TRI-NATIONS REVISITED

PROFITABILITY VARIATIONS BETWEEN THE AVERAGE AND THE BEST IN SOUTH AFRICA, AUSTRALIA AND NEW ZEALAND

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Introduction

This paper sets out to determine the differences between the levels of profitability in pasture-based dairying in South Africa, Australia and New Zealand. In particular the paper examines where the performance in the three countries differs as well as where it is similar. The comparisons are based on 2004/05 data analysed on an identical basis via the same software. The data is based on:

- 57 South African farms from Natal and Eastern Cape; and
- 298 Australian farms from Victoria, Tasmania and South Australia; and
- 372 New Zealand farms from throughout the country.

Although there is no way to verify how representative the samples are of each industry as a whole, they are sufficiently large to provide a valid group for comparative purposes. In all three countries the farms are most likely to represent the top 50%-70% of farms rather than a true average, and as a result the group identified as the 'Top 10%' is most likely to represent the top 5%-7%.

Executive Summary

1. Levels of profitability are higher in South Africa than in Australia, with both countries having a higher level of profit than in New Zealand, when compared on *Return on Assets* (excluding the impact of changes to asset values). This trend is also evident within the Top 10% group in each country.
2. The differences between the three countries are smaller when compared on either *Profit per Hectare* or *Profit per Cow*, although the same trend remains evident. This trend is also evident within the Top 10% group in each country, although New Zealand performs ahead of Australia on a Profit per Hectare basis.
3. The narrower differences in profit on a Per Hectare or Per Cow basis as compared to a Return on Assets basis illustrate the impact of the substantially higher value of farm land in New Zealand compared to Australia, as well as Australia compared to South Africa.
4. The *Cost of Production* is significantly higher in South Africa compared to Australia and New Zealand, which indicates a higher level of financial risk. Australia has a higher Cost of Production than New Zealand, and these trends are also evident within the Top 10% group in each country.
5. Interest rates are higher in South Africa compared to Australia and New Zealand, which also produces a higher level of financial risk. These higher interest rates suggest that the market believes that the South African economy (and by implication South African dairy farming), carries a higher level of risk than Australia and New Zealand.
6. Milk production per hectare is higher in South Africa compared to Australia and New Zealand when assessed on the basis of litres per hectare, though all three countries are similar when compared on the basis of milksolids per hectare (which is the basis of milk payments in Australia and New Zealand). This trend is also evident within the Top 10% group in each country.

7. Milk production per cow in South Africa is similar to Australia and higher than in New Zealand, and again this trend is also evident within the Top 10% group in each country.
8. *Pasture harvested per hectare* in South Africa is similar to Australia and significantly lower than in New Zealand (when compared either on an irrigated or dryland basis). This trend is also evident within the Top 10% group in each country. It is not possible to draw conclusions from these comparisons given the different climatic conditions (including differences in latitude, temperature, humidity, and rainfall), as well as differences in soil type and pasture species.
9. The full *Pasture Cost* is similar across all three countries, although South Africa does have the lowest cost and New Zealand the highest cost. This trend is also evident within the Top 10% group in each country.
10. The full *Forage Cost* in South Africa is similar to Australia and lower than in New Zealand. This trend is also evident within the Top 10% group in each country.
11. The full *Concentrate Cost* in South Africa is higher than in Australia and similar to New Zealand. Within the Top 10% group, South Africa is higher than both Australia and New Zealand. Throughout most of New Zealand there is not presently an opportunity to purchase cost-effective grains and as a result concentrate byproducts are utilised, and feeding rates are lower than in South Africa and Australia.
12. Labour efficiency calculated on the basis of *Cows per Full Time Staff Equivalent* is substantially lower in South Africa compared to Australia and New Zealand. This trend is also evident within the Top 10% group in each country. However *Management & Staff Costs per Cow* are similar across all three countries, with Australia being higher than South Africa and New Zealand while New Zealand is lower than South Africa and Australia within the Top 10% group in each country.
13. *Core per Cow Cost* is similar across all three countries. This trend is largely evident within the Top 10% group in each country, although South Africa has marginally higher costs than Australia and New Zealand.
14. *Core per Hectare Cost* in South Africa is similar to New Zealand and higher than in Australia. This trend is also evident within the Top 10% group in each country.

Profit Comparisons

The South African pasture-based dairy industry demonstrates a higher level of profit than its counterparts in Australia and New Zealand (see Table 1), where profitability is assessed as Return on Assets (excluding the impact of changes to asset values). This is in large measure due to its ability to match or exceed the levels of Profit per Hectare and Profit per Cow that is attained in Australia and New Zealand, while doing this off a substantially lower investment in capital assets.

The major difference in the value of capital assets is due to land prices, with these having lifted significantly in all three countries over the last 2-3 years. On average, South African farmers have approximately half the investment in total assets when compared to Australian farmers, and Australian farmers have approximately half the investment in total assets of New Zealand farmers.

These same profitability trends are equally evident within the Top 10% group of each country (see Table 1). Should a Tri-Nations championship be held on these grounds alone then it would be reasonable to conclude that South Africa would presently win handsomely.

