

What's A Dairy Farm Worth?



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For Kellogg Rural Leaders
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1 - What Factors Influence the Value of Dairy Farms in the Matamata-Piako District?

Dairy Farm Values continue to rise with apparently little corresponding improvements in returns.

I will consider a number of factors, to see if and how their values are related to farm value over the past 15 years. Financial values will be inflation adjusted, using December 2006 as the benchmark.

1: Pasture Production –Data from the author’s farm in Walton will be considered, and compared with Ruakura data for clarity in accuracy. I will look at annual production, and seasonal variation, on a kgDM basis.

2: Milksolids Production – kgMS/ha and gMS/kgDM to consider efficiency will be analysed. Milksolids will be compared with pasture production to establish an efficiency of conversion.

3: Milksolids Payout – Fonterra data was used. Prior to 2001, before Fonterra was formed, New Zealand Dairy Group payout was used. These were all inflation adjusted. Note that for consistency, total payout has been used. Now that there is more transparency between the “milk price” component and the “value add” component of payout, it would be more accurate to target milk price as the key parameter. However, for this report payout has been used, as the division between the two payout components was not well defined in the earlier years.

4: Farm Profitability -Economic Farm Surplus (EFS) will be compared with corresponding farm values. Also Farm Working Expenses (FWE) Repairs and Maintenance (R&M), and Personal Drawings (PD) will be compared.

From analysing the above parameters can we determine the actual value of farmland in terms of those parameters? And can we calculate the value of land on a kilograms Dry Matter value basis?

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2- Introduction

What on-farm parameters influence what a farmer is prepared to pay for dairy land in the Matamata-Piako district?

What should a farmer be paying to economically purchase dairy land?

These two questions are the foundation on which my research has been based. Through this report, I have used physical data from the author's Walton dairy farm, and compared it with data from Ruakura research farm from 1995 to 2008. Pasture production, Milksolids production, and efficiency of production were compared, and correlated with the neighbouring district farm sales values.

Financial parameters, including payout were analysed over the last 14 years. The information was gathered from the data base of Graham Brown & Co Ltd., an accountancy firm specializing in dairy farm business with an extensive client portfolio. Each of these parameters was compared with actual farm sales values in the Matamata-Piako district. The closest relationships in the results were not as the author would have expected.

For the second question the author has developed a factor chart, using the above analysis, to assess what a kilogram of pasture dry matter is worth. Extrapolation to a per hectare basis, considering the key valuation drivers, has developed the economic value of dairy land in the Matamata-Piako district. This method of analysis can be used to establish economic values of any dairy farm in New Zealand.

3 - Executive Summary

What is our dairy pasture really worth? Or, more importantly, what are we prepared to pay for the land that it grows on?

Through this report, seven farm performance parameters have been compared with the value of farm sales in the Matamata-Piako district. The two physical parameters, pasture production, and milksolids production, have been compared with Ruakura research farm and the Hamilton district. The financial performance parameters have been gathered from the data base of Graham Brown Accountants.

Pasture production potential has not been identified as a close indicator of farm value. The 25% difference in pasture production from Walton to Ruakura resulted in only a 6% rise in farm value between Matamata-Piako and Hamilton districts.

Similarly, milksolids production difference between the two farms was 23% in Ruakura's favour, with just a 6% farm value advantage. One would suspect that both pasture and milksolids production lack of effect on farm sales value would be consistent above average annual capability of, say, 10tDM//Ha and 800kgMS/Ha.

While physical performance is vital for farm profitability, so too is the financial management. All financial data was Inflation adjusted to relate any trends to a common benchmark.

Dairy payout sits outside a farmer's control, but would be expected to be a major driver in moving farm sales value. But inflation adjusted payout has, in fact, remained reasonably static, while farm sales value has averaged a 9% increase per year. This has accelerated in recent years amid dairy optimism.

Four profitability drivers were analyzed with farm sales value in the following year. This is because the majority of farm sales occur on the 1st June, which is the start of the next financial year. The drivers considered were; Economic Farm Surplus (EFS), Farm Working Expenses (FWE), Repairs and Maintenance (R&M), and Personal Drawings (PD)

For each parameter a purchaser has been prepared to pay 7000 x dairy payout, 22 times EFS, 17 times FWE, 130 times R&M, and 0.64 times total PD for a hectare of dairy land over the 14 year period.

The rapid farm sales value increase over the last four years has distorted earlier correlations. The closest relationship to farm sales value was found with R&M, and PD. R&M has traditionally been an area of spending that ebbs and flows, along with personal drawings, with the perceived profitability of dairy farming.

The historic data gathered has been used, along with interest rates, to calculate what a kilogram of dry matter is really worth. By using the 'factor charts' we can now calculate what a prospective purchaser can economically afford to pay for dairy land. A farmer can assess the value of dairy land in relation to it's earning potential, rather than what he/she has to pay to acquire it.

4 - Pasture Production

Data collected from the author's home farm has been collated and compared with Ruakura data.

Large variation has been observed in pasture growth rates between years (taken as seasonal June to May), and also within each season.

Annual Pasture Growth

Walton data has an average pasture growth of 13090kg/ha for 1995/96 to 2008/09. However the years have ranged from 16370kg/ha down to 9446 kg/ha (this was during the 2007/08 drought)

Variation within a season also shows large variation for the same month in different seasons. This variation is at its proportionate least in August and September where the maximum monthly growth was just under twice the lowest growth recorded. The greatest variation occurs during the summer period where maximums recorded have been over twenty times the minimum. Please refer to the following table.

Annual Pasture Growth Data

Year	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09
Walton	16370	12820	11270	9909	12138	13980	15142	15982	15797	12932	12454	14061	9446	10967
Ruakura	18035	17393	14577	17095	16568	22379	17054	17893	19202	16366	17163	18157	13219	
%Walton/Ruakura	91%	74%	77%	58%	73%	62%	89%	89%	82%	79%	73%	77%	71%	

Walton Annual Pasture growth was 13090kg/ha compared with Ruakura growth of 17315kg/ha. The Walton farm grew on average 75% of Ruakura.

In order to relate farm values with pasture growth capability, I will compare the annual farm price with that annual pasture growth.

Annual Pasture Growth Rate

Daily pasture growth rates are a more obvious indication of between month and between season variation. Refer to the following table. Some discrepancy occurs with rounding to kgDM/ha/d

Monthly Pasture Growth Average for Walton and Ruakura in kgDM/ha/month

Month	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	TOTAL
Walton	553	389	726	1538	1871	1801	1801	1225	811	877	841	657	13090
Ruakura	660	899	1023	1980	2511	2490	2040	1891	1316	930	600	775	17315
%Walton/Ruakura	84	43	71	78	75	72	88	65	65	94	140	85	75%

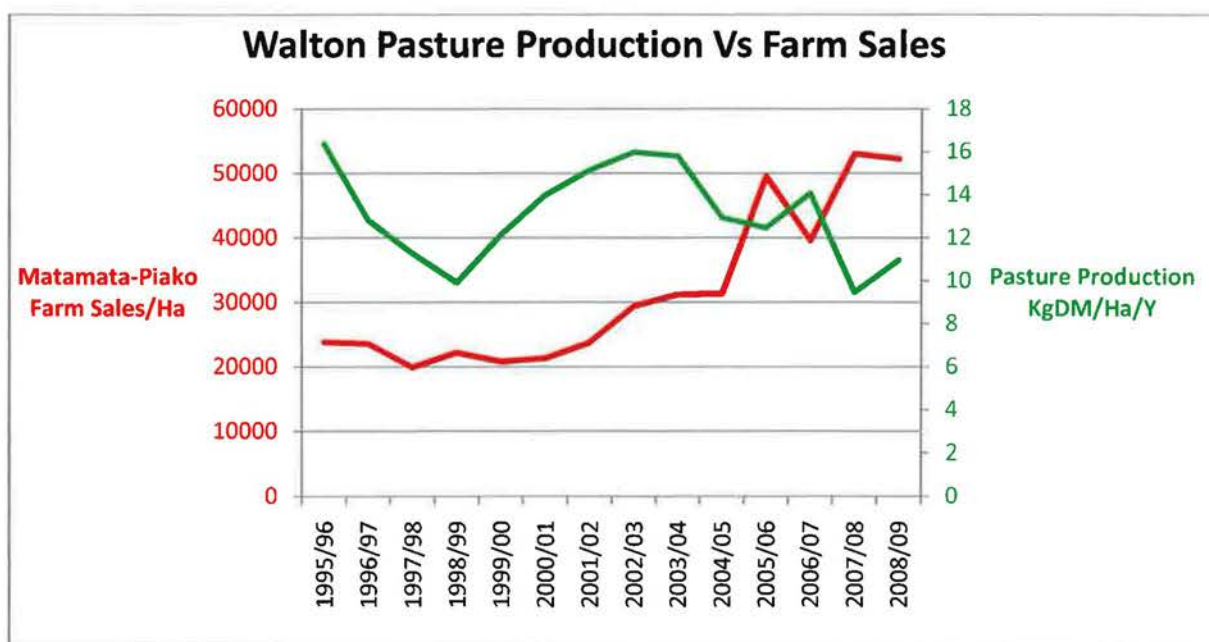
Daily Pasture Growth Rate Average for Walton and Ruakura in KgDM/Ha/d

Month	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Average
Walton	18	13	24	52	59	60	61	38	29	29	28	22	36
Ruakura	22	29	33	66	81	83	68	61	47	30	20	25	47
%Walton/Ruakura	82	45	73	79	73	72	90	62	62	97	140	88	76%

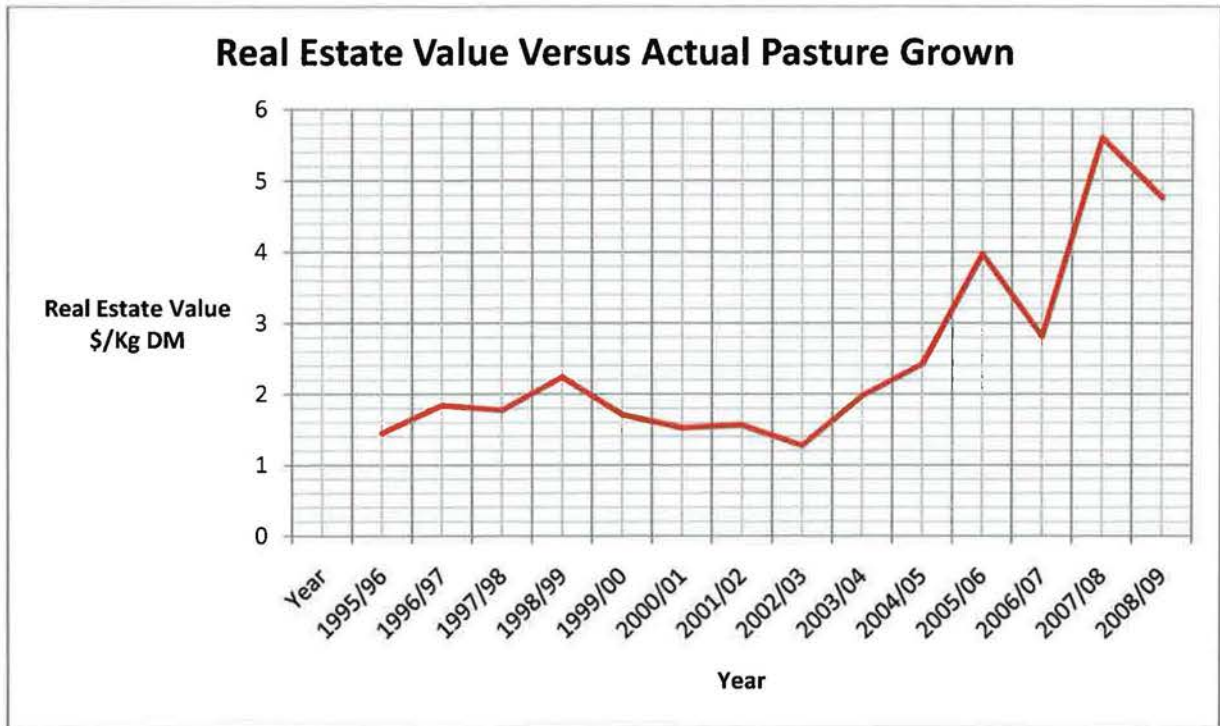
From the above analysis, we can see that the Walton data performs at approximately 75% of Ruakura, but it performs relatively lighter through summer and more strongly through the autumn period. This would affect on-farm management behavior to optimize production return through this period. eg. Larger supplement reserves would be required to fill the summer deficit, to take advantage of the stronger autumn growth. However for the purpose of this study we will look at annual average pasture production and its relationship to farm sale value over the years.

From the above data one would expect land in the Matamata Piako district to be about three quarters the value of land at Ruakura. It is unrealistic to expect land values to oscillate in relation to annual growth variation. But we would expect any year to grow at the average pasture production.

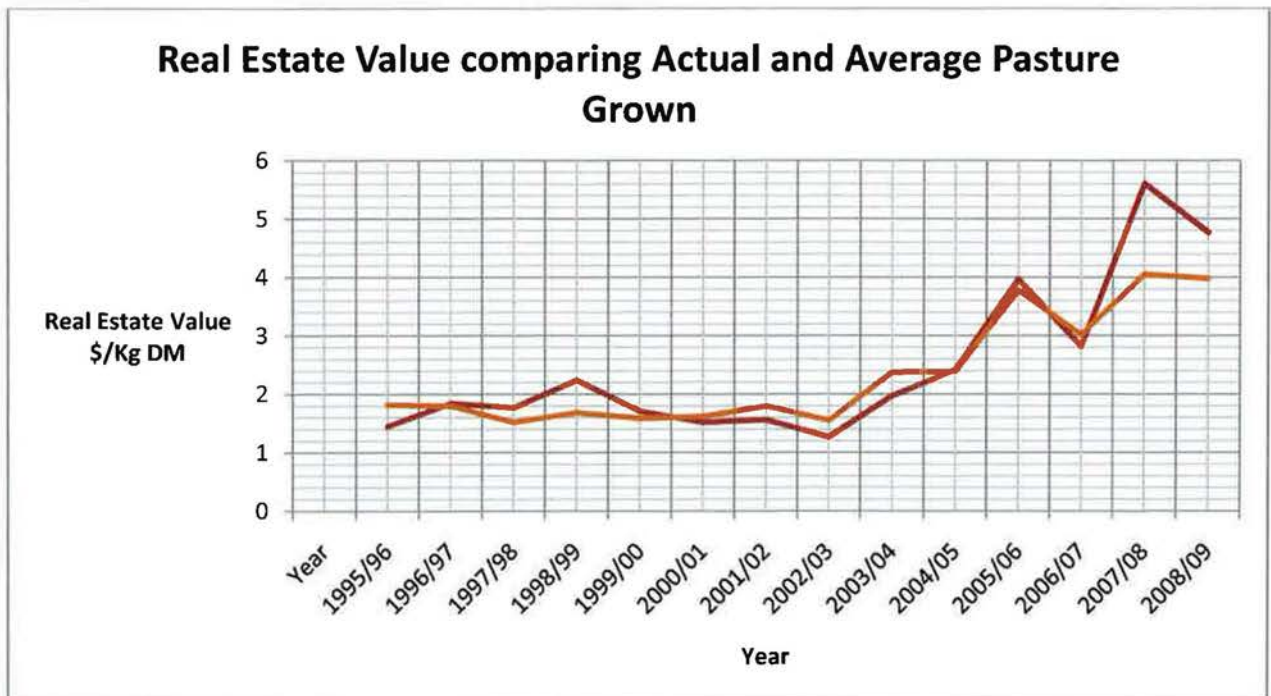
A graph of Farm sales values versus pasture production indicates the relationship between the two variables over the 14 year period.



This has been extrapolated to establish a farm sale per kgDM relationship. The graph shows sales in \$/ kgDM. Note that for greater accuracy megajoules of energy would be preferable to kilograms of pasture dry matter, as the key pasture production unit. As farmers relate to dry matter more easily this has been used. But energy content of pasture has been recorded over two seasons, with close alignment between seasons, with the expected seasonal variation. For completeness, the average energy content of the Walton farm pastures was 11.1 megajoules ME/kg DM, or 145300mjME/Ha.



Due to the high variation in annual pasture production, the real estate value may become distorted. To remove this variation, the above graph has been reset using the fifteen year average of 13090kg DM/Ha. (Brown line)



While comparing the Real Estate value with average pasture production did reduce the volatility, it did not significantly reduce the increase in land value. Matamata-Piako district Real Estate values average 6% lower than Hamilton. However, as pasture production has averaged 25% lower, it is fair to conclude that factors other than pasture production are influencing the market.

Therefore over this period there is no significant trend between the relationship of Pasture production capability and what purchasers are prepared to pay for land. Therefore land pasture production capability can be discounted as a reason for farm value. Obviously this would be within a reasonable range of pasture productivity of say above 10t/ha average annual capability.

