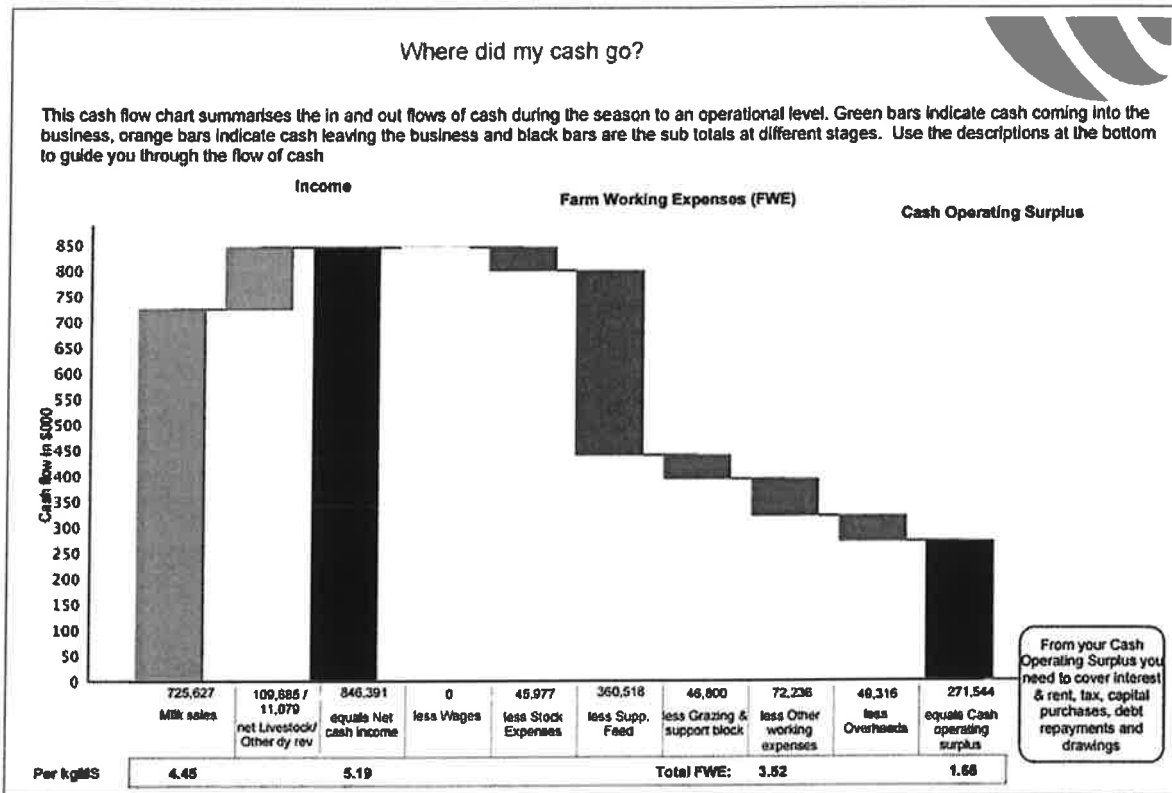


3.0 DRIVERS OF PROFITABILITY

In order for a farm business to survive it must be profitable. The ability to identify and monitor the key drivers of profitability is crucial to the success of the business. Key drivers are those that have the greatest impact on business profitability and performance. In any business the four main drivers of profitability are price (e.g. milk payout or slaughter schedule), sales (e.g. milk production or carcass weight/ha), variable costs (e.g. farm working expenses), and fixed costs (e.g. debt servicing, rates, insurance etc.). As some of these drivers are largely uncontrollable, such as milk payout, slaughter schedule and fixed costs, it is important to focus on improving those drivers that you can control. Once the key business drivers have been identified, the objective is to increase or decrease one driver without adversely affecting the other drivers.

