

HIGH INPUT DAIRY FARMING IN NEW ZEALAND: A LICENCE TO PRINT MONEY?

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I am in a dilemma: I wish to start this paper, as I normally do, with a quote, but I cannot decide which one. Perhaps you can help...

“You can’t starve a profit out of a cow” (*Grand-dad Mann*)

“The great tragedy of human existence is not that we set our sights high and fail to achieve, but that we set them low and do” (*Michelangelo*)

“You can *tell* a Kiwi...but not very much” (*Anon*)

Lets proceed, and by the end of the paper, we’ll see if we can narrow it down.

Introduction

The New Zealand dairy industry cannot afford to “keep its head in the sand” and ignore the real costs of making milk. A drop in milk price, even to the extent of that just experienced, should not have caused the wholesale panic and the absurd decisions which followed. If not understood before, surely the need for an improved dairy production model is clear now. The economic platform which underpins today’s NZ dairyfarming is shaky, and with the greatly increased price volatility – on inputs and outputs - witnessed recently a sign of the future, things must change if the industry is to have a prosperous future. No longer are rising land prices guaranteed to prop up failing dairy businesses.

“High input” dairying is the reality of dairyfarming today, even if the industry is in denial. The problem is the high input system utilized in NZ is an incomplete model (*its high everything other than commonsense and concentrate!*), and the prevailing paradigm under which it operates has been bastardised to satisfy the egos of dairy-gods past and it seems, no-one has the courage to challenge that *status quo*. This presentation will provide a template for those wishing to secure their dairy future by taking charge of their production system. Several case studies will be presented.

A new era of volatility

Dairyfarming – at least in recent times – is a challenging, and often unrewarding profession. Price fluctuations have an enormous impact on not only the bottom line of the business, but play havoc with the emotional state of the business owner(s) – moreso in New Zealand than in any other dairy industry due to the lack of third party interventions. The other thing that uniquely defines the Kiwi dairy industry, is farmers indulging unimaginative technocrats and persisting with naïve and outdated

methodologies. [*For example - grazing management, for another - tiny cows, yet another – the use (or not!) of K fertilisers*]

“Blind Feddy” can see the need for change in this industry. I watched, bemused, as the industry regressed faster than the spread of an STD through an U17’s football club as the milk price dropped. Consider also, the conniptions that result every time a dry spell is experienced. These are the sorts of challenges that should be stimulating ingenuity, innovation, change, and with any bit of commonsense and/or luck, abandonment of Neanderthal mindsets, principles and practices. If ever one required further notice of the need for change, consider the stress you feel when milk price goes down, or the feed dries off. These things should not, and do not, worry a business with “SMARTS” (Savvy, Maleable, Astute, Robust Technologically competent, Sustainable) business.

Surely anything that can be done to reduce exposure to the whims of the market, the banks and the industry dinosaurs, has to be a good thing. Every other industry has to review its *business thinking system* every 3 years or so – what on earth makes us think this one immune to that same requirement?

Drucker (*god of management*) argues that you have to be able to spell out the underlying assumptions about your business - what he called ‘the theory of the business’ - including the social context, markets, customers (*who are you selling to and what are their requirements?*) and technology (*in the Kiwi dairy industry? – surely we jest!*), together with assumptions about mission (*Why am I in this business? What is success?*) and core competencies (*What skills are mandatory? What do I need to excel at to be successful today?*). Then you have to test their validity, fit with reality and congruence with each other. A company with a well-articulated and robust ‘theory of the business’ has a sound strategy, and likely is a solid business.

And, guess what, if anyone cared to look, the answers to much of this introspection are literally under your feet.

Farming with “SMARTS”

There is a relatively simple dairyfarming method that meets all of the criteria for a business with “SMARTS” that virtually guarantees protection from the elements. Let me explain....

