2003 Scholarship

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Topic: Patterns of Profit In the Australian Dairy Industry

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Executive Summary

Total Australian milk production has grown remarkably in recent times yet Australian dairy farmers have performed poorly in a financial sense. Average return on assets for the last decade for Australian dairy- farmers has been 2.2 %. Many farms consistently achieve operating returns of 15 % and above. Why is it so?

Three key areas are identified and discussed –

1 – The importance of efficiency gains

2 - Focusing on whole farm profitability rather than on individual benchmarks

3 - Understanding the affect of the level of capitalization.

Measuring ***efficiency gains*** is complex, not very reliable, but crucial for long term profitability. An efficiency gain is made when resources are better used either through better management or implementation of technology. Australian dairy farmers often confuse efficiency gains with production gains. Evidence suggests that the rate of efficiency gains in Australia has slowed. Can this all be attributed to dry conditions or as an industry have we lost the plot and chased production instead of profits? It seems likely there is truth in both arguments.

Australian farmers have developed a culture in which discussions of financial performance are almost taboo. To get around this, industry and farmers have focused on key operational parameters such as production per cow, labour use efficiency, milking speed and more recently water use efficiency. All desirable traits but the correlation to ***whole farm profitability*** is dubious. There is an abundance of credible information on financial performance in Australian dairy but it is not co-ordinated or widely presented in a clear easy to understand format for farmers. Would the dairy industry and farmers benefit from sustained co-ordinated focus on whole farm profitability?

The net affect of being overcapitalised is to lift the cost of milk production and risk profit of the enterprise. Very little work has been done in Australian dairy on helping farmers understand the influence of the level of ***capital intensity*** on business profitability. Research in Ireland, Holland and Wales points to it being very significant. This is an area on many farms where soft decisions are made and wants rather than needs often dictate the decision making process. We've all heard the saying "cows and land appreciate in value and machinery depreciates" but do we really understand it?

The key to lifting profitability is not to be a low input farmer or a high input farmer and not to have all the new technology or not to use only contractors. The key revolves around making not all but more of farm decisions with return on investment as the focus. Significant potential to improve profits with existing resources is the good news story for most Australian farmers. This combined with bright future prospects for the industry should see us thrive as we move forward.

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Introduction

Farmers in dairy sectors across many countries are performing poorly in a financial sense. Milk price in most European countries is on the slide by as much as 25 %. Numbers of farmers leaving the industry in all countries citing financial reasons are at record levels. Yet irrespective of milk price a small proportion of farmers in each country continue to take giant steps forward.

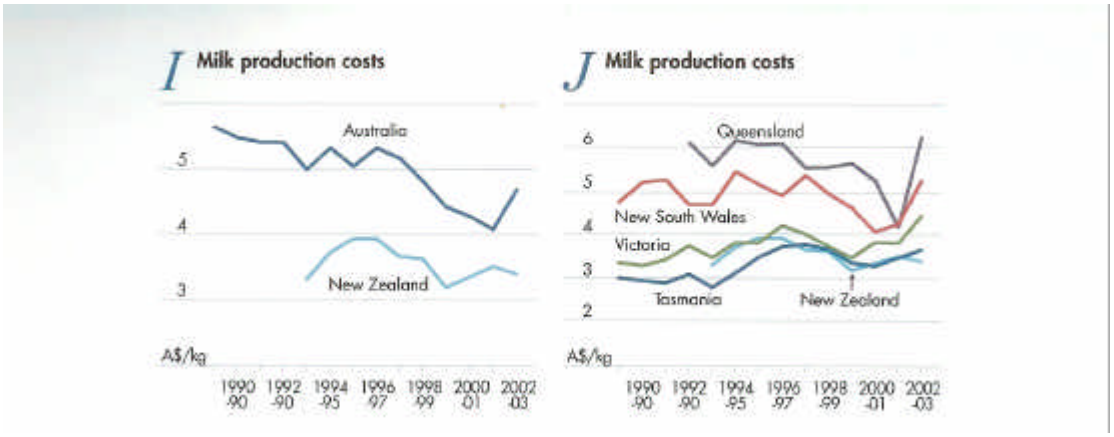
It is a common theme in England, Wales, New Zealand, Ireland and Australia that the farmers making the biggest steps forward are keeping it simple and devoting their energy into getting the basics right mostly through efficient conversion of pasture to milk. Systems with a higher cost of production are managing only where farms have a competitive advantage on milk price through liquid milk contracts.