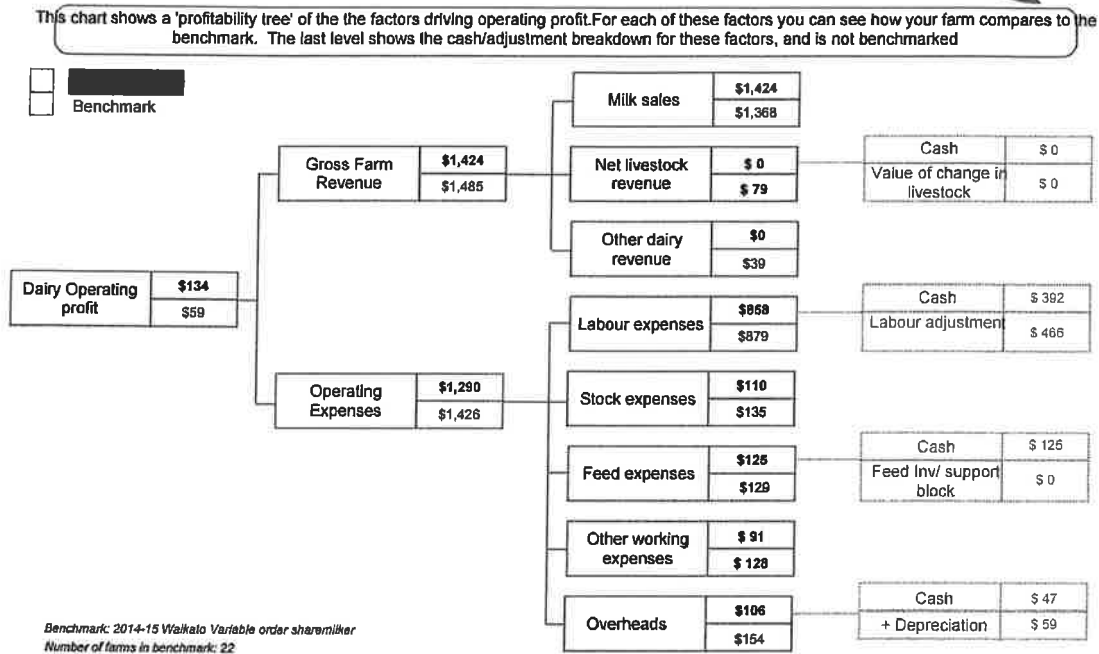


Dairy Physical Drivers

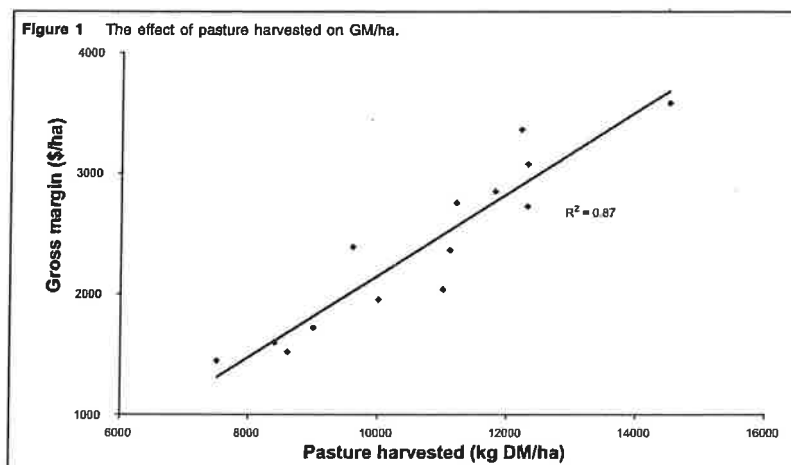
The physical drivers that are within a dairy business owners control are outlined below.

- Milk production per cow** – driven by peak milk production and days in milk. Milk production as a percentage of cow live weight indicates how efficiently feed is being utilised. Given maintenance requirements are relative to body weight, a cow producing 110% of body weight as milk solids is allocating a much greater proportion of feed to milk production compared to a cow producing 70%. Increasing per cow production improves feed use efficiency.

