



2013 - 2014

PERFORMANCE AND
BENCHMARKING
REPORT

**EXAMPLE SHEEP
AND BEEF FARM**

FARMAX
YOUR ADVANTAGE

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DISCLAIMER

The information contained in this report is based on the best information available and the recording of monitored information about your business. All due care has been taken in its preparation. Because it is not possible to check all monitored details against actual events and it is not possible to foresee all uses for this information and the subsequent actions that rely on the accuracy of the information in this report it is taken at the users risk. Accordingly, FARMAX Ltd disclaims any liability whatsoever in respect of any losses or damages arising out of the use of this information or in respect of any actions taken in reliance upon the validity of the information contained herein.

INTRODUCTION

The FARMAX Performance and Benchmarking Report is presented in five sections:

Section 1 Farm Summary Reports

Outlines the net and potential pasture growth and stock demand, then compares the supply and demand fit and pasture cover. This is compared with previous years if available and benchmarked against other farms in your farm class. The top 20% is based on the highest earning farms.

Section 2 Enterprise Summary

Provides a comparison of the enterprises and their relative performance of product produced and gross margin per kg of product. This is compared with previous years if available and benchmarked other farms in your farm class. The top 20% is based on the highest earning enterprises, rather than the highest earning farms.

Section 3 Reproduction Reports

Outlines the reproduction of sheep, cattle, and deer, and compares the current year with previous years if available and other farms in your farm class. The top 20% is based on the highest earning farms.

Section 4 Finishing Enterprise Reports

Outlines the trading margins and average growth rates which are compared with previous years.

Section 5 Financial Summary

Measures the gross farm income and gross margin against feed supply, firstly at a whole farm level, then secondly breaks this down into sheep cattle and deer. The top 20% is based on the highest earning farms.

Your farm is categorised as an All NZ Hill Country class farm, there are 105 farms in your farm category. This group is used to compare your farm against the group average and top 20%. The top 20% is based on the highest earning farms for the farm summary, reproduction and financial sections. The enterprise section is based on the highest earning enterprises within a farm.

FARM SUMMARY REPORTS

The feed supply on your farm is the most limiting factor to production. Therefore the feed you produce and how demand is managed to fit supply is a key measure of a farms performance.

FEED SUPPLY

An important starting point is to understand your potential pasture production. This allows you to compare your farm productivity with how much grass you can potentially grow rather than how much you actually grow.

