

RISK IN THE DAIRY BUSINESS

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Introduction

There has been plenty of detailed research and literature written on the impacts of risks on our business. We can exploit risk to grow our wealth and profit, however, if unmanaged we will not achieve our potential, or worst case it can bring our business down around our ears.

Research by Prof. Nicola Shadbolt Nicola & Dr Femi Olubode-Awosola, *indicates a growing awareness and adoption of a number of risk management strategies; a sensible response to a volatile business environment. The highest ranked strategies show a strong preponderance of business management strategies which are more **focused on ensuring the business knows where it is going and why, how it is going to get there and ensuring it has the flexibility to alter plans should the environment alter on the way.** Also included are quite precise activities such as maintaining feed reserves, having insurance and planning capital spending. Of note is the number one position of managing debt.* For this workshop, we are going to focus on these principals of risk management.

Risk is often defined as imperfect knowledge of the actual outcome. The term risk can refer to: the *probability* of an adverse outcome, the *potential size* of an adverse outcome, or the *expected value* of a potential loss which is a combination of the first two (Miller *et al.* 2004). In the future, farmers will be required to farm increasingly complex systems where they must take into account not only production, financial, business and marketing risk, but they will also need to consider the interaction of their farm system with the wider environment and in particular they must incorporate issues to do with sustainability into their management practices (Kemp *et al.* 2004).

For this workshop I have made many references to “Great By Choice”, Jim Collins. This book studies “10 Xers”. This is a study of these companies that have achieved 10 X growth compared to their competitors. For this workshop I have drawn from the examples and conclusions from this book on looked and studied how we can apply it to our dairy farming business.

1. The Big Picture of Risk

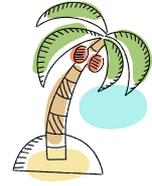
To assess, management and exploit risk, you need to know where you are going with your business and goals as highlighted. Risk can then be assessed on whether it is going to disrupt you on your pathway. Sir Peter Blakes Mantra, “Does it make the boat go faster”. Will the strategy that you are assessing get you to your goals faster, or is it a distraction?

You can then assess these risks on how they are going to impact on the likely hood of achieving your desired outcomes. To assess risk you first need to have an appreciation of where you are now, goals of where you want to be. We can then apply the principals of risk analysis on your business.

To successfully achieve your goals you need to develop a plan you need to have a sound understanding of where you are now, and where you want to be. You can then develop a strategic plan of this pathway and assess the risks. You need to develop SMART (Specific, Measureable, Attainable, Realistic, Timely) goals, map out your critical path of how to get there.



Now



Future

1.1. Planning the Pathway

Where do you want to be, what are your Goals and Vision:

- Ultimate Goals should be based around Life style + Wealth + Health.
- Farming satisfaction, stewardship and farming succession are included.
- These need to be prioritised with your personal and family goals. Your goals may also include personal achievements in your farming or professional career.
- Sporting and other personal goals provide a healthy variety, often referred to as a “Bucket List”.

What sort of lifestyle do you desire. Typically life style includes:

- **Family.** Spending time with family and friends, make sure you build on these relationships on the way to meeting your targets.
- **Health.** Maintain a healthy lifestyle. Don't wear yourself out on the way.
- **Community.** Some of the biggest contributors to our communities are successful people with time to give.
- **Travel.** Travel takes time and money.
- **Consumption.** Consuming the fun things in life.

When you have defined these goals, what do you need to achieve them. What is your pathway to success? Map one out. It will change as you realise opportunities and conditions change. The key thing about having clear concise goals, is that when you analysis opportunities, do they get you to your ultimate goal faster, what are the risks associated with these opportunities.

1.2. Where are you now ?

Be clear and honest with yourself. What is your equity (the value of your total assets less your debt). How can you use these assets to create wealth. Ideally your assets are creating an income. A house is not a great asset. It creates a saving in rent, but does not generate an income.

What is your level of income and or profitability. Do you have surpluses that you can reinvest or payoff debt. **Do a budget!** Start with your income and spending over the last 12 months. Then revise for the 12 month period looking forward. How can you improve your surplus's.

1.3. Drawing the Path to Success

What are you willing to do and sacrifice to get there

- **Workload.** Can you handle the workload without burning out.
- **Lifestyle.** Can you maintain a healthy and fun lifestyle. Maintain your relationships with family, friends and your community.

