Fonterra's Milk Price – The Facts

1. **On what basis does Fonterra calculate the farm-gate Milk Price?**

- The farm-gate Milk Price model:
  - Calculates the revenue as if all Fonterra's milk was processed into standard dairy commodities (with no added value) and sold into world markets at actual market prices discovered on GlobalDairyTrade (GDT).
  - Deducts reasonable costs, such as what it would cost to ship raw milk to Fonterra's factories, produce these same commodities in an efficient way, freight them to market and make an appropriate return on investment.
  - Pays the balance to Fonterra farmers as the farm-gate Milk Price.
- The setting of the farm-gate Milk Price is overseen by an independent group that includes leading accountancy firm Ernst & Young
- As part of planning for the introduction of Trading Among Farmers, Fonterra is committed to providing additional disclosure on the farm-gate Milk Price. This will include:
  - The full release of the farm-gate Milk Price Manual.
  - An Annual Statement of Compliance with the farm-gate Milk Price Manual. This Statement will include disclosures of relevant building blocks of the farm-gate Milk Price calculation and appropriate supporting descriptions and an independent audit opinion by PricewaterhouseCoopers, Fonterra's auditors.
  - An explanatory booklet that will provide a useful overview of how the farm-gate Milk Price is calculated.
  - An expanded management discussion and analysis (MD&A) commentary in Fonterra's Annual Report.

2. **Why doesn't Fonterra simply calculate the farm-gate Milk Price using its actual sales revenue and costs?**

The farm-gate Milk Price is derived from Fonterra's actual returns from commodity milk powders and their by-products, which collectively comprise around 75% of Fonterra's total product mix. In addition, Fonterra's actual costs associated with the production of these products are used where possible when determining the farm-gate Milk Price.

However, a portion of Fonterra's actual sales, and associated costs, not directly associated with commodity milk powders (and their by-products), is not used to determine the Milk Price. Returns from value-add and consumer products are also not included for reasons explained below.

3. **Why exclude returns from value-add and consumer products?**

Fonterra's returns from value-add and consumer products reflect the result of significant investments in manufacturing capability and market development, which have been funded from capital invested over time by Fonterra's shareholders. Returns on these investments are distributed as dividends on Fonterra's shares. If value-add returns were instead distributed through a higher Milk Price, these

returns would end up being paid on the basis of milk supplied rather than shares purchased, even though it is the share investment that generates the value add returns.

If Fonterra's actual revenues and costs from all its value-add and consumer products sales were taken into account in the farm-gate Milk Price, the result in most years would be a higher farm-gate Milk Price. This is because Fonterra typically earns higher margins on value add products regardless of where they are sold because of the extra complexity and know how in their production, and differentiated features of the products themselves.

4. Why exclude returns from commodity products other than milk powders and their by-products?

While Fonterra has been successful in increasing volumes of milk used to manufacture higher value products, the sheer scale of milk volumes means that for the foreseeable future 'marginal' additional milk will be used to manufacture commodity-type products. Standard economic theory highlights the misallocation of resources that will occur if the price paid for milk doesn't reflect the 'marginal' returns to selling commodity products.

This point is considered in detail in a recent report by leading economic consultancy Compass Lexecon, *The Effectiveness of DIRA in Fostering Competition and Economic Efficiency in New Zealand Dairy Markets*.[1] The report concludes that Fonterra's method is conceptually correct, noting that "the equilibrium price that would arise in competitive markets would equal the price that would yield a normal rate of return for dairy processors that purchase raw milk from farmers to produce milk powder and sell milk powder in global markets at the market determined global price."

Evidence is overwhelming that powder products reflect the predominant use of nearly all the additional milk that Fonterra and its competitors have collected over the last decade. Over that time, Fonterra and its competitors have invested around $1.5 billion in powder plants and only about $100 million in all other product streams combined.

The powder products that inform the farm-gate Milk Price are wholemilk powder (WMP) and skimmilk powder (SMP), and their by-products (buttermilk powder, or BMP, butter, and anhydrous milkfat, or AMF). These products account for about 75% of Fonterra's annual production. The remaining 25% of production mainly reflects cheese and casein and their by-products (such as whey), but also nutritional products (like infant formula), and premium ingredients (including specialised protein products).