FIGURE 1. POTENTIAL PASTURE PRODUCTION PER HECTARE BY MONTH

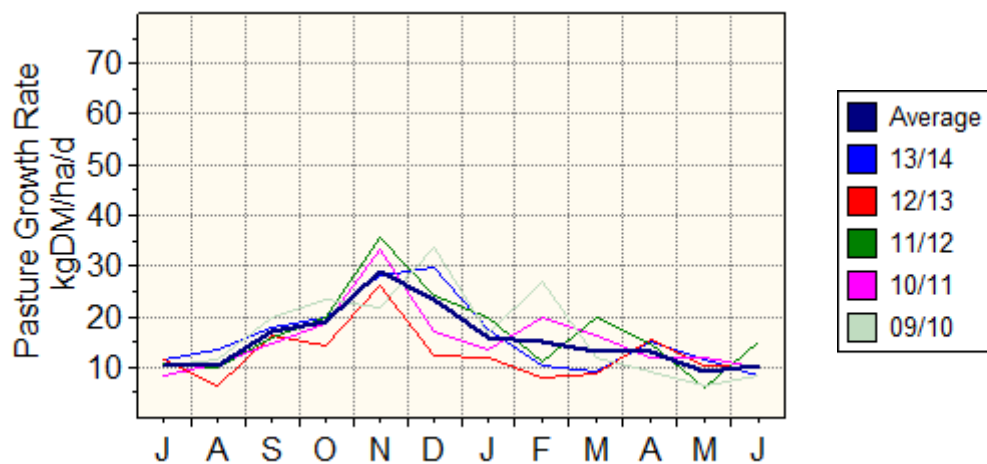


TABLE 1. MONTHLY PASTURE GROWTH

(kgDM/ha/d)	Plan ¹	Average	09/10	10/11	11/12	12/13	13/14	Group Average	Top 20%
Jul	11.5	10.4	10.3	8.3	10.5	11.4	11.4	6.0	0.4
Aug	13.6	10.3	11.3	10.7	9.7	6.2	13.6	10.2	11.4
Sep	17.9	16.9	19.8	14.8	15.8	16.4	17.9	22.0	38.2
Oct	19.9	19.1	23.4	18.4	19.7	14.3	19.9	23.9	44.1
Nov	28.0	29.1	21.8	33.3	35.8	26.3	28.1	28.0	28.1
Dec	29.6	23.3	33.6	16.9	24.2	12.3	29.7	27.2	24.4
Jan	17.7	15.9	16.5	13.5	19.9	11.9	17.6	18.1	13.2
Feb	11.0	15.2	27.1	19.9	11.0	8.0	10.1	10.5	18.9
Mar	14.0	13.2	11.8	16.3	19.8	8.8	9.0	11.9	19.7
Apr	12.0	13.2	9.1	11.8	14.5	15.5	15.2	17.8	20.2
May	8.0	9.2	6.4	12.0	5.8	10.5	11.5	11.7	12.2
Jun	10.0	10.4	8.4	10.1	15.2	10.0	8.2	10.1	13.5
Total Annual kgDM/ha	5883	5662	6041	5641	6167	4608	5856	6027	7502

The feed supply summary table below shows how FARMAX has calculated your potential pasture production. The potential growth is a calculation of pasture that could potentially be grown if pasture cover was managed within an optimal height and if pasture decay was minimised. For example if cover gets too long then growth will be reduced and more dead material will accumulate. This dead material will decay later.

FARMAX calculates potential pasture production from; your stock numbers, their performance, supplementary feeding, and pasture cover assessments. FARMAX subtracts any loss of potential then adds the boost from any nitrogen applications to calculate the net pasture production.

Good pasture cover assessments are important for accurately calculating pasture growth and losses.

¹ The 'Plan' growth rates are from the original plan developed for the year.

TABLE 2. FEED SUPPLY SUMMARY

	09/10	10/11	11/12	12/13	13/14	Group Average	Top 20%
Effective Area ² (ha)	565	565	565	565	565	503	61
Potential Pasture Production (tDM/ha)	6.04	5.64	6.17	4.61	5.86	6.03	7.50
Nitrogen Boost ³ (tDM/ha)	0.00	0.00	0.00	0.12	0.00	0.24	0.59
Pasture Losses ⁴ (tDM/ha)	1.29	1.00	1.12	0.93	1.13	1.18	1.10
Pasture loss percent of total Pasture Supply ⁵	22.7	17.5	18.5	19.3	19.8	20.1	14.5
Net Pasture Production ⁶ (tDM/ha)	4.75	4.64	5.05	3.80	4.72	5.08	6.99
Feed Conserved (tDM/ha)	0.00	0.00	0.00	0.00	0.00	0.00	0.00

² Total grazable area less area in cash cropping

³ Amount of extra pasture grown because of nitrogen applications

⁴ Pasture lost from decay and the loss of potential growth due to sub-optimal pasture height

⁵ This is the percentage of potential pasture growth lost due to sub-optimal pasture height and pasture lost through decay, as a percentage of pasture supply.

⁶ Net Pasture production is Potential plus N boost less losses

FEED DEMAND

FARMAX calculates feed demand from your monitoring of stock numbers and performance. As you add more years you will be able to see how well long term feed demand fits with long term feed supply. It will also show how you have been able to shift demand with changes to feed supply.

Regular weighing of livestock and recording of stock sale weights help with the accuracy of this calculation.