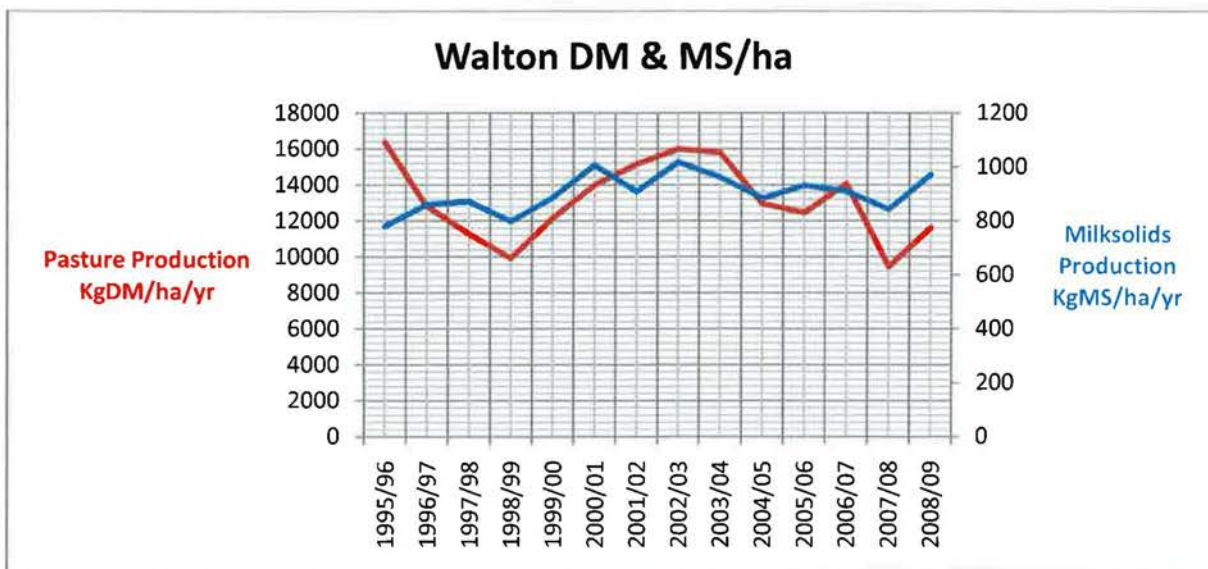
Please refer to appendices on pages 36-39, and 55-60.

5 - Milksolids Production

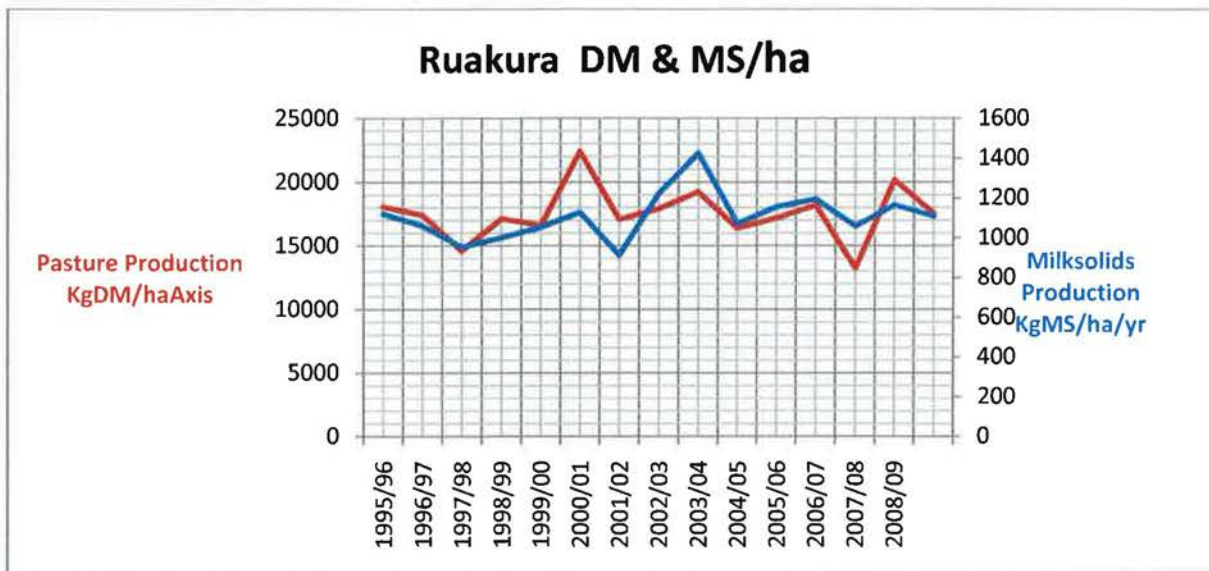
Milksolids production would mirror pasture production in a perfect world, where variations such as localised seasonal variation, supplement application, and variable management techniques weren't evident. However as this would never be the case, it is prudent to consider the milksolids relationship with farm values. It may be one step closer to the farm's productivity.

We will first look at the relationship between milksolids and pasture production for both Walton and Ruakura. This will establish an efficiency of conversion for both properties.

Milksolids production averaged 902kgMS/ha for the Walton farm at a conversion averaging 70gMS/kg DM. Note that the 2008/09 pasture production has been increased to account for imported supplements.



This compared with 1107 kgMS/ha and 64gMS/kgDM for Ruakura.

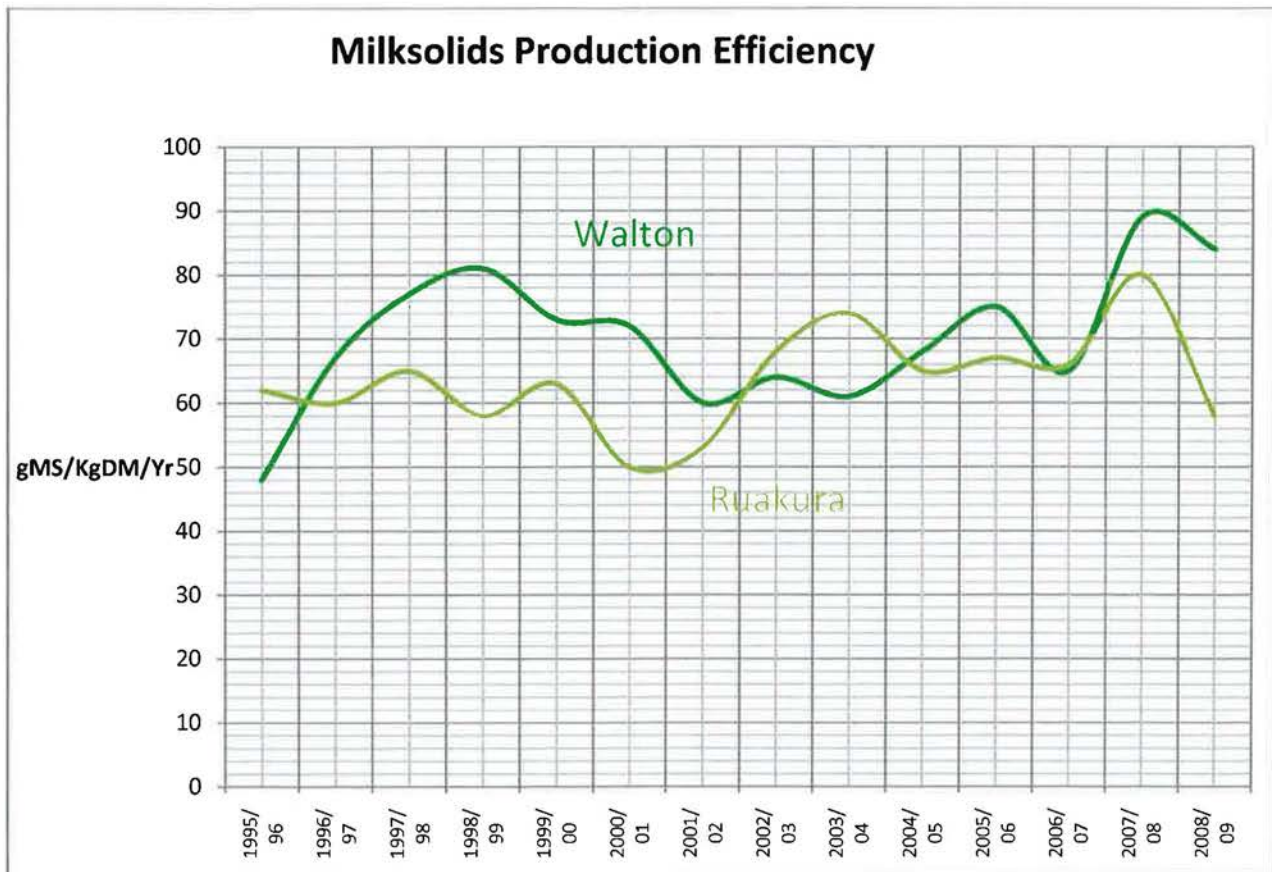


As can be seen in both the above graphs, milksolids production closely follows the fate of pasture production for a given year. This relationship would become less distinct on properties where more reliance on imported supplement occurs.

Please refer to Appendices on pages 40.

6 - Milksolids Production Efficiency

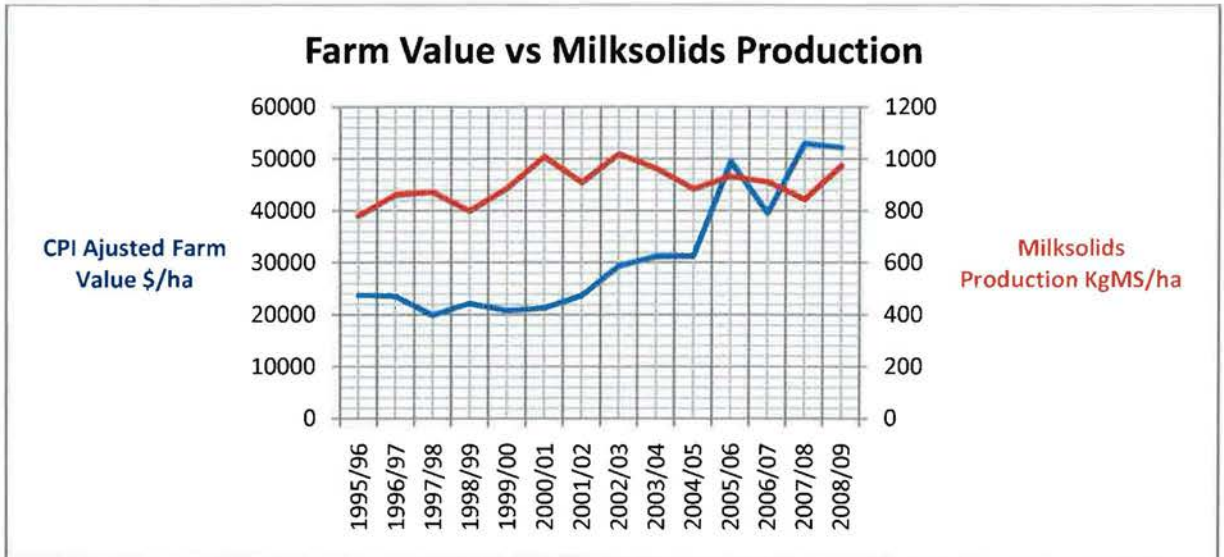
A comparison of pasture production indicates the Walton farm to grow at 13138/17519, or 75% of Ruakura, while milksolids production was at 902/1107, or 81% of Ruakura. This 6% difference is due to the efficiency of conversion of pasture to milksolids on the Walton farm over Ruakura. This could be due to a number of factors, such as farm management techniques, farm management policies, and pasture growth intra-season variation. eg. Walton's autumn pasture production is relatively stronger than Ruakura. Also, in tight feed situations, efficiency tends to increase. This feed conversion efficiency is graphed below.



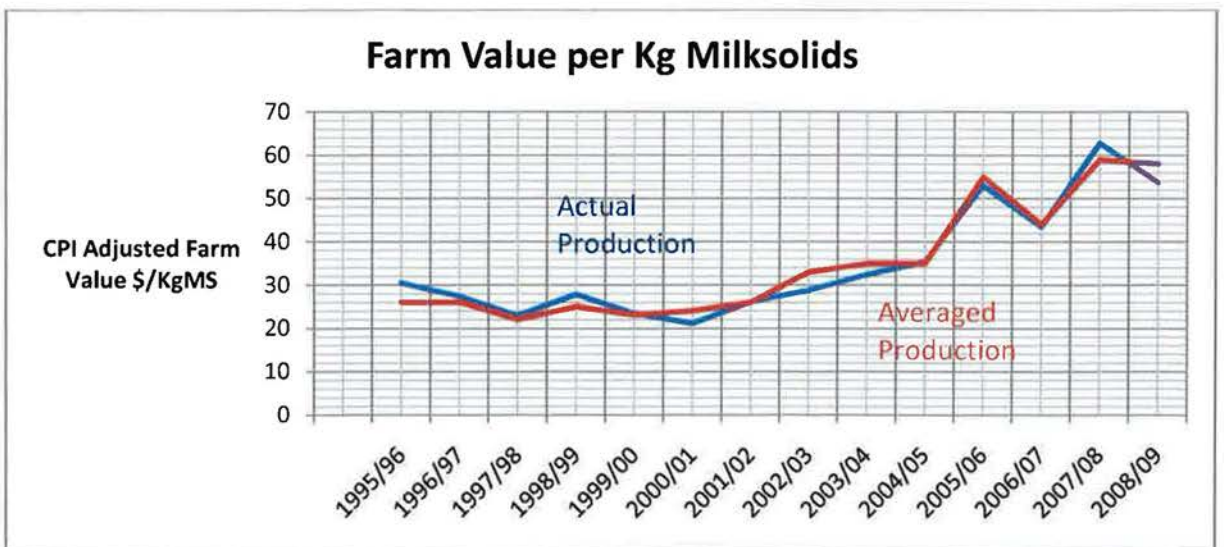
Please refer to Appendices pages 41-42

Milksolids Production Effect on Farm Sales Value

Now that we have established that Milksolids production is comparable with Ruakura on an efficiency basis, we can create the relationship between Farm value and milksolids production.



As can be seen in the above graph, CPI adjusted Farm values have increased at a rate not reflected in milksolids production. The graph below illustrates the relationship between sales per kg Milksolids.



Farms sold for around \$20-30/kgMS until 2004, when the market accelerated and jostled around double that value. When the Hamilton farm values were compared against Matamata-Piako, they averaged 6% more expensive, with large fluctuations from year to year. However the Milksolids production advantage of 23% (1107/902kgMS) From this we can conclude that farm value is not governed by its productive capability. The same proviso would exist here as for pasture production. ie. within a minimum milksolids production band. I would suggest that this maybe around 800kgMS/ha.

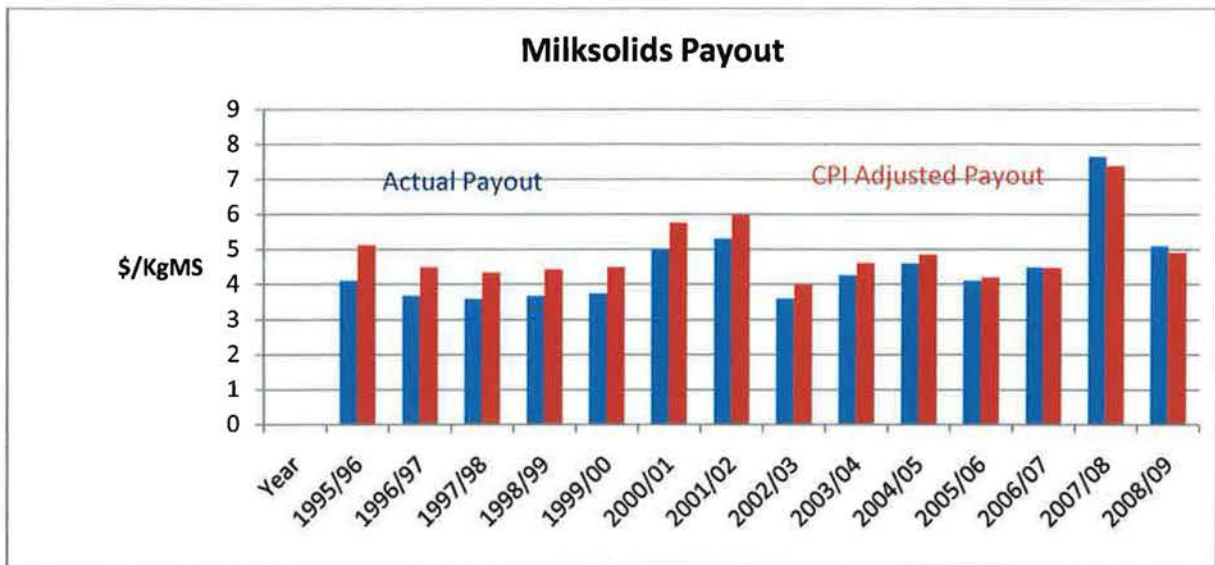
Please refer to Appendices on pages 43-45

7 - Milksolids Payout

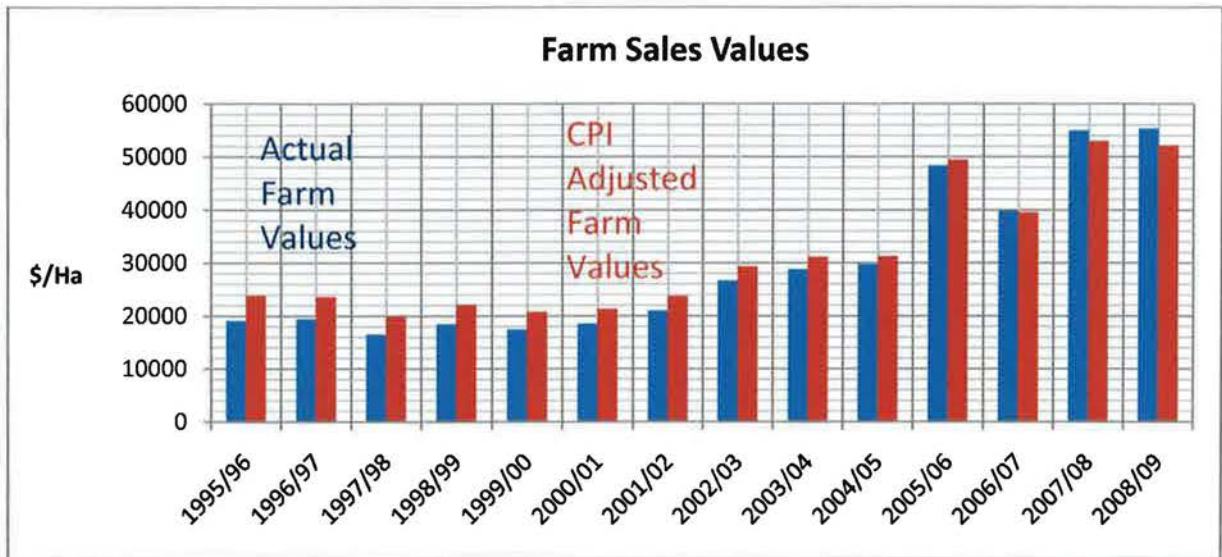
Production potential of farm land is an indication of its earning potential. However as has been shown, farm values have increased at a faster rate than either pasture production or milksolids production.