Dairyfarms are typically resource rich, productivity poor (let’s not even mention return on capital) and essentially reliant on a single income stream – grass. Herein lies the problem – if the grass doesn’t grow, the business is stuffed! If the season is cold, hot, wet, dry, the business suffers. When input prices rise, everyone hurts. If the milk price drops, the business is vulnerable – or worse! The most important change that has to be made is to develop a business model that is way less dependent on grass, and radically less sensitive to milk price. In short productivity must increase with tightly controlled variable costs, to dilute fixed costs. You will be surprised at how easy this is to achieve.

I am certainly no genius, but when I first entered into the agricultural advisory game, I was equally staggered by the bloody-mindedness of the senior (Aussie) advisory group, and the active denial of the consistent message returned by the numerous industry surveys. These guys simply refused to acknowledge what was obvious to all and sundry – that there were just five (5) **critical** success factors (CSFs. *And yes, there were plenty of other factors that had a hand in success, but only 5 qualified as critical*). By strategically employing and actively managing these 5 CSFs, dairyfarmers were able to quickly double their milk revenues, and increase profitability four-fold and more.

Tables 1 and 2 showcase the summarized data from BEST-fed clients in both Australia and Chile and between them represent well over 150 farms in which we could collect a full set of information according to a rigid protocol. My presentation will include some Kiwi data as well, albeit of only a few courageous enterprises.

As you can see, the wash-up of two experiences (**with standardized milk and grain prices**) are extraordinarily consistent (and I cannot tell you how much checking went on to ensure this was real) despite a very diverse bunch of climates, topographies, educations, social demographics and so on.

Critical to success in both client sets, was the desire to abandon old practices, no matter how comfortable or well worn they were, and employ commonsense. The key changes in focus that were made to achieve these dramatic productivity and profitability improvements include the following:

- manage pasture for maximum growth
- manage pasture for maximum intake by the cow
- manage the cow for maximum intake (including young stock)
- manage the diet for higher production

Table 1. Margin over feed costs are improved with increasing productivity and the strategic employment of grain-based supplements: BEST-fed's Australian results over the first 3 years

	Base year	Year 1	Year 2	Year 3
Milk Price c/l	35	35	35	35
Production L	5194	6062	6670	7193
Milk income \$	\$ 1,818	\$ 2,122	\$ 2,335	\$ 2,518
RATION				
Pasture	2.8	2.8	2.9	3.0
Hay & Silage	1.1	1.1	1.1	1.1
Concentrate	1	1.5	1.7	2
TOTAL DMI	4.9	5.4	5.7	6.1
PASTURE USE (reverse budget)				
Stocking Rate	2.3	2.5	2.6	2.7
Pasture UDM	6.44	7	7.54	8.1
Pasture Cost	\$ 0.34	\$ 0.31	\$ 0.29	\$ 0.28
RATION COSTS				
Pasture	\$ 952	\$ 875	\$ 842	\$ 840
Hay & Silage	\$ 308	\$ 308	\$ 308	\$ 308
Concentrate	\$ 280	\$ 510	\$ 646	\$ 840
Total Cost \$	\$ 1,540	\$ 1,693	\$ 1,796	\$ 1,988
Margin over feed cost				
per cow	\$ 278	\$ 429	\$ 539	\$ 530
per litre	\$ 0.05	\$ 0.07	\$ 0.08	\$ 0.07
per Hectare	\$ 639	\$ 1,072	\$ 1,401	\$ 1,431

Table 2. Margin over feed costs are improved with increasing productivity and the strategic employment of grain-based supplements: BEST-fed's Chilean results over the first 3 years

	Base year	Year 1	Year 2	Year 3
Milk Price c/l	35	35	35	35
Production L	5037	5837	6381	6988
Milk income \$	\$ 1,763	\$ 2,043	\$ 2,233	\$ 2,446
RATION				
Pasture	2.1	2.4	2.6	2.7
Hay & Silage	1.6	1.4	1.4	1.3
Concentrate	0.9	1.3	1.6	1.9
TOTAL DMI	4.6	5.1	5.6	5.9
PASTURE USE	(reverse budget)			
Stocking Rate	1.6	1.7	1.9	2.3
Pasture UDM	3.36	4.08	4.94	6.21
Pasture Cost	\$ 0.32	\$ 0.29	\$ 0.26	\$ 0.24
RATION COSTS				
Pasture	\$ 672	\$ 696	\$ 676	\$ 648
Hay & Silage	\$ 528	\$ 462	\$ 462	\$ 429
Concentrate	\$ 270	\$ 442	\$ 608	\$ 798
Total Cost \$	\$ 1,470	\$ 1,600	\$ 1,746	\$ 1,875
Margin over feed cost				
per cow	\$ 293	\$ 443	\$ 487	\$ 571
per litre	\$ 0.06	\$ 0.08	\$ 0.08	\$ 0.08
per Hectare	\$ 469	\$ 753	\$ 926	\$ 1,313

