.4	50
14	77	6	7.8	3	3.9	50
15	71	9	12.7	4	5.6	44
16	82	6	7.3	3	3.7	50
17	78	5	6.4	2	2.6	40
<b>total</b>	<b>1352</b>	<b>140</b>	<b>10.4</b>	<b>81</b>	<b>6.0</b>	<b>58</b>

Lamb losses overall were low compared with the national average of 15% plus however no rain and little wind was experienced over the lambing period. Cold death accounted for around 60% of lamb losses while dystocia accounted for well under 10 % of lamb losses. The range of lamb losses from

2.8% to 20.8% is very significant. This equates to 18% more lambs which will great economic benefit to a commercial farmer.

**Figure 1** – Cold deaths expressed as a percentage of the total progeny number for each sire-line.



**Table 3 (% of lambs drafted to weight at weaning)**

<b>Sire Prefix/Code</b>	<b>Sire ID</b>	<b>% Draft of Mother</b>
<b>2</b>		<b>30%</b>
<b>1&amp;23</b>		<b>18%</b>
<b>3</b>		<b>18%</b>
<b>4</b>		<b>18%</b>
<b>11</b>		<b>17%</b>
<b>7</b>		<b>16%</b>
<b>14</b>		<b>15%</b>
<b>16</b>		<b>15%</b>
<b>13</b>		<b>14%</b>
<b>10</b>		<b>13%</b>
<b>8</b>		<b>11%</b>
<b>17</b>		<b>11%</b>
<b>12</b>		<b>10%</b>
<b>15</b>		<b>7%</b>
<b>9</b>		<b>6%</b>
<b>6</b>		<b>3%</b>
<b>5</b>		<b>0%</b>
		<b>Range 0% →30%</b>

This table represents the possible total draft at weaning of both ewe and ram lambs at the live weight cut off used. The target was to draft off an average of 17 to 18 kg carcass animal.

**Table 4 (average weaning weight of all lambs)**

<b>Sire Code</b>	<b>WWT</b>
<b>14</b>	<b>30.6</b>
<b>8</b>	<b>30.5</b>
<b>1</b>	<b>30.3</b>
<b>2</b>	<b>30.2</b>
<b>4</b>	<b>30.2</b>
<b>7</b>	<b>29.8</b>
<b>5</b>	<b>29.7</b>
<b>10</b>	<b>29.7</b>
<b>13</b>	<b>29.6</b>
<b>15</b>	<b>29.4</b>
<b>3</b>	<b>29.3</b>
<b>9</b>	<b>29.1</b>
<b>16</b>	<b>29.1</b>
<b>17</b>	<b>29.1</b>
<b>6</b>	<b>28.9</b>
<b>12</b>	<b>28.8</b>
<b>11</b>	<b>28.7</b>

There was no significant difference between the sire groups on average weaning weight. This is generally to be expected as the dam has a big influence here. It is interesting to note that the North Island did find a difference and we need to look more closely why this was the case. While there was no significant difference in weaning weight those sire groups that had higher than average birth weight also had higher than average weaning weight.

**Table 5 (Average age of ram lambs at draft)**

<b>Sire Code</b>	<b>Ave Age at Drafting</b>
<b>2</b>	<b>124</b>
<b>4</b>	<b>128</b>
<b>1</b>	<b>129</b>
<b>8</b>	<b>130</b>
<b>14</b>	<b>130</b>
<b>10</b>	<b>130</b>
<b>13</b>	<b>132</b>
<b>12</b>	<b>132</b>
<b>3</b>	<b>132</b>
<b>5</b>	<b>133</b>
<b>16</b>	<b>133</b>
<b>15</b>	<b>133</b>
<b>17</b>	<b>133</b>
<b>7</b>	<b>133</b>
<b>11</b>	<b>134</b>
<b>9</b>	<b>134</b>
<b>6</b>	<b>138</b>

While most of the data was very similar, sire 6 progeny were significantly slower to get to killing weight and sire 2 progeny were significantly faster to get to killing weight. If we assume that it costs around 20 cents a day (for grazing animal health and management) to run a lamb then sire 6 progeny cost close to \$3 more to get to weight than sire 2 progeny. Therefore growth rate and saleable meat yield need to be combined to identify top meat producing sires.