Production is only one part of the profitability of a farm. The value of the output, and the cost to achieve that are equally as important.

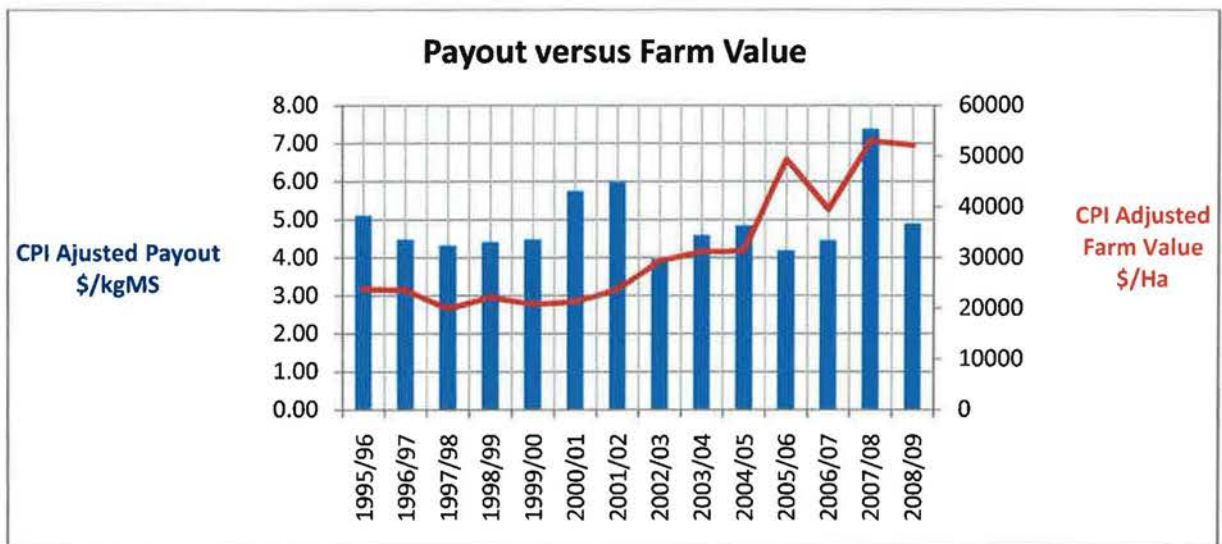
Here we will consider the changes in milksolids payout since 1995, and how closely this relates to farm sales value. Note that both payout and farm value have been cpi adjusted to December 2006 real values.



One can see the effect of CPI on both the above and below graph. With inflation, the earlier years have been increased, and the last years reduced around a base time of December 2006.

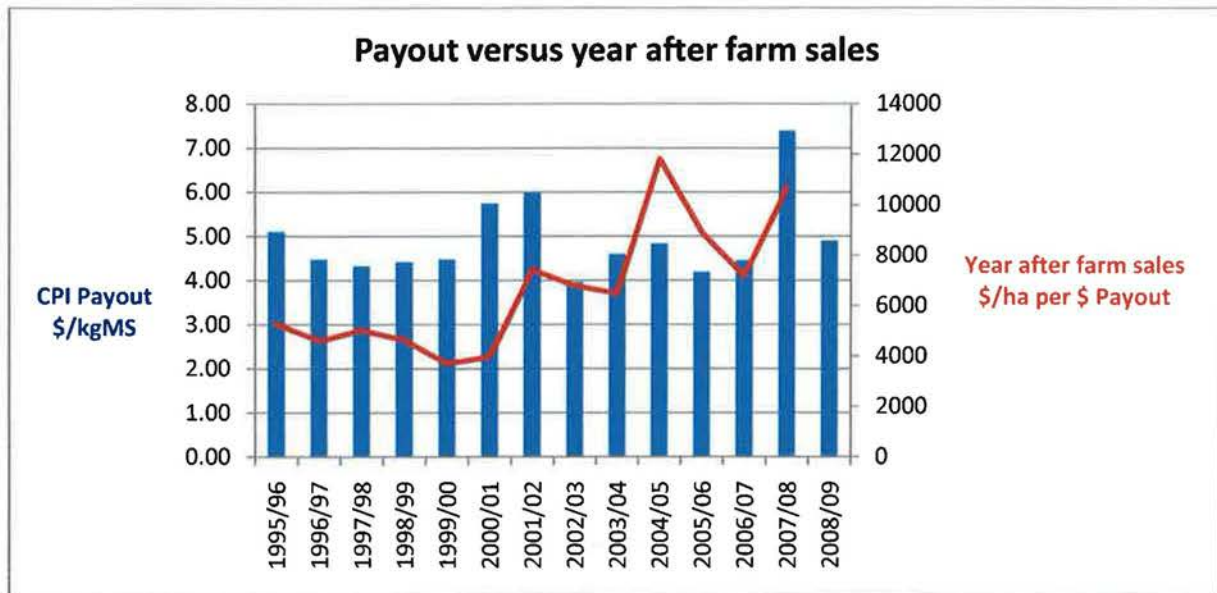


We will now just use CPI adjusted data to establish whether there is a relationship between farm sale value and payout.



As can be seen, there has not been a great variation in payout over the last 14 years, apart from the outlier of 2007/08. In fact the 14 years has varied by +or- 25% of \$4.92. But consider the change in farm values over this same period. The red line above illustrates clearly the rapid increase in farm values in recent years. To quantify this relationship I have compared the CPI payout with the following year's farm sales. This is because most dairy farm sales occur on June 1st, which is the start of the next season, but the rationale around the market value has

evolved in the season of the payout. To reflect the effect of payout on farm value, the farm sale data has been converted to a farm sale value per payout value. ie the following year's farm sale value has been divided by the current CPI payout.



The relationship for the first seven years (1995-2002) averaged \$4664/ha/\$payout This equates to \$22168/ha. However the second period (2002/08) averaged \$8879/ha/\$payout, or \$42774/ha. Over the 14 year period farms have increased in value by 9% per year, while payout has stayed reasonably static.

Therefore we can conclude that while milksolids payout does effect the value of farm land to a greater degree than pasture or Milksolids production, it is certainly not a lineal relationship. In recent years expectations of payout may have contributed to more buoyant farm sale prices.

Please refer to Appendices on pages 43-45

8 – Farm Profitability

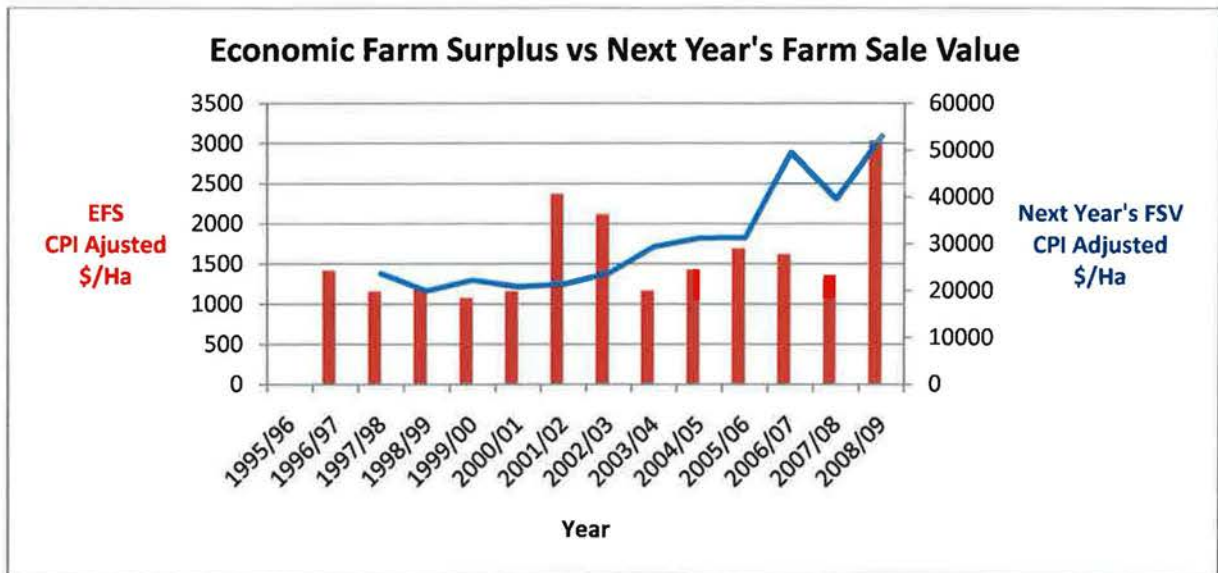
We have looked at three physical parameters to see if there are any repeatable relationships with farm values. Now we will investigate four financial parameters to see if any of these relate to a farmers willingness to buy land. Those parameters are Economic Farm Surplus (EFS), Farm Working Expenses (FWE), Repairs and Maintenance (R&M), and Personal Drawings (PD). For each of these parameters, we will compare the following year's farm sales value. This is because most dairy farm sales occur on June 1st, which is the start of the next financial year.

Note that the source used for financial analysis has been the client base of Graham Brown & Co Ltd; a reputable accountancy firm who have a large dairy farm portfolio. These figures have been cross checked with Matamata-Piako Dairybase information. For historical financial trends, the accountants' figures have been used in the report, as they have been consistently recorded for a longer period than Dairybase records. Both data sets exhibit the same trends since Dairybase has been recorded.

Please refer to Appendices on pages 35, 46-47 and 58-60.

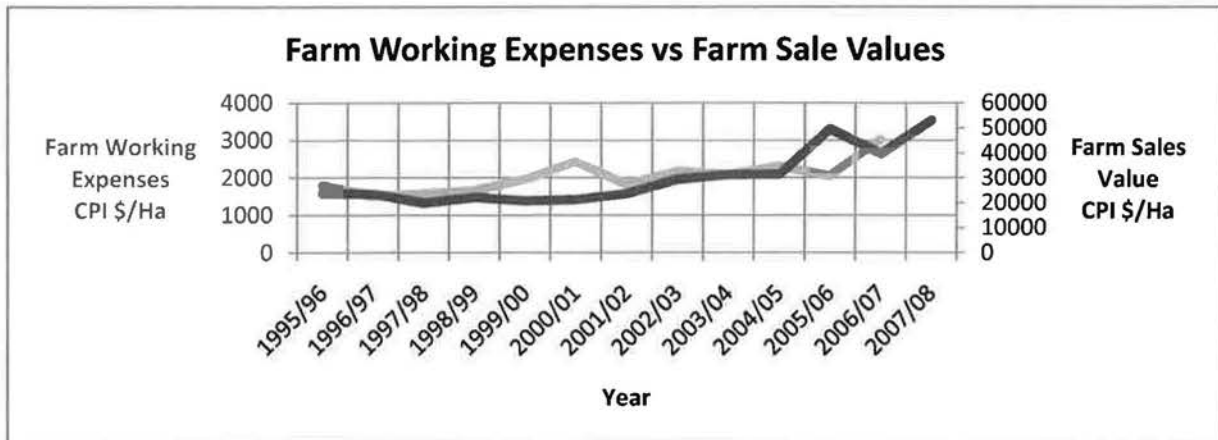
9 - Economic Farm Surplus (EFS)

EFS has been used for many years as an indication of a farm's profitability. While not indicating how much discretionary cash is available it does indicate the success of the business. With higher EFS one would expect an increase in farm value. From the graph below there is a degree of correlation between EFS and farm sale values. Again, the farm sales values tend to respond in the following year. Even though EFS is a measure of the business profitability, the relationship is not as obvious as one would have expected.

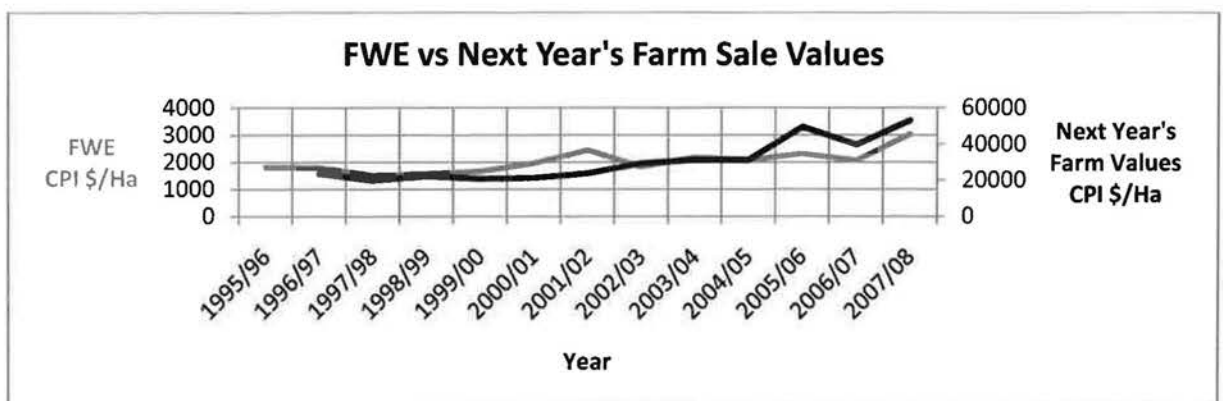


10 - Farm Working Expenses (FWE):

For an efficient farm business, the FWE shouldn't vary significantly. The CPI adjusted figures also support this assumption. Higher FWE would indicate the ability to fund more costs, and this in turn could more capability to pay for land. As can be seen below there is a high relationship between FWE and farm sales value.

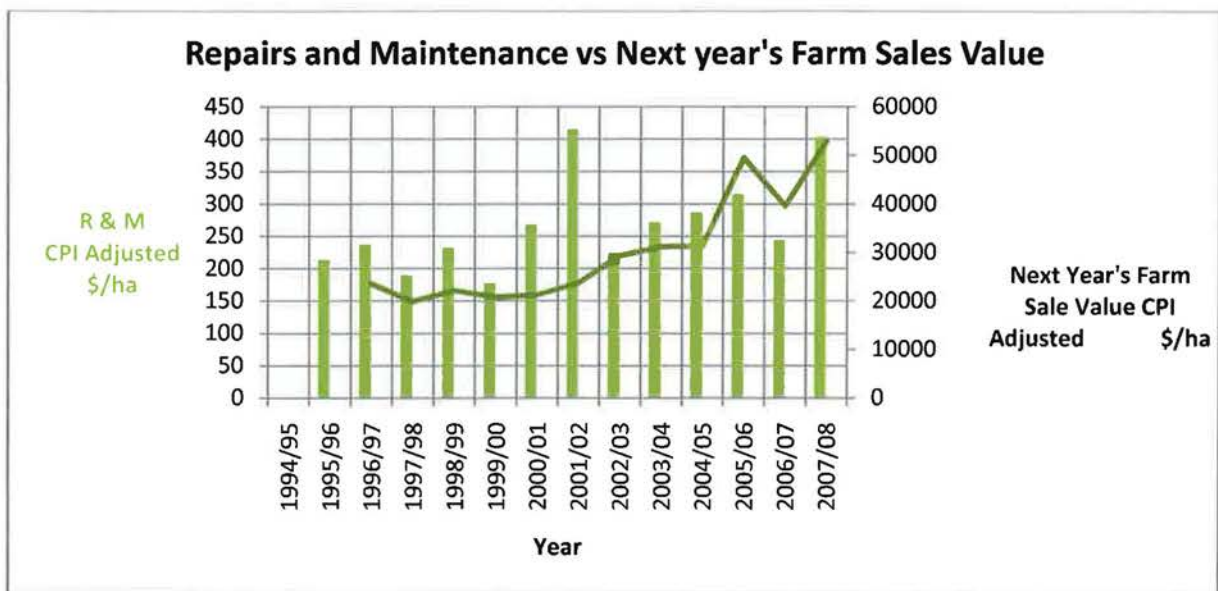


The relationship becomes even tighter when next year's farm sales value is compared, as in the graph below. Farm Sales were approximately 13 times the FWE until 2004, with the 14 year average being 15.9 eg. A farm with a FWE of \$2000/Ha is likely to be valued at \$31800/Ha. The accelerated increase in farm values in the last 4 years of 22.5 times the FWE, explains the exponential sales growth but not the reasoning. So while farm working expense has been the most closely correlated farm sales value indicator, it still does not explain the actions of buyers and vendors to a comfortable satisfaction.



11 - Repairs and Maintenance (R & M)

It is often regarded that a farmer will vary his/her R & M in relation to what he/she can afford. Indeed there are many on farm expenses that can be delayed or advanced short term, without any significant impact on production. Such examples would include farm race maintenance and drainage. R&M delays are occurring dramatically at present. However productivity may be compromised if the delays are too long.