FIGURE 2. STOCK DEMAND PER HECTARE BY MONTH

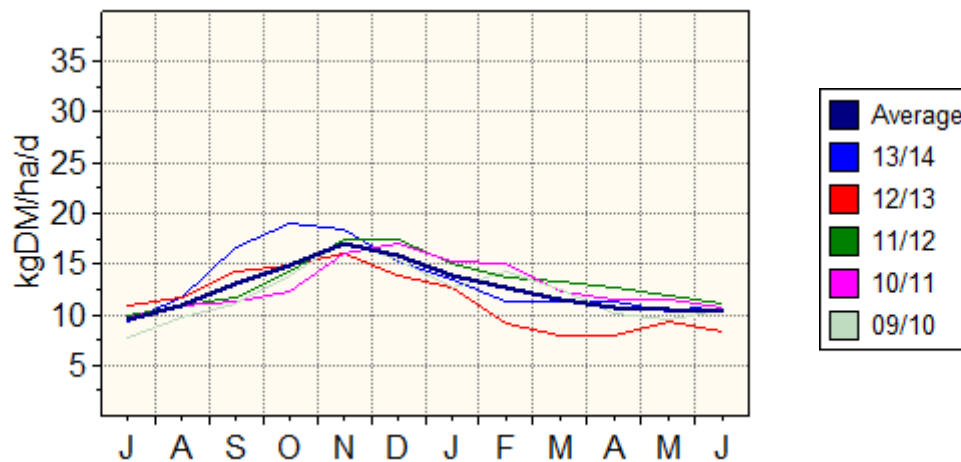


TABLE 3. MONTHLY FEED DEMAND

(kgDM/ha/d)	Average	09/10	10/11	11/12	12/13	13/14	Group Average	Top 20%
Jul	9.5	7.8	9.8	10.0	10.8	9.2	10.7	12.9
Aug	11.0	9.7	11.0	10.9	11.7	11.7	13.7	21.9
Sep	13.0	11.1	11.3	11.6	14.3	16.7	18.9	37.2
Oct	14.9	13.9	12.3	14.2	14.9	19.0	21.7	41.0
Nov	17.0	17.2	16.0	17.4	15.9	18.5	17.1	20.8
Dec	15.8	15.4	17.0	17.4	13.8	15.3	17.3	19.6
Jan	13.8	12.6	15.2	15.1	12.6	13.4	13.9	15.4
Feb	12.7	14.3	15.1	13.8	9.2	11.3	12.5	16.3
Mar	11.5	12.5	12.3	13.2	7.9	11.3	13.3	19.0
Apr	10.7	10.1	11.4	12.8	8.0	11.3	12.8	17.4
May	10.5	9.5	11.5	11.8	9.2	10.3	11.1	13.4
Jun	10.3	10.5	10.7	11.1	8.3	11.1	11.0	13.3
Total Annual kgDM/ha	4583	4384	4664	4861	4164	4841	5301	7574

The Demand summary table below shows the total feed eaten and the percentage of this that was supplied by supplements. It calculates two important measures; how much product (meat, wool and velvet) you produce per hectare and how efficiently your stock convert the dry matter they have consumed into products.

TABLE 4. DEMAND SUMMARY

	09/10	10/11	11/12	12/13	13/14	Group Average	Top 20%
Total Feed Eaten ⁷ (tDM/ha)	4.38	4.66	4.82	4.08	4.69	5.01	6
Demand from Supplements (%)	0.8	0.0	0.0	4.4	5.6	4.0	4.4
Standardised Stocking Rate (SU/ha) ⁸	8.0	8.5	8.8	7.4	8.5	9.1	10
Live weight wintered (kg/ha) ⁹	356	534	513	544	354	497	499
Net product produced (kg/ha)	156	157	164	130	201	153	150
Feed conversion efficiency ¹⁰	28.2	29.7	29.4	31.3	23.4	29.3	30
Sheep: Cattle : Deer Ratio ¹¹	74:26:0	76:24:0	76:24:0	77:23:0	83:17:0	70:30:0	67:33:0

⁷ Total Feed Eaten (tDM/ha) is calculated on the effective area

⁸ Total stock demand divided by 550 kgDM/SU

⁹ Live weight at the 1st of July based on effective area

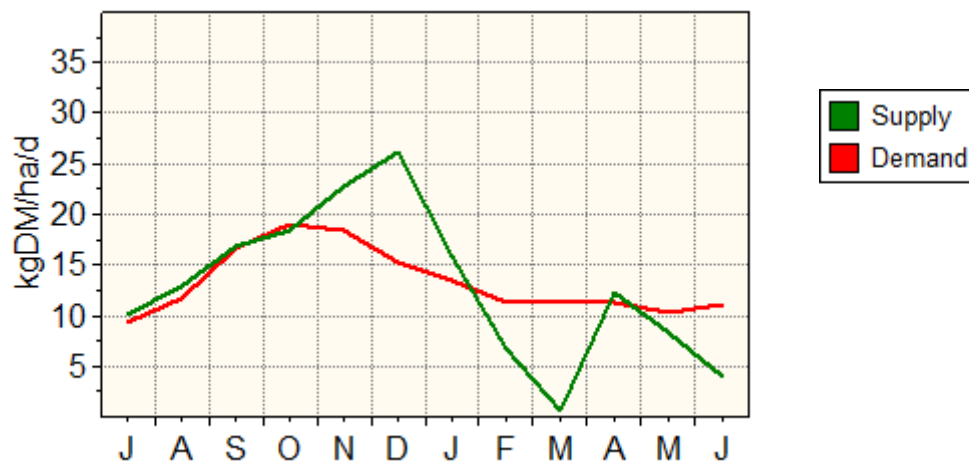
¹⁰ Dry matter intake divided by the total production of wool, carcass and velvet