Table 1: Comparisons in Levels of Profitability

Ratio	South Africa Average	Australia Average	New Zealand Average
Return on Assets	7.8 %	4.5 %	2.1%
Profit per Hectare	R 4,726	R 3,696	R 3,331
Profit per Cow	R 1,603	R 1,586	R 1,046
Total Assets per Hectare	R 40,454	R 75,175	R 156,528

Ratio	South Africa Top 10%	Australia Top 10%	New Zealand Top 10%
Return on Assets	17.9 %	9.3 %	5.4%
Profit per Hectare	R 9,893	R 7,819	R 8,952
Profit per Cow	R 3,201	R 2,868	R 2,520
Total Assets per Hectare	R 30,289	R 75,989	R 150,197

The basis of these comparisons includes a milk price of R185-R190 per litre for South Africa, and R160-R165 per litre for Australia and New Zealand. For Australia their price converts to the equivalent of AUD 29.2 cents per litre, AU$3.88 per kg milksolids (milkfat + protein) or AU$7.00 per kg milkfat. For New Zealand their price converts to the equivalent of NZD 33.9 cents per litre, NZ$4.00 per kg milksolids (milkfat + protein) or NZ$7.02 per kg milkfat.

These milk prices might reasonably be considered medium term average milk prices for Australia and New Zealand. Australia paid approximately 10% more than these prices in 2004/05 and 2005/06, and is expected to pay 5%-10% more than these prices in the present year. New Zealand paid approximately 15% more than these prices in 2004/05 and then close to these prices in 2005/06, and is expected to again pay close to these figures in the present year. Table 2 below demonstrates the impact of the higher 2004/05 milk prices in Australia and New Zealand when compared to South Africa.

Table 2: Comparisons in Levels of Profitability at 2004/05 Milk Prices

Ratio	South Africa Average	Australia Average	New Zealand Average
Return on Assets	7.8 %	7.2 %	3.9 %
Profit per Hectare	R 4,726	R 5,982	R 6,480
Profit per Cow	R 1,603	R 2,554	R 2,054

Ratio	South Africa Top 10%	Australia Top 10%	New Zealand Top 10%
Return on Assets	17.9 %	13.3 %	7.9%
Profit per Hectare	R 9,893	R 11,340	R 12,950
Profit per Cow	R 3,201	R 4,133	R 3,658

Cost of Production Comparisons and Risk

The South African pasture-based dairy industry has a higher cost of production than its counterparts in Australia and New Zealand (see Table 3). Australia has a higher cost of production than New Zealand, although this is masked when comparisons are made on a cost per litre basis. The vast majority of Australian and New Zealand farmers are paid on the basis of milksolids produced (milkfat +

protein), and when the countries are compared on this basis the lower cost of production in New Zealand becomes evident.

Table 3: Comparisons in Levels of Cost of Production

Ratio	South Africa Average	Australia Average	New Zealand Average
Cost of Production (cents/litre)	162 c	129 c	139 c
Cost of Production (R/kg milksolids)	R 23.57	R 17.65	R 16.22

Ratio	South Africa Top 10%	Australia Top 10%	New Zealand Top 10%
Cost of Production (cents/litre)	138 c	108 c	109 c
Cost of Production (R/kg milksolids)	R 19.79	R 15.03	R 12.86

This higher cost of production in South Africa is as a result of two factors:

1. Pasture comprises a lower proportion of the diet than in Australia (and in Australia pasture comprises a lower proportion of the diet than in New Zealand). This fact alone increases the cost of production, although cost of production could be reduced if either more pasture was able to be harvested with no significant change to stocking rate, or stocking rate was able to be reduced with no significant change to pasture harvest.
2. Some cost centres are significantly higher than in Australia and New Zealand. These include animal health expenses, feed costs, nitrogen expenses, vehicle expenses, and depreciation (see Appendices I B, I C & I D). Feed costs, vehicle expenses and potentially depreciation could all be at least partially linked to the higher amount of feed being used (as in point 1 above). Animal health costs could be at least partially related to the difference in latitude including higher temperatures and higher humidity, along with other animal health challenges specific to Africa. The higher rates of nitrogen being used in South Africa are not demonstrably resulting in higher levels of pasture harvest, however differences in soil type, pasture species and climatic conditions could be masking the benefits from this higher use.

It is important to understand that minimising cost of production will not maximise profit, and in fact under most circumstances farmers with the lowest cost of production amongst their peers will not be the most profitable. However they will carry a lower level of risk and hence are likely to be in a stronger position to weather drops in milk price, increases in feed prices, or other challenges of this nature.

For South Africa, the higher cost of production compared to Australia and New Zealand is aligned with a higher level of profit compared to these other countries. So it could be argued that South Africa has a similar or potentially better balance between production and costs than Australia and New Zealand. Even if this argument were considered valid, this should not stop the industry (or individual participants within the industry) examining opportunities to reduce the cost of production in the areas outlined in points 1 and 2 above.

In a broader consideration of financial risk, interest rates are higher in South Africa compared to Australia and New Zealand. These higher interest rates suggest that the market believes that the South African economy (and by implication South African dairy farming), carries a higher level of risk than Australia and New Zealand.