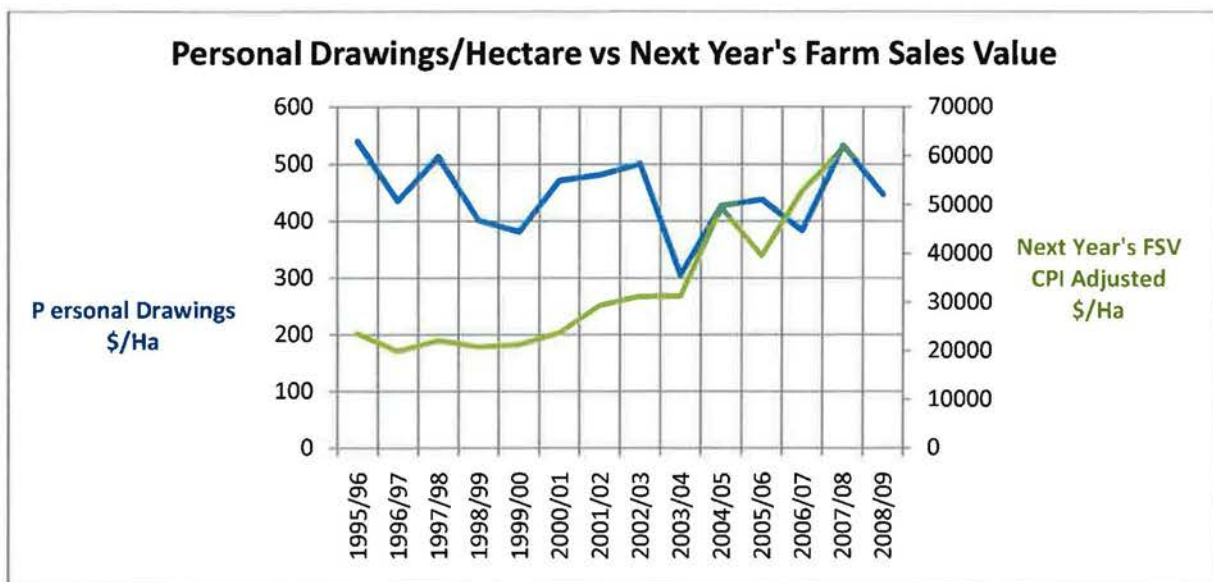
While Farm Working Expenses had a close relationship with Farm Sales Values, the relationship is tighter again with Repairs and maintenance. For every dollar spent on R&M, an average \$127 would be spent on farm purchasing. This again has accelerated in recent years beyond any reasonable justification.

12 - Personal Drawings (PD)

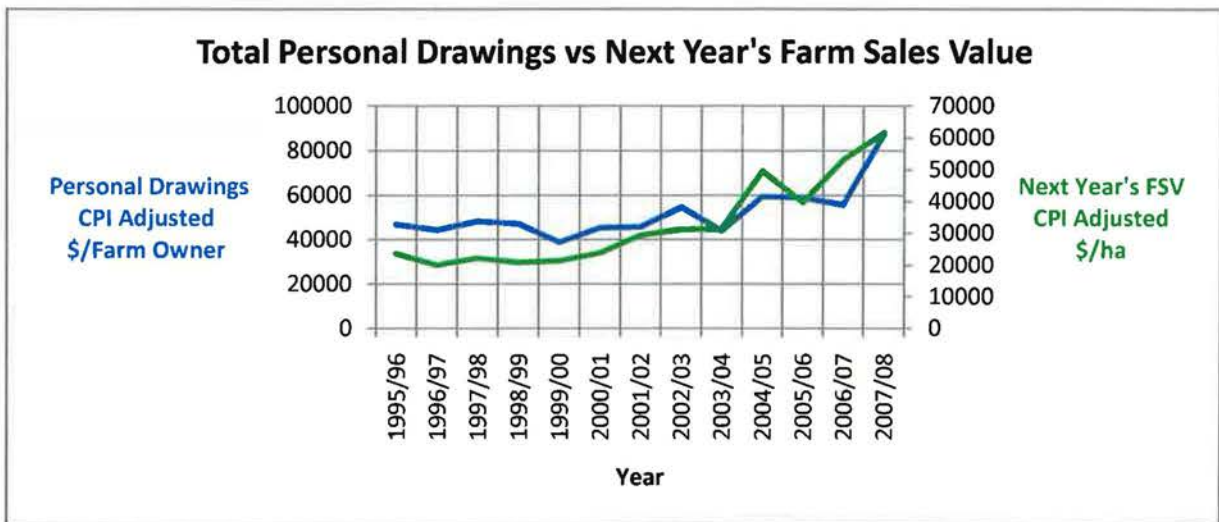
Farmers are notorious for “spending up large” when there is extra cash available. But is that notion based on any fact?

Firstly it is interesting to note that Personal Drawings have remained relatively static over the 14 years, varying from around \$450/Ha +/- 20%.

Secondly, we again have a step in farmer market attitude in 2003. Prior to this, a purchaser was prepared to pay 50 times their personal drawings for land. After 2003 this soared to 113 times personal drawings. This indicates that a farmer is more prepared now to financially sacrifice present lifestyle for the potential of financial or lifestyle rewards in the future.



What these statistics don't show is that during this time period the average farm size has increased by approximately 7% per year, which will increase total personal drawings as more land and debt is acquired. The following chart takes this into account. This illustrates a close correlation. For each dollar of personal drawings, a purchaser is prepared to pay 49c/ha average for dairy land.



The level of personal drawings underlies the degree of optimism a purchaser has in dairy land investment, in a similar manner as R & M does, and was surprisingly closely correlated.

13 - So What's a Kg Dry Matter worth?

We have looked at five areas to establish the relationship with the value purchasers are prepared to pay for dairy land. Now I will relate these to the value of a kg of dry matter.

Pasture Production; This compares actual pasture production with CPI adjusted farm sales value.

Milksolids Production; This uses the formula $\$FSV / (KgMS/ha) \times E$ to derive the cost per kgDM for each year. Note $\$FSV$ = Farm Sales Value and E = Efficiency in gMS/Kg DM

Payout; By dividing the $\$FSV$ by milksolids payout, we will find a factor that buyers are prepared to multiply payout (albeit unknowingly) to establish a market value for land.

Economic Farm Surplus, Farm Working Expenses, Repairs and Maintenance, and Personal Drawings;

As these are all financial data, the formula is $\$FSV / EFS$ (or FWE or R&M or PD). The result is a factor that buyers have been prepared to pay for land. eg. for the year 2000/01 Farms sold for 4000 times the Payout, 10 times the Economic Farm Surplus, 12 times the farm working expenses, and half times the personal drawings per hectare..

Comparison of Six Parameters with Farm Sales Values

	Farm Sales Value							
	(next years value)	Pasture	Milksolids	Payout	EFS	F W E	R & M	P D
Year	CPI adjusted	Actual	Actual				NYFSV/R&M	
	\$/Ha	\$/kgDM	\$/kgDM	\$/FSV/\$PO	\$/FSV/\$EFS	\$/FSV/\$FWE		NYFSV/TPD
1995/96	23567	1.43	1.45	4612	17	13	110	0.50
1996/97	19903	1.55	1.55	4443	17	11	84	0.45
1997/98	22168	1.97	1.96	5120	18	15	117	0.46
1998/99	20787	2.09	2.11	4703	16	13	90	0.44
1999/00	21275	1.75	1.75	4749	18	13	120	0.55
2000/01	23692	1.69	1.69	4120	10	12	102	0.52
2001/02	29326	1.94	1.94	4904	14	12	80	0.64
2002/03	31188	1.95	1.96	7876	27	17	153	0.57
2003/04	31290	1.98	1.98	6802	22	14	125	0.71
2004/05	49443	3.82	3.81	10215	29	24	182	0.83
2005/06	39559	3.18	3.19	9441	24	17	128	0.67
2006/07	52972	3.77	3.78	11877	39	26	216	0.95
2007/08	61519	6.51	6.50	8325	20	20	147	0.70
2008/09								
Average	32000	2.59	2.59	6700	21	16	127	0.61
2009 Values	34000	2.73	2.73	7000	22	17	134	0.64

From the analysis we can see that over the thirteen year period, the average cost of purchasing a farm is \$2.73/kg DM in 2009 values. Farm Working Expenses, was 1/17 of Farm Sales Value. I.e. For every dollar a farmer would spend on farm working expenses, he is prepared to spend \$17 on buying the land.

So have we, or will we pay too much for dairy land in the Matamata-Piako district? If we assumed that the cost of debt servicing was 100% of the value, we can look at what has been paid over varying interest rates, and decide whether the kg of dry matter is reasonable value.

The Value of a kilogram of Pasture Dry Matter at Commercial Interest Rates

Farm Sale Value \$/Ha	Interest Rate %						
	5%	6%	7%	8%	9%	10%	15%
20 000	8c	9c	11c	12c	14c	15c	23c
30 000	11c	14c	16c	18c	21c	23c	34c
40 000	15c	18c	21c	24c	28c	31c	46c
50 000	19c	23c	27c	31c	34c	38c	57c
60 000	23c	28c	32c	37c	41c	46c	69c
70 000	27c	32c	37c	43c	48c	53c	80c

Note; these values are based on the Walton average pasture production of 13090kg/ha. This data can be re-formatted, so that the value of land can be determined from the other variables that one makes decisions around. ie. interest rates, and c/kg DM (which includes land productivity and efficiency of milksolids conversion)

Per Hectare Farm Value With Varying Interest Rates and Dry Matter Values

Value of KgDM c/kg	Interest						
	5	6	7	8	9	10	15
10	\$26,180	21820	18700	16360	14540	13090	8730
15	39270	32725	28050	24540	21820	19635	13090
20	52360	43630	37400	32725	29090	26180	17450
25	65450	54540	46750	40910	36360	32725	21820
30	78540	65450	56100	49090	43630	39270	26180
35	91630	76360	65450	57270	50905	45815	30540
40	104720	87270	74800	65450	58180	52360	34910

Dairy NZ have a guideline of not spending more than 5% of payout for bought in supplements. If we use this guideline for the land value also, we can establish what we should be prepared to pay for land. eg. for a milksolids payout of \$5.00/kg, we could pay 25c/kg DM (5% of \$5.00). If interest rates are at 8% we should be prepared to pay almost \$41000/ha (\$40910) for dairy land. So at a

\$5.00 payout alternative supplements worth under 25c/kgDM would be better value than buying land. Note the DairyNZ guide of 5% allows for a conservative conversion of 50gMS/kgDM, well below the conversion achieved on both the Walton and Ruakura farms.

5% Cost Of Feed Of Milksolids Payout

Payout	\$/kgMS	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
5% Payout		17.5c	20c	22.5c	25c	27.5c	30c	32.5c	35c	37.5c

To extrapolate to other land carrying capabilities the above chart could be altered by the appropriate factors.

Multiplication Factors To Customise Other Farm Dry Matter Values From Walton Values:

Annual Pasture Production	Multiplication Factor	Efficiency	Multiplication Factor
kgDM/Ha	PP	gMS/KgDM	Eff
10000	X 0.76	50	X 0.71
12000	X 0.92	55	X 0.79
13000	X 0.99	60	X 0.86
14000	X 1.07	65	X 0.93
15000	X 1.15	70	X 1.00
16000	X 1.22	75	X 1.07
17000	X 1.30	80	X 1.14
18000	X 1.38	85	X 1.21

Example:

A farm growing 16000kgDM/Ha at an efficiency of 60gMS/Kg DM. Interest rates are 9%. Forecast Payout is \$5.00.

From above: 16000 PP factor = 1.22

Efficiency Eff = 0.86

\$5.00 x 5% = 25c

From Per Hectare chart: for 25c and 9% interest = \$36360 x 1.22 x 0.86

= \$38150/Ha

So at a \$5.00 payout and 9% interest rate, no more than \$38150/ha should be paid for the above example farm. Purchasing feed at <25c/kgDM would be more profitable.

For the 2008/09 season, a milk price of \$4.72 was paid out (\$5.20 payout including value add). This equates to 23.6c/kgDM. For the above example, \$36000/Ha would have been the farm value (\$38150 x 23.6/25). This is considerably lower than the actual sales of over \$60000/ha!

So now farmers have a tool to assess the value of possible dairy farm purchases. We have much of the information on hand or at least are able to estimate them to a reasonable degree of accuracy. But we have historically not valued the cost of the farm land in a pasture dry matter basis. Any purchased feeds are analysed to the nth degree, for dry matter, energy, mineral break down, and costs. Yet we will purchase land at a price that may be in excess of its sustainable pasture production potential, and earning potential. Farmland has been unwisely regarded as a measure of financial success for many in our community. However, its value may have exaggerated its earning potential through the demand to acquire it.

14 - Conclusion

We have examined the effect a number of parameters, both physical and financial, have on farm sales value in the Matamata-Piako district.

The physical parameters of pasture production and milksolids production bore very little relationship to the value of land. As the pasture production report illustrated, variation between seasons and within a season can be very large. However buyers appear to focus on the potential production of the farm land and hence ignore the seasonal variability. Milksolids production mirrors that of pasture production and therefore has a very loose relationship with farm value. Pasture and milksolids production would have a closer correlation, if the efficiency of conversion was static, and only pasture was fed, with no imported supplementary feed.

The increase in milksolids payout over the 15 year period was minimal when adjusted for inflation. Again, the increase in farm values superseded the payout improvement.

The financial accounting parameters investigated would have been expected to mirror the increasing farm sales values (FSV). Economic farm surplus (EFS), has long been used as an indication of a farm's profitability. However it did not relate well to the value of the central asset.

Farm working Expenses (FWE) were closely aligned to farm sales value (FSV), especially when compared with the following year's FSV. FSV averaged 15.9 times that of FWE.

Within FWE, repairs and maintenance (R&M), reflects more discretion in a farmers spending. R&M tends to increase in a high payout year such as 2007/08, and is suppressed when the budget is tight, as it is in 2009/10. As expected, FSV fluctuates proportionately with R&M at \$127 per dollar spent in R&M.

The assumption that farmers are their own worst enemy when it comes to spending money in the pocket, has proven to be not correct when personal drawings per hectare are inflation adjusted. But average farm size has increased

by about 7% per year, and with FSV averaging a 9%/year incremental increase, personal drawings has remained closely proportional to FSV. For each dollar of personal drawings, a purchaser is prepared to pay 49c/ha average for dairy land.

With all the above parameters, the relationship with Farm Sales Value in the past three years has become stretched with escalating dairy land prices. So why is this? Obviously financial logic is only a part of the decision making criteria that a prospective dairy farm purchaser utilises to reach a market agreement. Farmers, while portrayed as being never content with regard to the weather and payout, have a subconscious optimism that next year will be better. The upward trend in farm sales value in the past three years is attributable to this.

A favourable location tends to drive prices up. Farms near a town boundary, or neighbouring an existing holding attract greater interest. This has always been the case.

The supply/demand situation impacts on price. Recently there have been fewer, albeit larger, properties on the market. Interest from present farmers and outside investors has driven farm sales value up.

But has the land value increased to a sustainable profitable return on the investment?

The cost of pasture has averaged \$2.73 per kilogram of drymatter in 2009 values over the last 13 years and reached \$6.51 in 2007/08. At an 8% interest rate purchasers were buying land at 37c/kgDM, or \$61519/Ha. This would be sustainable if the payout remained above \$7.40/kgMS. But for a \$5.00 payout, the land would have been economic up to \$40910/Ha. Many different supplementary feeds could be bought at less than 37c rather than purchasing land.

The four main variables for calculating a farm's economic value are pasture production, efficiency of pasture to milk conversion, payout projection, and interest on borrowings. By using the "factor tables" in the appendix one can calculate the sustainable value of dairy land, and asses this with alternative options, in order to formulate sustainable rational business decisions.

We have much of the information on hand or at least are able to estimate them to a reasonable degree of accuracy. But we have not valued the cost of the farm land in a pasture dry matter basis. Any purchased feeds are analysed to the nth degree, for dry matter, energy, mineral break down, and costs. Yet we will purchase land at a price that may be in excess of its sustainable earning potential. Farmland has been unwisely regarded as a measure of financial success for many in our community. However, its value may have exaggerated its earning potential through the demand to acquire it.

My challenge was to find some answers to two questions:

1: What factors influence the value of dairy farms in the Matamata-Piako district? And

2: What is a kilogram of pasture dry matter really worth?

Through my research I have established historical clarity around the influencing factors of farm value. I have also established the real value of pasture dry matter and have projected these findings to assist in determining economic decisions concerning dairy farm values in New Zealand.

15 - References and Acknowledgements

I would like to gratefully acknowledge the assistance of the following for the development of this report:

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4. Diane Sutton – Dairy Base, DairyNZ, Ruakura
5. Phillip Price –Accountant, Graham Brown & Co Ltd, Putaruru
6. Kimberley Crocker – Senior Accounts Manager, Graham Brown & Co Ltd, Putaruru
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11. My family and farm staff for showing a large amount of patience.

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16 - Appendices

Data appearing here has been sourced from the acknowledged references and used for the main report analysis.