**Table 6 average draft live weight.**

<b>Sire Code</b>	<b>Draft WT</b>
<b>5</b>	<b>42.9</b>
<b>8</b>	<b>42.8</b>
<b>9</b>	<b>42.8</b>
<b>12</b>	<b>42.6</b>
<b>7</b>	<b>42.3</b>
<b>1</b>	<b>42.0</b>
<b>15</b>	<b>41.8</b>
<b>11</b>	<b>41.7</b>
<b>14</b>	<b>41.6</b>
<b>13</b>	<b>41.6</b>
<b>6</b>	<b>41.5</b>
<b>3</b>	<b>41.5</b>
<b>4</b>	<b>41.4</b>
<b>2</b>	<b>41.1</b>
<b>17</b>	<b>40.6</b>
<b>10</b>	<b>40.5</b>
<b>16</b>	<b>40.3</b>

As expected there was no significant difference between sire groups in the average of the draft weight. All progeny were drafted off on body weight and so we would expect these figures to be very similar.

**Table 7 GR measurement**

<b>Sire Prefix/Sire Code</b>	<b>Sire ID</b>	<b>Viascan GR</b>	
<b>5</b>		<b>0.81</b>	<b>**</b>
<b>7</b>		<b>0.82</b>	<b>**</b>
<b>6</b>		<b>1.14</b>	<b>**</b>
<b>4</b>		<b>1.18</b>	<b>**</b>
<b>13</b>		<b>1.70</b>	
<b>10</b>		<b>1.70</b>	
<b>17</b>		<b>1.74</b>	
<b>12</b>		<b>1.78</b>	
<b>8</b>		<b>1.84</b>	
<b>16</b>		<b>1.91</b>	
<b>2</b>		<b>2.27</b>	
<b>14</b>		<b>2.32</b>	
<b>11</b>		<b>2.32</b>	
<b>1</b>		<b>3.13</b>	
<b>15</b>		<b>3.28</b>	
<b>9</b>		<b>3.28</b>	
<b>3</b>		<b>3.64</b>	

The GR measurement here is the Viascan measurement which measures the whole body fat not just fat over the 12<sup>th</sup> rib. A level of 2 to 4 is ideal for both cutting and presentation. As can be seen there were four sire groups that had significantly lower GR than the rest. While in general this is a good thing it will sometimes indicate that these animals have not matured and that they would have more fat cover at around 22kg carcass. Overall over half the sire groups had levels which were quite low.

**Table 8 Meat yield**

<b>Sire Code</b>	<b>Shld Yld</b>	<b>Loin Yld</b>	<b>Leg Yld</b>	<b>Tot Yld</b>
<b>1</b>	<b>16.75</b>	<b>13.79</b>	<b>20.14</b>	<b>50.58</b>
<b>2</b>	<b>16.98</b>	<b>13.92</b>	<b>20.72</b>	<b>51.63</b>
<b>3</b>	<b>16.53</b>	<b>13.61</b>	<b>20.10</b>	<b>50.35</b>
<b>4</b>	<b>16.45</b>	<b>14.01</b>	<b>20.41</b>	<b>50.85</b>
<b>5</b>	<b>17.22</b>	<b>14.23</b>	<b>21.35</b>	<b>52.78</b>
<b>6</b>	<b>17.06</b>	<b>14.39</b>	<b>21.34</b>	<b>52.79</b>
<b>7</b>	<b>16.47</b>	<b>13.91</b>	<b>20.35</b>	<b>50.73</b>
<b>8</b>	<b>17.07</b>	<b>14.11</b>	<b>20.59</b>	<b>51.77</b>
<b>9</b>	<b>16.53</b>	<b>14.04</b>	<b>20.75</b>	<b>51.32</b>
<b>10</b>	<b>16.52</b>	<b>13.80</b>	<b>20.10</b>	<b>50.43</b>
<b>11</b>	<b>16.94</b>	<b>14.04</b>	<b>20.73</b>	<b>51.71</b>
<b>12</b>	<b>16.88</b>	<b>14.09</b>	<b>20.50</b>	<b>51.47</b>
<b>13</b>	<b>16.22</b>	<b>13.90</b>	<b>20.62</b>	<b>50.84</b>
<b>14</b>	<b>17.20</b>	<b>14.28</b>	<b>20.78</b>	<b>52.24</b>
<b>15</b>	<b>16.80</b>	<b>14.15</b>	<b>20.81</b>	<b>51.76</b>
<b>16</b>	<b>16.66</b>	<b>13.88</b>	<b>20.01</b>	<b>50.56</b>
<b>17</b>	<b>16.48</b>	<b>13.40</b>	<b>19.71</b>	<b>49.60</b>
<b>Industry Avgs</b>	<b>17.17</b>	<b>14.04</b>	<b>20.4</b>	<b>51.61</b>