What drives my operating profit? (\$ per ha)



- Milk production per hectare** – driven by milk production per cow and stocking rate. High production per hectare requires finding a balance between these two factors. A high stocking rate reduces feed efficiency as greater amounts of feed go to cow maintenance. A low stocking rate reduces the amount of pasture harvested and can reduce pasture quality. Maximising production per hectare will allow more revenue to be generated from a fixed asset and greater production to spread fixed costs over.
- Pasture and crop eaten per hectare** – home grown feed is recognised as cheaper than importing supplement from off farm. Fixed costs associated with land are already accounted for, and variable costs associated with pasture and crop are typically lower than supplement costs. Maximising pasture eaten on farm is a main driver of profitability.



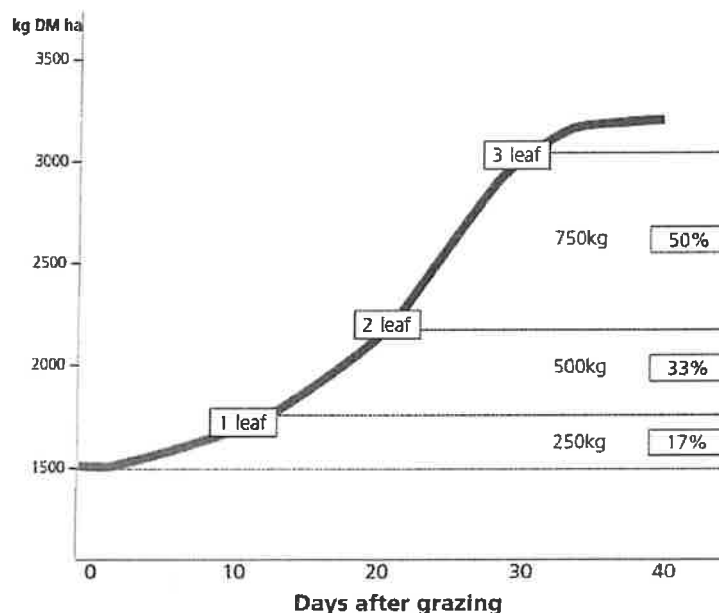
Ref: Proceedings of The New Zealand Grasslands Association 67 (2005)

- **Empty rate** – having a low empty rate means less replacements need to be reared (thereby reducing fixed costs associated with animal health, grazing and breeding), and more cows can be culled for traits affecting milk production (low production worth, high somatic cell count, lameness).
- **6 week in-calf rate** – a high 6 week rate means more days in milk and a greater chance that they will get in-calf the following season as they have more time from calving to mating to start cycling.

Sheep and Beef Physical Drivers

The physical drivers that are within a sheep and beef business owners control are outlined below.

- **Pasture Management** – The stock policies run on farm, and how the feeding of mobs are managed throughout the year will affect pasture growth. High pasture covers lead to increased stem and dead material and reduced growth through shading, at low pasture covers low leaf area limits growth. Decisions such as timing of sales and purchases, application of nitrogen, or restricting intakes of stock at critical times can be used to manipulate feed demand to minimise the number of paddocks above/below optimum.



- **Pasture and crop eaten per hectare** – home grown feed is recognised as cheaper than importing supplement from off farm. Fixed costs associated with land are already accounted for, and variable costs associated with pasture and crop are typically lower than supplement costs. Maximising pasture eaten on farm is a main driver of profitability.
- **Feed Conversion Efficiency (FCE)** – the efficiency at which animals convert pasture into meat and wool vary widely between species, policy, and management. For example, a typical beef breeding FCE is 44 kgDM/kg of product, compared a bull beef finishing FCE at 22 kgDM/kg of product. The FCE is also affected by the animals growth rate, animals with a higher growth will finish earlier which improves the FCE. This however is a balance against pasture management as there are times when intake needs to be restricted such as winter.