This paper does not seek to set a blueprint for success in Australian dairy. Farms have different resources to work with and farmers have different goals. The objective is to create some discussion on areas central to success in Australian dairy that do not receive enough attention.

1- Production versus productivity

Are we as efficient as we think?

We constantly hear the catchcry that Australian dairy farmers are the most efficient in the world. Examination suggests this is not necessarily the case. We have access to cheap land and relatively cheap inputs so it would seems reasonable that we should be able to produce milk efficiently and at low cost.



(ABARE 04)

Farmers in New Zealand and Tasmania lead the way in terms of low cost milk production and also in recent times in terms of profitability. A key difference between mainland Australia and Tasmania and New Zealand has been the widespread adoption of supplementary feeding. Higher long term average costs of bought in feeds on a lower milk price means our Tasmanian and New Zealand counterparts cannot supplementary feed to the same level as we do.

Comparing relative efficiencies between regions and countries is not simple and not always accurate. The accepted measure of efficiency gains is called Total factor Productivity (TFP). TFP is a ratio of the index of the volume of total outputs versus an index of the total volume of inputs. TFP as a short term measure can be inaccurate as climatic conditions can influence the key factors like grass growth. In a drought farms may have lower than average grass growth with the same level of inputs. Conversely in a higher rainfall year we may have above average tonnes grass grown per ha with the same level of inputs. TFP can also be influenced by industry restructure. The Australian dairy industry tends to go through boom and bust cycles. At the end of a bust cycle numbers of farmers exiting the industry may accelerate. The farmers that leave are usually at the lower end of the performance scale with relation to efficiency

gains, so removal of numbers of these farmers potentially may lift the industry average. Conversely in good times poor productivity farms are able to survive quite well and so lower the industry average. To get any value out of TFP it is best examined over a long time frame.

TFP in New Zealand over the last decade has seen averages of 1.6 % (ABARE 04) per annum.). In Australia the average rate in growth in total factor productivity is about 1.2 %. In Victoria which produces the largest share of Australia's milk production the net total factor productivity gain for the last decade has been zero (Kompas et. Al 2000). Australian farmers are on average increasing output by 5.9% (ABARE 04) per year. Many farmers confuse this rise in output with a rise in efficiency, mostly the extra output is being matched by extra inputs so the net gains to profitability are negligible.

Can we argue that a major reason for the zero productivity gains in Victoria has been due to widespread adoption of supplementary feeding which was initiated by the 1982/83 drought? Over the last decade NZ farmers have improved efficiency by at least 5% more than Australian farmers who have focused on increasing output - most of this extra output has come through supplementary feeding. In New Zealand supplementary feeds costs are prohibitive and land prices are high so the best way to improve profitability is to maximise utilisation of pasture. In Zealand if you want to increase output and your current system is successful then the best way to do this is to replicate the successful system either on an adjoining farm or start a new enterprise.

Can this poor productivity gain be totally attributed to dry conditions and industry restructure? or have average Australian dairy farmers lost the plot and chased production at the expense of profits. It is likely there is an element of truth in all three scenario's - industry restructure, climatic conditions and Australian farmers somewhat taking their eye off the main game. Is there a need in Australian dairy for an education program to help farmers understand the difference between production gains and productivity gains and to train farmers to monitor efficiency levels in their own enterprises?

In Australia when farmers want to take the next step in terms of increasing output generally this is achieved through extra bought in feeds. This strategy is very successful in years of good milk price or low feed costs. Evidence in New Zealand points to 50/50 sharemilkers having a much higher total factor productivity than owner managers possibly because they are younger, more innovative and in poor position financially.

When farmers feel they have reached maximum efficiency its usually a perception rather than a reality.