I will save the details for the presentation, suffice to say, that at any point in the process, if an action failed the commonsense/logic test, we encouraged challenge or abandonment; if results didn't occur within 2 days, drop it; if production falls, stop (you get the idea).

Incredibly, the biggest threat to success in this farming model is not the technical challenge of it, but rather the casual conversations had within *cooee* of commencement (eg. with the tanker driver, the AI technician, or worse – the vet or at the discussion group). Its not that the conversation is bad in itself, but the undermining of confidence just when your getting your head around the job at hand is corrosive. (*Never underestimate the power of needing the approval of your peers – Aussies call it 'tall poppy syndrome'*)

Other threats commonly observed are:

- quitting prematurely (within a season)
- greed (doing more than you can handle too early)
- unrealistic expectations
- underplanning, over-reacting
- new tractors, utes and balers (= +kitchen, +car, + swimming pool, respectively).

The real opportunity to improve is in better utilizing the resources already on hand, namely, the grass and the cows. Grass is the platform on which our industry is based, and it is hard to see a change anytime soon.

Pasture utilization is atrocious in this country – the yields are low, and the use of the feedbase is woeful (and yes, I am fully aware of the claims made and absolutely certain that an opportunity will present to discuss this).

Aussie, Chile, Uruguay, NZ – it doesn't matter: somewhere between 63 and 74% of the variation in dairyfarm profitability is determined by pasture management. I think this would be a much greater influencer if the business was run correctly! The important distinction here is that this relationship is based on *tonnes of pasture utilized per hectare* not percentages (100% of bugger-all is almost nuth'n). We grew (in pots and plots) about 30 tonnes of ryegrass per hectare equivalent back in the late 80's so we know (or hope we do) that modern ryegrass varieties can yield far better than we generally see in practice. The four key factors we can control that massively influence grass growth and harvest potential are:

1. the nutrients supplied to the plant for growth (adequate, timely, time)
2. when we put cows into the paddock to graze (canopy closure – *no ifs, buts, maybe's*)
3. when the cows leave the paddock (5 cm residual on the grazing table – *sacred!!!*)
4. the balance of nutrients presented to the cow's gut (Energy, Protein, Fibre, minerals)

The aim of pasture management is to maximize the conversion of sunlight and nutrients into pasture. To achieve this, there are a couple of essential practices, namely,

- keep the sward open so that the maximum part of it is exposed to the sun so it can photosynthesise. Once canopy closure is achieved, an increasing part of the sward is consuming energy but not supplying any (maintenance increases but energy production plateaus) and so growth rate must drop. Additionally, once past canopy closure, the accumulated forage is of very poor quality and sward quality declines.
- retain the stored energy supply of which 90-95% is in the 5 cm residual stem. Support this with some photosynthetically active material (leaf). In this way, post grazing GR's are kick-started maintaining a higher average growth rate between grazings.

And then we need the cows to eat plenty of the lush green stuff. An enormous number of factors determine intake, but in practice, the most useful concept is this:

$$\text{DMI (kg)} = 120/\text{NDF\%} \times \text{LWT}, \text{ or if you prefer } \text{NDFI (kg)} = 1.2 \times \text{LWT}/100$$

NDF doesn't in any way explain 100% of the variation in intake, but it does explain a very big chunk of the variation in intake of the pasture you offer them. Every day past canopy closure represents about 1% increase in pasture NDF, and each 1% NDF represents a drop of about 1 litre or 90 odd g milk solids. I challenge you to try it!