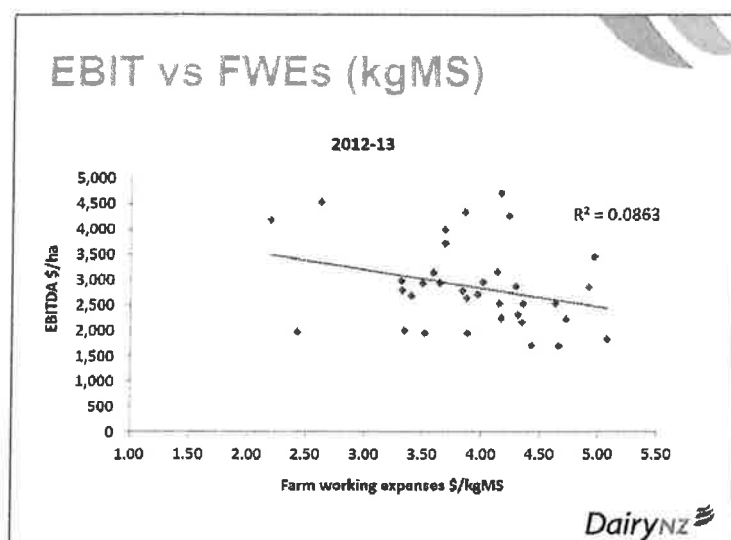
- **Carcass weight per hectare** – driven by livestock policy, FCE, pasture management and stocking rate. Maximising product per hectare will allow more revenue to be generated from a fixed asset and greater production to spread fixed costs over.
- **Reproductive performance** – for sheep and beef breeding policies the main two drivers of profitability are weaning percentage and weaning weight of lambs/calves. Performance can be influenced by genetics and breed, mating weight, provision of safe calving/lambing areas and feeding from birth to weaning.

Financial Drivers

- **Farm working expenses per kilogram of milksolids (dairy) or per hectare (S&B)** – having low FWE's helps to maximise profitability and make the business more sustainable in years of a low milk payout, low slaughter store schedule, or low pasture growth years.

Before you make a purchase ask... 'will it give me a return?' Some expenses are non-negotiable, however for negotiable expenses business owners should be aiming for a return of \$1.50 for every \$1.00 spent. Typically the three biggest costs are labour, feed and fertiliser. The aim is to remove expenses that won't have a large impact on the other drivers. For example, if cutting nitrogen fertiliser costs is going to significantly reduce the amount of pasture grown, then this is an expense that should not be cut.

Gross Farm Revenue – FWE = Cash Operating Surplus



Earnings Before Interest, Tax, and Rent per Hectare

For All New Zealand Region, All Classes 2015-16 (Provisional)



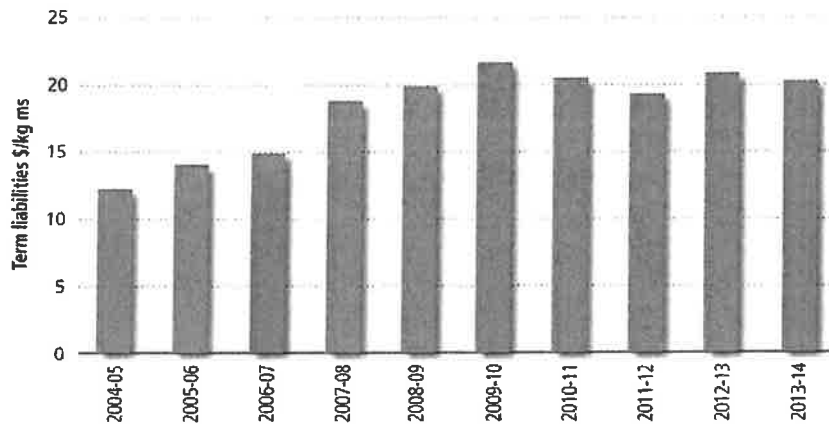
- **Farm working expenses/gross farm income** – a measure of what it costs to operate the business compared to what the business earns. This is a useful measure of how efficient a farm operation is.

$$\$234,000 \text{ (FWE)} / \$356,000 \text{ (GFI)} = 66\%$$

- **Debt per kilogram of milksolids (Dairy) or per hectare (S&B)** – this is both a measure of fixed costs and business risk. During low income years, those businesses with high debt are particularly vulnerable as interest costs cannot be deferred or reduced the same way variable costs such as supplements can. A farm business may have low farm working expenses but still be unprofitable because of high debt servicing costs.