- **Ethics.** Are you comfortable with the business activities. Some may be a no go area for your personal, farming or professional ethics.
- **Risks.** Are the risks compatible with your risk profile.

1.4. Control & Implementation

Identification of the limits of control is critical to effective risk management. Key elements within the plan structure can be used to manage uncertainty. These include the targets (KPI's) or standards they use to identify when the actual outcome deviates from the plans and the contingency plans and associated decision rules which they use to mitigate the effects of a deviation from the plan.

Once a deviation from the plan is detected, it can be corrected in one of four ways: by modifying the plan, by adjusting the implementation, by developing a new plan, or by changing the farmer's goals (Boehlje and Eidman 1984; Parker 1999). Alternatively, the farmer may change their standards.

2. Developing The Sweet Spot

For most of us, our dairy farm is going to be the vehicle to help us achieve our goals. For our dairy farm we need to evaluate our business performance on a regular basis. You need to have someone else critically evaluate it and come in from another angle.

2.1. What is the Sweet Spot?

- The lowest cost of production (\$ / kgMS)
- Repeatable.
- Sustainable on the environment and herd and staff.
- The least stressful spot at the end of the season.
- Where the risks are understood and minimised.
- The most profitable

An important aspect of control is the ability to differentiate between a short-term aberration due to environmental instability and a longer-term change (Wright 1985). Failure to differentiate between these two could result in costly and inefficient resource use, or sub-optimal system performance due to failure to take corrective action when required. Feedback is used to ensure a system achieves its objectives in an uncertain environment (Kennedy 1974).

3. Risk Typology

To understand the risk faced by New Zealand dairy farmers, one must be able to measure it. Recent research has shown that return on equity is an important measure of risk on dairy farms and debt servicing capacity is the most important variable when determining risk. Capital and operational efficiency are highly relevant to the achievement of long-term viability of dairy farms. Importantly, debt to asset ratio is negatively correlated with risk – high levels of debt combined with high levels of performance result in less risk for a farm. Research shows that if debt is not used efficiently, high levels of debt can rapidly lead to bankruptcy. The study demonstrates that farmers must have high skill levels in both production and financial management to be successful. Gray, Dooley, Shadbolt, 2014.

3.1. Types of risk

The types of risk experienced by farm businesses were classified by Barry *et al.* (1995). These are further described by Sonka and Patrick (1984), Kay and Edwards (1994), Martin (1994, 1996), Barry *et al.* (1995), Hardaker *et al.* (1997, 2004), Miller *et al.* (2004), and Shadbolt and Martin (2005). These classifications are described below.

1. Production and yield risks, also referred to as technical risk. Factors affecting production includes climatic factors, biological responses, and diseases and pests.
2. Market and price risks. These are affected by New Zealand and world markets, consumer demand, trade barriers, exchange rates and input costs.
3. Casualty and disaster risk.
4. Social and legal risks caused by actions of other people, businesses and institutions. This includes institutional risk, regulatory risk, compliance risk, and contractual or relationship risk. Risk can result from policies imposed by government, local bodies and producer boards, processors or markets. There can be uncertainty as to future land owner decisions (if leased or sharemilking), lender decisions, and reliability of contracts, strategic alliances or advisory services.
5. Human risks associated with the labour and management. Risk can be associated with illness or death of staff or management, availability and ability of farm labour, and changes in the family situation.
6. Technological risk. On-farm benefits may be less than “proven” benefits, or adoption may occur too soon (early obsolescence) or too late (miss potential benefits).
7. Financial risks are associated with debt servicing. These include changes in interest rates, finance availability, ability to meet debt repayments, changes in value of collateral (e.g. land prices), and availability of funds.

Miller *et al.* (2004) described risks as operational (or tactical), and strategic. Operational risk is often associated with production, costs or debt use. Operational risk is easier to manage than strategic risk i.e. it is easier to measure or quantify, and insurance or hedging can be used to manage it.

Strategic risk is the sensitivity of a company’s strategic direction and value to the business climate (Miller *et al.* 2004). These risks include international markets or currencies, disease resistance, loss of access to resources, contract risk, regulatory risk and technological uncertainty. These risks are multidimensional and more difficult to manage, although they can be managed with flexibility, adaptability and diversification.