¹¹ Calculated from the total annual intake of each species

SUMMARY OF FEED SUPPLY AND DEMAND

The match between feed supply and demand is an important indication of how well your farm can utilise feed. A good fit means pastures are less likely to be over or under grazed and a lower amount of supplements are required to shift feed from periods of surplus to periods of deficit.

FIGURE 3. FEED SUPPLY AND DEMAND



PASTURE COVER

The pasture cover shows in practice how good your fit between feed supply and feed demand is. The peak in the spring shows how well growth is controlled. The trough in the winter shows how well demand has been reduced for months of low pasture growth.

Pasture covers in early spring are a key requirement for animal performance. Generally, sheep dominant systems should have 1250 – 1350kg DM/ha at the start of lambing. As the proportion of finishing cattle increase this minimum cover increases to 1500 – 1600kg DM/ha.

FIGURE 4. AVERAGE PASTURE COVER BY MONTH

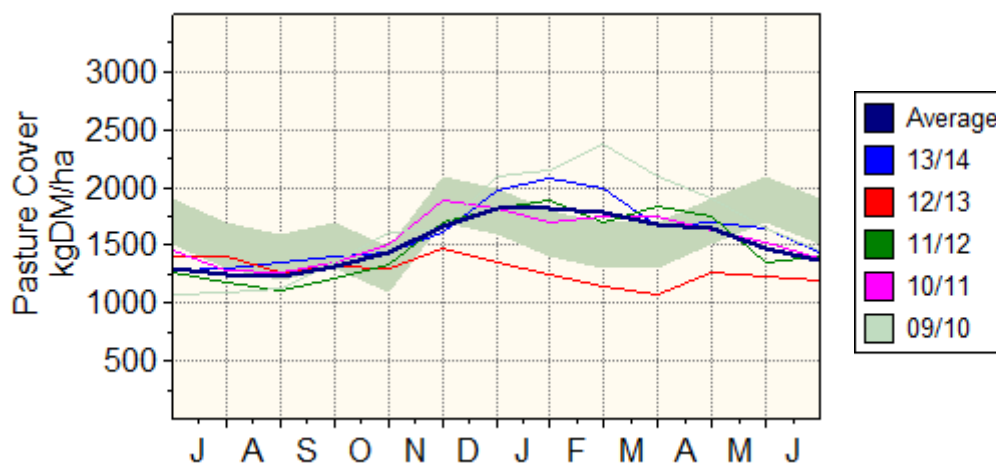


TABLE 5. MONTHLY AVERAGE PASTURE COVER

kgDM/ha/d)	Plan ¹²	Average	09/10	10/11	11/12	12/13	13/14
Jul	1293	1258	1063	1341	1195	1398	1293
Aug	1337	1243	1105	1280	1148	1343	1337
Sep	1379	1272	1231	1304	1162	1285	1379
Oct	1427	1383	1477	1432	1275	1304	1427
Nov	1527	1552	1634	1699	1517	1384	1526
Dec	1788	1738	1873	1849	1758	1420	1788
Jan	2020	1810	2124	1754	1856	1297	2021
Feb	2045	1810	2269	1722	1812	1201	2047
Mar	1972	1728	2229	1734	1769	1090	1817
Apr	1904	1656	1997	1678	1795	1167	1644
May	1729	1565	1776	1570	1540	1243	1698
Jun	1533	1427	1547	1451	1380	1214	1542

¹² The 'Plan' pasture covers are from the original plan developed for the year.

ENTERPRISE SUMMARY

The Enterprise reports show how the different enterprises within each species have performed, for example a trading lamb enterprise versus a sheep breeding enterprise. As we are interested in an enterprise all transfers in or out of the enterprise (either to another enterprise or another farm) are included as sales and purchases.

Note that the average and top 20% are based on our database of enterprise performance (not farm performance). Therefore a farm could have a top 20% enterprise performance but an average whole farm performance.

