

## **Our approach to reviewing Fonterra's Milk Price Manual and base milk price calculation**

**The Commission:** Sue Begg, Convenor

Dr Mark Berry

Dr Stephen Gale

Date of publication: 15 September 2016



## Version history

Publication date	Version
15 September 2016	2
15 August 2016	1

# Table of Contents

<b>Chapter 1</b>	<b>Introduction</b>	<b>1</b>
	Purpose of this paper	1
	Our review process	1
	How this paper is structured	2
<b>Chapter 2</b>	<b>Our interpretation of key legislative provisions</b>	<b>3</b>
	Purpose of this chapter	3
	Policy objectives of the milk price monitoring regime	3
	The s 150A purpose	3
	Interpretation of the 'efficiency' dimension	4
	Interpretation of the 'contestability dimension'	5
	'Safe harbours' – s 150B	5
	'Mandatory assumptions' – s 150C	6
	Interpretation of assumptions, inputs and process for the calculation review	6
<b>Chapter 3</b>	<b>Our practical approach to the statutory reviews</b>	<b>8</b>
	Purpose of this chapter	8
	Our analytical approach to the efficiency dimension	8
	Our analytical approach to the contestability dimension	10
	Our practical approach to the Manual review	11
	Our practical approach to the calculation review	13
<b>Chapter 4</b>	<b>Overview of how the base milk price is set</b>	<b>20</b>
	Purpose of this chapter	20
	Milk prices in New Zealand	20
	Farm gate milk market in New Zealand	21
	Fonterra's approach to calculating its farm gate milk price	21
	Fonterra's methodology for setting its farm gate milk price	22
<b>Attachment A</b>	<b>The notional producer and its key assumptions</b>	<b>24</b>
	Purpose of this attachment	24
	The notional producer concept	24
<b>Attachment B</b>	<b>Governance supporting the milk price calculation</b>	<b>27</b>
	Purpose of this attachment	27
	Base milk price calculation governance and assurance processes	27

## Chapter 1 Introduction

### Purpose of this paper

1. This paper provides an overview of our approach to the annual reviews of Fonterra's Milk Price Manual (the Manual) and the base milk price calculation (the calculation).<sup>1</sup>
2. We recommend this paper is used as a frame of reference when considering our reports on our statutory reviews of the Manual and the calculation. It provides context for the conclusions and reasoning surrounding the Manual and calculation reviews.
3. For each review, we will update this paper with any major changes in our approach. Any changes will also be signalled before our draft reports are published.

### Our review process

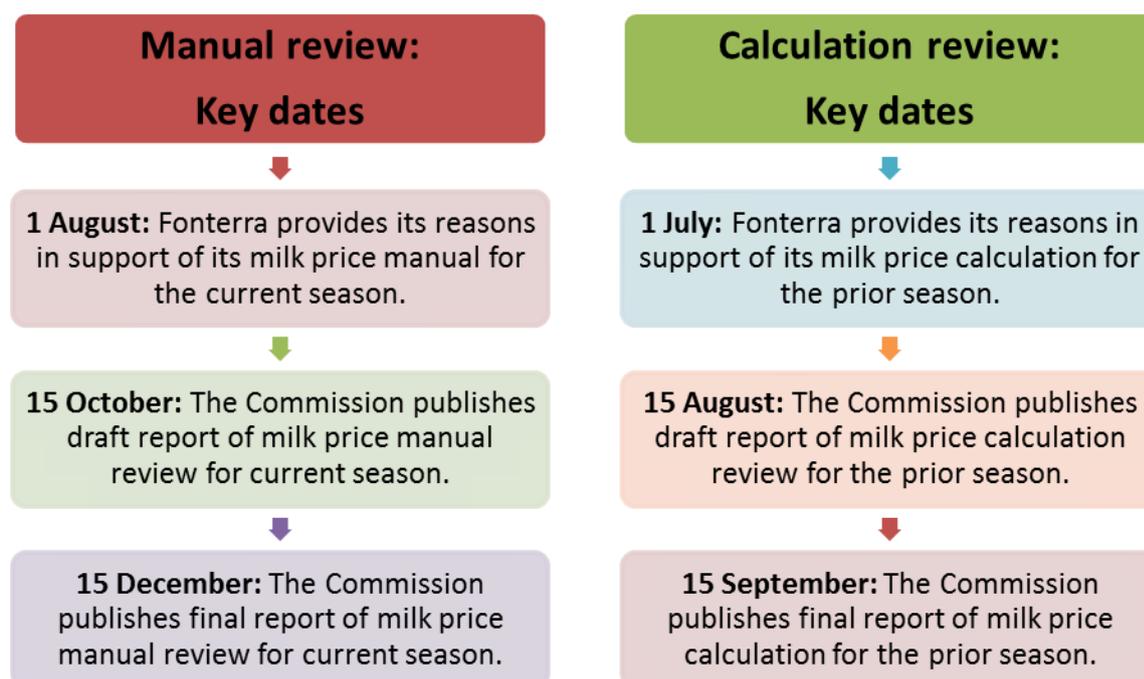
4. The Dairy Industry Restructuring Act 2001 (the Act) requires us to complete two separate, but related, reviews of Fonterra's setting of the base milk price for each dairy season:<sup>2</sup>
  - 4.1 following the start of each dairy season, a review of the Manual that considers Fonterra's methodology for calculating its base milk price for that season; and
  - 4.2 following the end of each dairy season, a review Fonterra's calculation of the base milk price.
5. Figure 1.1 outlines the key dates for our reviews of the Manual and the calculation each season. These dates are set out in the Act.

---

<sup>1</sup> The Dairy Industry Restructuring Act 2001 refers to the farm gate milk price as the base milk price. Our approach to the Manual and the calculation are broadly the same. We note that there will be some repetition throughout this paper.

<sup>2</sup> The dairy season runs from 1 June until 31 May.

**Figure 1.1 Key dates for our reviews each season<sup>3</sup>**



### How this paper is structured

6. In this paper we set out our approach to the reviews. It includes an overview of:
  - 6.1 our interpretation of key legislative provisions guiding our reviews;
  - 6.2 how Fonterra sets its base milk price;
  - 6.3 the notional producer and its key assumptions;<sup>4</sup> and
  - 6.4 governance supporting the calculation.

<sup>3</sup> We start our reviews before Fonterra provides its Reasons Paper for the Manual and calculation to allow sufficient time to complete the reviews.

<sup>4</sup> Attachment E of the Milk Price Calculation Review 2014/15 provides an infographic showing what the notional producer looks like for the purposes of calculating Fonterra's base milk price. Commerce Commission "Review of Fonterra's 2014/15 base milk price calculation: Dairy Industry Restructuring Act 2001" (final report) 15 September 2015.

## Chapter 2 Our interpretation of key legislative provisions

### Purpose of this chapter

7. In this chapter we set out our interpretation of the following key legislative provisions in the Act that guide our reviews:
  - 7.1 the purpose of the milk price monitoring regime - s 150A;
  - 7.2 'safe harbours' – s 150B;
  - 7.3 'mandatory assumptions' – s 150C;
  - 7.4 our Manual review and report – s 150H, 150I and 150J; and
  - 7.5 our calculation review and report – s 150O, 150P and 150Q.