From a climatic perspective, New Zealand has a lower level of risk than either South Africa or Australia. As a result of these combined economic and climatic factors, it would be reasonable to conclude that South Africa will continue to require a higher level of profit to attract investment. Given the levels of profitability outlined in this paper are predicted to represent the top 50%-70% of farmers (or potentially a more elite group than this), it may well require a higher level of profit than is presently being attained to secure the future success of the industry.

Milk Production

When assessed on the basis of litres per hectare, milk production appears to be higher in South Africa compared to Australia and New Zealand. A more accurate basis for this comparison would be milksolids per hectare, which confirms that all three countries have reasonably similar levels of milk production per hectare (see Table 4). This trend is also evident within the Top 10% group in each country.

In each case these milk production figures are based on *effective milking hectares* and not total dairy farm area, and as a result these results may appear higher than other statistics compiled by industry bodies from these countries. In addition the results are likely to be from farms that are in the top 50%-70% of farms in all three countries, which would also lift these results above the true average.

Table 4: Comparisons in Levels of Milk Production

Ratio	South Africa Average	Australia Average	New Zealand Average
Milk Production per Hectare (litres)	17,557	13,318	13,118
Milk Production/Hectare (milksolids)	1,214	1,013	1,114
Milk Production per Cow (litres)	5,962	5,607	4,162
Milk Production per Cow (milksolids)	413	426	353

Ratio	South Africa Top 10%	Australia Top 10%	New Zealand Top 10%
Milk Production per Hectare (litres)	19,175	17,303	16,650
Milk Production/Hectare (milksolids)	1,336	1,293	1,411
Milk Production per Cow (litres)	6,232	6,204	4,704
Milk Production per Cow (milksolids)	434	462	399

Milk production per cow in South Africa is similar to Australia and higher than in New Zealand (see Table 4). This trend is also evident within the Top 10% group in each country, and is evident irrespective of whether milk production is assessed on a litre or milksolids basis.

There is some evidence that milk production per cow is marginally lower in South Africa than in Australia when assessed on a milksolids basis. Anecdotally cow type and size is similar between the two countries, and the proportion of concentrate in the diet is also similar. The four most likely factors are:

1. The pasture component in South Africa is likely to be of lower energy density and have a higher fibre component due to latitude (including higher temperature and higher humidity), which would combine to reduce maximum dry matter intakes of cows.
2. The South African cows are farmed in a more difficult environment that adversely impacts on their performance, primarily as a result of higher temperature and higher humidity.

3. The South African cows consume a lower proportion of pasture and a higher proportion of other forages, where these other forages could be of lower feeding value to the cow.
4. The higher proportion of herds in South Africa where cows calve throughout the year as opposed to batch calve in one or two periods will most likely result in a higher proportion of cows having extended lactations,

Pasture Harvest

Pasture harvested per hectare in South Africa appears to be similar to Australia, and significantly lower than in New Zealand. These conclusions appear to hold for both irrigated and dryland pasture as outlined in Table 5. This trend is also evident within the Top 10% group in each country.
The results outlined in the table are on the basis of a standardised tonne of dry matter, with South African pasture harvest based on a standard 10.5 MJ ME/kgDM and the Australian and New Zealand pasture harvest based on a standard 11.0 MJ ME/kgDM.

Table 5: Comparisons in Levels of Pasture Harvest

Ratio	South Africa Average *	Australia Average	New Zealand Average
Pasture Harvest (tDM/ha)	9.2	8.0	11.9
Irrigated Pasture Harvest (tDM/ha)	10.9	10.8	14.1
Dryland Pasture Harvest (tDM/ha)	4.1	5.8	11.8

Ratio	South Africa Top 10% *	Australia Top 10%	New Zealand Top 10%
Pasture Harvest (tDM/ha)	11.1	9.8	14.1
Irrigated Pasture Harvest (tDM/ha)	12.5	13.3	16.6
Dryland Pasture Harvest (tDM/ha)	7.4	7.2	13.8

* Pasture production based on standard 10.5 MJ ME/kgDM and 11.0 MJ for Aus and NZ

Unfortunately it is not possible to draw conclusions from these comparisons given the different climatic conditions, soil type, contour and pasture species that are involved in the different countries. This is particularly relevant given the different latitudes of the dairying regions between the three countries, which impacts significantly on temperature and humidity. In addition variations in rainfall, both in total volume and in distribution throughout the year, will significantly impact on dryland pasture yields. However it would be fair to conclude that due to these factors pasture management in South Africa would need to be more exact than in Australia to produce a similar result in pasture production when equalised for energy density. Similarly pasture management in Australia would need to be more exact than in New Zealand to produce a similar result.

Feed Costs

The full cost of pasture across all three countries is similar, although it is lowest in South Africa and highest in New Zealand. These trends are also evident within the Top 10% group in each country (see Table 6). Maintaining a comparatively low cost of pasture would generally be considered essential for a country to maintain its international competitiveness in dairy farming.
The direct cost of pasture is lowest in New Zealand given the significantly higher levels of pasture harvest, however once the variable and capital costs are added this advantage is eroded (see Appendix I A).

