

**March 2008**

# **National Goat Monitoring**

## **Review of data**

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## EXECUTIVE SUMMARY

The National Goat Monitoring project was established in July 2004, and ended in June 2007. The project is funded by the MAF Sustainable Farming Fund, Meat & Wool New Zealand (M&WNZ), Mohair NZ and the NZ Boer Goat Breeders Association.

The vision of the project was “more goats on more farms”, with the aim of getting pastoral farmers to integrate goats onto existing farms.

There are two components to the overall project:

1. National Goat Monitoring
2. Evaluation of residues from animal health treatments.

This report focuses on the first component, and summarises the information received over the three year period. Sixteen farmers were involved and supplied varying levels of information including on-farm management and production, financial and goat management related. Whilst all attempts have been made to ensure the information is correct, all information has been supplied by farmers as part of their farming practice.

All sixteen farms in the programme ran a variety of enterprises integrated with goats from sheep breeding, both finishing and breeding cattle, dairy heifer grazing and deer. Background information on all of the properties was given to obtain basic understanding of their farm type and performance. There was a high proportion of steeper country with the average farm totally 660 ha, of which 11% flat, 22% rolling and 67% steep.

Of all the farms in the programme, stocking rates varied from South Island Hill Extensive of 1 su/ha to North Island Intensive of 15 su/ha. On average the properties carried 10% of their stock units as goats. One property ran sole goats, and those with fibre goats tended to have a slightly higher proportion of goat stock units. (The standard M&WNZ Economic Survey stock units were used where an adult goat is 0.8 su and a yearling is 0.5).

Average performance of all stock class types were regarded as being average with lambing and calving % as follows:

- MA Ewes 131%
- Hoggets 68%
- MA Cows 93%
- Kidding 93%

Sales data of all animals sold was collected to give an indication of on-farm performance. The average prime carcass weight for the farms between 2004/05 and 2006/07 were:

- Lambs 16.5 kg
- Ewes 24.7 kg
- Goats 11.8 kg
- Heifers 257.6 kg
- Steers 314.1 kg
- Bulls 292.2 kg
- Hinds 50.4 kg
- Stags 54.2 kg

The performance of the goat operations were collected, and this information was separated into fibre and meat goat where possible. Of the sixteen farms, 6 farmed fibre goats

(Angora/Cashmere/Cashgora) and the other 10 farmed meat goats (Boer X, Kiko, Sannan X).

The average kidding % was 78% and 96% for fibre and meat goats respectively, with some farmers achieving 130%. Buck:doe ratio and weight of doe did not seem to have an effect on kidding %, but was possibly more related to stress and weather conditions at the time. The majority of the farmers mated their does in April, targeting a mid-kidding in September. Weaning took place in February, with one farmer delaying this till August (just before kidding the next season). One farmer also ran their does and bucks together all year under a no-set mating regime.

The average weight of a maiden doe to the buck was 27 and 29 kg for fibre and meat doe respectively, whilst mature does were 36 and 39 kg respectively. The average buck:doe ratio was approximately 50, although there was some variation to this.

Survival of kids is an issue and providing sheltered paddocks and targeting kidding in more settled times is important. As very few of the farmers scanned their does, it was not possible to get an estimate of losses from conception to weaning. For many farms though, losses from birth to weaning could be determined. How closely goats were shepherded at kidding had an impact on the accuracy of the information. On average, fibre goats had an average loss of 12%, whilst meat goats was 17%.

Number of animals dying ranged between farms (1% - 42%), with the average number of deaths being approximately 10%. Kids and does, 47% and 39% respectively. The causes of death were given by the farmer and no autopsies were undertaken. The main causes for each stock class was:

- Kids – environmental and parasites
- Yearlings – parasites and unknown
- Does – misadventure and parasites
- Wethers – unknown and parasites
- Bucks – parasites and misadventure

Slaughter weights of goats was collected for all farms. The average carcass weights for all farms were:

- Kids 9.5 kg
- Yearlings 12.6 kg
- Does 13.5 kg
- Wethers 14.2 kg
- Bucks 20.4 kg

On average more older goats were sold – does, wethers and yearlings. There was not as a significant difference between the fibre and meat goats as expected, although more kids and yearlings were sold by meat goat farmers.

Fibre goat farmers averaged Goat and Fibre Income from \$49 - \$59/su or \$86 - \$122/ha for the years 2003/04 – 2005/06, whilst meat goat farmers average Goat Income ranged from \$7 - \$17/su or \$12 - \$22/ha.

Average Fibre produced per head per clip and price per kg is tabled below:

	<b>Kg/hd per clip</b>	<b>\$/kg</b>	<b>\$/hd per clip</b>
Doe	2.60 kg	\$13.70	\$35.60
Yearling	2.28 kg	\$23.60	\$53.80
Kids	1.14 kg	\$29.30	\$33.40
Wethers	2.084 kg	\$20.70	\$43.10
Other	3.56 kg	\$12.30	\$43.80
Oddments		\$4.44	

Weed and pest expenditure was analysed using the total Weed & Pest from the accounts and compared to the M&WNZ Economic Survey. The Weed & Pest accounts do also include the control of possums and any cropping expenses as well, therefore not a totally true reflection of just weed management. On average goat farmers had a savings for weed and pest control, almost double that of those in the M&WNZ survey on both a su and ha basis as shown below:

	<b>Goat Fibre</b>	<b>Goat Meat</b>	<b>M&amp;WNZ</b>
<b>Average \$/total su</b>	\$0.74	\$0.90	\$1.45
<b>Average \$/ha</b>	\$6.67	\$7.08	\$12.13

Over the period of the programme participants were asked to record all their animal health treatments on goats. On average over 2005/05 – 2006/07, fibre goat farmers spent \$2.54/gsu, whilst meat goats spent \$1.65. The main spend for fibre goat farmers were minerals and internal parasite control, whilst for meat, internal parasite control was the predominant spend.

Participants were also asked to document their time spent with goats to ascertain the time needed in managing goats. For fibre goats this was 1 hour and 7 minutes, whilst meat goats was 22 minutes. The main tasks were:

- Fibre – checking stock, shearing and kidding
- Meat – checking stock, kidding and weighing and sorting.

A set of fact sheets are being prepared using the information from the programme to assist farmers who are interested in farming goats. Some key findings and aspects in the management of goats have been included in these.

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## **1.0 PURPOSE**

The National Goat Monitoring project was established in July 2004, and ended in June 2007. The project is funded by the MAF Sustainable Farming Fund, Meat & Wool New Zealand (M&WNZ), Mohair NZ and supported by the NZ Boer Goat Breeders Association.

The vision of the project was “more goats on more farms”, with the aim of getting pastoral farmers to integrate goats onto existing farms. Reasons for this were:

- Growing national and international demand for goat meat and fibre
- Goats are complimentary to other systems and enterprises
- Cost effective weed control

There are two components to the overall project:

3. National Goat Monitoring
4. Evaluation of residuals.

This report focuses on the understanding and monitoring of farm systems. The main objective of this was to develop and demonstrate objective information on the goat enterprise and its complementary value to other pastoral livestock businesses.

This report covers a summary of the information received over the three year period. Varying levels of information have been provided by the sixteen participants.

It is important to remember when reviewing this information, that there is some noise in the data due to the number of participants contributing information. In some cases where incomplete information has been supplied, this has had to be omitted.

As a result of this report, 5 Best Practice sheets have been prepared which will be available to those where goats can be integrated with other enterprises and cover the following aspects:

- General Management
- Intensive Meat Goats
- Extensive Meat Goats
- Fibre Goats
- Extensive Feral Goats.

## **2.0 BACKGROUND**

To give an understanding of the participants in the group, they have been asked to provide basic information such as:

- Total size of property (ha) and effective area (ha)
- Stock on hand (as at 1<sup>st</sup> July each year)
- No. of paddocks (a perspective on intensification)
- Contour – flat, rolling, steep
- Land Classification
- Whether they run Meat or Fibre Goats

Each of these areas are summarised below.

### Farm Area

The area of land owned by participants in the programme is shown in Table 1, and splits the land into effective, flat, rolling and steep. On average the farm size is 660 ha total, 608 ha effective. The property would have a 73 ha flat (11%), 145 ha rolling (22%) and 442 ha steep (67%).

Table 1: Land represented by participants

No. Farmers	Total Area (ha)	Eff Area (ha)	% Eff Area	Flat (ha)	% Flat	Rolling (ha)	% Rolling	Steep (ha)	% Steep
16	13,413	12,828	96%	1,521	11%	2,964	22%	8,923	67%
Meat (n=10)	11,306	10,947	97%	919	8%	1,665	15%	8,722	77%
Fibre (n=6)	2,107	1,881	90%	602	29%	1,299	62%	207	10%

### Intensive/Extensive

To determine whether a property was extensive or intensive, a combination of stocking rate and paddock size were used. In general if stocking rates were above 10 su/ha and/or paddock sizes were less than 10 ha, they were regarded as intensive. Stocking rate was analysed using the effective area (ha) and total stock on hand (stock units) for the 2005 year (Table 3).