3.2. Risks

The Categories of Risks we can use to assess risks on our business are defined by Jim Collins as:

Death Line Risk. Are those that could kill or severely damage the enterprise.

Asymmetric Risks. Are those for which the downside is much greater than the potential upside.

Uncontrollable Risks. Are those that expose the enterprise to forces and events that it has little ability to manage or control. Often referred to “Black Swan Events”.

3.3. Management Risk

Management Capability & Labour

- The on farm management capacity.
- Ability to monitor and control.
- Disciplines of management to stay focussed every day.
- Keeping it simple – minimal number of herds to monitor.
- The X Factor – the intuition to know if the cows are hungry or happy.

Larger farms and the employment of a greater number of staff per farm. Farm owners have shifted their focus from being production managers to that of managing human resources (Thorrold and Doyle 2007). As a consequence, human risk has increased in the area of labour management and the employment of contractors

3.4. Production Risk

Cows Potential

- What is the current Liveweight of the cows?
- What realistic lactation length can you achieve, eg length of season, impact of summer dry?
- Genetic potential (BW) of your herd.
- What per cow production can you achieve with no constraints?

Given farmers are moving into increasingly turbulent environments, systems resilience becomes increasingly important and this has been a recent focus of the systems literature in relation to risk. Resilient farming systems are those which can cope with change and maintain productive capacity in the face of ongoing variability in factors such as commodity prices, climate, regulation and input variability.

3.5. Environment

Farm & Environment

- What is the current pasture growth and harvested for your farm? How does it vary over time, are you harvesting it all, or making silage and struggling at times?
- Irrigation,
- Current system capacity and performance
- Current Reliability.
- Potential for upgrades.
- Down side for reliability.
- How much Nitrogen are you using?
- How much Nitrogen are you leaching? Is it acceptable for your community?
- Is your stocking rate sustainable, soil structure, pasture damage?
- Can you mitigate the environmental issues and damage with improved management practices and/or infrastructure.

Environmental risk is associated with practices and events that have a deleterious impact on the environment. In dairying, the main environmental risks are associated with the nutrient runoff (phosphorus and nitrogen) into waterways, nutrient leaching (nitrogen) into groundwater and the emission of greenhouse gases (methane and nitrous oxide) (Chapman *et al.* 2007)

Regulatory risks associated with the environment are being driven by consumers (Sanderson and Fulton 2003) who are concerned about environmental sustainability. Thorrold and Doyle (2007) believe that one of the largest risks facing New Zealand dairy farmers is access to environmental resources (e.g. nutrient discharge rights).

3.6. Consumer Perceptions

Issues such as tail docking, induction and bobby calf management are areas in which New Zealand dairy farmers have had to change their management practices. Consumer interest in the sustainability of food systems has resulted in the development of the concept of food miles by the UK pressure group "Sustain" (Cowell and Parkinson 2003; Pretty *et al.* 2005)

4. Business Resilience

Kelly and Bywater (2005, p. 70) defined "resilience", from a farming systems perspective as "the ability of a system to withstand severe usually unpredictable disturbing forces". They also identify two elements of resilience, 1) the systems' resistance to the disturbance and 2) its rate and degree of recovery from the disturbance. As such, a more resilient farming system is one that has a smaller reduction in productivity as a result of a shock or disturbance and it recovers more quickly and completely than a less resilient system.

Crawford *et al.* (2007a) stated that resilience in a farming context has three defining characteristics:

1. the amount of change the farm-system can undergo and still function under its current basic structure,
2. the degree to which the farm-system is capable of adaptation,
3. the ability to build and support farmer learning and flexibility.

Crawford *et al.* (2007a) specified four means by which resilient dairy farms would manage variation. First, farmers operating such systems must have a good understanding of the interaction between feed, cow, natural, financial and human resources. Second, such systems must be able to maintain flexibility with respect to changing inputs. Third, farmers must be able to learn from each shock and apply what they learn in the future. Finally, farmers operating such systems must be “connected” to the industry and maintain good social networks.

4.1. Costs of Production

What are your farm working expenses per kgMS? IF you do not know this, then work it out today. This is your farm working expenditure total on your cash flow page, divided by your expected milk production. Technically, you should add a lease for run offs, wages of management etc. This is for benchmarking for the farm. To confirm the robustness of your business, this is not essential.