TABLE 6. ENTERPRISE GROSS MARGIN PER KG DM REPORT

Enterprise	Type	09/10	10/11	11/12	12/13	13/14	Group Average	Top 20%	Percent of feed eaten ¹³
Ewes	Breeding	7.8	14.4	15.5	10.1	13.5	11.1	13.5	82.5
Spring Calvers	Breeding	8.9	13.1	10.9	9.6	13.5	8.6	13.5	8.9
Steers	Finishing	4.5	7.2	20.5	10.7	9.9	8.8		1.6
Heifers	Finishing	4.5	11.7	5.8	7.7	7.6	8.8		6.9
Grazing Cows	Grazers/ Contract	18.3	19.9						
Trading Lambs	Finishing	113.6	-39.0						
Trade Lambs	Finishing			-4.0	157.1				

TABLE 7. ENTERPRISE KG DM PER KG OF PRODUCT REPORT

Enterprise	Type	09/10	10/11	11/12	12/13	13/14	Group Average	Top 20%
Ewes	Breeding	28.0	27.3	27.9	29.2	22.4	31.5	22.4
Spring Calvers	Breeding	36.2	48.3	46.3	47.1	28.6	50.4	28.6
Steers	Finishing	25.0	29.4	28.7	26.2	24.2	27.9	
Heifers	Finishing	22.3	31.9	31.9	41.1	31.6	27.9	
Grazing Cows	Grazers/ Contract	52.5	5.8					
Trading Lambs	Finishing	18.4	-851.5					
Trade Lambs	Finishing			24.9	44.0			

¹³ Percentage of feed eaten refers to the percentage that enterprise consumes of the total livestock intake for the year.

REPRODUCTION REPORTS

The reproduction reports show the performance of breeding mobs.

Note that the average and top 20% of our database are based on the highest earning farms. Therefore a farm could have a top 20% earnings performance but an average reproductive performance.

SHEEP REPRODUCTION REPORT

The sheep reproduction report calculates the performance of mixed age ewe mobs. As hogget lambing may increase reproductive performance an overall weaning % is also calculated that divides total lambs by mixed age ewes.

A defining measure of reproductive performance is ewe efficiency. This measures the efficiency with which the ewe weight that is taken through winter goes on to produce weaned lamb weight.

Factors that will influence this are:

- ▲ The ewe scanning index which shows how fertile ewes are given their live weight;
- ▲ The losses from scanning to tailing/docking, and the losses from tailing/docking to weaning;
- ▲ The lamb weaning weight (this is adjusted to a common 90 day weaning date).

TABLE 8. SHEEP REPRODUCTION REPORT

Sheep	09/10	10/11	11/12	12/13	13/14	Group Average	Top 20%	
Tupping Body Weight (kg) ¹⁴	53.4	57.1	56.4	60.5	53.6	57.3	60	
Average Birth Date ¹⁴	23 Aug	30 Aug	29 Aug	31 Aug	30 Aug	13 Sep	12 Sep	
Scanning % ¹⁴	155	158	159	170	153	154	160	
Scanning Index ¹⁴	2.9	2.8	2.8	2.8	2.9	2.7	3	
Losses - scanning to tailing (%) ¹⁴	22	28	21	15	11	18	18	
Tailing % ¹⁴	120	117	125	144	136	126	126	
Losses - tailing to weaning (%) ¹⁴	8.7	1.0	2.8	1.2	2.6	1.1	1.3	
Weaning %	Overall ¹⁵	111	124	131	152	133	123	130
	Ewes tailing ¹⁶	111	116	122	143	133	123	125
	Hogget tailing ¹⁷		50	75	26			70
Survival - scanning to weaning (%) ¹⁴	72	73	77	84	87	80	38	
90 Day Weaning Weight ¹⁴	22.0	28.5	24.9	31.7	29.5	27.2	30	
Average Growth Rate to weaning (g/d)	196	265	226	299	278	251	270	
Ewe Efficiency ¹⁸	46	57	54	75	73	59	67	

¹⁴ A weighted average of ewes mobs only (hoggets not included)

¹⁵ All lambs (including lambs from hoggets) weaned divided by ewes only

¹⁶ Lambs from ewe mobs only divided by ewes only

¹⁷ Lambs weaned from hogget mobs only divided by all ewe hoggets

¹⁸ kg lamb weaned per kg ewe mated for ewe mobs only

CATTLE REPRODUCTION REPORT

The beef reproduction report is designed to calculate the performance of mixed age cow mobs.