### Policy objectives of the milk price monitoring regime

8. The milk price monitoring regime is intended to provide incentives for Fonterra to act efficiently while providing for contestability in the market for the purchase of raw milk.
9. It also promotes greater transparency of Fonterra's base milk price setting processes.<sup>5</sup>
10. The regime monitors whether the base milk price set by Fonterra provides incentives for it to operate efficiently while not precluding efficient processors from potentially competing.<sup>6</sup>

### The s 150A purpose

11. Section 150A sets out the purpose of Subpart 5A of the Act, which gives effect to the milk price monitoring regime:

---

<sup>5</sup> Dairy Industry Restructuring Amendment Bill (Government Bill) 2012, p.2.

<sup>6</sup> Synlait submitted that this statement understates the contestability purpose, while Miraka submitted that the statement reflected a bias towards incentivising the Fonterra efficiency purpose over the contestability purpose. Synlait "Submission on the Commerce Commission's 2015/16 base milk price calculation review draft report" (1 September 2016), paragraph 13, Miraka "Submission to the Commerce Commission Draft Report (1 August 2016): Review of Fonterra's 2015/16 base milk price calculation" (1 September 2016), paragraph 2.2. We disagree that our framing understates this purpose. The essence of contestability is that efficient firms are able to compete in the market. If efficient firms are able/not precluded from competing in the market then contestability is provided for.

#### 150A Purpose of this subpart

- (1) The purpose of this subpart is to promote the setting of a base milk price that provides an incentive to new co-op to operate efficiently while providing for contestability in the market for the purchase of milk from farmers.
- (2) For the purposes of this subpart, the setting of a base milk price provides for contestability in the market for the purchase of milk from farmers if any notional costs, revenues, or other assumptions taken into account in calculating the base milk price are practically feasible for an efficient processor.

12. Our reviews of the Manual and the calculation consider the ‘efficiency’ and ‘contestability’ dimensions.<sup>7</sup> They focus on whether the Manual and the calculation provide:

12.1 an incentive for Fonterra to operate efficiently (the ‘efficiency dimension’);  
and

12.2 for contestability in the market for the purchase of raw milk from farmers (the ‘contestability dimension’).

13. To satisfy the provisions in s 150A, our interpretation is that our statutory reviews must assess both dimensions.<sup>8</sup>

#### **Interpretation of the ‘efficiency’ dimension**

14. Section 150A(1) refers to incentives to Fonterra to “operate efficiently”.

15. There are many factors which can, and do, incentivise Fonterra to operate efficiently. We have interpreted the primary focus of the efficiency dimension to be providing incentives for Fonterra to drive cost efficiencies (ie, productive and dynamic efficiency) through setting the base milk price.<sup>9</sup>

16. When assessing the efficiency dimension we focus on the following:

---

<sup>7</sup> These two interlinked dimensions form the s 150A purpose under Subpart 5A of DIRA (2001).

<sup>8</sup> We attach equal weight to both dimensions in our assessment.

<sup>9</sup> Productive efficiency is present when producers use inputs in such a manner as to minimise costs, subject to technological constraints. Dynamic efficiency relates to decisions made over time which result in improvements in productive efficiency. We are primarily concerned with productive and dynamic efficiencies when reviewing Fonterra’s costs. For revenue items (such as the selection of reference commodity products and sales prices), where productive efficiency is not relevant, we necessarily focus on allocative efficiency. Allocative efficiency occurs when there is an optimal distribution of goods and services, and involves taking into account consumers’ preferences.

- 16.1 our review of the Manual requires us to report whether the methodology for calculating the base milk price in the Manual incentivises Fonterra to operate efficiently; and
  - 16.2 our review of the calculation requires us to assess whether the assumptions adopted, inputs and process used by Fonterra in setting the base milk price incentivise Fonterra to operate efficiently.
17. Our view is that the methodology for calculating the base milk price in the Manual and the assumptions adopted, inputs and process used in the calculation will provide an incentive for Fonterra to operate efficiently where the Manual provides for independent notional benchmarks for the revenue and cost inputs in the calculation and the calculation uses these benchmarks for the revenue and cost inputs.
18. This is consistent with the Act, which envisages the use of notional values, and involves the assumption of a notional milk processing and collecting business (the 'notional producer').

### **Interpretation of the 'contestability dimension'**

19. Section 150A(2) outlines the 'contestability dimension' as a function of whether any notional costs, revenues, or other assumptions taken into account in the calculation are 'practically feasible' for an efficient processor.
20. Our interpretation is that the contestability dimension is satisfied if:
- 20.1 The Manual provides for the assumptions used in setting the base milk price to be practically feasible; and
  - 20.2 The assumptions adopted, inputs and processes used in the calculation are practically feasible.

### **'Safe harbours' – s 150B**

21. Section 150B lists certain assumptions that, if used in the Manual or the calculation, are not considered to detract from the achievement of the purpose set out in s 150A. We interpret s 150B as being intended to create 'safe harbours', where Fonterra can use these assumptions without affecting the conclusions of our reviews.<sup>10</sup>

---

<sup>10</sup> We note Miraka's submission that the safe harbour provisions are discretionary and that Fonterra is permitted, but not required to rely on them to meet the purpose of subpart 5A. We also note Miraka's submission that reliance on the safe harbour provisions does not make the Notional Producer practically feasible. Miraka "Submission to the Commerce Commission Draft Report (1 August 2016): Review of Fonterra's 2015/16 base milk price calculation" (1 September 2016). In this regard, we agree that the safe

## **‘Mandatory assumptions’ – s 150C**

22. In order to achieve the purpose of s 150A, s 150C requires the base milk price to be set in a way that is consistent with certain principles. In particular, the revenues and costs taken into account in calculating the base milk price must be determined from the prices of a portfolio of ‘Reference Commodity Products’ (RCPs).
23. This portfolio of commodities is referred to in s 150C (2) of the Act. It requires the milk price to include the commodities that are likely to be the most profitable over a period not exceeding 5 years and for the commodities to utilise all components of the milk. The setting of the base milk price must include the costs of processing milk into the same portfolio of RCPs.

## **Interpretation of assumptions, inputs and process for the calculation review**

24. We interpret the terms “assumptions adopted, inputs and process used” to have the following meaning:
  - 24.1 assumptions – the underlying rationale as to why certain inputs and process were selected (ie, ‘the why’);
  - 24.2 inputs – what data or description of data sources are used to populate the calculation (ie, ‘the what’); and
  - 24.3 process – how inputs are being transformed into the components of the calculation (ie, ‘the how’).

## **Our review and report requirements**

### **The Manual review requirements**

25. We have a statutory requirement to review the Manual for each dairy season.<sup>11</sup>
26. The Act requires us to then publish a report on the extent to which the Manual for each dairy season is consistent with the s 150A purpose.<sup>12</sup> In providing our report, we must consider the following information provided by Fonterra:
  - 26.1 the Manual;

---

harbour provisions are discretionary, but note that s150B provides a conclusive presumption that the assumptions it contains do not detract from the purpose set out in section 150A (including the contestability purpose).

<sup>11</sup> S 150H of the Act.

<sup>12</sup> S 150I and s 150J of the Act.