For the 2013/14 season, the MRB client base farm working expenditure was \$4.35/kgMS. Not including depreciation. This season we are anticipating this will increase to \$4.50-\$4.60 with the account analysis we have completed so far. The main culprits are Feed and grazing. But there is creep in all areas of spend as people relax in a high payout environment.

4.2. Interest Cover

This is your interest and Rent bill. Work it out on a per kgMS basis. (Total debt (mortgage)) / revised production. There has been a lot of focus on debt per kgMS. One of the concerns of using this ratio as it encourages people increase production to get this ratio down. If this is “brought” production with supplements and increasing your costs, you are kidding yourself and the bank manager.

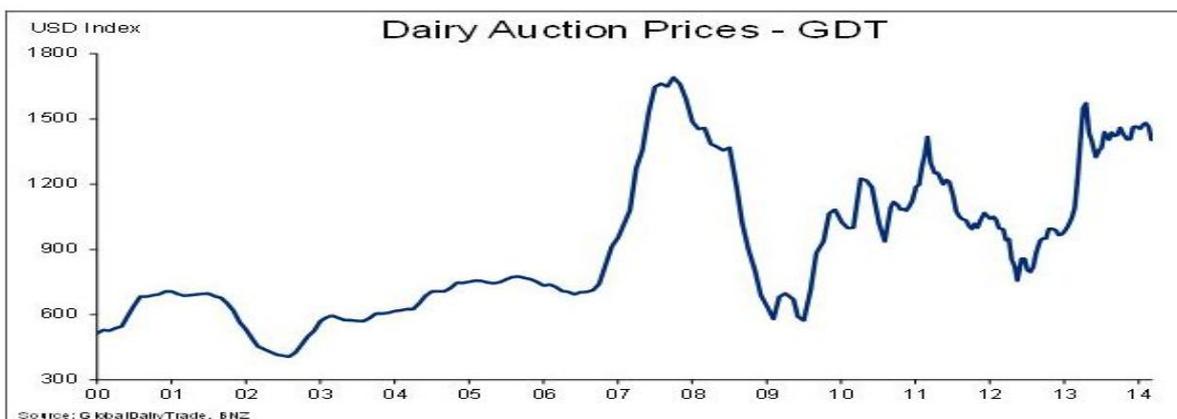
Current low interest rates have as installed a false sense of security. Run the sensitivity of the cost of interest at both 7 % and 8.5 %.

Typically we are seeing debt sitting at \$16 - \$20 / kgMS. The current New Zealand Average Debt is anticipated to be \$18-\$19 / kgMS. We are aware of business as high as \$24 / kgMS in the current environment who are new purchases, or restructuring equity partnerships.

Dairy Business Tolerance		Low Cost	Mid Cost	Hi Cost
Where	Farm Working Expenditure	4.30	4.60	5.00
Plus	Depreciation	0.30	0.30	0.30
Plus	Drawing / Dividend	0.35	0.35	0.35
Less	Stock Income	0.30	0.30	0.30
equals	Total Requirements	4.65	4.95	5.35
Results in Break Even Payouts				
	\$16/kgMS @ 7 %	5.77	6.07	6.47
	\$16/kgMS @ 8.5 %	6.01	6.31	6.71
	\$20/kgMS @ 7 %	6.05	6.35	6.75
	\$20/kgMS @ 8.5 %	6.35	6.65	7.05
	\$24/kgMS @ 7 %	6.33	6.63	7.03
	\$24/kgMS @ 8.5 %	6.69	6.99	7.39

- How can you decrease your costs of production. Is your stocking rate too high (February news letter).
- Avoid distractions, eg, chasing returns from selling capital stock with extra replacements. Cut the replacements back to the minimum.
- Challenge your spend on a daily basis. Get your staff into this mind set.
- Carefully evaluate the big ticket items. Do you need to complete the development / plant purchase items.
- Get into the habit of shopping for best price / service.
- Challenge your suppliers advice. Most of them are sales persons. Make sure their advice for products in your best interests, eg making money, not their best interests, making a sale.