The most defining measure of cattle reproductive performance is the cow efficiency.

Factors that will influence this are:

- ▲ Cow losses from 1st July to weaning;
- ▲ The weight of cows and calves at weaning (adjusted to a common 200 day weaning date).

TABLE 9. CATTLE REPRODUCTION REPORT

Cattle	09/10	10/11	11/12	12/13	13/14	Group Average	Top 20%
Average Birth Date	28 Aug	05 Sep	05 Sep	04 Sep	05 Sep	05 Sep	5 Sep
Cows wintered (1 July)	81	73	87	90	67	73	90
Losses % (1 Jul to Weaning)	11	3	10	-73	-3	12	11
Weaning % (of cows wintered)	89	97	90	173	103	98	103
200-day Wean Wt (kg)	225	250	244	246	221	220	230
Growth to Weaning (kg/d)	0.98	1.11	1.07	1.08	0.96	1.03	1.21
Cow Efficiency (%)	36.8	45.7	43.8	85.2	51.9	45	58.7

FINISHING ENTERPRISE REPORTS

The detail in these reports will depend on how the FarmTools model for your farm was set up. Given the data below you may wish to track more or less enterprises next year.

SHEEP FINISHING REPORT

The finishing reports give a summary of buying and selling details. These include numbers, prices, and weights. It uses these to calculate the margins made on trading and the average growth rates while stock were run on the farm.

TABLE 11. SHEEP FINISHING ENTERPRISE REPORTS

a) Trading Lambs

		09/10	10/11
Purchase	Number	667	
	Live Weight (kg)	29.0	
	\$ / head	65	
	\$ / kg	2.25	
Sale	Number		667
	Carcass Wt. (kg)		15.7
	\$ / head		88
	\$ / kg		5.61
Margin	Live Weight (kg)	-29.0	34.3
	\$ / head	-65	88
	\$ / kg	2.25	2.56
Avg. Live Wt. Gain (g/d)		110	53

b) Trade Lambs

		11/12	12/13
Purchase	Number	1,612	2
	Live Weight (kg)	34.2	47.7
	\$ / head	97	129
	\$ / kg	2.84	2.70
Sale	Number	952	628
	Carcass Wt. (kg)	16.3	17.2
	\$ / head	95	101
	\$ / kg	5.81	5.86
Margin	Live Weight (kg)	5.3	-5.5
	\$ / head	-2	-28
	\$ / kg	-0.45	5.10
Avg. Live Wt. Gain (g/d)		94	124

CATTLE FINISHING REPORT

TABLE 12. CATTLE FINISHING ENTERPRISE REPORT

a) Steers

		09/10	10/11	11/12	12/13	13/14
Purchase	Number	81	43	38	46	36
	Live Weight (kg)	273	257	259	203	257
	\$ / head	653	660	718	477	707
	\$ / kg	2.40	2.57	2.77	2.35	2.75
Sale	Number	41	40	44	67	20
	Carcass Wt. (kg)	195	204	185	157	154
	\$ / head	831	888	971	700	846
	\$ / kg	4.25	4.36	5.26	4.45	5.49
Margin	Live Weight (kg)	125	158	124	119	71
	\$ / head	177	228	253	223	139
	\$ / kg	1.42	1.44	2.04	1.87	1.96
Avg. Live Wt. Gain (kg/d)		0.49	0.45	0.54	0.47	0.60

b) Heifers

		09/10	10/11	11/12	12/13	13/14
Purchase	Number	43	87	39	37	
	Live Weight (kg)	241	246	223	211	
	\$ / head	472	556	583	421	
	\$ / kg	1.96	2.26	2.61	1.99	
Sale	Number	49	28	44	39	33
	Carcass Wt. (kg)	213	252	283	256	258
	\$ / head	754	998	1,106	938	1,044
	\$ / kg	3.53	3.97	3.91	3.66	4.04
Margin	Live Weight (kg)	179	242	319	282	499
	\$ / head	282	443	523	518	1,044
	\$ / kg	1.57	1.83	1.64	1.83	2.09
Avg. Live Wt. Gain (kg/d)		0.65	0.37	0.47	0.32	0.48

FINANCIAL SUMMARY

The following financial information is derived from your inputs into FarmTools and standard values for animal health, crops, shearing and supplementary feeding.