The full cost of forage in South Africa is similar to Australia and significantly lower than in New Zealand. This trend is also evident within the Top 10% group in each country (see Table 6). This cost comprises a purchase cost (see Appendix I A), variable cost (related to the cost of feeding), and capital cost. This total cost is then adjusted for wastage rates to produce the full cost of forage.

Table 6: Comparisons of Feed Costs

Ratio	South Africa Average	Australia Average	New Zealand Average
Pasture Cost (per tDM consumed)	R 865	R 933	R 998
Forage Cost (per tDM consumed)	R1,174	R 1,046	R 1,517
Concentrate Cost (per tDM consumed)	R 1,806	R 1,597	R 1,757

Ratio	South Africa Top 10%	Australia Top 10%	New Zealand Top 10%
Pasture Cost (per tDM consumed)	R 709	R 813	R 826
Forage Cost (per tDM consumed)	R 1,031	R 1,009	R 1,378
Concentrate Cost (per tDM consumed)	R 1,867	R 1,528	R 1,459

The full cost of concentrate in South Africa is higher than in Australia and similar to New Zealand. Within the Top 10% group, South Africa is higher than both Australia and New Zealand (see Table 6). Given Australia has historically had a large internationally competitive grain industry based on wheat and barley production, it could be expected that Australia might have the lowest cost of concentrate. New Zealand dairy farmers have not historically had access to cost-effective grains given there is only a limited amount of grain grown domestically, and the majority of this is in the South Island. In recent years some farmers have gained access to locally produced concentrate byproducts, which have been supplemented with imports of palm kernel expeller and other imported concentrates. Although internationally competitive in price, these feeds have varying feed characteristics and feeding rates of concentrates remain much lower than in South Africa and Australia.

On balance the cost of concentrate in South Africa appears to be higher than might reasonably be expected when compared to Australia and New Zealand. This is most likely to be due to one or both of the following factors:

1. Over-specification of protein in the diet given the potential contribution from actively growing pasture; and
2. Over-specification of minerals, trace elements, vitamins and other additives in the diet.

Labour Efficiency

Labour efficiency is substantially lower in South Africa compared to Australia and New Zealand when calculated on the basis of cows milked per 50-hour full time staff equivalent (see Table 7). This trend is also evident within the Top 10% group in each country, and this ratio is the only major one that has a quantum difference to both Australia and New Zealand.

Management & Staff Costs per Cow are relatively similar across all three countries, although Australia is higher than both South Africa and New Zealand. Within the Top 10% group in each country, New Zealand has the lowest costs, with South Africa and Australia having similar costs.

So although labour efficiency as defined by cows per full time staff equivalent is much lower in South Africa, the actual cost per cow of management and staff is competitive with Australia and New

Zealand. In recent years labour efficiency in both Australia and New Zealand has seen significant improvements, and this is expected to continue. The challenge for South Africa may be to lift wages and maintain employment while ensuring that the industry remains internationally competitive.

Table 7: Comparisons in Levels of Labour Efficiency

Ratio	South Africa Average	Australia Average	New Zealand Average
Cows per Full Time Staff Equivalent	20	113	114
Management & Staff Costs per Cow	R 1,579	R 1,960	R 1,685

Ratio	South Africa Top 10%	Australia Top 10%	New Zealand Top 10%
Cows per Full Time Staff Equivalent	28	137	152
Management & Staff Costs per Cow	R 1,589	R 1,691	R 1,344

Core Costs

Core per Cow Cost is a ratio that combines the majority of expenses that are primarily related to the number of cows being farmed, with the specific exclusion of feed costs. All three countries have a similar core per cow cost, although Australia would appear to have a slightly lower cost than South Africa and New Zealand (see Table 8).

This same trend is largely evident within the Top 10% group in each country, although South Africa has marginally higher costs than both Australia and New Zealand.

Some cost centres in South Africa do appear to be significantly higher than in Australia and New Zealand. These include animal health expenses, vehicle expenses, and depreciation. Animal health costs could be at least partially related to the difference in latitude including higher temperatures and higher humidity, along with other animal health challenges specific to Africa. Vehicle expenses and potentially depreciation could be linked to the higher amount of feed being used.

All of the cost per cow variations between countries can be examined in detail in Appendix I B.

Table 8: Comparisons in Levels of Core Costs

Ratio	South Africa Average	Australia Average	New Zealand Average
Core per Cow Costs	R 2,110	R 1,964	R 2,060
Core per Hectare Costs	R 4,609	R 3,525	R 4,531

Ratio	South Africa Top 10%	Australia Top 10%	New Zealand Top 10%
Core per Cow Costs	R 2,003	R 1,796	R 1,726
Core per Hectare Costs	R 4,648	R 3,806	R 4,519

Core per Hectare Cost is a ratio that combines the majority of expenses that are primarily related to the number of hectares being farmed, with the specific exclusion of nitrogen and irrigation expenses. South Africa has a similar core per hectare cost to New Zealand, with both having a significantly higher cost than Australia (see Table 8). This trend is also evident within the Top 10% group in each country.