Supplement use has become ingrained in Australian dairy to the point where most farmers feel it is not possible to feed cows correctly on grass only diets. In Ireland farmers face constraints in terms of milk quota. It is very difficult to expand the size of your operation. In the last twenty years average herd size has lifted from 45 to 55 cows. In this situation the focus can only be on improving efficiency, if you fill your milk quota with milk generated from supplements you are in effect shooting yourself in the foot. Good farmers in Ireland focus on grass, grass and grass and ways to cut costs. What would the profitability be of Australian farmers be if we had been forced to chase efficiency gains to the same degree as Irish farmers but still had the ability to increase output?

In both Ireland and New Zealand there are limitations on easily lifting output and so this forces the focus on efficiency gains. In Australia we don't have these limitations and so the focus isn't concentrated. As a result we tend more often to lift output though increased supplement use. The trouble with lifting production this way is it lifts the cost of milk production and as Australian farmers are all price takers and the rolling 5 year average milk price hasn't altered in 15 years - the net result is to lift the risk profile of the enterprise.

Production gains should not be excluded from the mix. The correlation between total output and profit is generally very high when milk prices are good or when major input costs are low. Production gains are important to business growth provided they are profitable over the longer term. Farmers often chase production in high priced years and fail to remove the higher cost structures that arise as milk price falls or feed costs rise. It is often said tongue in cheek that "costs rise to consume all available income".

Adoption of the technical mechanics of increasing farm and per cow output have come easily to Australian farmers. Understanding the influence this has on farm performance hasn't come as readily. A case study by the Department of Primary industries on one of the best grass farmers in Northern Victoria has found that it took this farmer over 5 years from the time of the introduction of supplementary feeding to see a lift in his pasture utilisation figures. If it took one of our best farmers over 5 years to work out how to use supplements to advantage, the question then needs to be asked how long does it take an average farmer, maybe we still haven't got a handle on it?

Could we argue this has had – is still having a major influence on business profitability. Its interesting to note that from 1999 to 2002 (pre – drought) using ABARE data New Zealand farmers had combined farm business profits for the three years of $215,000. In the same three years in Australia the combined total was $78, 726. New Zealand's herd size is on average larger. Traditionally New Zealand farmers have received a lower milk price. A New Zealand cow produces on average 30% less than an Australian cow. NZ farmers face much higher land values and generally have to borrow money to pay for share equity up front before supply, which may be as much as $3/400,000 for an average sized farm, consequently total borrowings are much higher. It would seem things are heavily weighted in favour of Australian farmers and yet in profitability terms over the three year time frame NZ farmers made more money. This is to a large degree an unfair comparison as New Zealand dairy is more dependent on export prices, which were at high levels during the three years in question. To take the comparison one step further, farmers that focus on productivity gains and good grass management usually spend more on fertiliser. In the same three year time frame NZ farmers on an average farm size of 92 ha spent $79,220 on fertiliser. Australian farmers spent on an average farm size of 238 ha - $48,900.

If we compare within Australian - Tasmania vs Victoria is interesting. Tasmanian farmers almost always receive a lower milk price and have a lower dependence on supplementary feeding than Victorian farmers. In the two years from 2000-2002 Tasmanian farmers had a combined business profit of $134,000 compared to Victorian farmers $112,000. Most likely this can be explained by larger herd sizes. If we look at fertilizer, Tasmanian farmers spent an average of $136 per ha/year compared to Victorian farmers at $87 per ha/year. Is there a trend emerging of better profitability in areas where supplements are not as cost efficient as farmers are forced to work on improving grassland management, or can it all be explained by seasonal variations?

It is very difficult trying to measure efficiency, and attempting to draw accurate conclusions from existing data is fraught with danger. The central message remains solid as we move forward farmers who are prepared to focus on getting the basics right and are prepared to have a sustained focus on efficiency gains will be very successful. Those who have a focus on efficiency gains in combination with increasing scale will kick big goals.

2 – Whole farm profitability

Are we looking at the big picture?

Irish dairy farmer Michael Murphy coined the phrased "individual measurements which do not capture whole farm profitability are inadequate, misleading and usually damaging to users".