Table 3: Intensive or Extensive Farms

Total SU	Eff Area ha	SR su/ha	No Paddocks	Average paddock size (ha)	Intensive/Extensive
2876	220	13.1	73	3.0	I
9892	860	11.5	150	5.7	I
2717	240	11.3	23	10.4	I
4140	546	7.6	54	10.1	I/E
785	159	4.9	25	6.4	I/E
3209	400	8.0	25	16	I/E
709	86	8.2	41	2.1	I
2891	470	6.2	31	15.2	E
2358	1700	1.4	3	566.7	E
4914	385	12.8	120	3.2	I
3864	6000	1.0	30	200.0	E
548	36	15.2	32	1.1	I
6280	600	10.5	44	13.6	I/E
13795	830	16.6	200	4.2	I
1052	170	6.2	60	2.8	I
963	126	7.6	27	4.7	I

### Land Classification

The land classification used by the M&WNZ Economic Service was used as a foundation to compare farms and their financial status. A summary of the number of farms in the programme in relation to their classification is shown in Table 4. For a full list of these classifications see Appendix One.

Table 4: Farms in M&WNZ Land Classification groups

Classification	1	2	3	4	5	6	7	8
No. farms	2	1	3	4	3	2	1	

### Stock on Hand

As part of the project, the aim was to target farms where goats were integrated with other farming operations such as sheep and beef, with some deer, ranging from small scale to large scale. To calculate stock units, the M&WNZ Economic Service weightings have been used. The calculations for this are shown in Table 2.

Table 2: Stock Units on hand as at 1<sup>st</sup> July.

	<b>Average</b>	<b>Meat</b>	<b>Fibre</b>
<b>2004</b>			
<b>Sheep SU</b>	1510	1774	1140
<b>Cattle SU</b>	930	856	1034
<b>Deer SU</b>	66	113	0
<b>Goat SU</b>	318	285	364
<b>Total SU</b>	2824	3028	2538
<b>% Goats</b>	11%	9%	14%
<b>2005</b>			
<b>Sheep SU</b>	2347	2339	2357
<b>Cattle SU</b>	1153	1210	1077
<b>Deer SU</b>	67	117	0
<b>Goat SU</b>	346	285	428
<b>Total SU</b>	3912	3950	3862
<b>% Goats</b>	9%	7%	11%
<b>2006</b>			
<b>Sheep SU</b>	2388	2259	2561
<b>Cattle SU</b>	1040	876	1259
<b>Deer SU</b>	0	0	0
<b>Goat SU</b>	421	461	367
<b>Total SU</b>	3849	3596	4186
<b>% Goats</b>	11%	13%	9%
<b>2007</b>			
<b>Sheep SU</b>	2559	2234	3317
<b>Cattle SU</b>	859	767	1066
<b>Deer SU</b>	0	0	0
<b>Goat SU</b>	453	521	293
<b>Total SU</b>	3870	3522	4677
<b>% Goats</b>	12%	15%	6%
<b>Average</b>			
<b>Sheep SU</b>	2201	2152	2344
<b>Cattle SU</b>	996	927	1109
<b>Deer SU</b>	33	58	0
<b>Goat SU</b>	385	388	363
<b>Total SU</b>	3614	3524	3816
<b>% Goats</b>	11%	11%	10%

The property of 100% goats being removed from the above calculations.

### 3.0 OVERALL FARM PRODUCTIVITY

As the properties in the programme are largely integrated pastoral systems, information on overall farm productivity was important in determining how they were perceived from prospective goat farmers.

Information collected for this included:

- Breeding performance data
- Liveweights of animals
- Carcass weights of animals
- Prime sales of animals

#### Breeding Performance

The average breeding performance data collected for 2003, 2004, 2005, 2006 and 2007 across the different enterprises are shown in Tables 5, 6 and 7. These figures are based on weaning % (number of offspring to dams mated). Performance achieved by these farms are regarded as being above the industry averages as supplied by M&WNZ Economic Service.

Table 5: Breeding Performance group averages.

Averages	MA Ewes	Hoggets	Cows	Fawning	Kidding
	%	%	%	%	%
2002/03	130 (9)	67 (2)	93 (7)		92 (10)
2003/04	133 (10)	73 (5)	92 (8)	89 (1)	96 (12)
2004/05	135 (10)	64 (3)	95 (9)	87 (1)	92 (11)
2005/06	132 (9)	76 (4)	93 (9)		90 (12)
2006/07	124 (9)	62 (3)	91 (9)		94 (11)
<b>Average</b>	131	68	93	88	93

( ) indicate the number of farms represented

Table 6: Breeding Performance averages for Meat Goats

Averages	MA Ewes	Hoggets	Cows	Fawning	Kidding
	%	%	%	%	%
2002/03	127 (6)	67 (2)	91 (4)		89 (6)
2003/04	138 (7)	65 (3)	92 (6)	89 (1)	103 (7)
2004/05	136 (7)	64 (3)	95 (6)	87 (1)	108 (6)
2005/06	135 (6)	68 (3)	90 (6)		100 (7)
2006/07	124 (6)	62 (3)	90 (6)		98 (6)
<b>Average</b>	132	65	91	88	99

Table 7: Breeding Performance averages for Fibre Goats

Averages	MA Ewes	Hoggets	Cows	Kidding
	%	%	%	%
2002/03	135 (3)		96 (3)	95 (4)
2003/04	121 (3)	86 (2)	94 (2)	87 (5)
2004/05	131 (3)		96 (3)	74 (5)
2005/06	126 (3)	100 (1)	99 (3)	76 (5)
2006/07	125 (3)		94 (3)	89 (5)
<b>Average</b>	128	93	96	84

## Liveweights

Liveweights for the years 2005, 2006 and 2007 years is outlined in Table 8. Sheep and goats remained relatively static across the three years, with more variation in the cattle.

Table 8: Average Liveweights (kgs) for 2005 - 2007

	2004-05	2005-06	2006-07	Average
Ewes Weaning	59	56	56	57
Ewes Mating	64	61	58	61
Two Toths Mating	60	56	56	57
Ewe Lambs Wean	29	25	30	28
Ewe Hoggets May	41	37	38	38
Ewe Hoggets September	46	44	42	44
Ewe Hoggets December	49	48	39	45
Cows Weaning	560	514	460	511
Cow Mating	535	493	470	499
Heifer Calves Weaning	217	184	234	212
R1 Heifers August	263	251	234	249
R1 Heifers December	294	295	337	308
R2 Heifers April	404	340	375	373
2 yr Heifers Mating	435	455	360	417
Finishing Heifers	445	460	360	422
Steers/Bulls Weaning	249	246	175	223
Adult Steers	481	534	365	460
Does Weaning	34	34	35	34
Yearling Does Mating	28	27	28	28
Does MA Mating	40	37	38	38
Kids Weaning	16	17	17	17
Kids Winter	20	20	21	20
Bucks Mating	52	55	56	54
Wethers Winter	33	30	26	30

## Sales

Farmers were asked to submit their sales data in the form of numbers sold and average liveweight if sold store and average carcass weight if sold prime. The results of the groups averages are shown in Table 9 (if no weights were provided numbers were removed from analysis).

Average carcass weights for the prime lambs sold was 16.7 and 16.3 respectively for 2005 and 2006. Average carcass weights for prime goats was 14.5 and 11.5 respectively.

Table 9: Group average numbers and weights of animals sold

	2005	2006	2007	Average
Store Lambs No.	3146	1761	1376	
Ave LW kg	32.8	29.7	31.8	31.7
Prime Lambs No.	9478	6723	4278	
Ave CW kg	16.5	16.6	16.5	16.5
Store Ewes No.	803	217	828	
Ave LW kg	57.9	63.0	57.6	58.3
Prime Ewes No.	571	913	852	
Ave CW kg	26.7	25.1	22.9	24.7
Store Goats No.	105	143	302	
Ave LW kg	27.0	36.5	40.4	36.8
Prime Goats No.	841	1535	1275	
Ave CW kg	13.6	11.1	11.5	11.8
Store Heifers No.	122	89	96	
Ave LW kg	248.9	250.8	285.8	261.0
Prime Heifers No.	76	107	74	
Ave CW kg	269.0	254.5	250.1	257.6
Store Steers No.	129	134	129	
Ave LW kg	243.5	295.1	234.3	258.1
Prime Steers No.	168	102	36	
Ave CW kg	308.8	298.0	384.4	314.1
Store Bulls No.		48	18	
Ave LW kg		287.9	408.0	320.7
Prime Bulls No.	10	5	72	
Ave CW kg	415.9	329.0	272.5	292.2
Prime Hinds No.		35	178	
Ave CW kg		51.0	50.3	50.4
Prime Stags No.		32	91	
Ave CW kg		54.0	54.2	54.2

#### 4.0 GOAT PERFORMANCE

One key driver for the project was to determine what the management of goats was on farm and their related productivity. Areas of interest included:

- Reproductive performance
- Meat production
- Purchase/sale of goats
- Goat deaths
- Fibre production
- Costs – Animal Health and Weed and Pest primarily
- Income from Goats

##### Reproductive Performance

Information based on the reproductive performance of the goat operation was supplied, including liveweights, numbers and kidding percentage. The group averages have been broken down for the years 2004, 2005, 2006 and 2007 showing the comparison between fibre and meat breeds (Table 10). Note these years relate to the year in which the does were mated and kidded and not financial year as shown in Tables 5 – 7. Any farmers information which was incomplete was also removed from this analysis with the number of farmers indicated in brackets.