Unlike core per cow cost, this ratio does not correlate with profit. A number of the component costs in this ratio are involved in promoting pasture production (non-nitrogen fertiliser, pasture maintenance

and renovation, weed and pest), with several other component costs involved in maintaining the property. As a result it is important to interpret the relevance of variations in core per hectare cost with care.

All of the cost per hectare variations between countries can be examined in detail in Appendix I C.

Summary

There are distinct differences between the levels of profitability in South Africa, Australia and New Zealand, with South Africa having the highest level of profitability and New Zealand the lowest. However this ranking is reversed when comparisons are made on cost of production.

All three countries are leading nations in the production of dairy products from pasture-based systems, with each having areas of comparative strength as well as comparative weakness. However farmers in all three countries do not on average gain a return on assets that matches the cost of funds, which leaves all three industries in a position where gains in land values are an essential component of their long term viability.

There are significant opportunities to learn from comparisons between the average and the top 10% within each country. In the pursuit of improvements to profitability, there is significantly more that can be learnt by studying the most profitable farmers in each of these countries as opposed to the differences between the countries, in part due to the significant similarities between the farming systems now practiced in each country.

Definitions

Exchange rates used = R5.50 to AUD1.00 and R4.80 to NZD1.00

Capital Cost (of feed) = (Opportunity Cost of Capital x Proportion of Capital Assets Utilised for Pasture or Forage or Concentrate Production) + Proportion of Depreciation on Capital Assets.

Concentrate Cost = (Purchased Concentrate Cost + Variable Concentrate Cost + Capital Concentrate Cost) / Weighted Average Wastage Rate.

Cost of Production = Gross Operating Expenses less Non-Milk Revenue per kg Milk = (Manufacturing Milk Sales – Operating Profit) / Total Milk Sold.

Core per Cow Cost = (Animal Health + Breeding + Dairy Shed Expenses + Electricity + Grazing/Agistment + Freight + Other Expenses + 50% Repairs & Maintenance + 30% Standing Charges + 70% Vehicle Expenses + 50% Depreciation) / Peak Milking Cow Numbers.

Core per Hectare Cost = (Administration + Cropping (green feed) + Phosphate & All Other Fertiliser + Pasture Maintenance & Renovation + 50% Repairs & Maintenance + 70% Standing Charges + 30% Vehicle Expenses + Weed & Pest + 50% Depreciation) / Effective Milking Area.

Cows per Full Time Staff Equivalent = Peak Milking Cow Numbers / Total 50-Hour Week Equivalent Full Time Staff.

Direct Cost of Pasture = the direct costs of pasture production including fertiliser, irrigation, pasture renovation, weed, pest and cropping expenses.

Effective milking hectares = Effective Area – Effective Area-Dairy Young. This is the effective milking area of a dairy farm after deducting the proportion of the Effective Area that would be required to run any young replacement stock that are over 10-12 months of age and kept on the milking area. This is the area that is used for all dairy farming Per Hectare comparisons.

Forage Cost = (Purchased Forage Cost + Variable Forage Cost + Capital Forage Cost) / Weighted Average Wastage Rate.

Management & Staff Costs per Cow = (Paid Wages, Salaries & Employment Expenses + Imputed Labour & Management Costs) / Peak Milking Cow Numbers.

Pasture Cost = Direct Pasture Cost + Variable Pasture Cost + Capital Pasture Cost.

Pasture Harvest per Hectare = this is the equivalent tonnage of 11.0 MJ ME/kgDM pasture in Australia and New Zealand and 10.5 MJ ME/kgDM pasture in South Africa consumed per hectare. Any hay and silage conserved on the farm is included in the total pasture yield.

Peak Milking Cow Numbers = the number of milking cows that completed at least 2-3 months of a lactation. In a seasonal supply farm this will often be the peak total number of milking cows that were milked for a minimum of 4-6 weeks in the spring. This is the figure that is used for all Per Cow comparisons.

Profit per Cow = Operating Profit / Peak Milking Cow Numbers.

Profit per Hectare = Operating Profit / Effective Milking Area.

Purchase Cost of Supplement = the direct cost of purchased forages or concentrates including any storage cost. When a forage or concentrate is stored for a period of time then a monthly interest cost is calculated at 3% above the Opportunity Cost of Capital.

Return on Assets = (Operating Profit – Lease on Land & Buildings) / Total Assets at Start of Year x 100.

Variable Cost (of feed) = this includes an assessment of the proportion of repairs and maintenance, vehicle expense (including fuel and oil) and wages, salaries and employment expenses that should be attributed to pasture or forage or concentrate feeding.