Real Estate Values For Matamata-Piako Dairy Farms

<u>Year</u>	<u>Total Sales</u>		<u>Sale Per Hectare</u>	<u>CPI Adjusted Farm Sales Value</u>
	<u>\$ x 1000</u>	<u>Hectares</u>	<u>\$/Ha</u>	<u>\$/Ha</u>
1995/96	26891	1409	19085	23786
1996/97	29031	1497	19392	23567
1997/98	28700	1738	16513	19903
1998/99	36308	1967	18459	22168
1999/00	14308	822	17399	20787
2000/01	84714	4577	18509	21275
2001/02	92171	4391	20991	23692
2002/03	75524	2830	26687	29326
2003/04	50392	1818	28818	31188
2004/05	64318	2166	29694	31290
2005/06	57360	1185	48405	49443
2006/07	83728	2106	39757	39559
2007/08	154248	2808	54932	52972
2008/09	58812	1062	55378	52194

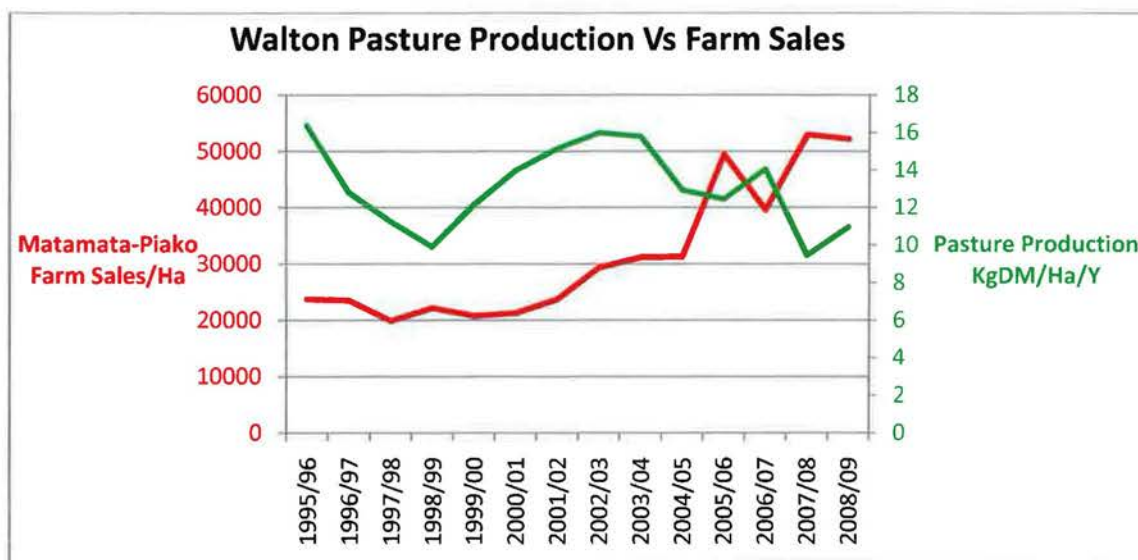
Real Estate Values for Hamilton Dairy Farms

<u>Year</u>	<u>Sales per Hectare</u>	<u>CPI adjusted</u>
	<u>\$/Ha</u>	<u>\$/Ha</u>
1999/00	20743	17362
2000/01	23569	20470
2001/02	23796	21083
2002/03		
2003/04	41379	38234
2004/05	44361	42099
2005/06	49906	48858
2006/07		
2007/08		
2008/09	79710	84572

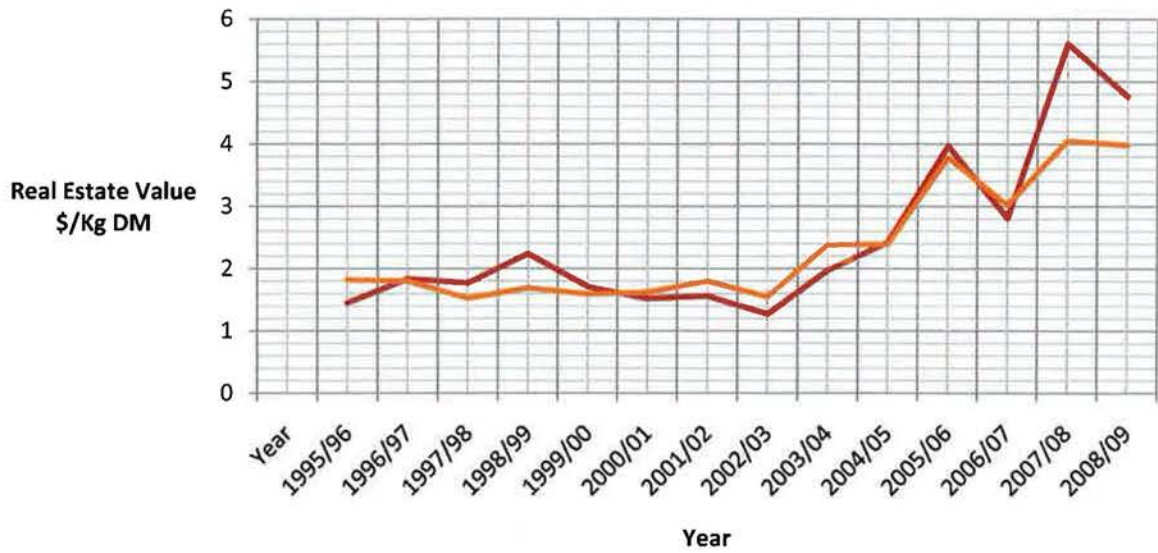
Pasture Production Analysis

Walton Pasture Production Vs Farm Sales

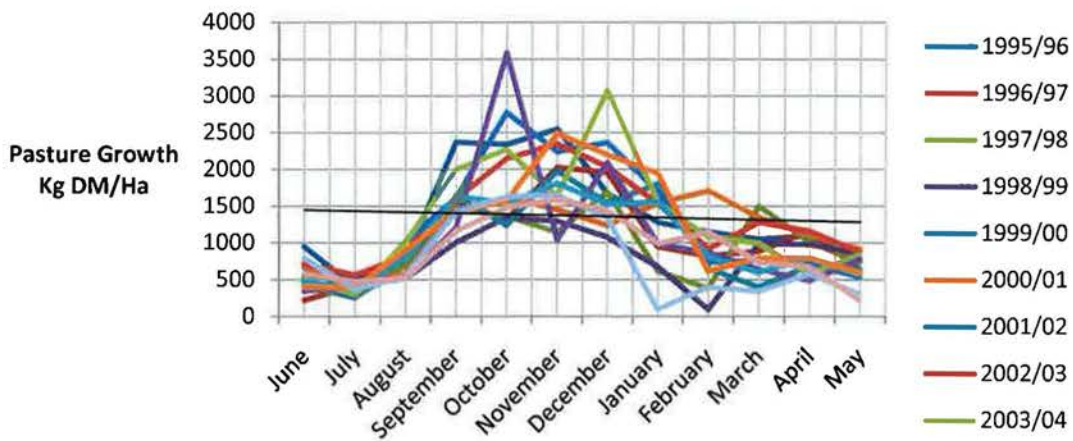
Year	Walton t DM/Ha/Y	Matamata-Piako Farm Sales/Ha
1995/96	16.37	23786
1996/97	12.82	23567
1997/98	11.27	19903
1998/99	9.909	22168
1999/00	12.138	20787
2000/01	13.98	21275
2001/02	15.142	23692
2002/03	15.982	29326
2003/04	15.797	31188
2004/05	12.932	31290
2005/06	12.454	49443
2006/07	14.061	39559
2007/08	9.446	52972
2008/09	10.967	52194



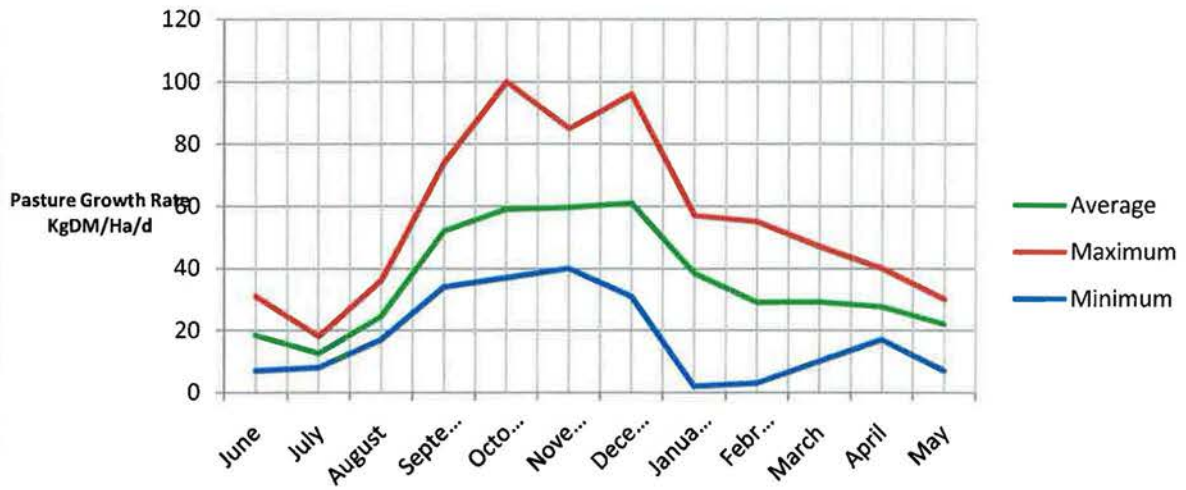
Real Estate Value comparing Actual and Average Pasture Grown



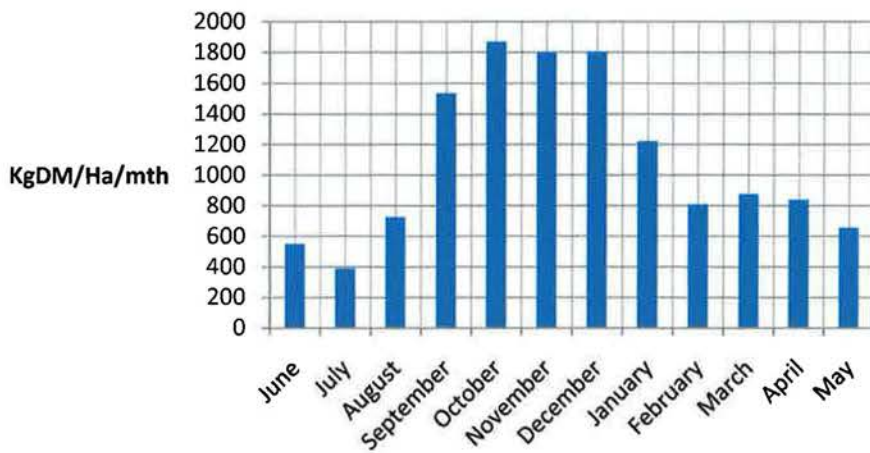
Monthly Pasture growth Rates



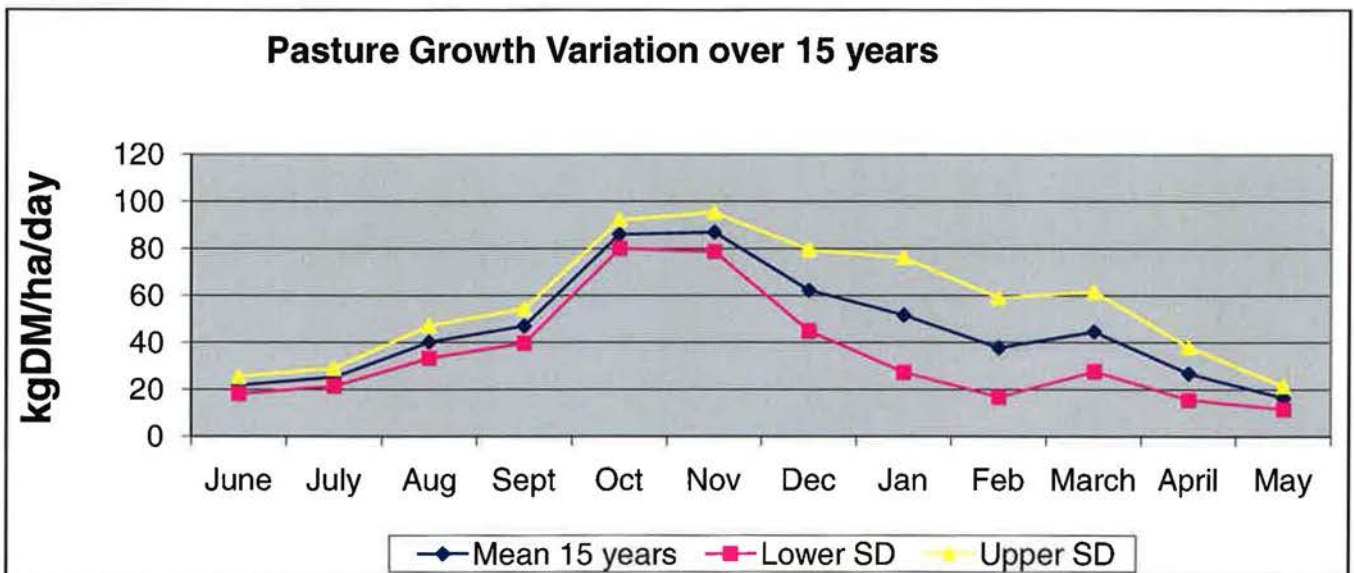
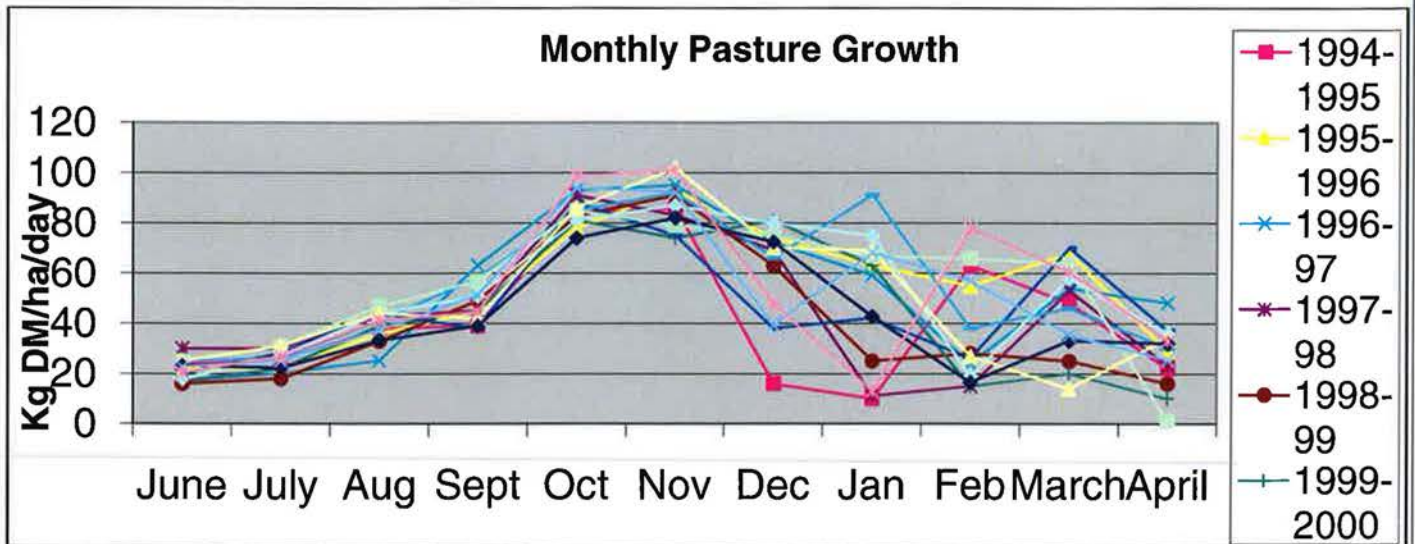
Walton Pasture Growth Rate Variation 1995-2009