And the return on the effort? If pasture NDF drops by even 5% (45 to 40%), each cow will be able to consume almost 2 kg DM more giving better than 4 litres. This is free milk- it can't get any better than that!

The other critical observation I have made over the years is this: *cows never make milk from the grass they leave behind!* So, I am constantly amazed by people having kittens over a few clumps in

the paddock upon exit of the herd. The faster you get over the need to have manicured paddocks, the faster your paycheck will grow – guaranteed!!!

Cows are wired to eat the most beneficial grass (usually the best, but not always) first, and maintain this goal until full. But they have limits. An adequately fed cow will not eat closer than about 15 inches to her shit, and nor should she. For goodness sake, put yourself in her position for a moment – would you be licking the edges of a steaming pat and be happy?

Years ago, I authored this little gem which captures the essence of grazing management:

“Put your cows in the paddock on the day they can eat the most of it!”

I still stand by it! Pasture is (despite what some would have you believe) hugely variable and nutritionally problematic – it requires managing to make it a great feed. It is abundant in fibre, rich in nitrogen, and very, very short in carbs relative to the cow’s requirements. Excessive N intake both drops intake and increases the osmolality of the rumen rushing feed through before its properly digested. Worse, a good chunk of energy is required to dispose of the N that makes it into the bloodstream, further compromising production. A little observation of the cows quickly reveals how this is affecting her and precisely what the solution is, and a key part of the solution is always energy in the form of starch. If you are *fair dinkum* about a future in dairying, you must be prepared to feed a little grain when the cow needs it.

Stocking rate is the other important variable. Stocking rate is set to graze effectively the pasture and thus, is adjusted based on factors such as cow size, change in growth rates, choice and amount of supplements used. Numerically there is no “right” or “better” stocking rate – however, there is a wrong stocking rate (grass is either over or under utilized) and a right one (grass is managed well and the cows are pumping!).

While I will happily explain how you have been led up the path producing (I cannot call it breeding no matter how hard I try) little black cows another time, pretty much any herd is capable of doubling production over a relatively short period of time.

One of the big costs on a dairyfarm is the maintenance of the herd. Cows need a feed regardless of whether they are milking or not, and the same whether she is producing 5 or 50 litres/day. The first 4 or 5 or 6 kg consumed – depending on the size of the cow (maintenance = $!0\%LWT + 10$) goes to maintenance. Only feed consumed beyond maintenance can be used to fill the vat. I don’t wish to sound patronizing here, but... Have you actually stopped and thought about this?

While you are (thinking, that is..), consider my other philosophical contribution to the dairy industry:

“The cheapest milk is usually left in the cow”

Every kilogram of feed consumed after maintenance will result in about two litres (say 180g MS) more production. The cow has no discretion over this. So if I want a profitable business, I need to dilute maintenance as much as possible by diluting herd maintenance into as many production units

as possible (increased milk and milk solids). Every day is a challenge to maximize the dilution of overheads. Maintenance is an overhead – it should be treated as one does other fixed costs!

Let me say this slightly differently: if you are breaking even or better in your business now, the maximum cost of getting more production out the gate is the cost of feed. This cost might be high (a mixer wagon full of crap dressed up as feed), moderate (grain), low (a kg or 2 of grain to balance the rumen and use the protein already eaten) or negative (the correct rotation length): the choice is yours.

TO FINISH: A license to print money? ABSOLUTELY!

There is a massive opportunity to improve productivity and profitability on any pasture-based dairyfarm. The basis of improvement is in respecting pasture's needs for sunlight and maintaining a bit of conserved energy. The rest is in allowing the cow to eat high quality pasture to her last mouthful, and providing enough energy-rich supplement to maximize intake and thus production.

Think of it like this:

- Good cows eating high quality pasture to appetite, supported by supplements to protect both the pasture residual and production per cow.

Oh, and as for the most appropriate quote? You choose, I've got another!

“Be who you are and say what you feel because those who mind don't matter, and those who matter don't mind!” (Dr Seuss)