This table shows the average meat yield of the main components of the carcass. Generally the Romney is smaller in the shoulder compared with the national average (a positive for lambing ease) average in the loin and better than average in the leg. A general comment is that loin development is closely aligned with maturity and many of our sires used were producing relatively immature carcasses at 17kg. Alliance also made the comment that the loin tends to be elongated in many of our sheep rather than round (which is preferred) another indication that lambs are immature.

**Table 9 Saleable Meat Yield Value**

<b>Sire</b>	<b>Value on saleable meat yield</b>	<b>Value corrected for growth rate</b>
<b>6</b>	<b>\$64.72</b>	<b>\$61.92</b>
<b>5</b>	<b>\$64.43</b>	<b>\$63.23</b>
<b>14</b>	<b>\$63.95</b>	<b>\$62.75</b>
<b>15</b>	<b>\$63.47</b>	<b>\$61.67</b>
<b>8</b>	<b>\$63.29</b>	<b>\$61.49</b>
<b>11</b>	<b>\$63.2</b>	<b>\$61.2</b>
<b>12</b>	<b>\$63.05</b>	<b>\$61.45</b>
<b>9</b>	<b>\$63.01</b>	<b>\$61.01</b>
<b>2</b>	<b>\$62.92</b>	<b>\$62.92</b>
<b>4</b>	<b>\$62.55</b>	<b>\$61.75</b>
<b>13</b>	<b>\$62.39</b>	<b>\$60.79</b>
<b>7</b>	<b>\$62.26</b>	<b>\$60.46</b>
<b>16</b>	<b>\$61.94</b>	<b>\$60.14</b>
<b>1</b>	<b>\$61.91</b>	<b>\$60.91</b>
<b>10</b>	<b>\$61.77</b>	<b>\$60.57</b>
<b>3</b>	<b>\$61.32</b>	<b>\$59.72</b>
<b>17</b>	<b>\$60.4</b>	<b>\$58.60</b>
<b>Industry average</b>	<b>\$62.99</b>	<b>??????</b>

The above calculations are based on a 17kg carcass and are based around valuing the carcass on its saleable components. The range is relatively small at \$4.32/lamb but for an average ewe flock producing 3000 works lambs this means a difference of \$13,000. Mind you this would be equal to 10% increase in lamb survival to weaning (the range in this trial was 18%) However farm profitability is based around, number of lambs weaned, lamb growth rate, ewe and lamb mortality, disease affects, wool, and meat yield and value and so as with all breeding this needs to be balanced against other traits. Presently you are not being paid on saleable meat yield but it is likely that Alliance will introduce some form of yield payment this year. The industry average is based on an average 17kg carcass across all lambs slaughtered. I have then taken the data a step further and looked at the cost of having slower growing lambs. In this exercise I have assumed that it costs 20 cents per day to run and manage an actively growing lamb. While in general the lower value sires are still at the bottom end it does change things around a bit. This exercise is interesting as it highlights the risk of following one trait.

## Summary

The best sires from the South Island? Take your pick it really depends on what you want.

The trial has highlighted both strength of the Romney breed and perhaps where we can look to improve. We now have the basis of what our breed is presently doing and have identified sires that are performing in key areas of, lamb survival, growth and meat value. This year we will also have maternal traits from the hogget lambing.

Jon Hickford and his team are getting very excited about possible gene links to saleable meat yield, which I'm sure we will hear more about in the future, but in the meantime I think we have plenty to go on with what is in the report.

Happy reading

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