- 26.2 Fonterra's 'reasons' paper outlining its view on the extent of the consistency of the Manual with the s 150A purpose; and
- 26.3 Fonterra's submission on our draft report (if provided).
27. The Act requires us to provide and consult with Fonterra on our draft report unless another procedure is agreed between us and Fonterra.<sup>13</sup>

### **The calculation review requirements**

28. We have a statutory requirement to review the calculation for each dairy season.<sup>14</sup>
29. The Act requires us to then publish a report on the extent to which the assumptions adopted and the inputs and process used by Fonterra in calculating the base milk price for the season are consistent with the s 150A purpose.<sup>15</sup> In providing our report we must consider the following information provided by Fonterra:
- 29.1 Fonterra's 'reasons' paper outlining its view on the extent of the consistency of the calculation with the s 150A purpose; and
- 29.2 Fonterra's submission on our draft report (if provided).
30. The Act requires us to provide and consult with Fonterra on our draft report unless another procedure is agreed between us and Fonterra.<sup>16</sup>
31. In making our report, we are not required to calculate the costs of an independent processor and must not state what we consider the base milk price should be.<sup>17</sup>
32. Further, our role does not include developing an alternative approach to calculating the base milk price or suggesting alternative components of the calculation that we think would best promote the efficiency and contestability purposes of subpart 5A.

---

<sup>13</sup> S 150M of the Act.

<sup>14</sup> S 150O of the Act.

<sup>15</sup> S 150P and s 150Q of the Act.

<sup>16</sup> S 150S and s 150U of the Act.

<sup>17</sup> S 150P of the Act.

## Chapter 3 Our practical approach to the statutory reviews

### Purpose of this chapter

- 33. This chapter describes our analytical and practical approach to carrying out the statutory reviews.
- 34. We cover our analytical approach to each dimension, followed by our practical approach to both the Manual review and the calculation review.

### Our analytical approach to the efficiency dimension

- 35. There are many factors which can, and do, incentivise Fonterra to operate efficiently. Improvements in efficiency end up being passed through to a higher base milk price or to a higher Fonterra dividend.<sup>18</sup>
- 36. Our reviews are concerned with whether the Manual and the calculation are consistent with promoting the setting of a base milk price that incentivises Fonterra to operate efficiently. We focus on:
  - 36.1 the use of notional inputs in the calculation of the base milk price; and
  - 36.2 instances when it may be reasonable to use actual data in setting the base milk price.

### The use of notional inputs in the base milk price

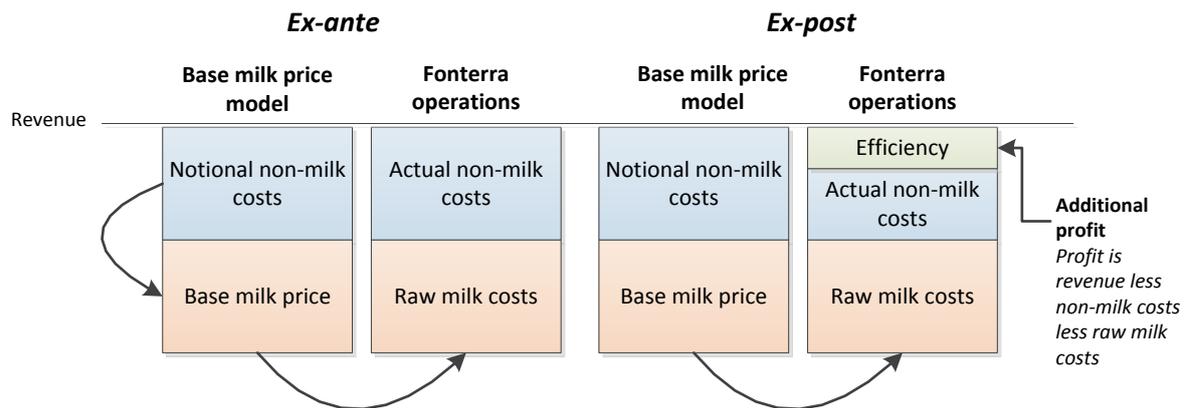
- 37. Our view is that Fonterra has a stronger incentive to operate efficiently when the base milk price is set independently of Fonterra's actual performance.<sup>19</sup>
- 38. The efficiency incentive effects Fonterra's profitability. This is because the price of milk is Fonterra's largest cost driver. For a given level of revenue, any improvements in actual cost efficiency relative to the notional values used in setting the base milk price will result in higher profits. There is no unique price that needs to be ascertained to provide incentives for Fonterra to improve its efficiency. Figure 3.1 illustrates how the use of notional data to set the base milk price can lead to higher profits.

---

<sup>18</sup> ie, through Fonterra earning greater profit.

<sup>19</sup> ie, the calculation uses notional data.

**Figure 3.1 Efficiency incentive effect on Fonterra's profitability**



39. Using notional data provides Fonterra with a benchmark to beat.<sup>20</sup> This increases transparency to shareholders about whether Fonterra is achieving efficiency gains relative to the alternative of using data on Fonterra's actual performance to set the base milk price.
40. In some cases, the notional data used in setting the base milk price is based on Fonterra's actual data in a previous year or years. Therefore, efficiency savings achieved in one year (which result in a reduction in actual costs) may lead to a higher base milk price in a later year.
41. Subpart 5A of the Act is consistent with this approach. It envisages the use of notional values and the assumption of a notional milk processing and collecting business (the 'notional producer').

#### **Instances when it may be reasonable to use actual data in setting the base milk price**

42. There are instances where it may be reasonable to use actual data in setting the base milk price, for example:
- 42.1 when there is insufficient information to know what an appropriate notional value would be, or it would be unreasonably costly to obtain this information;  
or
- 42.2 Fonterra has very limited control over the actual costs.
43. Where actual data has been used to set the base milk price, we explore whether notional data could reasonably have been used instead. We assess whether the use

<sup>20</sup> Ideally the benchmark should be stable over time in order to provide an incentive to operate efficiently over time and to provide transparency to shareholders on efficiency gains achieved.

of this data may distort or weaken Fonterra's incentives to operate efficiently. For example, whether it provides Fonterra with an opportunity to earn higher profits without achieving efficiencies.<sup>21</sup>

### **Fonterra has incentives to improve efficiency to maximise profits**

44. We consider that Fonterra has an incentive to maximise its overall payments to farmers and to shareholders, including unitholders in the publicly listed Fonterra Shareholders' Fund, which was created as part of Trading Amongst Farmers (TAF).<sup>22</sup> Improvements in efficiency may be passed through into a higher base milk price or a higher dividend (ie, profit).
45. We consider Fonterra's management has an incentive to maximise profits (which benefits both farmers and shareholders, including unit holders in the publicly listed Fonterra Shareholders Fund).<sup>23</sup> This incentive is reinforced by the transparency associated with the listing on the stock exchange of the non-voting units, and the importance to Fonterra of ensuring that its TAF regime works.

### **Our analytical approach to the contestability dimension**

46. Section 150A(2) of the Act sets out the approach to assessing the contestability dimension:

S 150A(2)

- (1) For the purposes of this subpart, the setting of the base milk price provides for contestability in the market for the purchase of milk from farmers if any notional costs, revenue, or other assumptions taken into account in calculating the base milk price are practically feasible for an efficient processor.
47. For the Manual review, we consider whether any notional costs, revenues, or other assumptions taken into account in the Manual are 'practically feasible' for an efficient processor.
48. For the calculation review, we consider whether the assumptions adopted, and inputs and process used in the calculation are practically feasible for an efficient processor.