$\$2,300,000$ (debt) / $145,000$ kgMS = $\$16/\text{kgMS}$

$\$2,300,000$ (debt) / 350 ha = $\$6571/\text{ha}$



Source: DairyNZ Economics Group

- **Return on Assets (RoA)** – This measures how successful the business is at converting its investment into profit. When comparing RoA between years it is important to include capital gains or losses in the value of assets so that the business reflects this change. RoA takes into account how the business is owned so lease land is not included as an asset and the rent for this land is deducted from the OP.

Operating profit – Rent / Total owned assets

$\$256,000 / \$3,500,000 = 7.3\%$ RoA

- **Return on Equity (RoE)** – This is a measure of how effective the business converts the investors equity into profit and excludes the cost of rent and interest. If your RoA is higher than your interest rate you have positive leverage, i.e. you are generating a greater return from your borrowed money than it costs to borrow. Alternatively if your RoA is consistently lower than your interest rate you are losing money on your investment. A higher debt level magnifies the gains of positive leverage but also magnifies the losses of a negatively geared business.

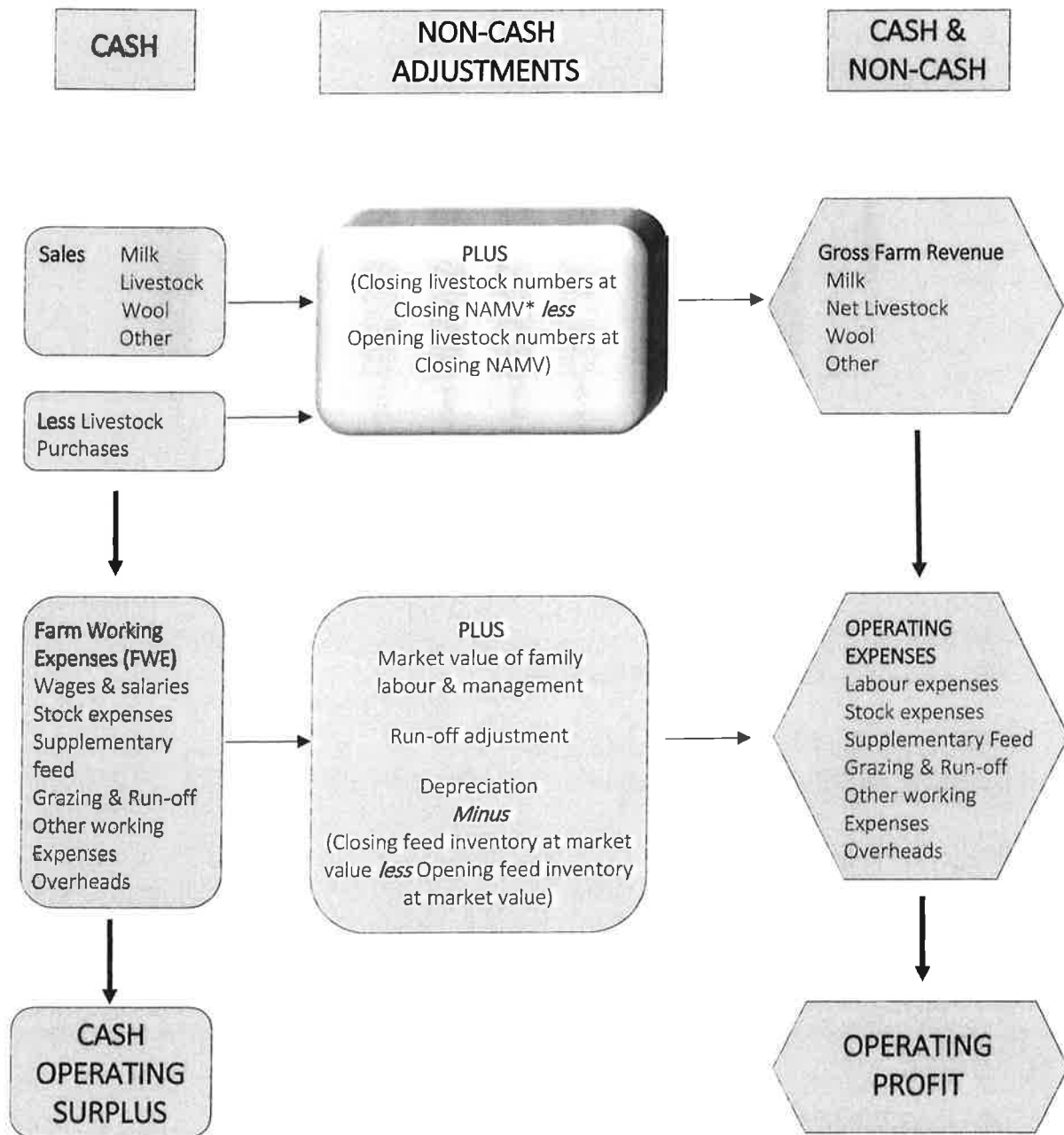
Operating profit – Rent – Interest / Equity