Table 10: Goat Summary Report

	2004		2005		2006		2007		Average	
	Fibre (n=5)	Meat (n=4)	Fibre (n=5)	Meat (n=7)	Fibre (n=6)	Meat (n=7)	Fibre (n=2)	Meat (n=2)	Fibre	Meat
<b>LWT Maiden Does Mating</b>	32.0	28.3	28.3	31.7	20.0	27.8	28.5		<b>27.0</b>	<b>29.3</b>
<b>LWT Does Mating</b>	38.5	40.7	41.0	41.1	30.5	36.2	35.0	42.0	<b>36.0</b>	<b>39.3</b>
<b>LWT Does Weaning</b>	35.7	35.8	34.3	36.0	28.4	37.8	35.0	35.0	<b>33.0</b>	<b>36.5</b>
<b>LWT Does Winter</b>	41.0	39.8	38.3	39.7	32.3	36.6			<b>37.0</b>	<b>38.3</b>
<b>Yearling Does Winter</b>	17.0	22.0	19.5	22.6	12.0	20.8			<b>16.0</b>	<b>21.8</b>
<b>Yearling Does 1 Yr Old</b>	22.0	29.3	20.5	26.8	14.0	26.3			<b>19.0</b>	<b>27.4</b>
<b>LWT Kids</b>	16.0	12.0	17.3	18.4	15.8	20.3			<b>16.0</b>	<b>16.9</b>
<b>Maiden Does Mated No.</b>	89	64	78	67	48	50	25		<b>60</b>	<b>60</b>
<b>Maiden Mating Date</b>	25 Apr 04	23 Apr 04	3 May 05	21 Apr 05	11 Apr 06	29 Apr 06	25 Apr 07		<b>21 Apr</b>	<b>24 Apr</b>
<b>Other Does Mated</b>	172	166	171	177	198	195	100		<b>160</b>	<b>179</b>
<b>Other Mating Date</b>	20 Apr 04	23 Apr 04	20 Apr 05	18 Apr 05	11 Apr 06	15 Apr 06	21 Apr 07		<b>15 Apr</b>	<b>18 Apr</b>
<b>Kidding Kids Born</b>	206	230	174	156	162	150			<b>180</b>	<b>179</b>
<b>Mid Kidding Date</b>	20 Sep 04	8 Oct 04	29 Sep 05	5 Oct 05	25 Sep 06	23 Sep 06	20 Sep 07		<b>24 Sep</b>	<b>30 Sep</b>
<b>Kids Weaned</b>	188	184	161	219	147	183			<b>166</b>	<b>195</b>
<b>Weaning Date</b>	14 Feb 05	9 Feb 05	13 Feb 06	3 Feb 06	19 Feb 07	12 Mar 07			<b>15 Feb</b>	<b>21 Feb</b>
<b>Weaning %</b>	82%	99%	72%	97%	80%	94%			<b>78%</b>	<b>96%</b>
<b>Buck to Doe Ratio</b>	48	49	40	65	35.2	41	50	60	<b>43</b>	<b>52</b>

In general there was little variance between the fibre and meat breeds, although meat goats on average weighed heavier and higher average kidding percentages. One meat goat farmer was removed from the weaning date analysis, as they did not wean until August (prior to kidding).

Survival of kids is appears to be a key attribute as to the success of kidding. Of the farmers in the programme there were very few who scanned their pregnant does, therefore losses can only be determined from those born to those weaned. Kids born are based on farmers recording data at kidding. In the case of the more extensive properties, farmers do not truly know the born dead numbers. Based on the information provided average losses (between being born and weaned) for the meat and fibre goats are shown in Table 11. Fibre losses are possibly less for two reasons:

- Higher shepherding over kidding, and
- More accurate information on what was born.

Table 11: Estimated losses from birth to weaning

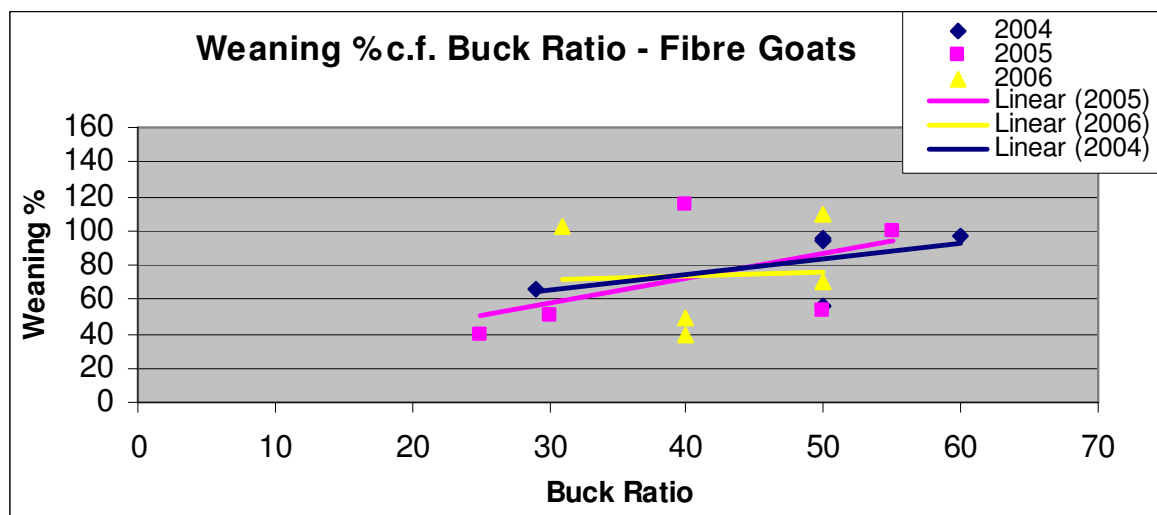
	<b>Fibre</b>	<b>Meat</b>
<b>2004</b>	12% (n=5)	19% (n=4)
<b>2005</b>	13% (n=5)	21% (n=6)
<b>2006</b>	12% (n=4)	10% (n=4)
<b>Average</b>	12%	17%

For sheep losses from scanning to weaning can range from 12% - 25% as a comparative.

The percentage of maiden does mated as a percentage of total does mated ranged from 0-48%, with one participant one year having 100%. For the meat goats, the average was 21% and for fibre 19%. Average number of does mated per farm was 219 (211 and 226 for meat and fibre goats respectively).

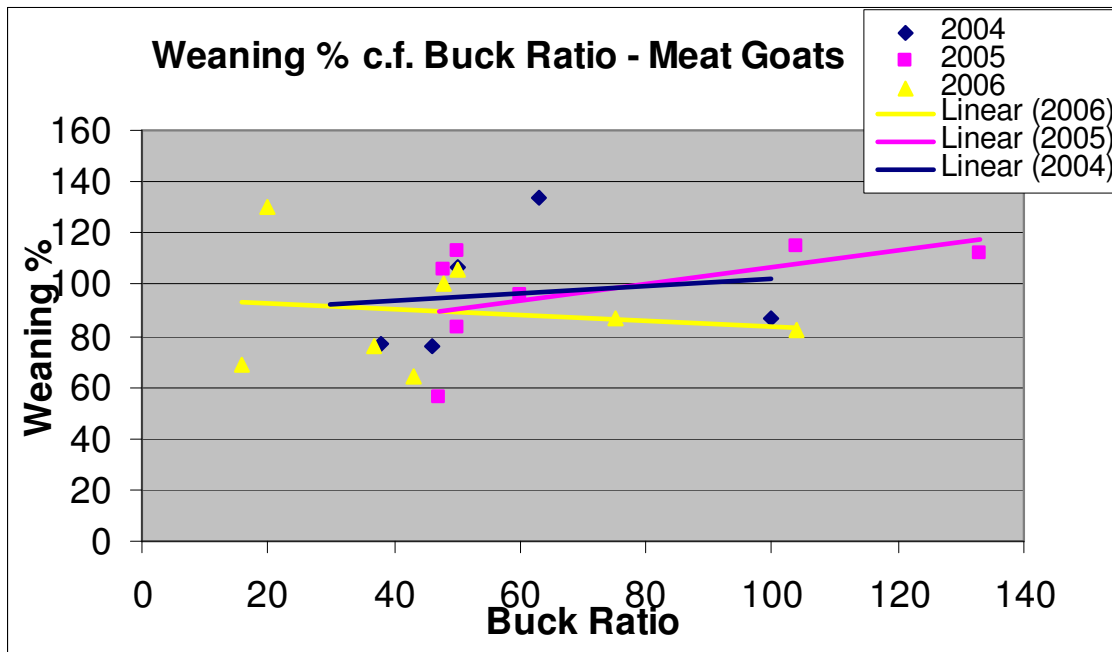
The buck to doe ratio is similar across breeds with an average of 43-52 does per buck. It is not uncommon to have an ineffective buck, therefore it is recommended to have more bucks available. The easier the contour, the bigger the doe:buck ratio can be. Figures 1 and 2 show the trend lines in relation to the doe:buck ratio compared with weaning percentage. For fibre goats there was a benefit in having a higher doe:buck ratio in 2004 and 2005, but only a very slight benefit in 2006.