---

<sup>21</sup> For example, through a combination of using actual and notional values in the base milk price calculation.

<sup>22</sup> This replaced the Fonterra share purchase and sale process, which involved the issuing and redemption of shares by Fonterra. More details about TAF can be found in para 94 of this document.

<sup>23</sup> The use of the term 'profits' throughout this report refers to the difference between Fonterra's revenues and costs (including the cost of raw milk) and includes dividends paid to shareholders (including farmers and unit holders in the publicly listed Fonterra Shareholders Fund).

### **What is an ‘efficient processor’?**

49. The term ‘efficient processor’ is not defined in the Act. Our interpretation is that it is a processor that is able to operate at least cost over time. This is consistent with our view that the primary focus of the efficiency dimension is on improving incentives for Fonterra to drive cost efficiencies over time.<sup>24</sup>
50. We consider a new entrant or existing processor expanding in the New Zealand farm gate milk market is more likely to achieve a lower cost of operation over time. This is because a newly built plant would be able to take advantage of the latest technology. This ‘incremental’ plant could be built at a capacity to take the best possible advantage of cost efficiencies in activities such as the collection and processing of milk.
51. We therefore consider the base milk price setting is consistent with the contestability dimension if the assumptions adopted, and inputs and processes used are practically feasible for Fonterra, or another processor, that is efficiently building an incremental plant.

### **Our practical approach to the Manual review**

52. Our Manual review for each season builds on the conclusions from our previous reviews. In the Manual review we consider:
  - 52.1 Fonterra’s amendments to the Manual for the dairy season;
  - 52.2 outstanding issues from previous Manual reviews;
  - 52.3 issues arising from our previous calculation review (including submissions), which relate to the Manual; and
  - 52.4 issues arising from submissions by interested parties during the Manual review.
53. Our review groups issues by common themes and is particularly focused on the issues that are most likely to have a material impact on the calculation. Our approach involves:
  - 53.1 assessing the extent to which the Manual provides incentives for Fonterra to operate efficiently;

---

<sup>24</sup> ie, productive and dynamic efficiency.

- 53.2 assessing whether the Manual provides for the notional costs, revenues and other assumptions that are individually practically feasible for Fonterra; and
  - 53.3 performing cross-checks to ensure the Manual provides for the notional costs, revenues and other assumptions that are practically feasible in aggregate.
54. We rely on past conclusions for the provisions which Fonterra has not made any amendments to the Manual for the season and there are no outstanding issues.

**Assessing whether Fonterra’s Manual assumptions are individually practically feasible**

55. We examine whether the notional costs, revenues, and other assumptions in the Manual that are used in calculating the base milk price are practically feasible for Fonterra. We consider that this approach is appropriate because, more often than not, the Manual provides for the use of parameters that reflect Fonterra’s ‘average’ plant rather than its most cost efficient plant(s). An efficient processor building an incremental plant should be able to achieve lower costs than this.
56. The Manual largely provides for the use of performance parameters that are based on the average across all relevant notional RCP plants used in the calculation, rather than on any single recently built Fonterra plant. This is consistent with assuming that there is a national network of facilities for the collection and processing of milk.<sup>25</sup>
57. Also, the notional plants provided for in the Manual approximate the average capacity of Fonterra’s actual plants.<sup>26</sup>

**Assessing whether the Manual provides for practically feasible assumptions in aggregate**

58. We also examine whether our assessment is affected by unique features which are not subject to 'safe harbour' provisions. For example, we consider whether the Manual provides for assumptions that are individually practically feasible for Fonterra due to features unique to Fonterra, and which do not relate to Fonterra acting efficiently. In that case, any such notional costs, revenues, or other assumptions may not be practically feasible for another efficient processor.<sup>27</sup>
59. We also consider:
- 59.1 the internal consistency of provisions in the Manual; and

---

<sup>25</sup> Consistent with the safe harbour provision in s 150B(a) of the Act.

<sup>26</sup> Consistent with the safe harbour provision in s 150B(b) of the Act.

<sup>27</sup> There are no features specific to Fonterra that have a material impact on our conclusions. Ocean outfall which impacts effluent costs is an example of this. For more details see “Final Report Review of Fonterra’s 2012-13 base milk price calculation” 16 September 2013, para M12, p. 104.

- 59.2 the overall impact of any assumptions in the Manual which may not be individually practically feasible or that we are unable to conclude on in our review.<sup>28</sup>

### **Assessing components under the safe harbour provisions**

60. Where revenue or cost components of the calculation apply the 'safe harbour' provisions of s 150B they are excluded from our assessment against the s150A purpose.
61. Our analysis of these components is limited to verifying whether their methodology is consistent with the 'safe harbour' provisions in s 150B.

### **Assessing mandatory assumptions with the Manual**

62. Our Manual review involves examining whether the assumptions in the Manual are consistent with the principles outlined in s 150C of the Act.

We may not be able to conclude on the extent to which some aspects of the Manual are consistent with the s 150A purpose

63. We may not be able to conclude on the efficiency and contestability dimensions of all notional costs, revenues and assumptions in the Manual. If so we will, to the extent possible, assess them during our review of the calculation in the season that the Manual relates to.

### **Our practical approach to the calculation review**

64. Our review of the calculation builds on the conclusions from our previous reviews. In each calculation review we consider:
- 64.1 outstanding issues from our previous calculation and Manual review(s);
  - 64.2 issues arising from submissions made by interested parties;
  - 64.3 Fonterra's review of components in its Manual;<sup>29</sup>
  - 64.4 Fonterra's amendments to the current season's Manual;
  - 64.5 any amendments to Fonterra's approach to calculating the components that do not require a Manual amendment;

---

<sup>28</sup> We refer to the methodology in the manual as the notional assumptions.

<sup>29</sup> The Manual requires Fonterra to review certain revenue and cost components every four years (or when the Milk Price Panel chooses to complete a review).