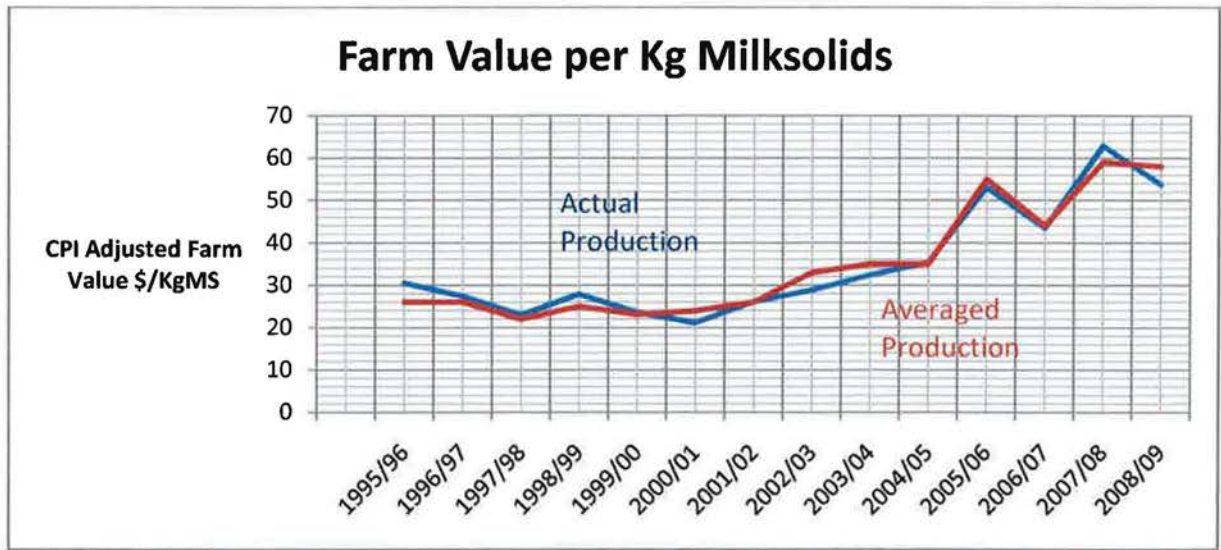
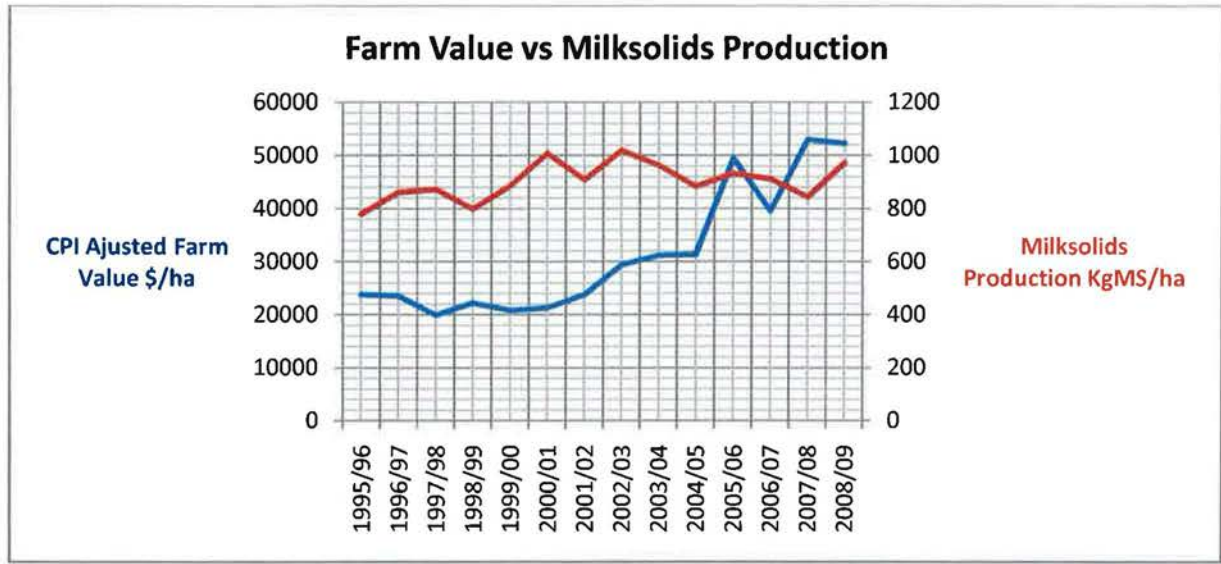
Average Monthly Pasture Growth



Ruakura Data

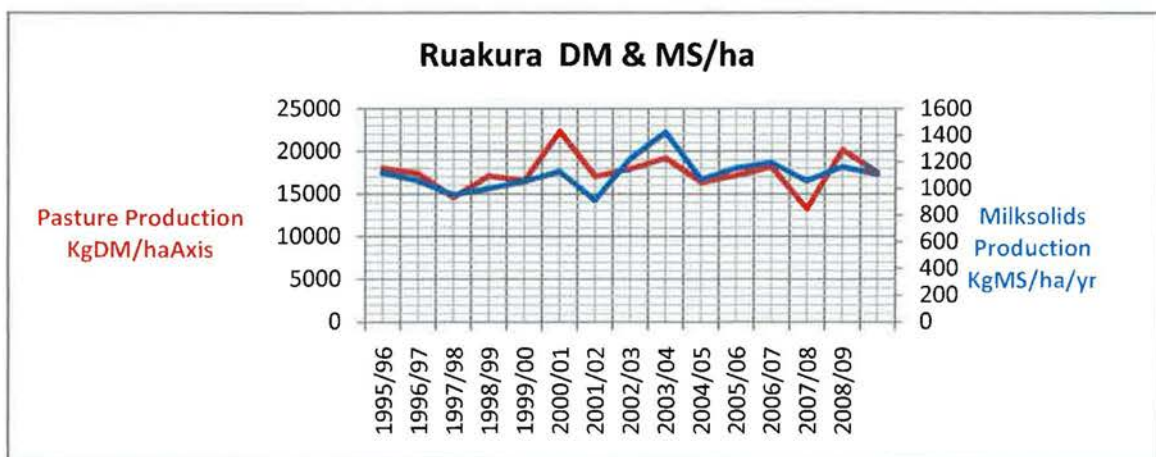
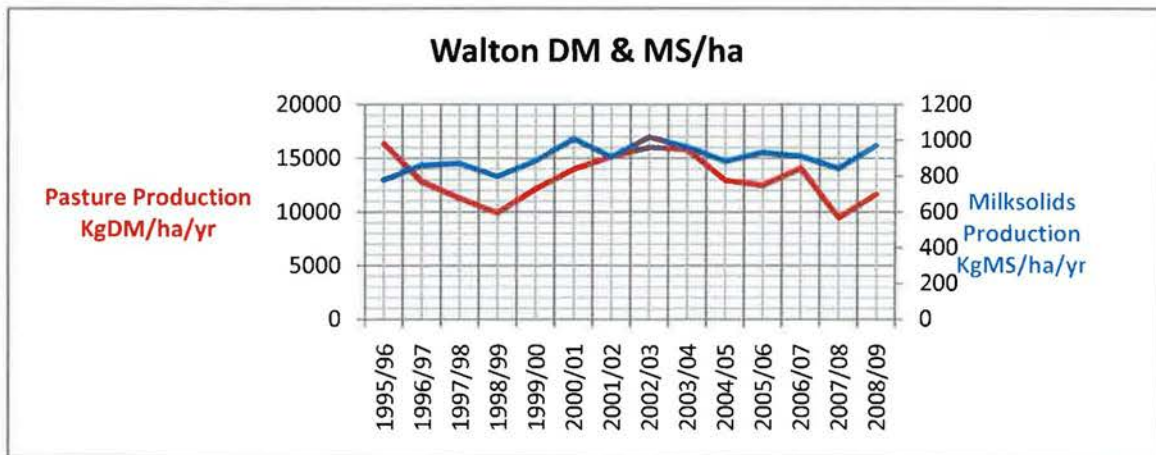


Milksolids Production Analysis

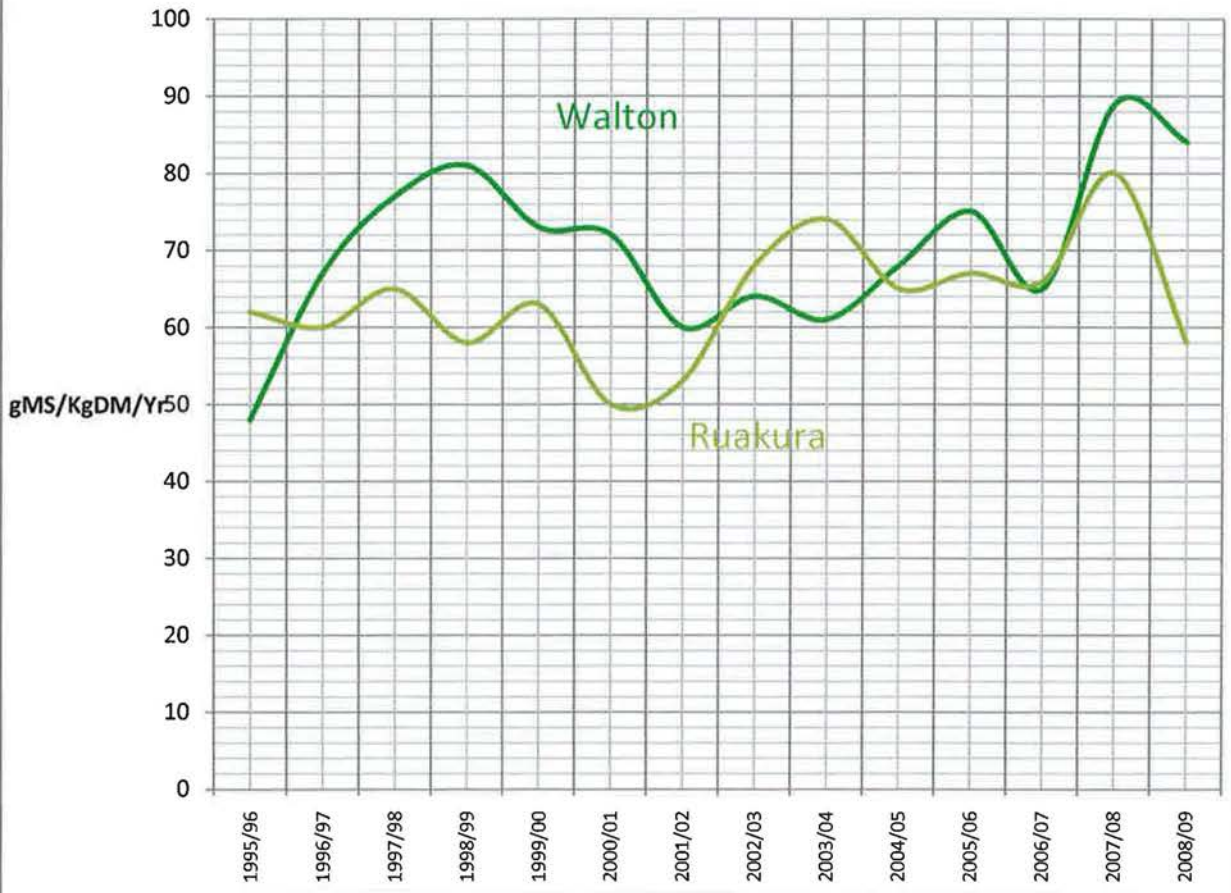


Milksolids Production Efficiency

Walton				Ruakura		
Year	MS/ha/y	KgDM/ha/y	gMS/KgDM/y	MS/ha/y	KgDM/ha/y	gMS/KgDM/y
1995/96	779	16370	48	1119	18035	62
1996/97	860	12820	67	1058	17393	60
1997/98	871	11270	77	952	14577	65
1998/99	798	9909	81	999	17095	58
1999/00	885	12138	73	1052	16568	63
2000/01	1007	13980	72	1127	22379	50
2001/02	908	15142	60	912	17054	53
2002/03	1018	15982	64	1223	17893	68
2003/04	962	15797	61	1422	19202	74
2004/05	883	12932	68	1069	16366	65
2005/06	931	12454	75	1153	17163	67
2006/07	910	14061	65	1193	18157	66
2007/08	843	9446	89	1057	13219	80
2008/09	972	11630	84	1163	20164	58
Average	902	13138	70	1107	17519	64



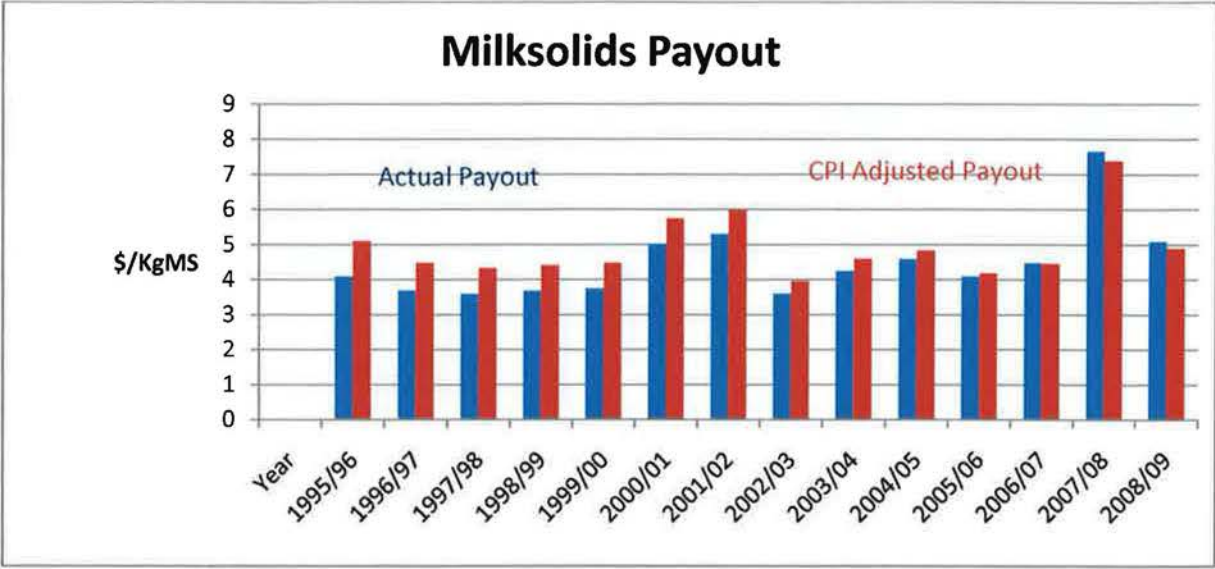
Milksolids Production Efficiency



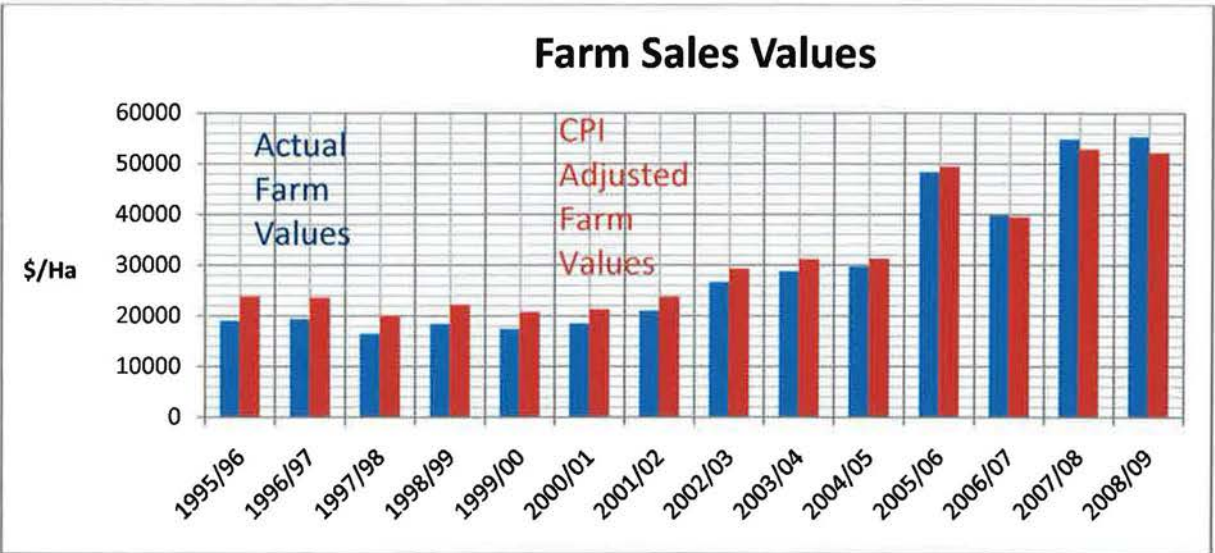
Payout Analysis

Comparison of Milksolids Payout with Real Estate Farm Sale Values								
	Payout		Farm Sales Value	CPI Adjusted Farm Value			Farm Value per payout	
Year	\$/kgMS	CPI Payout	\$/Ha	\$/Ha	Yr after		\$/Ha/\$/KgMS	yr after
1995/96	4.10	5.11	19085	23786	23567		4655	4611
1996/97	3.69	4.48	19392	23567	19903	-16%	5260	4443
1997/98	3.59	4.33	16513	19903	22168	11%	4597	5120
1998/99	3.68	4.42	18459	22168	20787	-6%	5015	4702
1999/00	3.75	4.48	17399	20787	21275	2%	4640	4749
2000/01	5.00	5.75	18509	21275	23692	11%	3700	4120
2001/02	5.30	5.98	20991	23692	29326	24%	3962	4904
2002/03	3.60	3.96	26687	29326	31188	6%	7406	7876
2003/04	4.25	4.60	28818	31188	31290	0%	6780	6802
2004/05	4.59	4.84	29694	31290	49443	58%	6465	10215
2005/06	4.10	4.19	48405	49443	39559	-20%	11800	9441
2006/07	4.48	4.46	39757	39559	52972	34%	8870	11877
2007/08	7.66	7.39	54932	52972	52194	-2%	7168	7062
2008/09	5.10	4.90	55378	52194		9%	10652	6609
		4.92		22168			6498	4664
		68.89		42774			4547	8879
		4.94					8449	
		5.06						