Figure 1:



Higher doe:buck ratios are used for meat goats. There was a positive relationship in 2005, but a negative one in 2006, with little change in 2004. These trends possibly suggest that something other than doe:buck ratio impact on kidding percentage.

Figure 2:



Weaning percentage compared to mating weight was also analysed amongst fibre and meat goats and are shown in Figures 3 and 4. For fibre goats there was a positive relationship in all years except 2006. For meat goats there was actually a negative correlation in all years. It appears little advantage to having heavy goats, therefore a target of between 35 – 45 kg for a MA Doe is realistic, with fibre goats being on the lighter end of the scale and meat goats heavier end.

Figure 3:

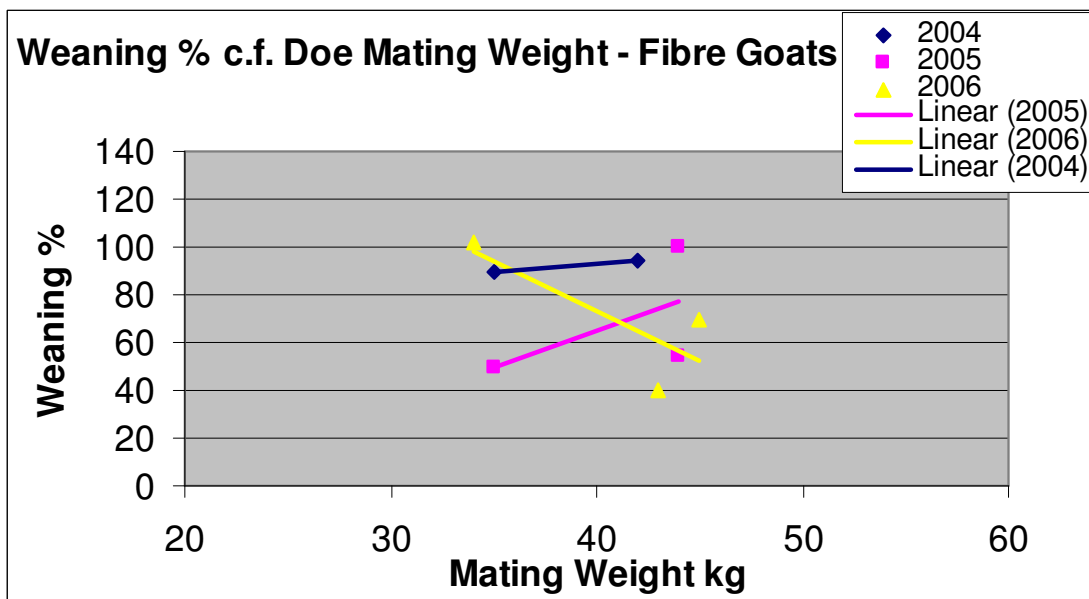


Figure 5 shows the liveweight of fibre and meat goats at a variety of times through the year. As would be expected, the meat goat is heavier than the fibre goat, but not as significantly different. Some consideration that the fibre goat at times of the year will carry a fleece.

Figure 4:

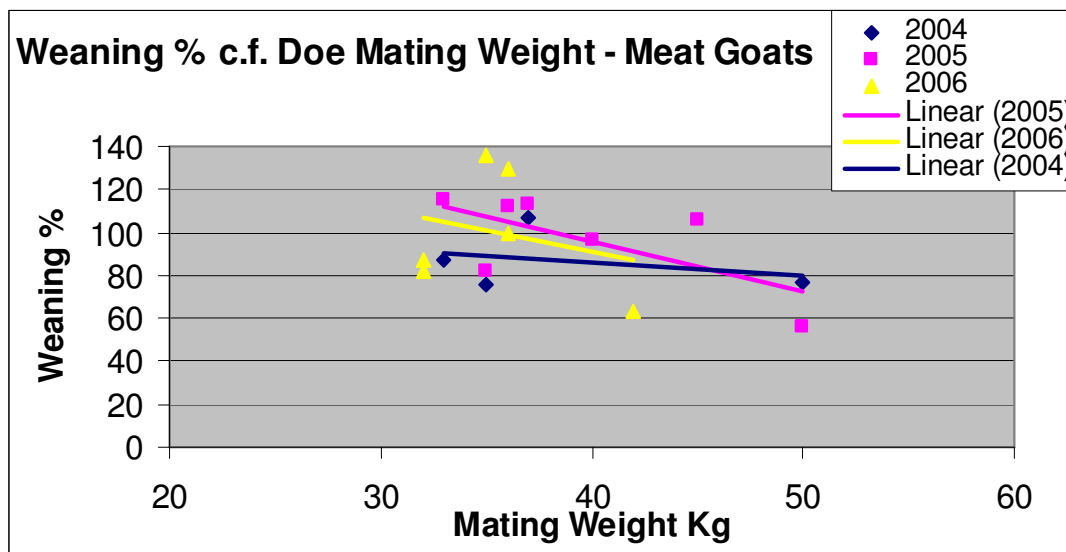
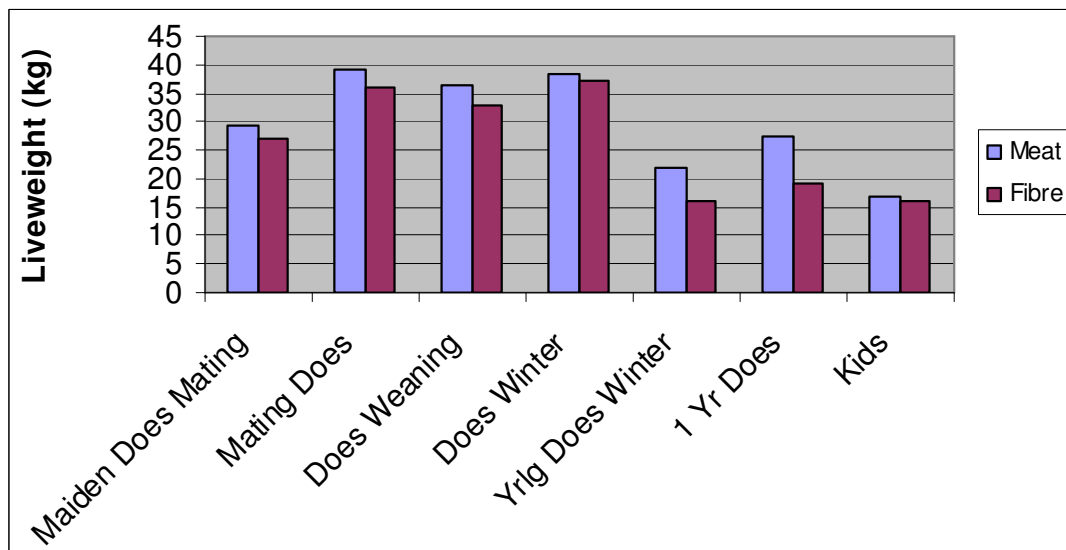


Figure 5: Goat Liveweights comparing between Meat and Fibre



**Kidding Management data**

Over the period of monitoring, it appeared that some farmers were achieving on average higher kidding percentages than others (Figure 6). There were 4 farms averaging over 100%, all meat goats with one exception. Four farms averaged 90-99%.

To determine why some of the farms were consistently getting higher kidding percentages, their kidding management was evaluated (an example shown in Table 12). Like many other things in farming, there was quite a variation in tools used.

Stress is to be avoided as much as possible during kidding. Birthweight of kids may also be critical to their survival but this was not recorded as part of this project.