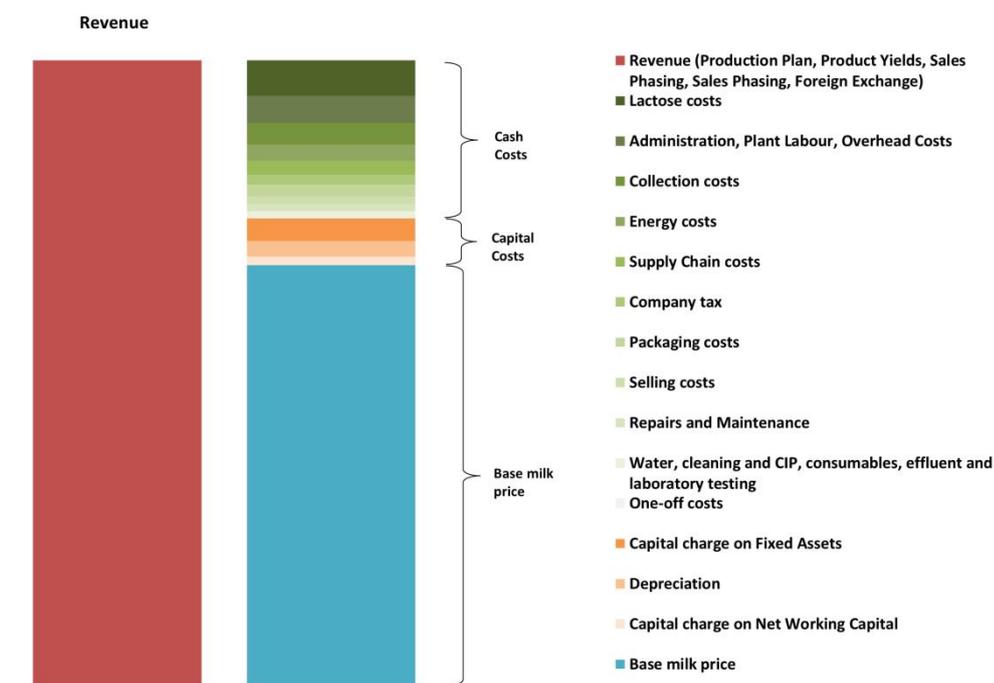
- 64.6 sensitivity of components to the milk price; and
- 64.7 any adjustments made to the milk price by Fonterra.
- 65. Based on the information we gather, we determine the key areas to focus on for each calculation review.
- 66. For the other revenue and cost components that are not part of the more-detailed analysis, we undertake a 'fit for purpose' review, which involves:
  - 66.1 an analytical verification of the values used in the component against our previous reviews of the same component; and
  - 66.2 a review of the consistency of the assumptions, inputs and processes related to the different components.
- 67. If any aspect of this 'fit for purpose' review identifies inconsistencies with our previous analysis or other components of the base milk price calculation model, we will consider whether more analysis of that component is required.<sup>30</sup>
- 68. Figure 3.2 shows the relative size of each component of the base milk price calculation, based on 2014/15 figures.<sup>31</sup>

---

<sup>30</sup> We are provided with the full model, its underlying models and documentation for purposes of our review. The public version of Fonterra's milk price model is available at Fonterra's website. We expect Fonterra to update this annually. "Milk Price Methodology: Milk Price Statements" (2014/15) <<http://www2.fonterra.com/our-financials/milk-price-methodology>> (Viewed on 5 May 2016).

<sup>31</sup> The relative size of each cash and capital costs is relatively stable over time.

**Figure 3.2 Relative size of components of the base milk price**



### Assessing components under the safe harbour provisions

69. Like the manual review, we exclude components which apply the 'safe harbour' provision from assessment against the s 150A purpose.
70. Our analysis of these components is limited to verifying whether their calculation is consistent with the 'safe harbour' provisions in s 150B.

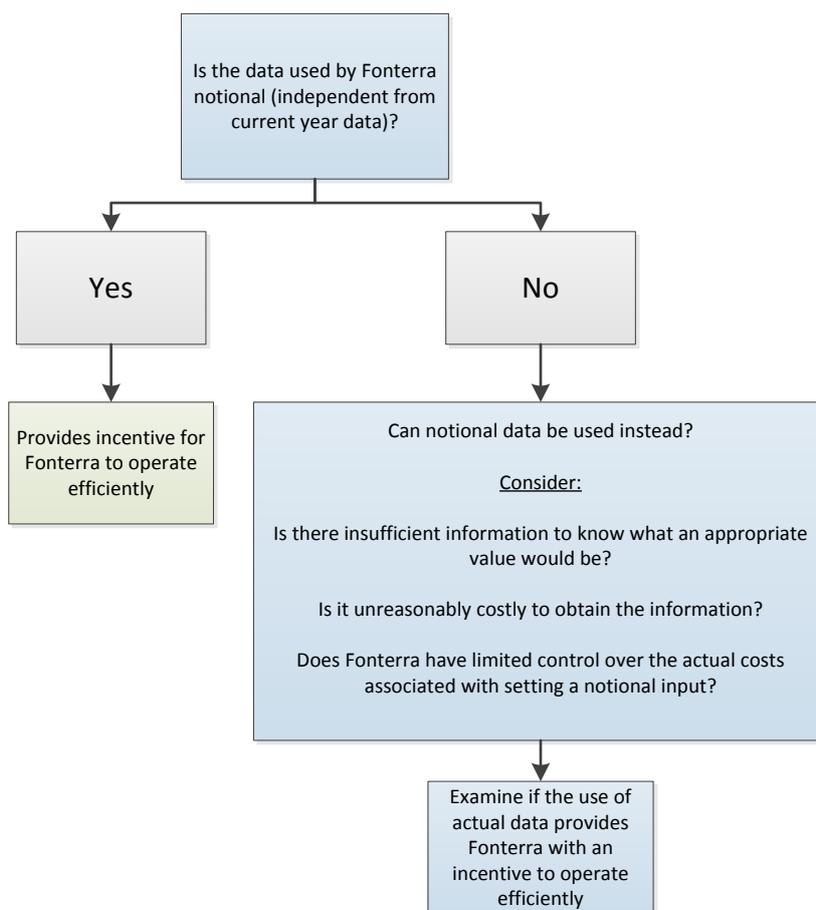
### Assessing mandatory assumptions with the calculation

71. Our calculation review involves examining whether the calculation of the milk price is consistent with the principles outlined in s 150C of the Act.

### Assessing the efficiency dimension

72. The way we apply our analytical approach for testing the efficiency dimension of the different components is outlined in Figure 3.3.

**Figure 3.3 Process for assessing the efficiency dimension**



### Assessing the contestability dimension

73. Our approach to assessing the contestability dimension involves:

- 73.1 assessing whether the assumptions adopted, inputs and processes are individually practically feasible for Fonterra or an efficient processor; and
- 73.2 performing cross-checks to ensure the assumptions adopted, inputs and processes are practically feasible in aggregate. This involves analysing whether the assumptions, inputs and processes in the revenue and cost components are consistent with each other.<sup>32</sup>

---

<sup>32</sup> For example, the assumed production yields should be achievable based on the number of sites, different types of sites and location assumed in the model.