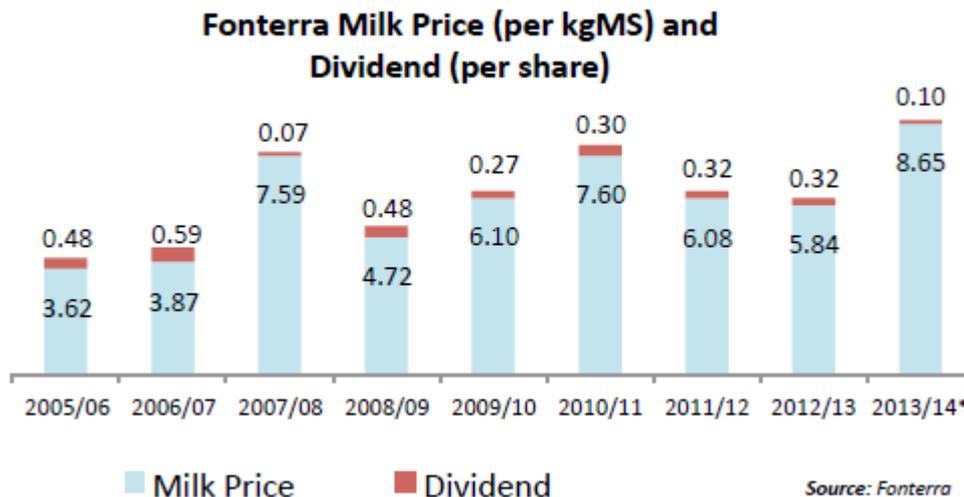
4.3. Income Risk



Source, BNZ

Productive Paranoia: 10Xers maintain hypervigilance, staying highly attuned to threats and changes in their environment, even when – especially when – all is going well. They assume conditions will turn against them, at perhaps the worst possible moment. They channel their fear and worry into action, preparing, developing contingency plans, building buffers and maintaining large margins of safety. Jim Collins

What is your breakeven Point ?



Source. *AgriFax, Dairy, April 2014 Issue.*

5. The hedgehog concept for your business and farm :

“Is not to a goal to be the best, a strategy to be the best, and intention to be the best, a plan to be the best. It is an understanding of what you can be the best at.” Jim Collins – ‘Good to Great’.

Fanatic Discipline: 10Xers display extreme consistency of action. Consistency with values, goals performance standards, and methods. They are utterly relentless, monomaniacal, unbending in their focus on their quests. Jim Collins.

When we have determined the sweet spot in the business. You stick to it. Don't be distracted by payouts, fads or technologies. Your farm program in a high payout environment should be the same as you practice in a low payout environment, both should have the lowest costs of production.

6. Risk assessment for analysing Opportunities

Asymmetric Risks. How proven is the opportunity. Has it worked for others. What research can you do? Opinions of your peers. Who has done it. Is it going to work, or take a high level of input and management? Many farms are heading towards cost structures over \$5.00 / kgMS. Opportunities involving concrete, steel and feed will have fully computed costs of over \$6.50-\$7.00 / kgMS. They are often very high in production. These are opportunities that have a high level of asymmetric risk. The upside can be over balanced by the downside.

Death Line Risk. Are those that could kill or severely damage the enterprise. What are these. What can you do to mitigate against these. Animal disease, flood, another food scare when the market is not resilient.

Uncontrollable Risks. Are those that expose the enterprise to forces and events that it has little ability to manage or control. Often referred to “Black Swan Events”. We live in a global environment, exposed to political and climatic events across the world that can dramatically effect the price of inputs and resources for dairy production.

The 10Xers did not generally make bolder moves than their less successful comparisons; both groups made big bets and, when needed, took dramatic action. Nor did the 10Xers exceed more raw confidence than the comparison leaders; indeed, the comparison leaders were often brazenly self confident. But the 10Xers had a much deeper empirical foundation for the decisions and actions, which gave them well-founded confidence and bounded their risk. Jim Collins

7. Setting The Pace for Achieving Your Goals

Jim Collins, noted that the 10Xers used their discipline of fanatical discipline to maintain a steady pace now matter what the environment was, good or bad. For dairy farmers, when the payout is high, not getting caught up in the hype chasing production and land, when the payout is low, sticking to their principals and values. Carrying on regardless.