Figure 6:

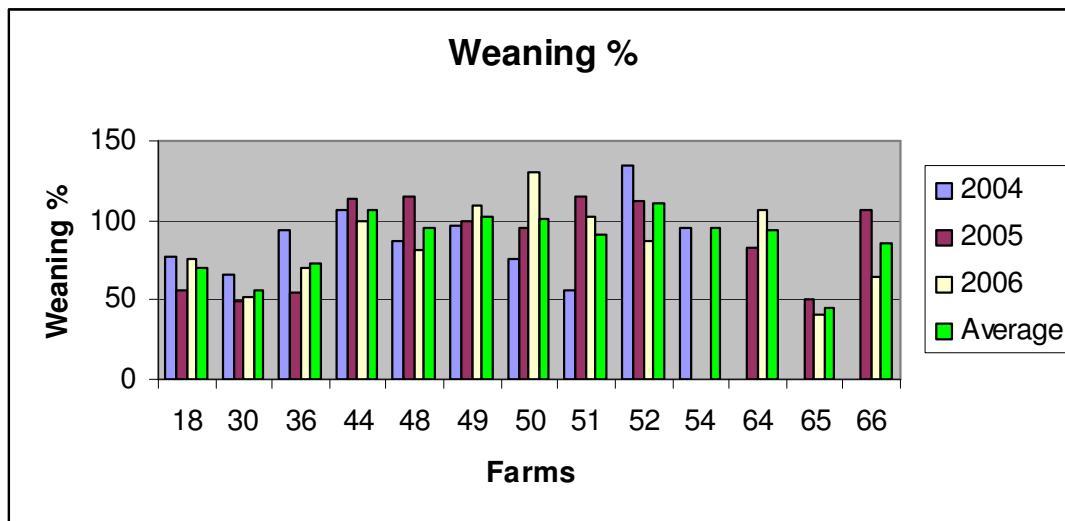


Table 12: Kidding Management for two farms achieving 133% and 110% kidding

	133%			110%		
	Product	Rate	When	Product	Rate	When
<b>Tupping:</b>						
Toxo vax or Campy	N			N		
Pre-tup drench	Y	Cydetctin Injection	Per label	May	Y	Vetdectin 12 mls
B 12	Y		1 ml		N	
Mating cycles	2				1	
Doe Mtg Wt (kg)					38	
Buck:doe ratio (av)	63				50	
<b>Late Pregnancy:</b>						
No B12 used						
Iodine	Y		1.5		N	
Pre-kid drench	Y	Cydetctin	Per label	Sept	Y	Vetdectin 12 ml
<b>Kidding:</b>						
Mid-kidding date	25/10/04				22/09/04	
Doe set stocking rate (ave)	10.6	Alone			11.5	Alone
<b>Shelter available</b>						
	Type		Level		Type	Level
Block 1	Macrocarpa trees		good		Huts, pampas - flat	
Block 2	Gully with rushes, exposed top		good		huts, row pines - rolling	
Block 3	Trees low on sunny face		good		huts, row pines - rolling	
Left Alone	Y				Y	
Weather (describe)					Good	
<b>Post-kidding</b>						
Marking date					1 Nov	
Weaning date	8 May				10 Aug	

### Liveweights

Yearling does should be 20kg minimum (Simply Goats, p 86), and most farmers were achieving this. MA Does were 35 kg plus, with the meat breeds targeting the 40kg plus. Despite the heavier doe at mating for the meat breed, at weaning, the weight of does was not significant between breed types.

Meat yearling does during winter were 7-10 kg heavier than the fibre breeds, whilst the liveweights of the kids were comparable.

### Meat Production

A high proportion of the goat kill in New Zealand is from the feral population. There is some conflict between farmed goats and the ability to have them killed at desired weights and timing and be justly rewarded for it.

The group was asked to contribute weights and numbers of animals slaughtered in a range of stock classes (Table 13). One of the difficulties is that often a range of animals will be sent in one draft, with only one average weight given in return. To determine a more accurate weight across weight groups would require a more detailed analysis by the works.

Table 13: Goats killed per year and per age class across the 16 farms

	Kids		Yearlings		Does		Wethers		Bucks	
	No.	Kg CW	No.	Kg CW	No.	Kg CW	No.	Kg CW	No.	Kg CW
2004	54	12.0	28	14.0	35	19.0	76	16.4		
2005	229	11.3	157	12.0	717	15.2	497	12.6	87	16.6
2006	306	8.5	422	11.6	692	11.8	435	14.1	3	18
2007	244	8.6	535	13.4	507	12.9	536	15.6	40	29.0
<b>Average</b>		<b>9.5</b>		<b>12.6</b>		<b>13.5</b>		<b>14.2</b>		<b>20.4</b>

Goats were sent to the works during all quarters of the year with little consistency between years. Breaking the slaughter weights into meat and fibre data the averages are shown in tables 14 and 15 for fibre and meat goats respectively.

Table 14: Slaughter of Fibre Goats across 6 farms

	Kids		Yearlings		Does		Wethers		Bucks	
	No.	Kg CW	No.	Kg CW	No.	Kg CW	No.	Kg CW	No.	Kg CW
2005					333	17.3	229	12.2	66	18.0
2006	1	12.0			300	10.6	374	13.8		
2007	48	11.0	10	10.0	85	11.1	119	10.8	10	11
<b>Average</b>		<b>11.0</b>		<b>10.0</b>		<b>13.8</b>		<b>12.8</b>		<b>17.1</b>

Table 15: Slaughter of Meat Goats across 10 farms

	Kids		Yearlings		Does		Wethers		Bucks	
	No.	Kg CW	No.	Kg CW	No.	Kg CW	No.	Kg CW	No.	Kg CW
2004	54	12.0	28	14.0	35	19.0	76	16.4		
2005	229	11.3	157	12.0	531	16.6	268	12.9	87	16.6
2006	305	8.4	422	11.6	392	12.8	61	15.6	3	18.0
2007	196	8.0	525	13.4	422	13.3	417	16.9	30	35
<b>Average</b>		<b>9.4</b>		<b>12.6</b>		<b>14.6</b>		<b>15.5</b>		<b>21.2</b>

### Fibre

The information collected on fibre is not as robust as would have liked to achieve. Some key reasons for this are that farmers have not got weights of their fibre (i.e. kilograms shorn) nor a price. The price is largely due to the selling structure where often farmers will store fibre until a suitable price can be achieved.

From the fibre producers in the group, most flocks were shearing twice a year in autumn and early spring (i.e. Feb and August or March and September). Fibre grown per head was determined (in some properties oddments were separated and others not declared) in Table 16.

Table 16: Fibre produced per head/per clip

<b>Kg/hd</b>	<b>Does</b>	<b>Yearlings</b>	<b>Kids</b>	<b>Wethers</b>	<b>Other</b>
<b>2005</b>	3.03	2.23	1.12	1.61	2.80
<b>2006</b>	2.23	2.86	1.37	2.24	2.41
<b>2007</b>	2.54	1.74	0.94	2.40	5.48
<b>Average</b>	2.60	2.28	1.14	2.08	3.56

Fibre income in all instances was grouped as Goat Income with meat. Some farmers were able to give us a breakdown of income received. Table 17 outlines the \$/kg received and calculated to a \$/hd gross income based on the kg/hd derived in Table 16.

Table 17: Average price per kilogramme of fibre and per head

<b>\$/kg</b>	<b>Doe</b>		<b>Yearling</b>		<b>Kids</b>		<b>Wethers</b>		<b>Other</b>		<b>Oddments</b>
	<b>\$/kg</b>	<b>\$/hd</b>	<b>\$/kg</b>	<b>\$/hd</b>	<b>\$/kg</b>	<b>\$/hd</b>	<b>\$/kg</b>	<b>\$/hd</b>	<b>\$/kg</b>	<b>\$/hd</b>	<b>\$/kg</b>
<b>2005</b>	13.5	40.9	20.9	46.6	28.0	31.4			8.8	14.7	4.50
<b>2006</b>	12.7	28.3	23.2	68.4	34.3	47.0	26.5	59.4	10.2	24.6	4.88
<b>2007</b>	14.9	37.8	26.8	46.6	25.7	24.6	14.8	35.5	17.8	97.5	3.95
<b>Average</b>	<b>13.7</b>	<b>35.6</b>	<b>23.6</b>	<b>53.8</b>	<b>29.3</b>	<b>33.4</b>	<b>20.7</b>	<b>43.1</b>	<b>12.3</b>	<b>43.8</b>	<b>4.44</b>

### Deaths

Participants were asked to identify goat deaths into 7 main categories. The percentages for deaths across the 2005 – 2007, including the averages is shown in Table 18. The reasons for deaths were based on farmer observation and not from any clinical analysis or post-mortem process.