$\$265,000 - \$20,000 - \$78,000 / \$2,500,000 = 6.7\%$ RoE

If the farmer is borrowing money at 5%, then they are making a 1.7% margin on every dollar that is borrowed.

Economic Farm Surplus (Operating Profit) Calculation

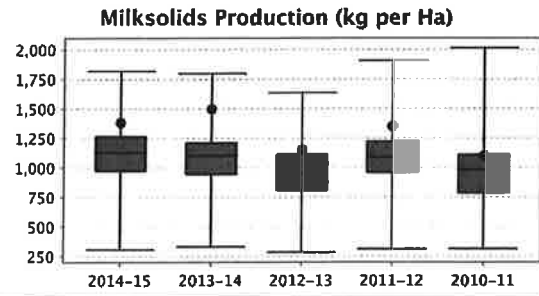
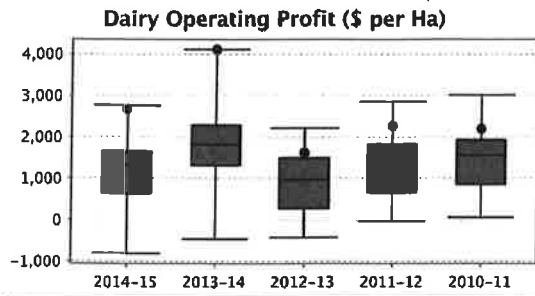
Diagram provided by DairyNZ,
with adjustments to include wool



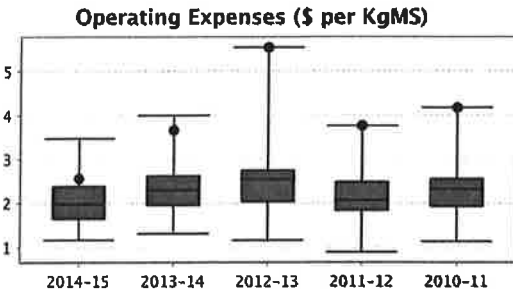
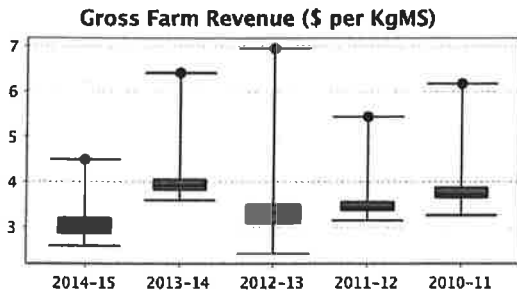
Operating Performance Summary