Australian extension services rate amongst the best in the world and have tried programs that focus on holistic management – Dairy farm performance analysis, dairy business focus and currently taking stock are examples. The penetration of these programs into the industry is limited as farmers are our own worst enemy when it comes to improving our financial management skills. These programs are also outnumbered 10 to one by production orientated programs.

Typically the attendance at a business type day would be less than half what could be expected at a practical on farm day. The net effect of this over a twenty year period is that farmers have voted with their feet and set the direction for future research and extension - but have we done it to our best advantage?

The reality is probably that 60 % of the Australian dairy industry could tell you how to make cows milk well and less than 10 % could give an accurate description of their farm's return on assets over the last five years. Without knowing it we have developed a culture in which discussions of farm financial performance are almost taboo. Most farmers are uncomfortable with frank and open discussions about finances and this is limiting their ability to improve their financial position. The willingness of the Australian dairy industry to work together has traditionally been a major strength compared to other commodities. It is a weakness that discussions of farm financial performance have been neglected both by industry and individual farmers. The main message is its time to talk about profits and return on assets in an open and constructive way. We need a culture change within the industry to shift the focus to performance indicators that more accurately measure whole farm profitability like return on assets. Industry needs not to be deterred by the unwillingness of farmers to co-operate. The current measures commonly used are still critical but they need to be used in the greater context of their influence on whole farm profitability. Australia has a production orientated industry that focuses on key operational parameters like production per cow, labour use efficiency, milking speed and more recently water use efficiency which are all desirable traits but the correlation to whole farm profitability is debatable.

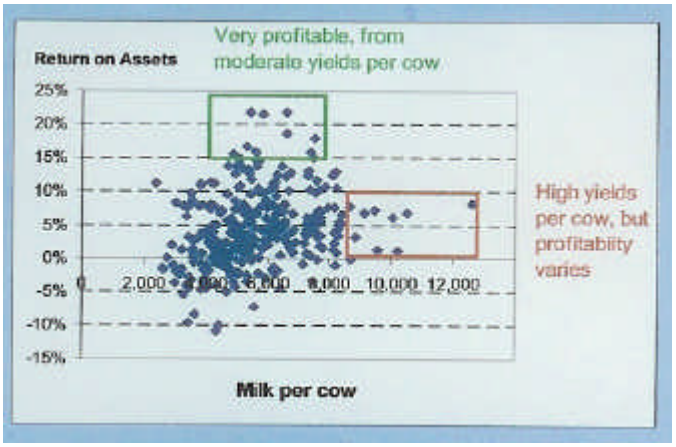
Comparing individual benchmarks with whole farm profitability

	ROA	Milk/Cow	Milk/Ha	Milk/Labour unit
Max	21.8%	12,607	49,116	954,303
Ave	4.5%	5628	10965	299,448
Min	-10.8%	2,401	1,176	54,425
Best Farms by ROA				
A	21.8%	5,462	13,667	665,627
B	21.7%	6,616	19,462	502,627
C	21.5%	5,851	19,606	355,736
D	18.6%	6,630	32,654	530,414
E	18.0%	7,532	19,780	454,934

(Neal 04)

Mark Neal (Phd student) from the university of Sydney has analysed ABARE data from 300 Australian dairy farms in 2002. The results showed farms with the highest per cow production, milk per hectare or milk per labour unit did not necessarily have the highest return on capital. Looking at the above table and taking milk per cow as an example the highest farm had milk per cow of 12,607 litres per cow and of the five most profitable farms in the survey ranked by return on assets they were all in a range from 5400 litres to 7500 litres per cow. The most profitable farms are actually fairly average in terms of per cow milk production. The same goes for labour efficiency, the most efficient farm was achieving close to the magic million litres per labour unit at 954,000 litre/labour unit but the highest of the five most profitable farms was 665,000 litres and a farm with a labour use efficiency at 355,736 litres/labour was still yielding 21.5% return on assets.

Comparing milk yield per cow and return on assets (Neal 04)



Looking at the big picture also implies looking at farm profits over a longer period.