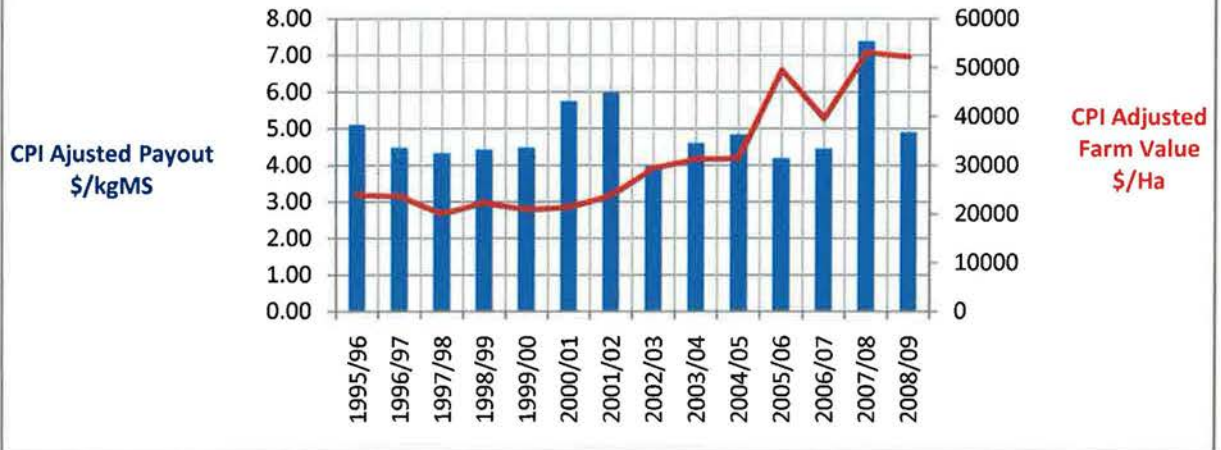
Milksolids Payout



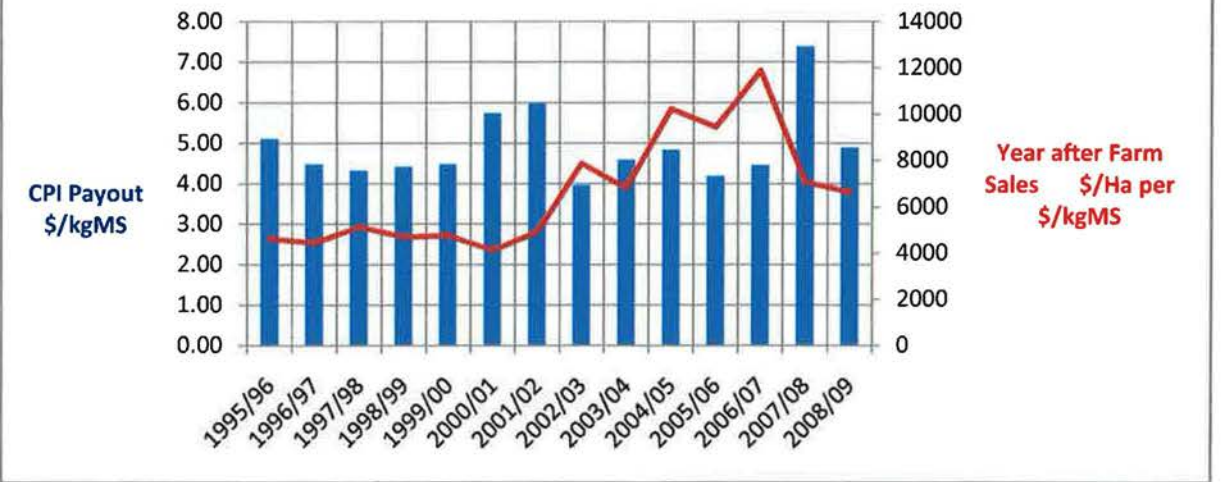
Farm Sales Values



Payout versus Farm Value



Payout vs Year after Farm Sales



Financial Parameter Analysis

Graham Brown Financial Performance Data from Client Base

Year	EFS/Ha	R & M/Ha	PD	Payout
1990/01	\$572	\$158	\$24,001	\$2.55
1991/92	523	199	\$26,784	\$3.15
1992/93	464	231	\$27,515	\$3.25
1993/94	1118	165	\$29,748	\$3.39
1994/95	1026	158	\$30,783	\$3.50
1995/96	1137	172	\$37,556	\$4.10
1996/97	955	195	\$36,475	\$3.69
1997/98	997	158	\$40,016	\$3.59
1998/99	895	193	\$39,725	\$3.68
1999/00	971	149	\$32,513	\$3.75
2000/01	2063	233	\$39,406	\$5.00
2001/02	1873	368	\$40,479	\$5.30
2002/03	1063	204	\$49,604	\$3.60
2003/04	1323	250	\$40,604	\$4.25
2004/05	1605	272	\$56,233	\$4.59
2005/06	1587	308	\$57,474	\$4.10
2006/07	1369	245	\$55,868	\$4.48
2007/08	3332	394	\$113,337	\$7.66
2008/09				\$5.20

Financial Parameters compared with Farm Sales Values

	EFS	EFS	F W E	F W E	R & M	R & M	P D	PD
Year	\$/ha	CPI adjusted	\$/ha	CPI Adjusted	\$/ha	CPI Adjusted	\$/ha	CPI Adjusted
1995/96	1137	1418	1449	1807	172	214	432	539
1996/97	955	1160	1478	1796	195	237	358	435
1997/98	997	1201	1249	1505	158	190	426	513
1998/99	895	1074	1305	1567	193	232	334	401
1999/00	971	1160	1383	1652	149	178	319	381
2000/01	2063	2371	1701	1955	233	268	410	471
2001/02	1873	2114	2151	2428	368	415	426	481
2002/03	1063	1168	1659	1823	204	224	455	500
2003/04	1323	1432	2009	2174	250	271	282	305
2004/05	1605	1691	1975	2081	272	287	405	427
2005/06	1587	1621	2254	2302	308	315	429	438
2006/07	1369	1362	2068	2058	245	244	385	383
2007/08	3225	3040	3139	3027	419	404	552	532
2008/09						268		447

Note: EFS = Economic Farm Surplus R & M = Repairs and Maintenance

PD = Personal Drawings FWE = Farm Working Expenses

CPI = Consumer Price Index

Personal Drawings Analysis

Year	P D \$/ha	PD -CPI Adjusted	Total PD	Total PD CPI Adjusted	NYFSV CPI\$/Ha	NYFSV/TPD
1995/96	432	539	37556	46828	23567	0.50
1996/97	358	435	36475	44320	19903	0.45
1997/98	426	513	40016	48212	22168	0.46
1998/99	334	401	39725	47149	20787	0.44
1999/00	319	381	32513	38845	21275	0.55
2000/01	410	471	39406	45294	23692	0.52
2001/02	426	481	40479	45687	29326	0.64
2002/03	455	500	49604	54510	31188	0.57
2003/04	282	305	40604	43944	31290	0.71
2004/05	405	427	56233	59255	49443	0.83
2005/06	429	438	57474	58707	39559	0.67
2006/07	385	383	55868	55590	52972	0.95
2007/08	552	532	90621	87388	61519	0.70
2008/09		447				0.49
Average			47429	51979		0.61

Note: NYFSV = Next Year's Farm Sales Value

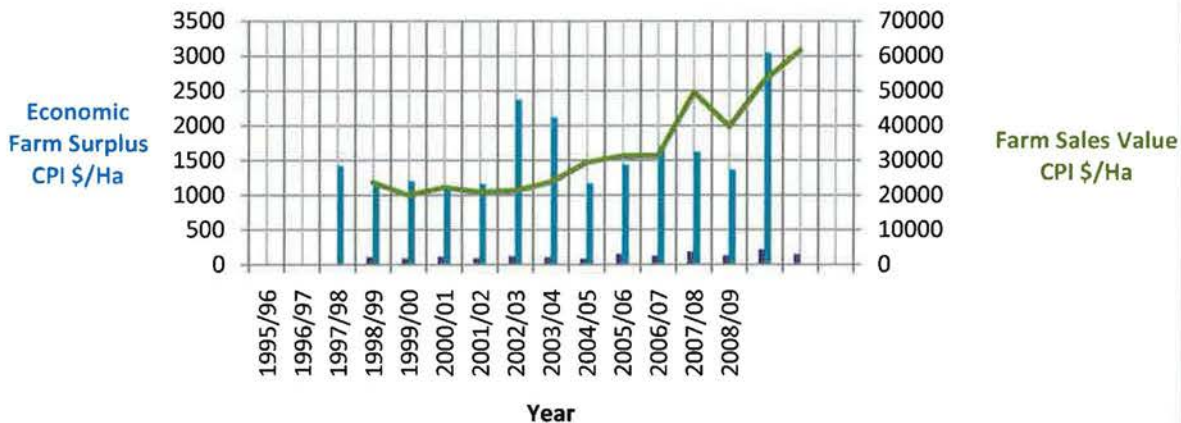
PD = Personal Drawings

TPD = Total Personal Drawings

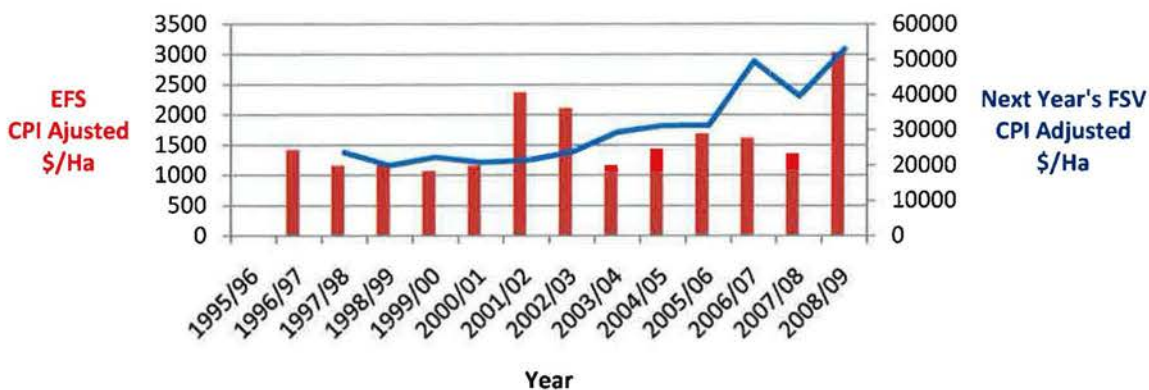
Comparison of Farm Values with Financial Parameters

	Farm Values	Next year Farm values			
	CPI Adjusted		NYFSV/R&M	NYFSV/F WE	NYFSV/PD
Year	\$/ha				
1995/96	23786	23567	110	13	0.44
1996/97	23567	19903	84	11	0.46
1997/98	19903	22168	117	14.7	0.43
1998/99	22168	20787	90	13.3	0.52
1999/00	20787	21275	120	12.9	0.56
2000/01	21275	23692	102	12.1	0.50
2001/02	23692	29326	80	12.1	0.61
2002/03	29326	31188	153	17.1	0.62
2003/04	31188	31290	125	14.4	1.03
2004/05	31290	49443	182	23.8	1.16
2005/06	49443	39559	128	17.1	0.90
2006/07	39559	52972	216	25.6	1.38
2007/08	52972	61519	147	19.6	1.16
2008/09	61519				1.13
Average			127	15.9	0.50

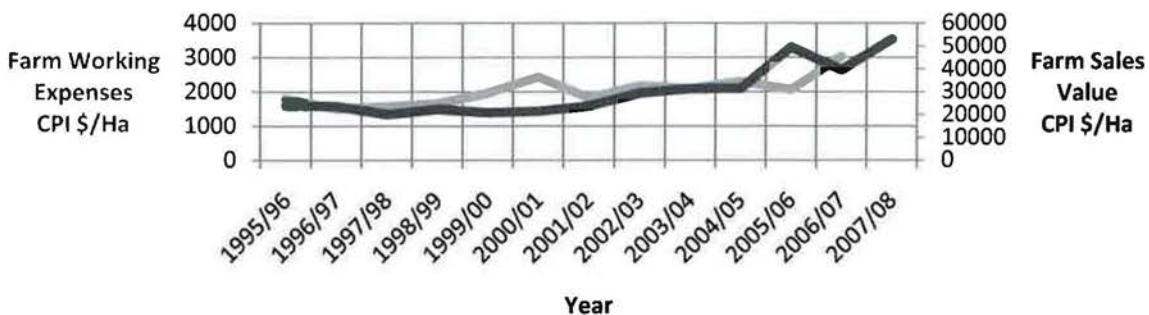
Economic Farm Surplus vs Farm Sales



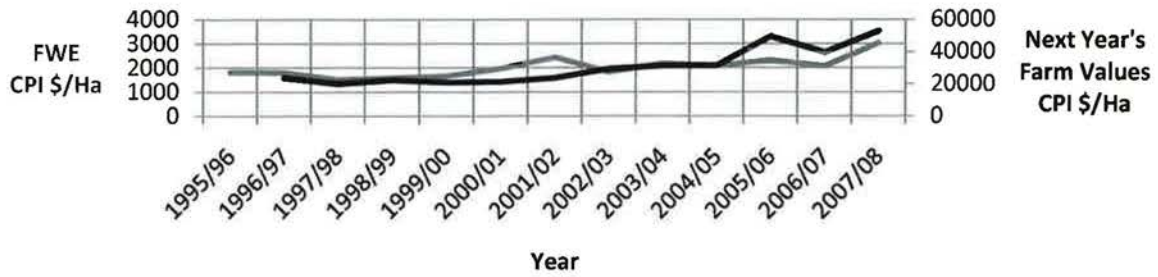
Economic Farm Surplus vs Next Year's Farm Sale Value



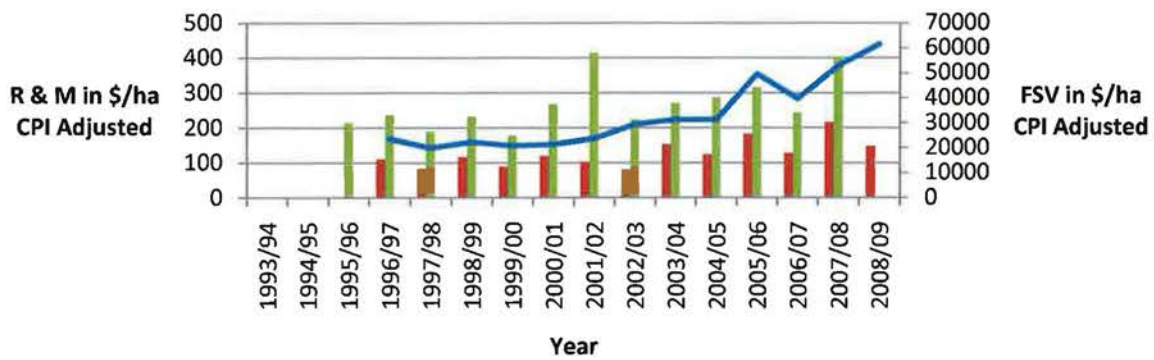
Farm Working Expenses vs Farm Sale Values



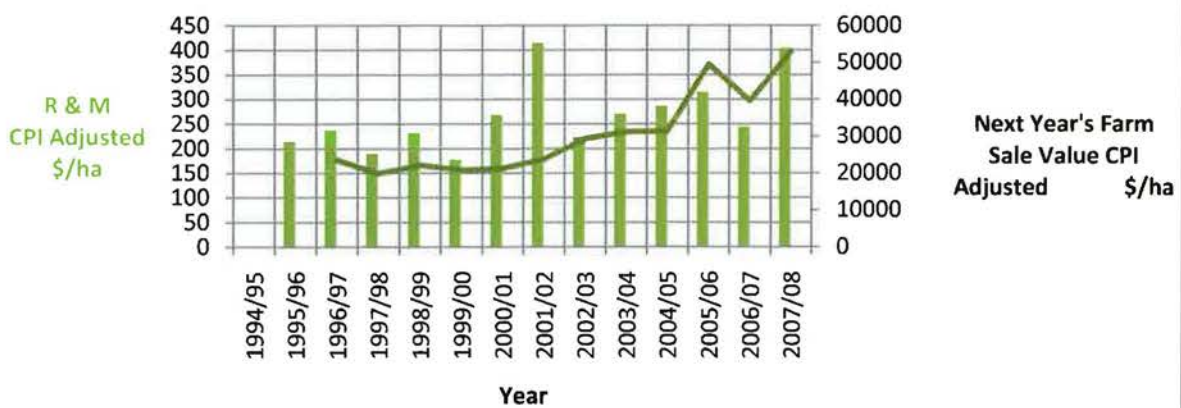
FWE vs Next Year's Farm Sale Values



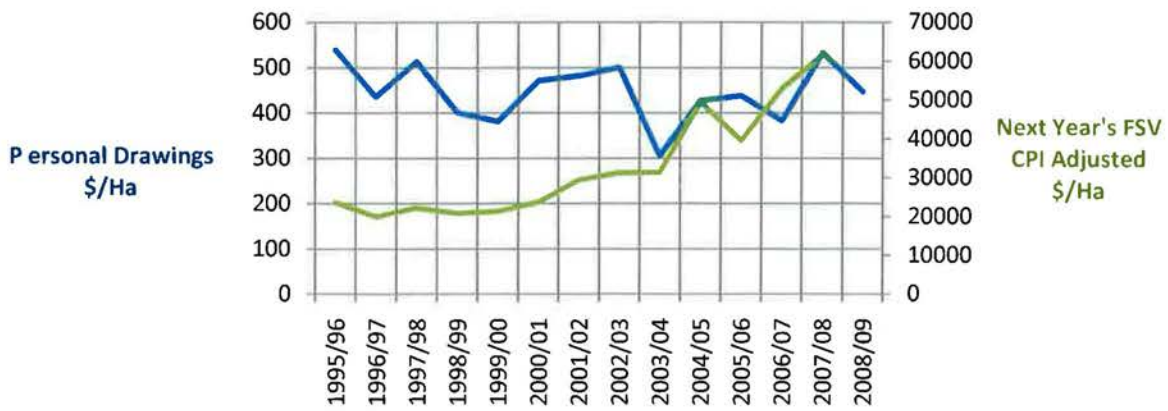
Repairs & Maintenance vs Farm Sales Value