Kids and does had the highest percentage of deaths 47% and 39% respectively. The two main causes of death for the different stock classes are:

- Kids – environmental and parasites
- Yearlings – parasites and unknown
- Does – misadventure and parasites
- Wethers – unknown and parasites
- Bucks – parasites and misadventure

Overall the three main causes of death were environmental (29%), misadventure (24%) and parasites (22%). Environmental deaths relate to storms, cold weather and exposure, whereas misadventure includes drownings, electrocution, stuck in fences etc.

On average the deaths as a percentage of total goat stock numbers was 10%, broken down into years, the average deaths across all farms were:

	<b>Average</b>	<b>Meat</b>	<b>Fibre</b>
<b>2005</b>	14% (3 – 40%)	19%	10%
<b>2006</b>	10% (1 – 42%)	12%	7%
<b>2007</b>	7% (1 -22%)	6%	8%

Table 18: Deaths for 2005 and 2006 across all farms

2005						
Reason	Kids	Ylgs	Does	Wethers	Bucks	Total
Unknown	12%	30%	17%	18%	5%	15%
Old Age	0%	0%	7%	0%	0%	3%
Misadventure	8%	9%	21%	55%	0%	14%
Animal Health	2%	0%	5%	27%	0%	4%
Environmental	72%	0%	1%	0%	0%	35%
Parasites	6%	61%	49%	0%	89%	29%
Other	0%	0%	0%	0%	5%	0%
<b>% total no.s</b>	<b>48%</b>	<b>4%</b>	<b>43%</b>	<b>2%</b>	<b>3%</b>	
2006						
Reason	Kids	Ylgs	Does	Wethers	Bucks	Total
Unknown	2%	17%	10%	29%	3%	5%
Old Age	0%	0%	16%	0%	1%	3%
Misadventure	9%	8%	34%	0%	4%	14%
Animal Health	6%	11%	5%	14%	0%	6%
Environmental	62%	3%	0%	0%	0%	44%
Parasites	20%	61%	26%	57%	0%	25%
Other	1%	0%	9%	0%	0%	3%
<b>% total no.s</b>	<b>71%</b>	<b>7%</b>	<b>19%</b>	<b>1%</b>	<b>2%</b>	
2007						
Reason	Kids	Ylgs	Does	Wethers	Bucks	Total
Unknown	38%	23%	14%	42%	0%	23%
Old Age	0%	0%	11%	8%	21%	7%
Misadventure	1%	5%	69%	19%	58%	42%
Animal Health	10%	28%	3%	0%	13%	7%
Environmental	33%	0%	1%	0%	0%	9%
Parasites	17%	38%	2%	31%	8%	11%
Other	0%	5%	1%	0%	0%	1%
<b>% total no.s</b>	<b>25%</b>	<b>7%</b>	<b>54%</b>	<b>9%</b>	<b>4%</b>	
Average						
Reason	Kids	Ylgs	Does	Wethers	Bucks	Total
Unknown	12%	22%	14%	37%	8%	14%
Old Age	0%	0%	10%	6%	12%	4%
Misadventure	7%	7%	45%	23%	35%	24%
Animal Health	5%	15%	4%	6%	6%	6%
Environmental	60%	1%	1%	0%	0%	29%
Parasites	14%	52%	24%	29%	37%	22%
Other	1%	2%	2%	0%	2%	1%
<b>% total no.s</b>	<b>47%</b>	<b>6%</b>	<b>39%</b>	<b>4%</b>	<b>3%</b>	

### Income and Expenditure

Table 19 outlines the income and expenses for goat fibre and goat meat breeders 2004 - 2006. The opening stock units have then been used. Income for stock accounts includes the change in stock numbers adjustment.

Table 19: Comparing Income between Fibre and Meat breeders for years 2004 to 2006.

	2004				2005				2006			
	Fibre		Meat		Fibre		Meat		Fibre		Meat	
No. of Farmers	3		6		6		8		6		8	
Goat Stock Units	340		597		364		285		428		372	
Total Stock Units	2309		3012		2538		3022		3861		2929	
	\$/ha	\$/su	\$/ha	\$/su	\$/ha	\$/su	\$/ha	\$/su	\$/ha	\$/su	\$/ha	\$/su
<b>Wool Income</b>	\$32.10	\$17.95	\$72.36	\$14.14	\$28.91	\$22.05	\$70.85	\$15.74	\$30.74	\$7.29	\$57.55	\$15.80
<b>Sheep Income</b>	\$106.56	\$45.81	\$275.30	\$57.23	\$49.93	\$28.75	\$267.08	\$61.02	\$379.70	\$61.64	\$187.02	\$39.50
<b>Cattle Income</b>	\$441.74	\$67.57	\$69.57	\$43.73	\$239.53	\$10.06	\$122.91	\$55.20	\$234.97	\$74.18	\$95.87	\$54.20
<b>Goat &amp; Fibre</b>	\$86.26	\$49.15	\$12.77	\$14.56	\$122.06	\$58.99	\$11.93	\$7.06	\$119.77	\$52.16	\$22.09	\$17.72
<b>Other Revenue</b>	\$55.65	\$5.55	\$76.25	\$8.21	\$145.04	\$5.11	\$80.28	\$8.46	\$155.09	\$29.10	\$71.42	\$7.67
<b>Total GFI</b>	<b>\$722.31</b>	<b>\$68.18</b>	<b>\$506.25</b>	<b>\$57.32</b>	<b>\$585.47</b>	<b>\$57.40</b>	<b>\$553.05</b>	<b>\$66.52</b>	<b>776.48</b>	<b>\$80.95</b>	<b>\$433.97</b>	<b>\$53.28</b>
<b>Farm Working Expenses</b>												
<b>Wages</b>	\$30.55	\$3.28	\$13.50	\$3.63	\$22.70	\$4.49	\$28.12	\$3.64	\$30.18	\$2.11	\$24.95	\$2.90
<b>Animal Health</b>	\$50.87	\$4.49	\$31.79	\$3.98	\$36.38	\$3.47	\$28.90	\$3.04	\$31.63	\$2.70	\$27.61	\$3.02
<b>Weed &amp; Pest</b>	\$2.23	\$0.24	\$8.57	\$1.17	\$7.22	\$0.49	\$56.35	\$0.82	\$10.58	\$1.49	\$5.37	\$0.75
<b>Shearing Exp</b>	\$7.95	\$4.97	\$13.81	\$3.36	\$17.25	\$5.34	\$14.63	\$3.89	\$35.93	\$34.76	\$12.36	\$4.31
<b>Fertiliser &amp; Lime</b>	\$97.47	\$9.72	\$63.07	\$7.41	\$71.50	\$8.41	\$70.83	\$8.53	\$52.01	\$4.40	\$36.18	\$3.62
<b>Seed</b>	\$8.17	\$0.92	\$4.93	\$0.74	\$1.59	\$0.21	\$10.34	\$1.38	\$2.96	\$0.48	\$3.51	\$0.55
<b>Vehicle</b>	\$64.66	\$5.71	\$21.88	\$2.94	\$38.87	\$4.48	\$36.02	\$4.11	\$48.89	\$3.35	\$29.78	3.60
<b>Electricity</b>	\$11.33	\$0.86	\$5.15	\$0.61	\$8.20	\$0.77	\$6.41	\$0.80	\$7.39	\$0.69	\$4.75	\$0.45
<b>Feed &amp; Grazing</b>	\$64.25	\$5.60	\$14.69	\$2.14	\$48.12	\$3.87	\$11.83	\$1.80	\$46.43	\$4.19	\$9.43	\$1.75
<b>Cultivation &amp; Sow</b>	\$22.28	\$2.52	\$12.14	\$1.68	\$0.22	\$0.05	\$5.09	\$1.40	\$9.76	\$0.66	\$2.48	\$0.25
<b>Cash Crop</b>	\$4.01	\$1.36	\$0.00	\$0.00	\$36.29	\$7.29	\$2.31	\$1.51	\$7.09	\$0.43	\$0.00	\$0.00
<b>Repairs &amp; Maint</b>	\$60.35	\$4.42	\$29.58	\$3.79	\$60.11	\$5.83	\$26.39	\$3.02	\$116.31	\$13.38	\$17.20	\$2.04
<b>Cartage</b>	\$15.88	\$1.36	\$7.97	\$0.90	\$8.26	\$1.32	\$5.83	\$1.06	\$12.82	\$0.84	\$3.01	\$0.54
<b>Administration</b>	\$36.53	\$2.69	\$12.54	\$1.76	\$20.08	\$1.83	\$12.99	\$1.73	\$28.17	\$1.99	\$11.41	\$1.39
<b>Other</b>	\$33.85	\$3.17	\$4.99	\$0.86	\$16.47	\$1.96	\$6.24	\$1.11	\$77.24	\$5.35	\$9.70	\$0.96
<b>Standing Charges</b>	\$196.63	\$20.31	\$112.15	\$13.19	\$154.14	\$20.45	\$138.10	\$15.55	\$209.32	\$18.15	\$104.28	\$13.00
<b>Depreciation</b>	\$26.23	\$2.59	\$33.51	\$4.31	\$28.57	\$4.34	\$36.91	\$4.09	\$19.06	\$2.24	\$31.99	\$3.38
<b>Farm Working Exp</b>	\$733.23	\$69.22	\$383.18	\$43.39	\$540.48	\$65.48	\$440.14	\$49.24	\$738.91	\$65.59	\$363.16	\$42.66
<b>Profit before Tax</b>	<b>-\$10.93</b>	<b>-\$1.04</b>	<b>123.06</b>	13.93	25.51		\$121.68	\$12.12	\$19.57	\$9.12	\$112.90	\$11.84