Industry needs to change farm focus from managing cash flow to maximizing return on capital and net worth growth. Cash flows are very valuable management tools but without the tie to return on assets business growth will be limited. Farmers tend to use cash flow to make decisions. If we've got the cash we'll buy the tractor or renovate the dairy. Farms evolve, that is they are reactionary to current climates rather than have strategy towards wealth creation.

It is in high profitability years that the most damage is done to wealth creation. Farmers look at a cash flow in surplus and think of opportunities to spend it. In high milk price years maintaining discipline is integral. Surplus cash in these years is often directed towards wants rather than needs like plant and equipment which are on average low yielding investments. Free cash needs to be invested in places which will improve profits and growth net worth.

Would some long term co-ordinated industry focus on farm profitability be useful to farmers? Could we create a national model in the same vein as Countdown downunder? Success in dairying as in all industries relies heavily on a good decision making process. The decisions farmers make will only be as good as the quality of the information they can source. There is an abundance of credible information on financial performance in Australian dairy but it is not co-ordinated or widely presented in a clear easy to understand format for farmers particularly in relation to the performance of the top 10 or 20 %.

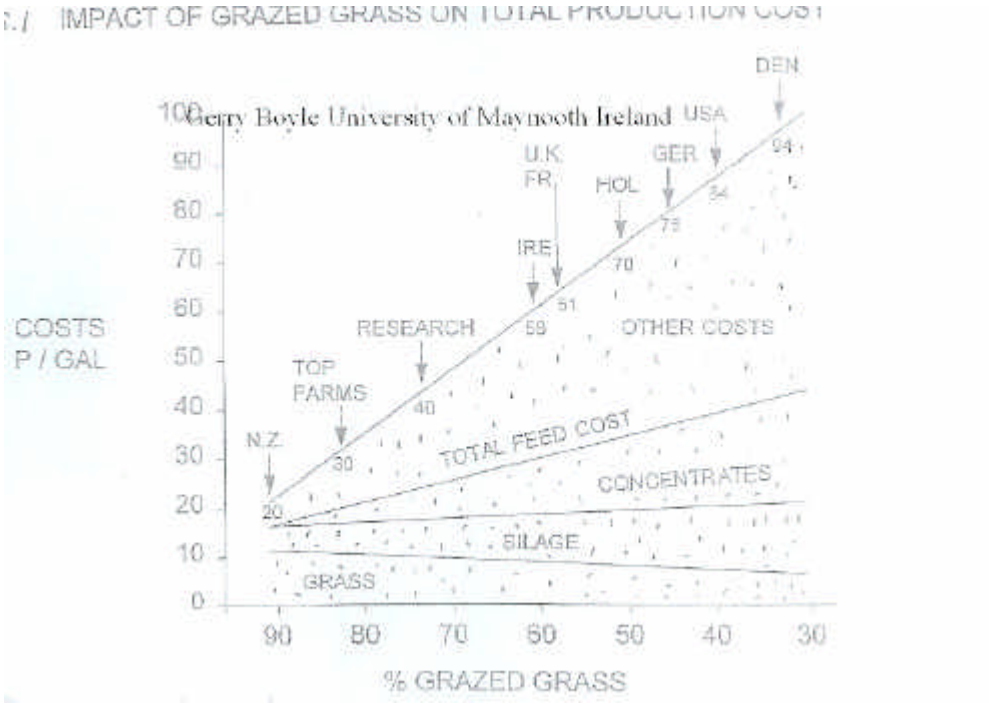
If we can prove that high profitability is definitely achievable then farmers will begin to ask the right questions. Would questioning bring change from blame on milk price and others and the " I can't attitude" to how are they doing that and how could I do it better?

It seems the amount of time spent planning is critical for farm success. Some farmers I met deliberately had additional labour to allow them to focus on strategy. They were prepared to lose money in the short term on labour so they could spend time focusing on the big picture

3 - Capital Intensity

Where do you spend your capital and is it important to wealth creation?

Capital intensity is a critical component of success in Australian dairy and the affect it has on wealth creation is often overlooked. Gerry Boyle, an economist of the university of Maynooth Ireland captures the influence of intensification on the cost of milk production.