In addition to being the marginal products produced from New Zealand milk today, there are other reasons for using powder products to determine the farm-gate Milk Price:

- Powder products are sold in significant volumes in open markets with low trade barriers (no significant quotas and low tariffs). For example, only 20% of WMP is sold in markets with tariffs above 20%. In contrast, nearly two thirds of New Zealand cheese exports are sold to markets with tariffs above 20% and/or with import quotas. Consequently, the average price achieved for powder products can normally be viewed as being reasonably representative of the value of marginal production, but there can be a significant difference between the average price achieved for Fonterra's cheese production and the marginal price achieved for any increment in production. Again, farmers would receive misleading information about the true value of incremental milk if these higher average returns were priced into the farm-gate Milk Price.

[1] R. Willig, M. Guerin-Calvert & A. Lerner, *The Effectiveness of DIRA in Fostering Competition and Economic Efficiency in New Zealand Dairy Markets,* 20 July 2011.

- Returns to the commodity powder products used to determine the farm-gate Milk Price do not incorporate margins from branding or other intellectual property (e.g., consumer branded or value-add products).

- Transparent prices can be discovered through GDT - recognised globally as providing a market-based benchmark of prevailing commodity prices for products sold on the auction platform.

5. How does Fonterra determine the sales revenues, production costs and mix of powder products that inform the Milk Price?

As far as possible, the farm-gate Milk Price reflects Fonterra's actual revenue and costs for milk powders (WMP and SMP) and their by products (Butter, AMF and BMP).

From 2011/12, the prices referenced in the farm-gate Milk Price for WMP, SMP and AMF will be market-based prices discovered on GDT (this was the case for WMP from 2010/11).

Also on the revenue side, the product mix that informs the farm-gate Milk Price is updated prospectively each month to reflect (1) Fonterra's planned production of WMP and SMP and (2) the consequential mix of butter, AMF and BMP.[2] The farm-gate Milk Price also matches Fonterra's actual average lags between production, contracting and shipping of these products.[3]

Costs taken into account in the farm-gate Milk Price reflect:

- Fonterra's **actual** supply chain and collection costs,

- Fonterra's **actual** site footprint, which includes more than 20 manufacturing sites with associated overhead costs,

- the capital and operating costs of a WMP and a SMP plant (at manufacturer's specification and Fonterra's unit cost) that match Fonterra's **actual** average daily capacity, and

- Overhead costs typical of a commodity-only business that sells product ex-NZ. These costs are calculated by reference to Fonterra's **actual** costs, but exclude costs that can be attributed to the much broader scope of Fonterra's business.

Operating costs are based on WMP and SMP plants that match Fonterra's actual average daily capacity. Fonterra operates around 30 powder plants with capacity ranging from more than 25 tonnes per hour to less than one tonne per hour. No two of these plants are exactly alike – some can make one or only a few products, while others are used to manufacture a range of products, including higher-value products – and it would be a major exercise to adjust the costs actually incurred in all these plants to exclude the costs relating to the production of higher value products. Moreover, Fonterra continues to operate some of its smaller and older plants only because they are largely depreciated, so the mix of operating and capital costs associated with these plants is not representative of current marginal costs of producing commodity powders.

To address these issues, both operating and plant-related capital costs are calculated by reference to 'standard' WMP and SMP plants with capacities equal to Fonterra's actual average daily capacities for these types of plant, and which reflect current technology of the type typically employed across the

[2] A claim by Rōpere Consulting that the product mix is set retrospectively by Fonterra at the end of a season has recently attracted widespread press coverage. This claim is not correct.

[3] The calculation of these averages excludes some sales of product on terms that are not representative of typical terms for the sale of commodity products ex New Zealand, such as sales with an unusually large number of elapsed months between contracting and shipment of product.

industry. These 'standard' plants are, however, materially less efficient than Fonterra's newest manufacturing plants, such as the ED4 drier installed at Fonterra's Edendale manufacturing site in Southland in 2009, or the plant currently under construction at Darfield in Canterbury.

This approach highlights that costs in the farm-gate Milk Price are not optimised and are by no means reflective of Fonterra's most efficient plants. Fonterra operates a range of plants that are larger and smaller than an average WMP and SMP plant, and therefore incurs higher and lower unit costs to convert milk into exports.

6. Why did Fonterra change the way it calculated its farm-gate Milk Price in 2008?

Until 2008, the farm-gate Milk Price, called the Commodity Milk Price (CMP), was calculated by the Independent Valuer. The basis for deriving the CMP was entirely theoretical and notional, and not at all codified or transparent. The product mix and asset footprint (size and range of plants) were fully optimised to reflect relative prices of a range of undifferentiated base commodities at the start of each season. Costs were also optimised to reflect modern, optimally-scaled and efficiently-operated plants. The product mix set at the start of the year didn't change in the light of actual market conditions. Likewise, the type and scale of plants that informed the CMP often changed significantly between years as a result of relative price changes.