"The 20 mile March is more than a philosophy. It's about having concrete, clear, intelligent, and rigorously pursued performance mechanisms that keep you on track. The 20 mile march creates two types of self imposed discomfort: (1) the discomfort of unwavering commitment to high performance in difficult conditions, and (2) the discomfort of holding back in good conditions". Jim Collins

One of the best examples of a hard fought 20 mile march is Jamie Fitzgerald and Kevin Biggar;

The second day of the 40 spent at sea was the most memorable and worst day of the race. An intense head current was pushing them back, with a storm closing in overhead. The easy option was to put out their sea anchor, which would stop them being dragged, but they decided to keep rowing through the storm, to push the boundaries, and to put in the hard yards. Fitzgerald remembers the following morning well; "We got in touch with Rob Hamill, and asked how far behind we were, and he said, 'you're actually 30 miles in front. Everyone else decided to put out their sea anchors, whereas you kept going.' This was a pivotal turning point, and it taught us a huge lesson - no matter how big or small a decision is at the time you make it, later on it may have a real effect."

On day 32 of the race the same thing happened with the exact same results, and it turned out they won the race by the amount of time they had made while they were rowing through the storms.

Jim Collins, A good 20 mile March has the following seven characteristics,

1. **Clear performance Markers, Costs per kgMS. Production per cow. Debt servicing. Break even payout.**
2. **Self Imposed Constraint's.** Consistency across all areas of the business. Need to have a similar personal philosophy to your business principals. These will be soaked up and instilled into your team.
3. **Appropriate to the Specific Enterprise.** We are dairy farmers! Make sure farmers can adopt your concepts.
4. **Largely within the company's control to achieve.** Refer to finding the sweet spot in your business.
5. **A proper time frame. Long enough to manage, yet short enough to have teeth.** You wont get there over night. The rule of 72 works well for this one. Time can provide great rewards for consistent returns and performance.
6. **Imposed on the company upon itself.** Every body is aware of the key principals about how the business is run. These become expectations of your team.
7. **Achieved with high consistency.** Practicing the same behaviour, no matter what the payout.

8. Risk Over Time

Pinochet-Chateau *et al.* (2005a) compared the risk perceptions of New Zealand dairy farmers in 1992 from the study by Martin (1994) with those in 2004. They found that farmers' perceptions of risk changed over time and that the mean scores for the majority of risk sources increased (Table 2). The three highest ranked risk sources in 2004 were market risks. The highest ranked risk source in both 1992 and 2004 was changes in product prices.

Martin (1994) surveyed New Zealand farmers on the relative importance of some of the risks faced by farmers and the strategies used to manage them. These strategies were broadly defined as those used to control risk exposure and those used to control the impact of risk on the farm business (Jolly 1983; Martin 1994). Controlling risk exposure involves manipulating the probability distributions facing the business so that variability is reduced. This can include strategies such as enterprise selection and diversification, marketing strategies, insurance, and scale of operation. Strategies that control the impact of risk on the business can include raising yields and prices so net

income is higher, lowering leverages, matching debt repayments to income and maintaining cash or credit reserves

9. Strategies to Manage Risk

As presented in a literature review by Gray, Dooley & Shadbolt:

Production strategies include:

1. product diversification,
2. monitoring pests, diseases, crops and climate,
3. informal insurance (e.g. routine spraying and drenching, feed reserves, irrigation and excess machinery),
4. multiple production practices (e.g. several seed varieties or breeds, practices suited to different areas),
5. geographic dispersion,
6. avoiding high-risk enterprises or very variable enterprises,
7. not producing to full capacity,
8. farming in a more stable region.

Marketing strategies include:

1. selection of enterprises with low price variability,
2. forward and future contracts,
3. hedging and options contracts,
4. spreading sales and storing produce,
5. spreading sales or marketing throughout the year,
6. buying and selling on the same market,
7. diversification,
8. vertical integration.

Financial strategies included:

1. keeping debt low or increasing equity,
2. detailed financial planning,
3. carrying adequate reserves (cash or savings),
4. adjusting timing of capital purchases,
5. arranging overdraft reserves,
6. reducing family withdrawals,
7. selling surplus assets to reduce debt,
8. debt management or matching debt repayment to income,
9. having more liquid assets or off-farm investments,
10. leasing rather than owning,
11. working off-farm (main operator or family member),
12. insurance.