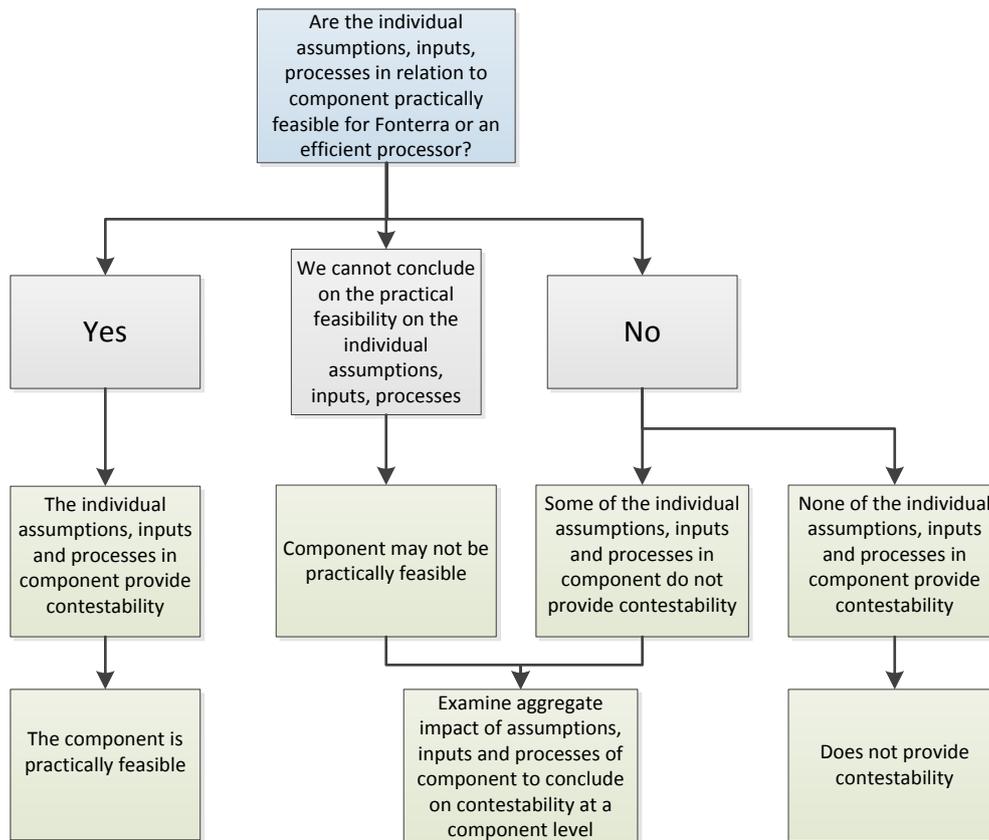
74. Our calculation review starts by deconstructing the base milk price into the line item components to which the assumptions adopted, and the inputs and processes used by Fonterra relate.<sup>33</sup>
75. We then assess whether the individual assumptions, inputs and processes relating to the different components are practically feasible for an efficient processor (building an incremental plant). This involves examining, wherever possible, whether the assumptions, inputs and processes reflect activities and achievable levels of performance based on evidence provided by Fonterra.
76. For the majority of data that we have available to us, we can examine whether the assumptions adopted, inputs and process used to calculate the base milk price are practically feasible for Fonterra. This approach is appropriate because, more often than not, the data used reflects the costs of Fonterra's 'average' plant rather than its most cost efficient plant(s). Therefore an efficient processor (building an incremental plant) should be able to achieve lower costs.
77. Where we are unable to conclude that Fonterra's notional average values are practically feasible or where average data has not been used, we rely on data from Fonterra's specific recently built plants. In these circumstances, if some part of Fonterra's business (such as a specific plant), is able to achieve those costs,<sup>34</sup> an efficient processor (building an efficient incremental plant) should also be able to achieve them.
78. Our process for assessing the contestability dimension is outlined in Figure 3.4.

---

<sup>33</sup> The deconstruction of the base milk price into line item components can be found in figure 3.2 and Fonterra's seasonal Reasons Paper in support of its base milk price calculation.

<sup>34</sup> Subject to the safe harbour provisions, s150B DIRA 2001.

**Figure 3.4 Process for assessing the contestability dimension**



79. To reach our conclusion on the practical feasibility of the individual components, as a cross-check we consider whether the assumptions, inputs and processes are practically feasible for Fonterra due to features unique to Fonterra, (which do not relate to Fonterra acting efficiently). In that case, the assumptions, inputs and processes may not be practically feasible for another efficient processor.
80. We acknowledge there is a potential risk that the individual assumptions, inputs and processes may not collectively be practically feasible. We undertake the following cross-checks:
- 80.1 checking the assumptions, inputs and processes used to determine the base milk price are internally consistent with each other;
  - 80.2 whether the combined assumptions adopted, inputs and process used are practically feasible; and

- 80.3 checking the overall impact on the base milk price of the assumptions, inputs and processes which are not individually practically feasible or that we are unable to conclude on.<sup>35</sup>

*Cross-check of the calculation with the Manual*

81. We also perform a cross-check on whether the calculation is consistent with the provisions set out in the Manual.

**Our practical approach to the calculation review if Fonterra makes an adjustment to the base milk price**

82. The Fonterra Board sets the base milk price for each dairy season based on the recommendations of the Milk Price Panel (Panel).<sup>36</sup> It is expected that the Panel will recommend the setting of the base milk price equal to the milk price set in accordance with the Manual.<sup>37</sup>
83. However, if Fonterra does not set the base milk price in accordance with the Manual (as recommended by the Panel), it is required to publicly make a statement about its reasons for doing so.<sup>38</sup>
84. If Fonterra adjusts the base milk price, our calculation review includes an analysis of the way the adjustment amount is determined. This also enables us to conclude on whether applying an adjustment to the milk price set by the manual, is consistent with the efficiency and contestability dimensions.<sup>39</sup>
85. Along with the assessment of the adjusted price, we still complete our assessment of the base milk price calculated under the manual. This involves assessing the extent to which Fonterra's assumptions adopted, and inputs and processes used in calculating the milk price are consistent with the efficiency and contestability dimensions.<sup>40</sup>

---

<sup>35</sup> I.e. for example if the overall impact of the base milk calculation was small, we would conclude that the component is practically feasible.

<sup>36</sup> The Milk Price Panel was established under s 150D of the Act.

<sup>37</sup> Chapter 4 outlines how Fonterra sets the base milk price and Attachment B contains more information about Fonterra's governance surrounding the setting of the base milk price.

<sup>38</sup> S 150N of the Act.

<sup>39</sup> Efficiency and contestability dimensions outlined in s 150A purpose statement of the Act.

<sup>40</sup> The extent of analysis is dependent on the size of the adjustment. Documenting our component analysis help in undertaking our next calculation review and provides interested parties with an ongoing trend assessment.

## Chapter 4 Overview of how the base milk price is set

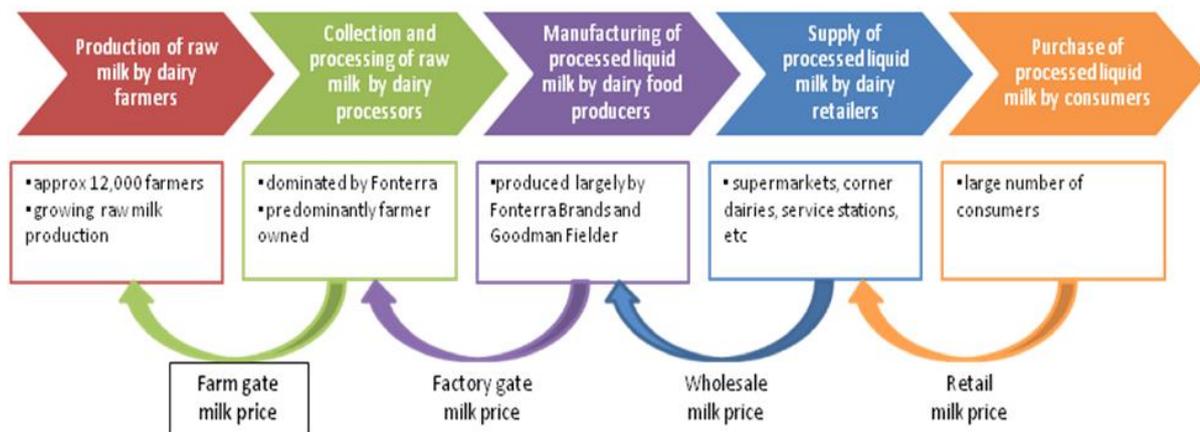
### Purpose of this chapter

86. This chapter:
- 86.1 outlines the different milk prices within the milk supply chain;
  - 86.2 explains the unique nature of the farm gate milk market in New Zealand;
  - 86.3 explains the methodology Fonterra uses to calculate its farm gate milk price.<sup>41</sup>

### Milk prices in New Zealand

87. The phrase ‘milk price’ can have different meanings depending on which stage of the milk supply chain is being considered. Figure 4.1 describes the milk supply chain in New Zealand. It shows the different components of the ‘milk price’ as generated by different milk markets within the supply chain.