Analysis comparing Net Income (Gross Farm Income [GFI] – Working Expenses [WE]) was also calculated comparing the farms within the M&WNZ Economic Service Land Classification. Based on the averages of all the land class units represented by those farmers in the programme, their net incomes were better than those reflected in the M&WNZ Economic Service Survey. Note that this figure does not take into consideration Standing Charges, Interest and Depreciation. Class 3 land in the programme in all instances had poorer results than the survey, whilst all other land classes had mixed results, except 4 and 6 which had better results.

Table 20: Net Income comparisons based on Land Class with Goat Farmers and M&WNZ Economic Service information

Land Class	Net/ha	Net/su	M&WNZ/ha	M&WNZ/su	Diff/ha	Diff/su
	2004					
1	\$24.35	\$18.73	\$20.03	\$18.74	\$4.32	-\$0.01
2	\$118.57	\$19.89	\$88.52	\$21.76	\$30.05	-\$1.87
3	\$148.01	\$15.31	\$206.08	\$24.89	-\$58.06	-\$9.58
4	\$375.94	\$33.96	\$305.39	\$29.80	\$70.56	\$4.16
5	\$355.80	\$38.21	\$444.33	\$39.64	-\$88.53	-\$1.43
6	\$325.61	\$40.54	\$296.12	\$33.71	\$29.50	\$6.83
<b>all</b>	<b>\$249.80</b>	<b>\$27.76</b>	<b>\$226.74</b>	<b>\$28.09</b>	<b>\$23.06</b>	<b>-\$0.33</b>
	2005					
1	\$11.91	\$7.08	\$22.10	\$21.88	-\$10.19	-\$14.80
2	\$242.35	\$39.63	\$109.47	\$27.08	\$132.88	\$12.56
3	\$116.12	\$11.05	\$209.16	\$25.53	-\$93.04	-\$14.48
4	\$505.82	\$41.52	\$347.34	\$34.12	\$158.48	\$7.41
5	\$559.68	\$53.99	\$459.35	\$41.44	\$100.34	\$12.56
6	\$382.76	\$47.80	\$329.46	\$38.84	\$53.30	\$8.95
<b>all</b>	<b>\$488.91</b>	<b>\$50.90</b>	<b>\$246.14</b>	<b>\$31.48</b>	<b>\$242.77</b>	<b>\$19.42</b>
	2006					
1	\$17.55	\$13.90	\$10.06	\$9.88	\$7.49	\$4.02
2	\$146.76	\$23.85	\$78.62	\$22.47	\$68.14	\$1.38
3	\$81.85	\$13.46	\$188.48	\$22.80	-\$106.64	-\$9.34
4	\$451.79	\$38.39	\$295.79	\$29.49	\$156.00	\$8.90
5	\$393.12	\$58.41	\$405.12	\$37.80	-\$12.00	\$20.61
6	\$286.93	\$37.85	\$246.30	\$28.64	\$40.63	\$9.21
<b>all</b>	<b>\$218.56</b>	<b>\$29.41</b>	<b>\$204.06</b>	<b>\$25.18</b>	<b>\$14.50</b>	

### Weed and Pest

An evaluation of the weed and pest costs per total stock unit across the farms is shown in Table 21. Some of the farmers noted that although they have Weed & Pest Control costs, these were mainly associated with possum control. As splitting weed from pest in the M&WNZ's Economic Survey was not able to be done, the total Weed & Pest expenditure is grouped together.

Table 21: Evaluation of Weed & Pest per stock unit

	2004			2005			2006		
	Fibre	Meat	M&WNZ	Fibre	Meat	M&WNZ	Fibre	Meat	M&WNZ
Average \$/total su	\$0.24	\$0.98	\$1.40	\$0.49	\$0.91	\$1.58	\$0.82	\$1.49	\$1.38
Average \$/ha	\$2.23	\$7.75	\$12.25	\$7.22	\$6.66	\$12.68	\$6.83	\$10.58	\$11.46

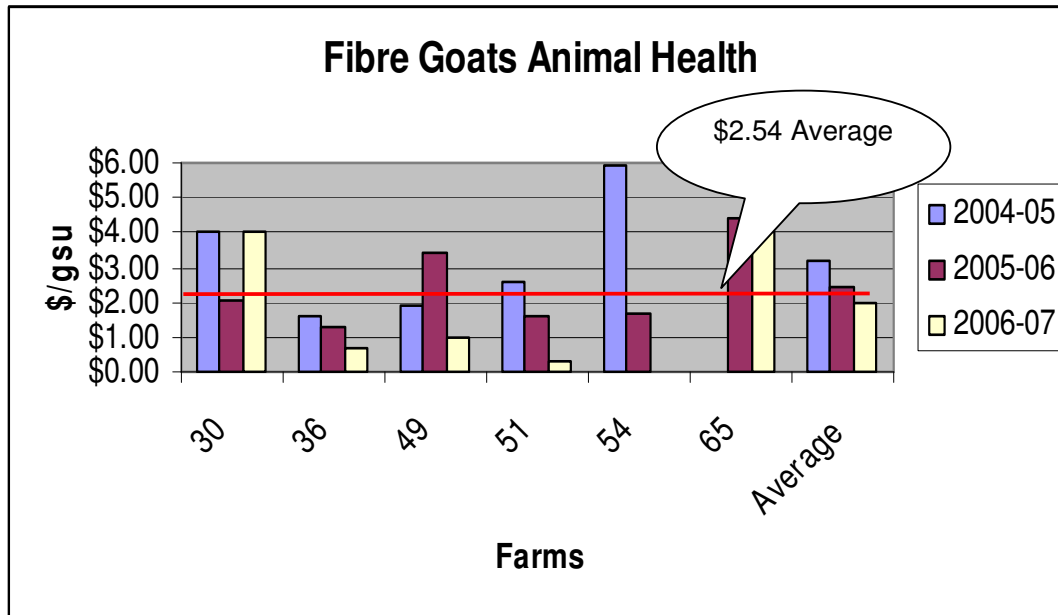
	Average		
	Fibre	Meat	M&WNZ
Average \$/total su	\$0.74	\$0.90	\$1.45
Average \$/ha	\$6.67	\$7.08	\$12.13

Savings for the goat farmers for weed and pest was practically double on both a stock unit basis and on a per hectare basis.

### Animal Health

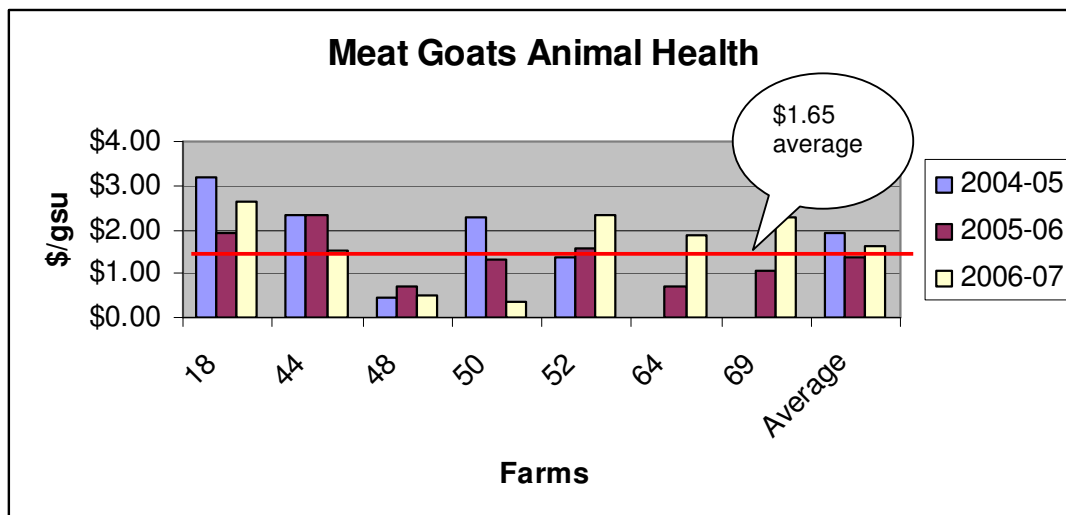
Participants are asked for a breakdown of the animal health treatments, the product, dose rate and number of animals. From this the actual amount of product is calculated and priced out on a per ml basis. The farms used were only those where sufficient detail was provided. Figure 7 and 8 shows the range of animal health \$/gsu for 2004-05, 2005-06 and 2006-07 for each year and the average across the three years. The overall averages for these respectively is \$2.57, \$1.92 and \$1.74/gsu. The overall average was \$2.08/gsu.