The higher the proportion of the total diet that is consumed as grass the lower the production cost. As we move away from grass we see on the graph that not only does the total feed cost increase the area shaded as <u>other costs</u> rises significantly. Other costs refer to operating and capital costs like labour, silage pits, electricity, repairs and maintenance. These costs are often not budgeted for accurately in the planning phase. The further you intensify, the higher the cost of production. This trend is dubbed the "***fixed cost creep***".

Research in Holland and in Wales comparing systems with a low capital set up cost with more automated systems both found that the lower capital intensity proved to be more profitable in European conditions and the gap between profitability grew wider the further the milk price fell.

In Australia we have on average a low milk price by international standards and so improvements to whole farm profitability out of capital expense on plant and machinery need to be carefully evaluated. The system with the highest probability of success in Australian conditions will be one with a low level of capital intensity.

Two other downsides of capital intensification are that firstly, it reduces the amount of capital left for investment in high yielding opportunities should they arise and thereby reduces business flexibility. Secondly the further you intensify, the higher the skill base required to operate it.

Land and cows appreciate in value - plant and machinery depreciate, we've all heard the saying. But do we appreciate how much influence it's having on our business?. We all need a certain amount of capital invested to operate our farm, so how do we calculate whether we should expand by buying more land or intensify by investing in plant and machinery?

One possibility is to determine the user cost of assets. The long term user cost is the cost of the asset multiplied by (weighted cost of capital – minus appreciation rate or plus depreciation rate). If the weighted cost of capital was 10 % then for land the user cost would be 10 % - 4 % (average capital appreciation value of land) = 6 % of the current land value. For machinery and plant if it depreciates at on average 15 % then the calculation would be 10 % + 15 % = 25 % of machinery value. Capital investments in plant and machinery are best with short payback periods.

Often these decisions are not on commercial terms. Most Australian farms are still family owned and managed and the line between wants and needs often becomes blurred.

To be successful in the Australian dairy industry farmers need a competitive advantage. One of the most easily attainable competitive advantages is maintaining low capital intensity. Colin Armer from New Zealand sums it up by saying "If it works- use it, if it doesn't- hire it, if you can't hire it- buy the cheapest option – less four wheeled vehicles more four legged animals".

Best financial outcomes will come from where low capital intensity (strategic management) merges with top operational management.

Conclusion

The end result of creating a farm that has a focus on efficiency gains that concentrates on whole farm profitability and has low capital intensity is that it creates a highly profitable business with a ***"high margin of safety"***. Under the right conditions and management, most types of dairy systems can work in Australia. Getting a system to work well and be profitable over a 20 – 30 year time frame, that's a different story. Climatic and political situations fluctuate in Australian agriculture. Major droughts in 2002 and 1982, EU reform in the early 70's are examples. These fluctuations cannot individually be predicted, however the likelihood of reoccurrences at infrequent instances can be predicted. Approximately once a decade the Australian dairy industry goes through a major shake–up. In an unpredictable environment such as this the concept and management of a "margin of safety" becomes critical to long term success.

So if we ask the question:- are there any "Patterns of Profit" in Australian dairy industry? The answer is yes. I am reminded of an Irish farmer who in his youth was given some good advice by the then boss of successful Irish dairy company Kerry Foods, Denis Brosnan:

STOP - what you are doing

THINK - what is it you are trying to achieve

PLAN - how you are going to get there

Farmers with the most profitable businesses spend more time on strategic management. Where do you spend your time? As a worker, a manager or an investor (Michael Murphy 2001).

Working Stage	***Earning Potential***	***Value per hour***
Labourer	Low	$15
Manager	Medium	$100/200
Strategic Investor	High	$ 500/1000

It's all seems simplistic but the best ideas usually are. Successful farmers all have goals and the direction and drive to get there. Average farms evolve, that is they are reactionary to events and circumstances.

Over thirteen different countries and eighteen weeks of travel through this Nuffield scholarship I find I still have more questions than answers, but I am sure of one thing:- the best opportunities for wealth creation in dairy farming are in Australia.

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