This entirely notional approach was appropriate for setting a farm-gate Milk Price to determine an estimate of long-run earnings for valuation purposes, but did not provide a meaningful measure of Fonterra's actual performance in any given year. In any case, by 2008 it had become apparent that powder products were the marginal use for milk in New Zealand and had been for some time. As discussed above, the economically appropriate way to determine the price of milk is by reference to its marginal use.

The motivation for the change to the current farm-gate Milk Price methodology was widely discussed at the time and was provided to our shareholders as background to the 2008 vote to change the basis for determining the farm-gate Milk Price.

7. Did you change from an 'actual' farm-gate Milk Price before 2008 to a 'notional' farm-gate Milk Price after that year?

No. The CMP never reflected Fonterra's actual product mix, cost structure or asset base. It only ever reflected a selected mix of products and product prices, and furthermore was based on an entirely notional estimate of costs. The current farm-gate Milk Price better reflects Fonterra's real activities than the CMP. While the current farm-gate Milk Price is much less complex and more transparent than the old CMP, it still retains some assessed elements which are subject to rigorous internal and independent scrutiny.

8. Did the change in 2008 result in a higher farm-gate Milk Price?

The change in the level of the farm-gate Milk Price resulting from the change in methodology in 2008 was less than 3 cents per kilogram of milksolids (or less than a quarter of a cent per litre).

This estimate is based on advice from the independent valuer at the time, Duff and Phelps, that was provided to farmers ahead of the November 2008 Annual Meeting. This advice was that the impact of the change in the farm-gate Milk Price on Fonterra's share price would have been around 20 cents per share if the new farm-gate Milk Price had been used for the May 2008 valuation as opposed to the CMP. Applying as a rough guide a 10% cost of capital, the implied long term impact of the change in the farm-gate Milk Price was therefore under 3 cents per kgMS.

In any case, the more important question isn't whether the methods are different, but whether the current method is more appropriate than the CMP.

9. For all that, isn't the farm-gate Milk Price too high? We've heard estimates of a wealth transfer of $195 million

That estimate is from a report commissioned by a group of Fonterra's competitors which has attracted some media coverage (*An Analysis of Fonterra's Milk Pricing Methodology* by Rōpere Consulting).

The asserted wealth transfer estimate of $195 million reflects an unsubstantiated claim that Fonterra has overstated the farm-gate Milk Price by 15 cents per kgMS. This amount is then multiplied by Fonterra's entire production of 1.3 billion kgMS, including 1.2 billion kgMS of exports, to derive an asserted transfer of wealth of $195 million. The precise identities of the winners and losers from this supposed wealth transfer are unclear in the Rōpere Consulting report, but some press coverage has interpreted the report to mean that New Zealand consumers are worse off by $195 million.[4] However, less than 5% of Fonterra's milk is sold on the New Zealand domestic market and therefore relevant in considering any potential wealth transfer. The remaining 95% (assuming the 15 cents per kgMS overstatement is correct – see below) is exported and so has no impact on New Zealand consumers. So the asserted wealth transfer is at most only 5% of the $195 million, or around $10 million.

But even a wealth transfer of this much smaller amount relies on the assumption in the Rōpere report that the farm-gate Milk Price is 'boosted' by 15 cents per kgMS because of what the report refers to as 'footloose cash'. This extra cash supposedly arises because Fonterra has valued its shares on a 'restricted market basis' from Fonterra's 2009/10 season. The report claims this enables Fonterra to pay a lower dividend leaving surplus cash available to boost the farm-gate Milk Price.

However, valuing shares on a restricted market basis is simply intended to generate a better estimate of the value to Fonterra shareholders of a given level of expected earnings, given the underlying reality that Fonterra's shares are only traded (through the Co-operative) among supplying shareholders. The valuation parameters incorporated in the calculation of the restricted market share price are determined by Fonterra's Independent Valuer, and reflect typical relationships between earnings and share prices for companies with characteristics similar to Fonterra's.

So if Fonterra irrationally responded to a lower share price by paying a higher farm-gate Milk Price, its future earnings would be reduced and its share value would accordingly fall further, contrary to the logic of the Rōpere report. The concept of 'footloose cash', and therefore the basis of the conjectured wealth transfer in the Rōpere report is without foundation in any conventional valuation theory or practice.