**Figure 4.1 Milk supply chain in New Zealand**



88. As shown in Figure 4.1, the ‘milk price’ in New Zealand is made up of the following four components:
- 88.1 farm gate milk price - the price paid by dairy processors (eg, Fonterra) to dairy farmers for raw milk;
  - 88.2 factory gate milk price - the price paid by dairy processors and dairy food and beverage producers (eg, Goodman Fielder) to other dairy processors for either raw milk or dairy ingredients;

<sup>41</sup> The Act uses the term “base milk price” and all references here to the farm gate milk price should be read as meaning the same.

- 88.3 wholesale milk price - the price paid by dairy retailers (eg, supermarkets) to dairy food and beverage producers for processed milk; and
- 88.4 retail milk price - the price paid by dairy consumers to dairy retailers for processed milk.
89. Approximately 95% of the total raw milk produced in New Zealand is exported in one or more product forms. This means the prices of all four components of the 'milk price' are influenced by both the international dairy market's demand and supply and by foreign exchange fluctuations. Our reviews focus solely on the farm gate milk price and not any other milk price within the milk supply chain.

### **Farm gate milk market in New Zealand**

90. In a workably competitive farm gate milk market, the level of the farm gate milk price would be determined through:
- 90.1 competition between suppliers of raw milk (ie, farmers) to processors; and
- 90.2 through those processors competing in both the purchase of raw milk and its onward sale after processing.
91. Currently in New Zealand there is not a workably competitive market process to derive a farm gate milk price.<sup>42</sup> Therefore, the Act requires Fonterra to determine it using an administrative methodology.<sup>43</sup>

### **Fonterra's approach to calculating its farm gate milk price**

92. From its formation in 2001 until 2009, Fonterra's payment to dairy farmers for their raw milk was bundled together with the returns for their shareholding. During that time, Fonterra's farm gate milk price was calculated only for the purpose of estimating its long-run earnings for share valuation purposes.
93. Shareholding dairy farmers have always had two separate but related interests in Fonterra. They are recompensed through two revenue streams:
- 93.1 payment for the raw milk they supply; and
- 93.2 dividend payments for the share capital they hold in the cooperative.<sup>44</sup>

---

<sup>42</sup> As at the end of the 2014/15 season, Fonterra collects approximately 85% of total raw milk supply in New Zealand. Commerce Commission "Final Report: Review of the state of competition in the New Zealand Dairy Industry" (1 March 2016), paragraph D30.

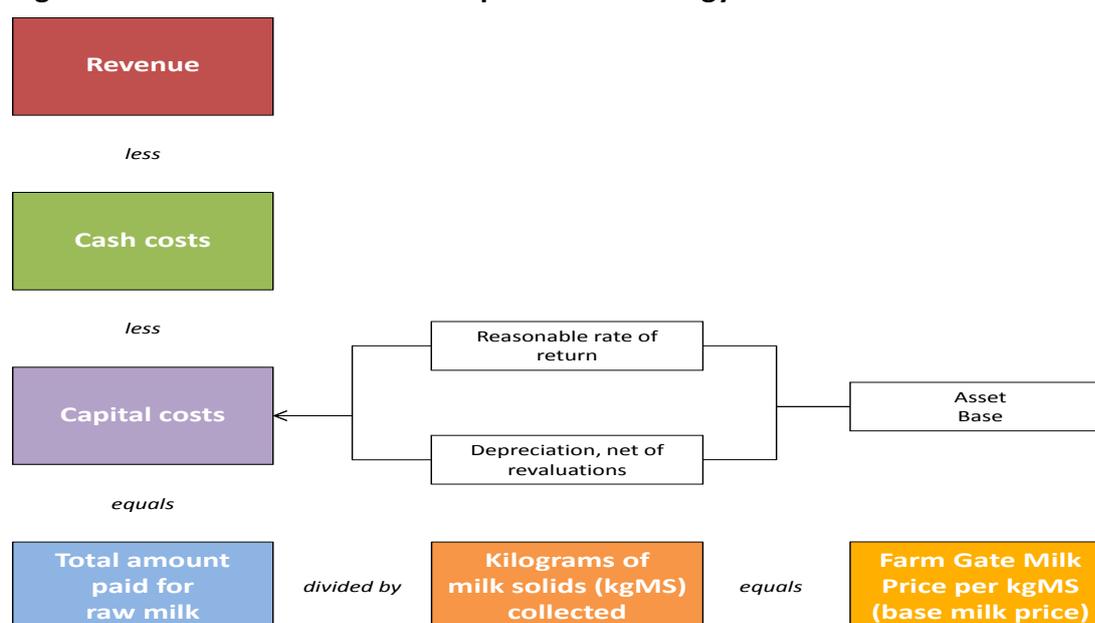
<sup>43</sup> ie, the Manual and the base milk price calculation model.

94. Consequently, supplier-shareholders tend to be interested in the total return on raw milk and share capital invested in Fonterra, rather than the individual parts.
95. In 2009, Fonterra unbundled its total return to farmers into the farm gate milk price paid for raw milk and the returns on share capital. With the unbundling came the need to set the farm gate milk price independently of Fonterra's share valuation processes.
96. In 2010, Fonterra shareholders voted to change Fonterra's capital structure to implement TAF.<sup>45</sup> Under TAF, the economic interests of external (non-farmer) investors will be for Fonterra to maximise the share price and the return on share capital invested in Fonterra, rather than the return on raw milk.

### Fonterra's methodology for setting its farm gate milk price

97. Fonterra's methodology for calculating its farm gate milk price is guided by a set of principles set out in its Constitution and outlined in its Manual. Figure 4.2 provides a visual representation of Fonterra's methodology.

**Figure 4.2 Fonterra's base milk price methodology**



<sup>44</sup> To supply raw milk to Fonterra, dairy farmer shareholders are required to hold one share for every kilogram of milk solids they wish to supply to the cooperative. We understand that an average Fonterra supplier holds approximately half a million dollars in Fonterra shares at the current share valuation. There are a small number of dairy farmers who supply Fonterra with raw milk on a contract supply basis and do not hold shares.

<sup>45</sup> TAF was endorsed by Fonterra shareholders in June 2012 with the live trading of shares commencing on 30 November 2012.