APPENDIX I A - SOUTH AFRICA vs AUSTRALIA vs NEW ZEALAND - SUMMARY of KPI's

SUMMARY	SOUTH AFRICA Average	AUSTRALIA Average	NEW ZEALAND Average	SOUTH AFRICA Top 10%	AUSTRALIA Top 10%	NEW ZEALAND Top 10%
PHYSICAL PARAMETERS						
Milking Cows per Milking Hectare	2.94	2.37	3.15	3.08	2.80	3.54
Litres per Cow	5,962	5,607	4,162	6,232	6,204	4,704
Milkfat per Cow	218	238	201	233	255	227
Milksolids per Cow	413	426	353	434	462	399
Litres per Milking Hectare	**17,557**	**13,318**	**13,118**	**19,175**	**17,303**	**16,650**
Milkfat per Milking Hectare	642	565	635	718	714	803
Milksolids per Milking Hectare	1,214	1,013	1,114	1,336	1,293	1,411
Litre Price (cents/litre)	**187.85**	**162.60**	**163.01**	**188.92**	**158.68**	**162.62**
Milkfat Price (R/kgMF)	51.45	38.34	33.70	50.38	38.50	33.74
Milksolids Price (R/kgMS)	27.18	21.40	19.20	27.07	21.27	19.20
Pasture Dry Matter Harvested (tDM/Ha)	**9.2**	**8.0**	**11.9**	**11.1**	**9.8**	**14.1**
IRRIGATION						
Irrigated Perennial Pasture Harvest (tDM/Ha	10.9	10.8	14.1	12.5	13.3	16.6
Dryland Pasture Harvest (tDM/Ha)	4.1	5.8	11.8	7.4	7.2	13.8
Pasture DM Harvested / Megalitre (tDM/ML)	1.4	1.2	1.2	1.7	1.5	1.4
KEY PERFORMANCE INDICATORS						
Operating Profit per Hectare	**R 4,726**	**R 3,696**	**R 3,331**	**R 9,893**	**R 7,819**	**R 8,952**
Operating Profit per Cow	**R 1,603**	**R 1,586**	**R 1,046**	**R 3,201**	**R 2,868**	**R 2,520**
Operating Profit per Litre	26.79	33.91	27.07	51.90	50.48	55.73
Total Assets per Ha at Start of Year	R 40,454	R 75,175	R 156,528	R 30,289	R 75,989	R 150,197
EQUITY % at 4-Yr Av Values	**85.2%**	**66.7%**	**53.7%**	**78.3%**	**62.0%**	**54.5%**
RETURN ON ASSETS (ROA)	**7.8%**	**4.5%**	**2.1%**	**17.9%**	**9.3%**	**5.4%**
ROA including Capital Gain	19.6%	9.3%	8.2%	30.3%	14.6%	13.2%
RETURN ON EQUITY (ROE)	7.1%	2.8%	-3.1%	20.3%	9.6%	4.0%
ROE including Capital Gain	24.1%	10.1%	8.4%	36.2%	18.6%	19.0%
OPERATING PROFIT MARGIN	**13.3%**	**15.6%**	**13.4%**	**24.7%**	**26.3%**	**29.2%**
Cost of Production per Litre	**161.2**	**128.8**	**138.6**	**138.0**	**108.1**	**109.0**
Cost of Production per kg Milksolids	R 23.57	R 17.65	R 16.22	R 19.79	R 15.03	R 12.86
Total Operating Expenses as % Revenue	77.4%	70.8%	73.0%	69.6%	63.0%	64.1%
Financing Costs as % Gross Revenue	5.4%	12.3%	28.8%	4.1%	12.1%	20.2%
Core per Cow Cost	**R 2,110**	**R 1,964**	**R 2,060**	**R 2,003**	**R 1,796**	**R 1,726**
Core per Hectare Cost	**R 4,609**	**R 3,525**	**R 4,531**	**R 4,648**	**R 3,806**	**R 4,519**
Management + Staff Costs per Cow	**R 1,579**	**R 1,960**	**R 1,685**	**R 1,589**	**R 1,691**	**R 1,344**
Cows per Full Time Staff Equivalent	**20**	**113**	**114**	**28**	**137**	**152**
Total Feed/Supplement Costs per Cow	R 4,379	R 2,995	R 1,810	R 3,888	R 3,006	R 1,896
Pasture as % of Total Consumed	53.4%	64.4%	80.0%	58.4%	63.7%	77.3%
Average Cost of All Consumed Feed (/tDM)	R 1,195	R 1,106	R 1,114	R 1,069	R 1,018	R 960
Pasture Cost (Per tDM)	**R 865**	**R 933**	**R 998**	**R 709**	**R 813**	**R 826**
- Direct Pasture Cost (Per tDM)	R 442	R 387	R 240	R 357	R 352	R 230
Forage Cost (/tDM consumed incl.waste)	**R 1,174**	**R 1,046**	**R 1,517**	**R 1,031**	**R 1,009**	**R 1,378**
- Purchased Forage Cost (Per tDM)	R 669	R 652	R 941	R 609	R 667	R 926
Concentrate Cost (/tDM con. incl.waste)	**R 1,806**	**R 1,597**	**R 1,757**	**R 1,867**	**R 1,528**	**R 1,459**
- Purchased Concentrate Cost (Per tDM)	R 1,662	R 1,475	R 1,589	R 1,739	R 1,422	R 1,354

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APPENDIX I B - SOUTH AFRICA vs AUSTRALIA vs NEW ZEALAND - PROFIT per COW