10. Fonterra's shareholders own 100% of the Co-operative. So do they really care whether they get a bit more in the farm-gate Milk Price and less as a dividend? Isn't that an open invitation to increase the farm-gate Milk Price?

The costs of Fonterra inappropriately setting the farm-gate Milk Price are high, even if Fonterra increased the farm-gate Milk Price by just a few cents. While a few cents may be a small proportion of the total farm-gate Milk Price, it is a much greater proportion of earnings. For example, a 5 cent higher farm-gate Milk Price is less than 1% of a farm-gate Milk Price of $7.50, but is around 15% of Fonterra's recent normalised underlying operating earnings of 30-35 cents per share.

It's reasonable to assume a 15% reduction in Fonterra's long-run earnings would translate to a similar reduction in Fonterra's share price, which would be very significant to shareholders, particularly those whose production isn't growing. Earnings per share would be diluted with each supply-backed share

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[4] See for example, the article "Milk Price 'boosted' by $195m", www.stuff.co.nz, 16 June 2011, which asserts that "The [Rōpere] report claims there is an annual transfer of $195 million from Kiwi consumers and other dairy companies to Fonterra farmers because the milk price can be boosted by at least 15c per 11.6 litres of milk."

that Fonterra issues. The result is that existing shareholders would end up subsidising new shareholders and those growing their production.

This outcome still applies when equity raised by each supply-backed share that is issued is more than what is required to build a new plant to process that extra supply. Shareholders won't stand by and see new entrants and shareholders with growing production dilute their significant share of earnings and value from Fonterra's downstream investments.

Overstating the farm-gate Milk Price would likely have very serious consequences for the long run sustainability of the Co-operative. As such, it is essential that the farm-gate Milk Price is a fair market based Milk Price as determined by the Milk Price model.

11. Why does Fonterra need to calculate a farm-gate Milk Price and how long has it done so?

Since its formation in 2001 Fonterra has calculated a farm-gate Milk Price for a number of reasons:

- **Allocating Returns**: Each season, Fonterra's total returns need to be split between payments for milk and a return on share capital invested in the Co-operative. Most of Fonterra's shares are 'backed' by milk supply (i.e., one kilogram of milksolids supplied annually per share) and it is sometimes argued that Fonterra's suppliers will therefore be indifferent between receiving returns through the farm-gate Milk Price or as dividends. However, Fonterra shareholders can now hold Fonterra shares as an investment – shares not backed by the supply of milk – and holders of these shares would be concerned if returns were not fairly allocated between earnings and the farm-gate Milk Price. The pending introduction of Trading Among Farmers will increase this pool of stakeholders with a strong interest in ensuring Fonterra's returns are allocated accurately.

- **Setting the Share Price**: A strong basis for establishing a farm-gate Milk Price is needed to enable Fonterra's shares to be valued by an Independent Valuer each year. The share price reflects expected future earnings, and to establish earnings the Independent Valuer needs to know the cost of milk. The share price determines what farmers pay or receive for their Fonterra shares when they enter or exit the Co-operative, or increase or reduce production. It is important that the share price reflects the full value of Fonterra's substantial off-farm investments. Otherwise, the entry of new shareholders would dilute the investment of existing shareholders, who have spent billions of dollars building both a New Zealand processing base and a substantial international value-add business. This is a very real issue for Fonterra – milk collected and the number of shares on issue has grown by over 20% in the past 10 years, and substantial future growth is anticipated.

- **Performance and Investment Decisions**: An accurate farm-gate Milk Price is essential to determine the earnings of each Fonterra business unit, enabling measurement of management performance for Fonterra's New Zealand businesses against our international operations. These include consumer businesses in Australia, Asia, Middle East, Soprole in Chile, DPA in South America, farms in China and our ingredients and foodservice businesses in Asia, the US and Europe. In addition, investments have to be prioritised between New Zealand and international operations, and a clear comparison of the returns between different options is a key factor in any such decision.

- **Milk Production Decisions**: it is important for both Fonterra and New Zealand as a whole that farmers receive accurate price signals about the true value of supplying additional milk. If milk is under-priced relative to its true value, farmers will forego profitable opportunities to supply milk. If milk is over-priced relative to its true value, farmers will be induced to spend more to supply additional milk than the milk is actually worth.