Consistent recording of actual sale prices and sale weights assist in the accuracy of these measures.

FARM FINANCIAL SUMMARY REPORTS

These reports calculate your Gross farm income (GFI) and Gross margin (GM). The GFI is simply your sales including grazing income less purchases and any change in livestock value from the start to end of the year. The GM allocates some typical costs for animal health, crops, shearing (and velvetting) and supplementary feeding.

They calculate how much the farm system is earning against its potential pasture production and against how much dry matter is eaten. The difference between potential production and dry matter eaten is important. It includes two aspects:

- ▲ How well your system controls pasture growth yet keeping it at the optimum height so that the maximum net growth is achieved.
- ▲ How well stock convert the dry matter eaten into valuable products. This will involve such things as the efficiency in converting pasture to product, the type of products produced and whether they are sold at premium market times.

TABLE 14. GROSS FARM INCOME REPORT

Gross Farm Income ¹⁹	09/10	10/11	11/12	12/13	13/14	Group Average	Top 20%
Per kg Potential Pasture Production ²⁰ (c/kg)	8.8	13.2	14.2	13.1	14.1	12.4	15
Per kg Dry Matter Eaten (c/kg DM Eaten)	11.4	16.2	17.5	15.1	16.6	14.9	14.8
Per hectare (\$/ha)	501	754	846	614	778	680	780

¹⁹ Gross Farm Income is the sales revenue less purchase costs and plus or minus any change in the capital value of stock or conserved feeds (hay, silage). It excludes crop or other income, and is calculated on the average effective area.

²⁰ The Potential Pasture Production is the pasture growth that would have occurred if the optimum pasture height had been achieved through the year plus or minus any change in pasture cover from the start to the end of the year.

TABLE 15. GROSS MARGIN REPORT

Gross Margin ²¹	09/10	10/11	11/12	12/13	13/14	Group Average	Top 20%
Per kg Potential Pasture Production (c/kg)	6.5	10.7	10.6	8.3	10.7	9.0	11.1
Per kg Dry Matter Eaten (c/kg DM Eaten)	8.5	13.1	13.1	9.6	12.6	10.8	10.6
Per hectare (\$/ha)	371	612	631	393	592	492	598

²¹ Gross Margin is the Gross Farm Income less an allowance for animal health, shearing, vetting, supplementary feeding and interest on stock capital value, and is calculated on the average effective area.

STOCK FINANCIAL SUMMARY REPORTS

The Stock financial summary reports show the Gross income and the Gross margin earned per kg of dry matter consumed. This illustrates how efficiently consumed feed is converted into money. It does not however consider how well they fit overall feed supply and feed quality. This is better illustrated in the Farm financial summary reports.

Note that Gross margins for Sheep, Cattle and Deer do not include the cost of supplements.

TABLE 16. SHEEP FINANCIAL SUMMARY REPORT

Sheep	09/10	10/11	11/12	12/13	13/14	Group Average	Top 20%
Gross Sheep Income per kg of Dry Matter Eaten (c/kg)	12.4	17.0	18.9	15.9	17.4	14.9	15.2
Gross Margin (Sheep) per kg of Dry Matter Eaten (c/kg)	9.1	13.5	14.3	11.1	13.5	11.1	11.1
kgDM eaten / kg Product ²²	27.8	27.7	27.7	29.2	22.4	32.9	34
Gross Sheep Income per kg of product (c/kg)	3.45	4.71	5.26	4.65	3.89	4.52	5.2

TABLE 17. CATTLE FINANCIAL SUMMARY REPORT

Cattle	09/10	10/11	11/12	12/13	13/14	Group Average	Top 20%
Gross Cattle Income per kg of Dry Matter Eaten (c/kg)	9.2	13.5	13.0	11.6	13.7	11.9	12.6
Gross Margin (Cattle) per kg of Dry Matter Eaten (c/kg)	7.4	11.8	10.3	9.0	10.8	9.0	9.6
kgDM eaten / kg Product	29.3	38.0	36.6	41.2	29.2	34.5	35.1
Gross Cattle Income per kg of product (c/kg)	2.69	5.15	4.76	4.80	3.99	4.96	5.3

²² The amount of dry matter eaten to produce 1 kg of product. Product is carcass, wool and velvet.