North Island Owner with '50-50' sharemilker



These graphs show your farm in relation to the distribution of the benchmark. The top and bottom lines show the upper and lower ranges, the box shows the range from the 25th percentile to the 75th, and the middle line shows the 50th percentile. The dot shows you where your farm sits within this range



Benchmark: North Island Owner with '50-50' sharemilker
 Number of farms in benchmark: 41 (2014-15) 40 (2013-14) 38 (2012-13)

Liquidity

Liquidity

Liquidity measures the ability of the business to meet financial obligations as they come due without disrupting the normal operations of the business. Liquidity measures the ability to generate cash needed to pay obligations. Liquidity is generally measured over the next accounting period and is a short-run concept.

Farm Management
Chapter 5

Liquidity means having enough cash on hand to pay bills as they arise. This is important as a lack of liquidity is the most common form of business failure. Although liquidity is commonly known as cash, it is more accurate to use working capital when assessing business liquidity. Working capital is calculated by deducting current liabilities from current assets. Current liabilities include overdrafts or outstanding bills, while current assets include positive bank balances and accounts receivable. Often a build-up of unpaid bills is the first sign of a liquidity crisis which is why it is important to monitor changes in working capital.

Farm cash surplus is a key indicator of liquidity. This is the cash that remains after all business expenses have been accounted for. Changes in cash surplus through the year is highlighted in the annual cashflow budget. Completing a cashflow forecast at the start of the year is crucial, enabling the business owner to monitor the account balance throughout the year and plan ahead. For both sheep and beef and dairy farming it is common for the timing of cash inflows and outflows to differ, which could cause liquidity issues and needs to be solved with cash or credit reserves (e.g. an overdraft).

There are two other main measures for business liquidity. Working capital, the difference between current assets and current liabilities is one, and the current ratio is another measure. The current ratio is calculated as dividing current assets by current liabilities:

$$\text{Current ratio} = \frac{\text{current assets}}{\text{current liabilities}}$$

A ratio of less than 1 indicates a liquidity issue. Highly seasonal businesses such as grain production need a very high current ratio at the start of the year as there will be no income for a large proportion of the season, while less seasonal businesses like dairy farming can start the year with a lower current ratio, as income is relatively steady.

Although these two measures indicate overall business liquidity, they don't take into account the *timing* of income and expenses throughout the year, and don't highlight the upcoming expenses which necessitates the need to monitor the cashflow budget.

It is important to note that liquidity does not predict profitability. A highly profitable business can still have severe liquidity issues if it doesn't have sufficient cash flow, similarly a low profit business with high equity and good cash flow planning can ensure liquidity is not a problem for a long time.

Solvency

Solvency is the ability of a business to meet its long term financial obligations. It is essential in enabling a business to survive. An insolvent business is one in which liabilities exceed assets, while a business is solvent if assets exceed liabilities. A common measure of solvency is the debt:asset ratio and is calculated by dividing total liabilities by total assets.

$$\text{Debt:asset} = \frac{\text{total liabilities}}{\text{total assets}}$$

Smaller ratios are preferred by banks as this indicates a greater ability of the business to maintain solvency should it encounter periods of adverse conditions (e.g. a low payout or drought). A debt:asset ratio of greater than 0.5 for sharemilkers may be classified as high risk by banks as they typically lend up to 40% - 50% of the total asset value. However a low debt:asset ratio indicates the business owner may be reluctant to use debt capital to take advantage of investment opportunities which may potentially increase farm income.

Further Reading

Nicola Shadbolt & Sandra Martin (2005) Farm Management in New Zealand. Oxford University Press.

Ronald D. Kay & William M. Edwards (1994) Farm Management Third Edition. McGraw-Hill Inc.