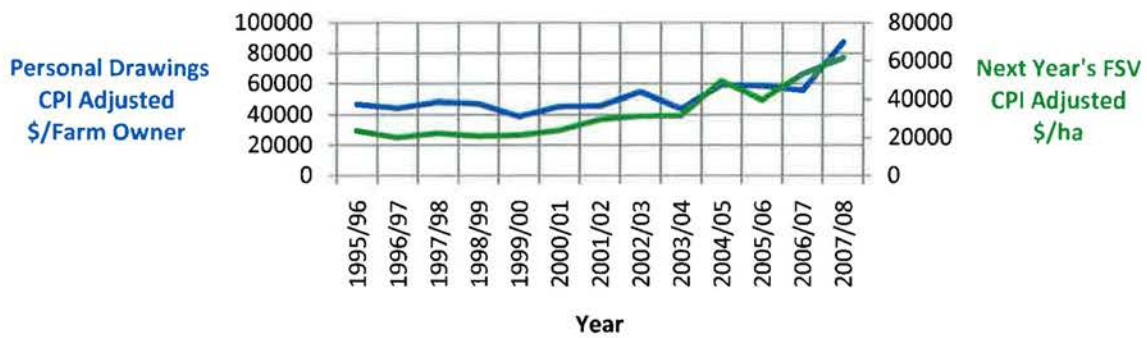
Repairs and Maintenance vs Next year's Farm Sales Value



Personal Drawings/Hectare vs Next Year's Farm Sales Value



Total Personal Drawings vs Next Year's Farm Sales Value



Comparison of Six Parameters with Farm Sales Values

Year	Farm Sales Value		Milksolids Actual \$/kgDM	Payout \$/FSV/\$PO	EFS \$/FSV/\$EFS	F W E \$/FSV/\$FWE	R & M NYFSV/R&M	P D NYFSV/TPD
	(next years value)	Pasture						
	CPI adjusted \$/Ha	Actual \$/kgDM						
1995/96	23567	1.43	1.45	4612	17	13	110	0.50
1996/97	19903	1.55	1.55	4443	17	11	84	0.45
1997/98	22168	1.97	1.96	5120	18	15	117	0.46
1998/99	20787	2.09	2.11	4703	16	13	90	0.44
1999/00	21275	1.75	1.75	4749	18	13	120	0.55
2000/01	23692	1.69	1.69	4120	10	12	102	0.52
2001/02	29326	1.94	1.94	4904	14	12	80	0.64
2002/03	31188	1.95	1.96	7876	27	17	153	0.57
2003/04	31290	1.98	1.98	6802	22	14	125	0.71
2004/05	49443	3.82	3.81	10215	29	24	182	0.83
2005/06	39559	3.18	3.19	9441	24	17	128	0.67
2006/07	52972	3.77	3.78	11877	39	26	216	0.95
2007/08	61519	6.51	6.50	8325	20	20	147	0.70
2008/09								
Average	32000	2.59	2.59	6700	21	16	127	0.61
2009 Values	34000	2.73	2.73	7000	22	17	134	0.64

The Value of a kilogram of Pasture Dry Matter at Commercial Interest Rates

Farm Sale Value \$/Ha	Interest Rate %						
	5%	6%	7%	8%	9%	10%	15%
20 000	8c	9c	11c	12c	14c	15c	23c
30 000	11c	14c	16c	18c	21c	23c	34c
40 000	15c	18c	21c	24c	28c	31c	46c
50 000	19c	23c	27c	31c	34c	38c	57c
60 000	23c	28c	32c	37c	41c	46c	69c
70 000	27c	32c	37c	43c	48c	53c	80c

5% cost Of Feed Of Milksolids Payout

Payout	\$/kgMS	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
5% Payout		17.5c	20c	22.5c	25c	27.5c	30c	32.5c	35c	37.5c

Per Hectare Farm Value With Varying Interest Rates and Dry Matter Values

<u>Value of KgDM</u> c/kg	<u>Interest</u>							
	5	6	7	8	9	10	15	
10	\$26,180	21820	18700	16360	14540	13090	8730	
15	39270	32725	28050	24540	21820	19635	13090	
20	52360	43630	37400	32725	29090	26180	17450	
25	65450	54540	46750	40910	36360	32725	21820	
30	78540	65450	56100	49090	43630	39270	26180	
35	91630	76360	65450	57270	50905	45815	30540	
40	104720	87270	74800	65450	58180	52360	34910	

Walton Data

Pasture Growth Rates Recorded Monthly and Total Growth on Walton Dairy Farm														
Year	June	July	August	September	October	November	December	January	February	March	April	May	Average	Total
1995/96	31	13	25	74	78	85	54	44	41	35	39	24	45	16370
19967/97	7	13	28	56	37	72	68	30	29	32	39	20	36	12820
1997/98	15	8	26	47	45	42	55	18	15	47	32	22	31	11272
1998/99	21	16	18	34	42	43	31	23	3	37	31	30	27	9909
1999/00	19	12	19	48	46	64	59	50	25	11	20	24	33	12138
2000/01	21	14	17	51	52	44	46	48	55	45	40	26	38	13980
2001/02	17	8	32	59	87	72	79	51	26	25	25	16	41	15142
2002/03	24	18	27	62	65	81	73	49	30	43	34	30	45	15982
2003/04	17	9	36	74	67	54	96	49	42	32	18	30	44	15797
2004/05	12	12	19	36	100	40	60	43	29	20	17	27	35	12932
2005/06	12	14	32	46	55	57	58	44	31	18	26	21	35	12454
2006/07	11	14	27	51	51	77	78	57	25	26	26	21	39	14061
2007/08	29	11	17	51	53	48	49	2	15	10	20	10	26	9446
2008/09	21	14	18	39	48	55	48	29	40	27	20	7	31	10967
Average	18	13	24	52	59	60	61	38	29	29	28	22	36	13090
Maximum	31	18	36	74	100	85	96	57	55	47	40	30	56	16370
Minimum	7	8	17	34	37	40	31	2	3	10	17	7	18	9446

Walton Monthly Pasture Growth Rates

Year	June	July	August	September	October	November	December	January	February	March	April	May	Total
1995/96	952	410	766	2368	2340	2550	1674	1276	1148	1050	1092	744	16370
1996/97	217	426	884	1569	1310	2026	1954	945	823	883	1158	625	12820
1997/98	411	252	701	1493	1356	1143	1691	609	381	1496	1006	731	11270
1998/99	548	548	518	1005	1341	1295	1074	670	91	990	975	854	9909
1999/00	671	320	580	1640	1237	1977	1538	1798	655	396	686	640	12138
2000/01	686	381	579	1440	1616	1447	1234	1539	1706	1341	1097	914	13980
2001/02	457	259	1021	1600	2772	2239	2361	1691	731	762	716	533	15142
2002/03	716	564	823	1600	2148	2346	2034	1531	914	1280	1158	868	15982
2003/04	503	297	1006	1995	2270	1631	3077	1538	1081	990	571	838	15797
2004/05	343	411	518	1203	3588	1036	2092	975	869	640	480	777	12932
2005/06	472	366	800	1630	1539	1805	1523	1554	807	594	792	572	12454
2006/07	396	381	898	1417	1569	2483	2194	1942	610	792	792	587	14061
2007/08	792	365	549	1417	1630	1645	1341	92	396	335	579	305	9446
2008/09	579	472	518	1158	1477	1584	1432	990	1143	731	670	213	10967
Average	553	389	726	1538	1871	1801	1801	1225	811	877	841	657	13090
Maximum	952	564	1021	2368	3588	2550	3077	1942	1706	1496	1158	914	16370
Minimum	217	252	518	1005	1237	1036	1074	92	91	335	480	213	9446

DairyNZ Farm Production Data

WFM Paddock Parameters													
Average Daily Growth per Ha													
Date	1994-1995	1995-1996	1996-97	1997-98	1998-99	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	Mean 15 years
June	24	22	17	30	16	17	20	25	18	25	25	23	22
July	25	22	20	30	18	22	28	26	27	31	31	27	26
Aug	38	36	25	43	33	39	44	41	44	47	44	57	41
Sept	39	45	63	45	49	45	38	58	51	57	42	48	48
Oct	84	78	93	91	83	81	88	85	81	85	86	88	85
Nov	86	93	95	83	91	74	75	92	87	79	102	79	86
Dec	16	74	72	69	63	81	38	66	80	75	70	68	64
Jan	10	63	59	11	25	63	42	91	75	67	69	75	54
Feb	63	55	24	15	28	15	26	38	19	66	27	62	37
March	48	68	54	53	25	20	70	46	58	64	14	36	46
April	22	29	48	23	16	10	37	30	36	1	34	36	27
May	19	24	22	12	13	16	9	11	20	14	13	24	16
Dec-April	32	58	51	34	31	38	43	54	54	55	43	56	46
Dec-April Total	4802	8728	7761	5164	4741	5708	6433	8184	8094	8245	6463	8395	6893
Feed demand	49	49	49	49	49	49	49	49	49	49	49	49	553
Diff Dec-April	-18	9	2	-15	-18	-12	-7	5	4	5	-7	6	46
Months of deficit	4	1	2	3	4	3	4	3	2	1	4	4	2.8
Consecutive months	2	0	0	2	4	3	3	3	0	0	4	4	1.9
June-Nov	9028	9028	9547	9821	8845	8479	8937	9974	9394	9882	10065		9345.6
Sept-Nov	6340	6552	7614	6643	6764	6067	6097	7128	6643	6704	6977	6516	6684.4
feed demand	5015	5015	5015	5015	5015	5015	5015	5015	5015	5015	5015	5015	5015.0
surplus per ha	1325	1537	2599	1628	1749	1052	1082	2113	1628	1689	1962	1501	1669.4
surplus cut	2730	4832	5468	2694	3624	2821	3038	5032	4170	5260	4672	4672	
surplus cut per ha	1415	2504	2833	1396	1878	1462	1574	2607	2161	2725	2421	2421	2088.6



Physical Data Summary

Regional Benchmark summary

Dairy Season ended: 2008

Date Printed: 7 April 2009

Number in Benchmark Group:	25
Benchmark Group Selected by:	Financial, Level 1 Physical District name : Matamata-Piako Farm business type : 1 Owner operator
Benchmark Group Ranked by:	

Production System:	3	Balance Month:	May
Calving Season:	Spring only	Milking Interval:	Twice a day
Winter Milk:	No	Organic:	No
NIWA 10 Yr Av Rainfall (mm):	1,230	Season's rainfall (mm):	48
% Milking Area Irrigated:	Not Irrigated	Predominant Soil Type	Sedimentary
Farm Dairy Type:	H16		

Stock	
Predominant dairy breed:	Crossbred
Peak Cows Milked:	311
Stocking rate (Cows/ha):	3.3
Replacement Calves Reared:	75
Non-replacement Calves Reared:	9

Land Area (ha)	
Effective Dairying area:	94.8
less Defined Young Stock area:	1.76
Milking area:	93.1
Dairy Run-off effective area:	5.4
Non-dairy effective area:	0.0

Labour	
Full time paid labour equivalents:	1.0
Full time unpaid labour equivalents:	0.6
FTE unpaid management:	0.8
Total FTEs:	2.3
Milking Cups per FTE	11

Production	Total	Per ha	Per cow	Composition
Milk Litres:	1,224,730	13,157	3,941	
Fat kg:	59,739	642	192	4.9%
Protein kg:	44,426	477	143	3.6%
Milksolids kg:	104,166	1,119	335	8.5%
Non-replacement calf milk (l):	1,852			
Non-replacement calf MS (kg):	158			



Key Performance Indicators Regional Benchmark summary

Dairy Season ended: 2008

Date Printed: 7 April 2009

Number in Benchmark Group: 25
 Benchmark Group Selected by: Financial, Level 1 Physical
 District name : Matamata-Piako
 Farm business type : 1 Owner operator
 Benchmark Group Ranked by:

FARM PHYSICAL KPI's	2007-08	2006-07	2005-06
Cows/ha	3.3	3.3	3.5
Kg Milk solids/ha	1,119	1,207	1,396
Kg Milk solids/cow	335	368	394
Cows/FTE	137	133	149
Kg MS/FTE	45,813	49,050	58,645

PROFITABILITY	2007-08	2006-07	2005-06
Dairy			
Gross Farm Revenue/ha	8,949	5,466	6,389
Operating Expenses/ha	5,399	3,925	4,297
Operating Profit (EFS)/ha	3,549	1,540	2,093
Gross Farm Revenue/kg MS	8.00	4.53	4.58
Operating Expenses/kg MS	4.83	3.25	3.08
Operating Profit (EFS)/kg MS	3.17	1.28	1.50
FWE/kg MS	3.93	2.41	2.47
Operating Profit Margin %	39.7%	28.2%	32.8%
Asset Turnover %	18.1%	9.8%	13.9%
Return on Dairy Assets %	6.9%	2.8%	4.6%
Total Business			
Interest & Rent/Total Revenue	17.6%	23.7%	17.2%
Interest & Rent/kg MS	1.43	1.09	0.88
Total Return on Assets %	13.5%	14.2%	8.5%
Return on Equity % (excluding change in capital value)	5.9%	0.9%	
Total Return on Equity %	16.0%	17.3%	

TOTAL WEALTH	2007-08	2006-07	2005-06
Growth in Equity %	18.6%	18.4%	
Debt to Assets %	33.8%	27.2%	
Opening Liabilities/kg MS	14.42	14.17	
Closing Liabilities/kg MS	19.04	14.57	

Benchmark Multi-year Financial Detail

Dairy Season ended: 2008

Date Printed: 7 April 2009

Benchmark Group Selected by: Financial, Level 1 Physical
 District name : Matamata-Piako
 Farm business type : 1 Owner operator

Benchmark Group Ranked by:

	2007-08		2006-07		2005-06	
Number in Benchmark Group	25		38		20	
Milking Area(ha)	93.1		86.1		99.4	
Peak Cows Milked	311		282		352	
Milksolids Kg	104,166		103,902		138,879	
GROSS FARM REVENUE (GFR)	\$/Kg MS	\$/ha	\$/Kg MS	\$/ha	\$/Kg MS	\$/Kg ha
Net Milk Sales	7.35	8,227	4.13	4,985	4.18	5,841
Net Dairy Livestock Sales	0.08	90	0.26	314	0.18	245
Value of Change in Dairy Livestock	0.53	595	0.09	104	0.16	228
Other Dairy Revenue	0.03	37	0.05	63	0.05	75
Dairy Gross Farm Revenue	8.00	8,949	4.53	5,466	4.58	6,389
Non-Dairy Cash Income	0.00	0	0.01	15	0.00	0
Value of Change in Non-dairy livestock	0.00	0	0.00	1	0.00	0
TOTAL GROSS FARM REVENUE	8.00	8,949	4.54	5,481	4.58	6,390
OPERATING EXPENSES						
Labour Expenses						
Wages	0.49	547	0.37	444	0.40	562
Labour Adjustment - Non-paid	0.17	187	0.13	158	0.05	68
Labour Adjustment - Management	0.38	422	0.36	438	0.28	389
Total Labour Expenses	1.03	1,155	0.86	1,040	0.73	1,020
Stock Expenses						
Animal Health	0.26	294	0.18	218	0.19	260
Breeding & Herd Improvement	0.10	113	0.11	127	0.09	132
Farm Dairy	0.05	51	0.04	52	0.03	45
Electricity (Farm Dairy, Water Supply)	0.09	95	0.08	101	0.07	97
Total Stock Expenses	0.49	553	0.41	498	0.38	533
Feed Expenses						
Supplement Expenses						
Feed Purchased	1.39	1,553	0.44	537	0.47	650
Net Crops & Supplements Made	0.01	8	0.01	14	0.07	93
Less Feed Inventory Adjustment	-0.00	-3	0.00	5	0.03	44
Calf Feed	0.02	17	0.01	12	0.01	20
Total Supplement Expenses	1.41	1,581	0.46	558	0.52	719
Grazing & Run Off Expenses						
Young & Dry Stock Grazing	0.24	268	0.16	195	0.18	247
Winter Cow Grazing	0.00	1	0.00	0	0.00	2
Run-off Lease	0.02	21	0.01	8	0.04	52
Owned Run-off Adjustment	0.03	38	0.05	65	0.04	62
Total Grazing & Run-Off expenses	0.29	328	0.22	268	0.26	363
Total Feed Expenses	1.71	1,910	0.68	826	0.77	1,082
Other Working Expenses						
Fertiliser	0.29	325	0.29	352	0.26	360
Nitrogen	0.06	67	0.04	46	0.05	69
Irrigation	0.00	0	0.00	0	0.00	0
Regrassing	0.05	52	0.01	17	0.02	32
Weed & Pest	0.01	16	0.01	16	0.02	26
Vehicles	0.15	171	0.14	167	0.10	135
Fuel	0.01	16	0.00	5	0.02	23
R & M - land & buildings	0.31	352	0.19	225	0.20	277
R & M - plant and equipment	0.07	76	0.05	62	0.04	62
Freight and General	0.06	72	0.03	42	0.03	35
Total Other Working Expenses	1.02	1,143	0.77	933	0.73	1,018
Overheads						
Administration	0.10	112	0.08	97	0.08	118
Insurance	0.03	36	0.03	36	0.02	31
ACC	0.03	38	0.03	37	0.02	25
Rates	0.09	100	0.08	97	0.07	94
Depreciation	0.31	352	0.30	361	0.27	376
Total Overheads	0.57	638	0.52	628	0.46	644
Total Dairy Operating Expenses	4.83	5,399	3.25	3,925	3.08	4,297
Non-Dairy Operating Expenses						
TOTAL OPERATING EXPENSES	4.83	5,399	3.26	3,932	3.08	4,297
OPERATING PROFIT						
DAIRY OPERATING PROFIT (EFS)	3.17	3,549	1.28	1,540	1.50	2,093
Non-Dairy Operating Profit	0.00	0	0.01	9	0.00	1
TOTAL OPERATING PROFIT	3.17	3,550	1.28	1,549	1.50	2,093