PROFIT PER COW	SOUTH AFRICA Average	AUSTRALIA Average	NEW ZEALAND Average	SOUTH AFRICA Top 10%	AUSTRALIA Top 10%	NEW ZEALAND Top 10%
REVENUE						
Manufacturing Milk Sales	R 11,212	R 9,115	R 6,893	R 11,714	R 9,814	R 7,747
Livestock Revenue	R 701	R 940	R 624	R 1,109	R 1,000	R 816
Other Revenue	R 117	R 96	R 274	R 117	R 107	R 62
Gross Revenue	**R 12,031**	**R 10,151**	**R 7,790**	**R 12,940**	**R 10,921**	**R 8,626**
EXPENSES						
Administration	R 208	R 171	R 154	R 244	R 159	R 168
Animal Health	R 390	R 237	R 283	R 373	R 225	R 202
Breeding & Herd Testing	R 207	R 224	R 192	R 190	R 239	R 197
Dairy Shed Expenses	R 109	R 137	R 96	R 136	R 138	R 82
Electricity	R 126	R 150	R 115	R 120	R 149	R 106
Feeds / Supplements (Total)	R 4,379	R 2,995	R 1,810	R 3,888	R 3,006	R 1,896
- Grazing / Agistment	R 189	R 487	R 571	R 210	R 414	R 494
- Cropping (green feed)	R 8	R 30	R 34	R 7	R 24	R 34
- Grains, Pellets & Concentrates	R 3,253	R 1,885	R 350	R 2,913	R 2,046	R 494
- Forages (incl. hay, silages, byproducts)	R 930	R 593	R 859	R 757	R 523	R 874
Fertiliser (Total)	R 888	R 804	R 667	R 921	R 774	R 638
- Nitrogen	R 613	R 369	R 278	R 678	R 402	R 298
- Phosphate & All Other Fertiliser	R 276	R 436	R 389	R 242	R 373	R 341
Freight	R 12	R 37	R 48	R 10	R 28	R 34
Irrigation	R 351	R 307	R 72	R 294	R 244	R 91
Other Expenses	R 18	R 26	R 48	R 44	R 20	R 14
Pasture Maintenance & Renovation	R 138	R 126	R 110	R 158	R 144	R 125
Repairs & Maintenance	R 491	R 339	R 312	R 449	R 300	R 307
Standing charges	R 224	R 282	R 245	R 209	R 270	R 192
Vehicle Expenses (including fuel & oil)	R 534	R 242	R 235	R 491	R 203	R 206
Weed & Pest Control	R 28	R 41	R 43	R 44	R 41	R 19
Management & Staff Expenses	R 1,579	R 1,960	R 1,685	R 1,589	R 1,691	R 1,344
- Wages, Salaries & Employment Exp.	R 993	R 1,012	R 1,138	R 1,012	R 853	R 912
- Imputed Labour & Management	R 586	R 949	R 547	R 577	R 838	R 432
Depreciation	R 743	R 486	R 624	R 579	R 423	R 485
Gross Expenses	**R 10,428**	**R 8,565**	**R 6,744**	**R 9,738**	**R 8,054**	**R 6,106**
Core per Cow Cost	R 2,110	R 1,964	R 2,060	R 2,003	R 1,796	R 1,726
OPERATING PROFIT (LOSS)	**R 1,603**	**R 1,586**	**R 1,046**	**R 3,201**	**R 2,868**	**R 2,520**

Red Sky Agricultural Pty Ltd

APPENDIX I C - SOUTH AFRICA vs AUSTRALIA vs NEW ZEALAND - PROFIT per HECTARE

PROFIT PER HECTARE	SOUTH AFRICA Average	AUSTRALIA Average	NEW ZEALAND Average	SOUTH AFRICA Top 10%	AUSTRALIA Top 10%	NEW ZEALAND Top 10%
REVENUE						
Manufacturing Milk Sales	R 33,013	R 21,683	R 21,739	R 36,205	R 27,480	R 27,432
Livestock Revenue	R 2,068	R 2,255	R 1,963	R 3,424	R 2,818	R 2,894
Other Revenue	R 347	R 234	R 869	R 363	R 302	R 226
Gross Revenue	**R 35,428**	**R 24,173**	**R 24,571**	**R 39,992**	**R 30,600**	**R 30,552**
EXPENSES						
Administration	R 613	R 409	R 480	R 757	R 452	R 586
Animal Health	R 1,148	R 573	R 893	R 1,153	R 636	R 720
Breeding & Herd Testing	R 610	R 532	R 600	R 586	R 657	R 701
Dairy Shed Expenses	R 381	R 326	R 307	R 419	R 386	R 298
Electricity	R 470	R 365	R 355	R 369	R 413	R 365
Feeds / Supplements (Total)	R 12,891	R 7,107	R 5,712	R 12,016	R 8,415	R 6,715
- Grazing / Agistment	R 557	R 1,158	R 1,795	R 650	R 1,130	R 1,757
- Cropping (green feed)	R 23	R 65	R 106	R 21	R 56	R 115
- Grains, Pellets & Concentrates	R 9,574	R 4,486	R 1,104	R 9,005	R 5,706	R 1,752
- Forages (incl. hay, silages, byproducts)	R 2,737	R 1,397	R 2,712	R 2,340	R 1,520	R 3,091
Fertiliser (Total)	R 2,615	R 1,883	R 2,098	R 2,844	R 2,088	R 2,256
- Nitrogen	R 1,804	R 857	R 878	R 2,096	R 1,076	R 1,046
- Phosphate & All Other Fertiliser	R 811	R 1,026	R 1,219	R 748	R 1,012	R 1,214
Freight	R 35	R 85	R 149	R 31	R 71	R 115
Irrigation	R 1,034	R 838	R 235	R 910	R 835	R 322
Other Expenses	R 51	R 61	R 144	R 136	R 58	R 43
Pasture Maintenance & Renovation	R 405	R 303	R 346	R 488	R 432	R 437
Repairs & Maintenance	R 1,288	R 796	R 989	R 1,388	R 856	R 1,080
Standing charges	R 660	R 676	R 778	R 646	R 768	R 686
Vehicle Expenses (including fuel & oil)	R 1,574	R 572	R 744	R 1,519	R 574	R 725
Weed & Pest Control	R 83	R 96	R 134	R 137	R 126	R 67
Management & Staff Expenses	R 4,651	R 4,690	R 5,304	R 4,910	R 4,836	R 4,757
- Wages, Salaries & Employment Exp.	R 2,927	R 2,438	R 3,581	R 3,127	R 2,510	R 3,226
- Imputed Labour & Management	R 1,724	R 2,251	R 1,723	R 1,784	R 2,327	R 1,531
Depreciation	R 2,192	R 1,168	R 1,968	R 1,791	R 1,183	R 1,723
Gross Expenses	**R 30,702**	**R 20,477**	**R 21,240**	**R 30,099**	**R 22,781**	**R 21,600**
Core per Hectare Cost	R 4,609	R 3,525	R 4,531	R 4,648	R 3,806	R 4,519
OPERATING PROFIT (LOSS)	**R 4,726**	**R 3,696**	**R 3,331**	**R 9,893**	**R 7,819**	**R 8,952**