Figure 7:



On the extensive properties very little animal health treatment was undertaken, mainly in the form of providing mineral blocks.

Figure 8:



Of the Goat Animal Health spend, the majority overall was for parasites, as shown in Figures 9 and 10 for fibre and meat goats respectively. Fibre goats also had significant spend on minerals. Very few of the farmers were doing FEC counts before administering drenches and many did it largely on a proactive, routine approach.

Figure 9:

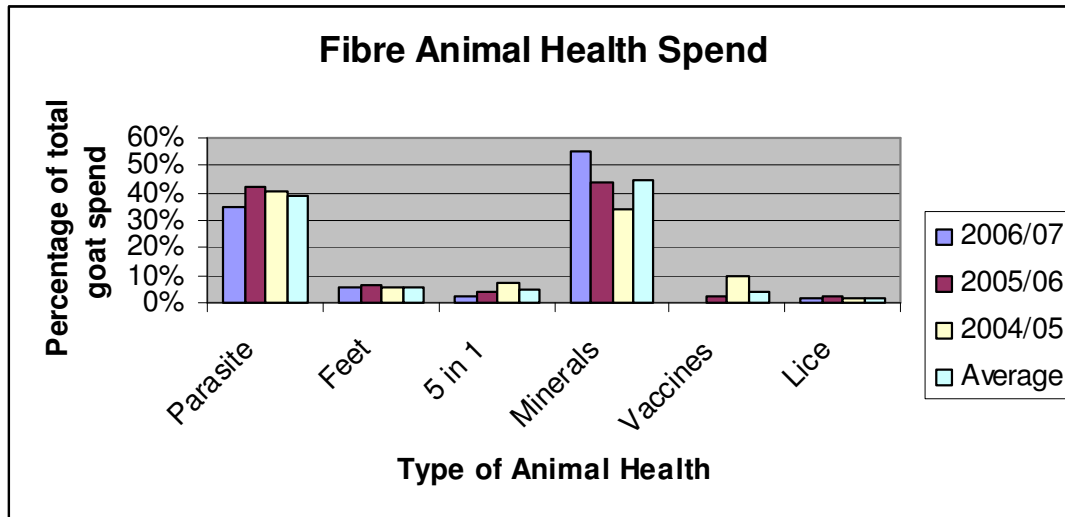
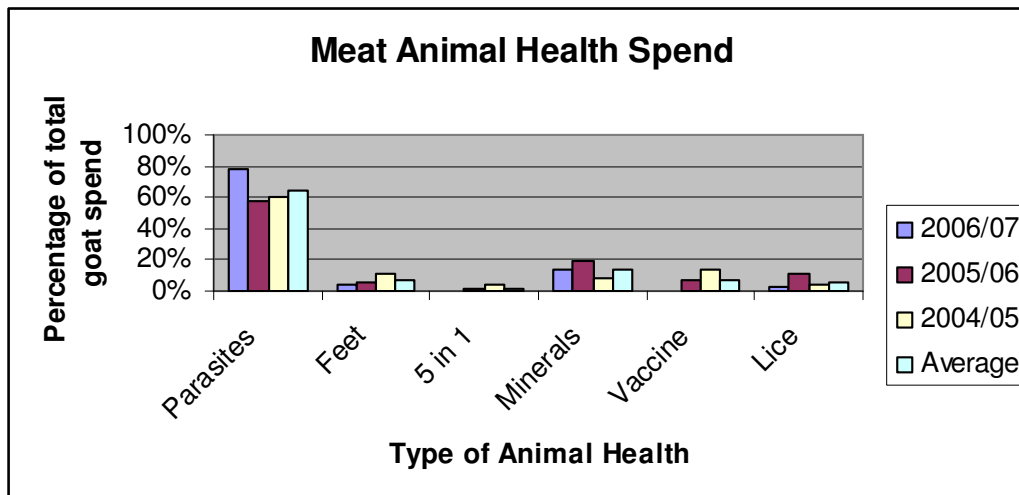


Figure 10:



### Labour

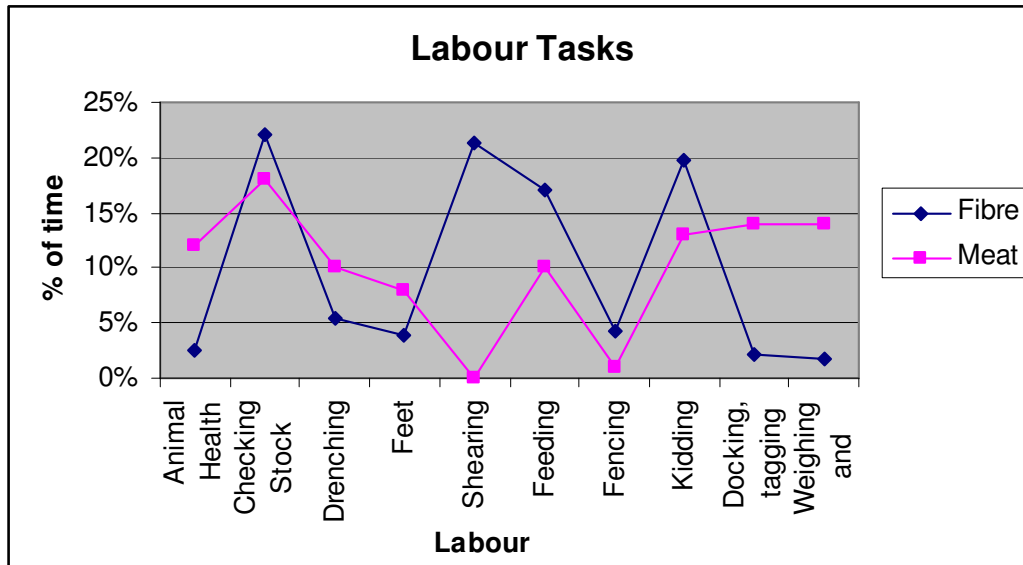
Ten key areas have been identified for allocating labour time when working with the goats. These are:

- Animal Health
- Checking Stock
- Drenching Stock
- Feet
- Shearing
- Feeding
- Fencing
- Kidding related tasks
- Docking/marketing/tagging

- Weighing & sorting stock (incl. weaning and culling)

Figure 11 shows the percentage of total time spent on goats between fibre and meat goats on the individual tasks as an average across the three years 2005 – 2007.

Figure 11:



Labour spent per goat stock unit was 1 hour and 7 minutes for fibre goats and 22 minutes for meat goats.

## APPENDIX ONE: LAND CLASSIFICATION UNITS

1. **South Island High Country**  
Extensive run country located at high altitude carrying fine wool sheep, with wool as the main source of revenue. Located mainly in Marlborough, Canterbury and Otago.
2. **South Island Hill Country**  
Mainly mid micron wool sheep mostly carrying between two and seven stock units per hectare. Three quarters of the stock units wintered are sheep and one quarter beef cattle.
3. **North Island Hard Hill Country**  
Steep hill country or low fertility soils with most farms carrying six to ten stock units per hectare. While some stock are finished a significant proportion are sold in store condition.
4. **North Island Hill Country**  
Easier hill country or higher fertility soils than Class 3. Mostly carrying between seven and thirteen stock units per hectare. A high proportion of sale stock sold is in forward store or prime condition.
5. **North Island Intensive Finishing Farms**  
Easy contour farmland with the potential for high production. Mostly carrying between eight and fifteen stock units per hectare. A high proportion of stock is sent to slaughter and replacement are often bought in.
6. **South Island Finishing-Breeding Farms**  
A more extensive type of finishing farm, also encompassing some irrigation units and frequently with some cash cropping. Carrying capacity ranges from six to eleven stock units per hectare on dryland farms and over twelve stock units per hectare on irrigated units. Mainly in Canterbury and Otago. This is the dominant farm class in the South Island.
7. **South Island Intensive Finishing Farms**  
High producing grassland farms carrying about ten to fourteen stock units per hectare with some cash crop. Located mainly in Southland, South and West Otago.
8. **South Island Mixed Finishing Farms**  
Mainly on the Canterbury plains with a high proportion of the revenue being derived from grain and small seed production as well as stock finishing.