Red Sky Agricultural Pty Ltd

APPENDIX I D - SOUTH AFRICA vs AUSTRALIA vs NEW ZEALAND - PROFIT per LITRE

PROFIT PER LITRE	SOUTH AFRICA Average	AUSTRALIA Average	NEW ZEALAND Average	SOUTH AFRICA Top 10%	AUSTRALIA Top 10%	NEW ZEALAND Top 10%
REVENUE						
Manufacturing Milk Sales	188.03	162.67	165.70	189.87	158.63	164.74
Livestock Revenue	12.09	16.81	14.93	17.96	16.28	17.38
Other Revenue	1.97	1.68	6.62	1.90	1.71	1.34
Gross Revenue	**202.09**	**181.16**	**187.25**	**209.73**	**176.61**	**183.46**
EXPENSES						
Administration	3.49	3.02	3.65	3.97	2.55	3.55
Animal Health	6.53	4.27	6.82	6.05	3.67	4.32
Breeding & Herd Testing	3.47	3.96	4.56	3.08	3.81	4.22
Dairy Shed Expenses	1.84	2.44	2.35	2.20	2.26	1.78
Electricity	2.12	2.70	2.74	1.93	2.37	2.21
Feeds / Supplements (Total)	73.45	53.17	43.54	63.01	48.33	40.32
- Grazing / Agistment	3.17	8.68	13.68	3.41	6.75	10.56
- Cropping (green feed)	0.13	0.55	0.77	0.11	0.37	0.67
- Grains, Pellets & Concentrates	54.55	33.45	8.40	47.22	32.85	10.51
- Forages (incl. hay, silages, byproducts)	15.60	10.51	20.69	12.27	8.38	18.58
Fertiliser (Total)	14.89	14.46	15.98	14.91	12.64	13.54
- Nitrogen	10.28	6.60	6.72	10.99	6.54	6.29
- Phosphate & All Other Fertiliser	4.62	7.86	9.31	3.92	6.11	7.30
Freight	0.53	0.67	1.15	0.16	0.47	0.67
Irrigation	5.89	0.00	0.00	4.77	0.00	0.00
Other Expenses	0.29	0.44	1.10	0.71	0.35	0.24
Pasture Maintenance & Renovation	2.31	2.21	2.64	2.56	2.29	2.64
Repairs & Maintenance	8.23	6.03	7.54	7.28	4.80	6.48
Standing charges	3.75	5.01	5.95	3.39	4.34	4.13
Vehicle Expenses (including fuel & oil)	8.96	4.34	5.66	7.96	3.29	4.32
Weed & Pest Control	0.47	0.71	1.01	0.71	0.64	0.38
Management & Staff Expenses	26.48	35.02	40.46	25.75	27.40	28.56
- Wages, Salaries & Employment Exp.	16.65	17.96	27.31	16.39	13.81	19.34
- Imputed Labour & Management	9.83	17.07	13.15	9.36	13.59	9.22
Depreciation	12.58	8.78	14.98	9.39	6.90	10.32
Gross Expenses	**175.30**	**147.25**	**160.18**	**157.84**	**126.13**	**127.73**
Core Cost Structure per Litre	88.98	96.70	124.37	82.57	78.37	92.35
OPERATING PROFIT (LOSS)	**26.79**	**33.91**	**27.07**	**51.90**	**50.48**	**55.73**

Red Sky Agricultural Pty Ltd