98. The farm gate milk price is expressed in terms of dollars per kilograms of milk solids (kgMS) supplied to Fonterra. This price represents an average price paid to farmers. The actual payments to individual farmers for their milk are adjusted for the composition of the milk supplied<sup>46</sup> and the timing of supply.<sup>47</sup>
99. Fonterra calculates the farm gate milk price from the total pool of money available for payment to farmers for their raw milk supply each season. This is determined by:
- 99.1 the revenue Fonterra would earn in NZ dollars if the equivalent of all the raw milk supplied to Fonterra in New Zealand was converted into the RCP product mix, and sold on international dairy markets; less
  - 99.2 the 'cash' costs (or operating costs) of collecting raw milk from farms, processing it into the RCP product mix and transporting this product to the point of export from New Zealand, plus the costs of selling the finished product, administration/overhead and tax expenses; less
  - 99.3 the capital costs, which provide for depreciation of fixed assets, return on and of capital investment, and working capital.
100. Fonterra makes a number of payments to farmers for raw milk during the dairy season (based on its forecast farm gate milk price). However, its current policy is to confirm the final farm gate milk price after the end of the season.<sup>48</sup> Fonterra's final farm gate milk price is typically set in September following the end of the season. This results in end of year 'wash-up' payments to farmers.
101. Any changes to the Manual take effect in the financial year after the year in which the changes are made.<sup>49</sup>

---

<sup>46</sup> In terms of the fat and protein components.

<sup>47</sup> Eg, milk supplied during the winter period attracts certain premiums.

<sup>48</sup> The dairy season runs from 1 June to 31 May.

<sup>49</sup> Fonterra's financial year is from 1 August to 31 July.

## **Attachment A The notional producer and its key assumptions**

### **Purpose of this attachment**

- A1 This attachment provides a description of the notional producer by outlining the following:
  - A1.1 The notional producer concept; and
  - A1.2 Key assumptions of the notional producer.

### **The notional producer concept**

- A2 Fonterra calculates the milk price by using a notional construct that we call ‘the notional producer’.
- A3 The aim is to use this notional construct to set an efficient milk price (ie, a milk price that is derived by Fonterra or another efficient processor producing only commodity dairy products).
- A4 The notional producer has the same site footprint as Fonterra’s manufacturing site footprint but only produces Fonterra’s five most profitable commodity products.
- A5 The notional producer uses actual Fonterra data to reflect some of its revenue and cost components, such as Fonterra’s actual revenues for certain commodities sold on its global dairy trade (GDT) auction platform and Fonterra’s foreign exchange gains and losses.
- A6 The key assumptions made in determining the revenue and costs associated with the notional producer are set out in Table A1.

**Table A1 Key assumptions made for the Notional Producer**

Assumption	Details
<b>Commodity business</b>	Standard dairy commodity manufacturer that produces: <ul style="list-style-type: none"> <li>• whole milk powder (WMP)</li> <li>• skim milk powder (SMP)</li> </ul> its by-products: <ul style="list-style-type: none"> <li>• butter</li> <li>• anhydrous milk fat (AMF)</li> <li>• buttermilk powder (BMP).</li> </ul> Collectively these are known as the RCPs. <sup>50</sup>
<b>Milk Collection</b>	Collects and uses the same amount of milk as Fonterra each season. The notional producer also uses the same milk composition.
<b>Production and export</b>	All products produced in New Zealand and all exported.
<b>Site footprint</b>	Site footprint is the same as Fonterra's commodity processing site footprint. <sup>51</sup>
<b>Sales through GDT</b>	Sells 90% of its products on the GDT. Remaining 10% sold to government procurement agencies.
<b>Pricing</b>	Prices achieved are aligned to Fonterra's prices achieved for the reference commodity products. <sup>52</sup>
<b>Conversion rate</b>	Sales revenue converted to NZD at the same conversion rates as achieved by Fonterra.
<b>Lactose</b>	Lactose for standardising milk powders imported.
<b>Company structure</b>	Like Fonterra, the notional producer is assumed to be a co-operative.
<b>Capital charge</b>	Uses a 'spread back' asset approach, which results in capital charges in both the initial year and in subsequent years which are independent of the year in which the notional producer's assets were assumed to have been installed.

---

<sup>50</sup> S 150C of the Act requires Fonterra in setting the milk price to include the commodities that are likely to be the most profitable over a period not exceeding 5 years and for the commodities to utilise all components of the milk.

<sup>51</sup> This means that collection costs to primary sites (with WMP and SMP plants) are aligned to Fonterra's collection costs to primary sites.

<sup>52</sup> As of 2015/16, WMP, SMP and AMF prices are solely derived from GDT prices. The Manual allows Fonterra to use prices derived from Fonterra's off-GDT sales.

A7 Table A2 outlines the plant and site assumptions of the notional producer.

**Table A2 Notional producer plant and site assumptions**

Plant and site assumption	Details
<b>Site size</b>	Three site sizes: Small: 1 plant; Medium: 2 plants; and Large: 3 or more plants.
<b>Unstandardised products</b>	If there is a shortage in plant capacity within an island to process milk, plants process unstandardised milk powders to create additional capacity. <sup>53</sup> Unstandardised products are assumed to be sold at standardised prices achieved by Fonterra.
<b>Processing capacity</b>	Processing capacity assumed in an island basis (north and south island); Total processing capacity by site is materially aligned to Fonterra's capacity.
<b>Specification of product</b>	Plants producing one specification of product per commodity product: <ul style="list-style-type: none"> <li>• WMP: Regular – NZ;</li> <li>• SMP: Medium Heat – NZ;</li> <li>• Butter: Unsalted – NZ;</li> <li>• AMF – Premium 210kg drum – NZ; and</li> <li>• BMP – UHT – NZ.</li> </ul>
<b>Technology</b>	All plants operate at a level consistent with modern efficient technology.
<b>Replacement of manufacturing plants</b>	All manufacturing plants are replaced in full at the end of a weighted average effective life of 31 years.

---

<sup>53</sup> These unstandardised milk powders contain extra protein.

## Attachment B Governance supporting the milk price calculation

### Purpose of this attachment

B1 This attachment outlines the governance surrounding the calculation of the base milk price. The governance structure is made up of internal and external bodies and processes which aim to satisfy the integrity of the calculation.

### Base milk price calculation governance and assurance processes

B2 The milk price methodology is supported by governance and assurance mechanisms provided by both internal and external parties. These are intended to satisfy the integrity of the data, methodology, consistency of the calculation, and consistency of changes to the Milk Price Manual.

B3 Although our reviews are for a statutory function and do not perform an audit, assurance or decision-making function in respect of the base milk price, they contribute to the overall package of governance functions.

B4 The bodies which support the integrity of the base milk price calculation are outlined in Table B1 and Table B2 below.

**Table B1 Outline of milk price calculation internal reviews**

Internal Parties	
<b>Board of Directors</b>	<b>Internal Audit Team</b>
The Board of Directors are accountable for overall setting of the Milk Price, any adjustments and making it publically available, including reasons for setting a price different to what has been recommended by the Milk Price Panel.	Fonterra's internal audit team provides assurance over the integrity of data sourced from Fonterra's systems, including with respect to the controls maintained to ensure ongoing data integrity. This team assesses the operational effectiveness of controls over source input data to the Milk Price Model. The internal audit also focuses on the risks and controls work completed from the external auditors' Controls Review.
<b>Milk Price Steering Group</b>	<b>Group risk and compliance</b>
The Milk Price Steering group co-ordinates the Milk Price Group to provide management input on farm gate Milk Price matters. This includes ensuring the Milk Price calculation takes into account the full range of costs and matters impacting the revenue of a manufacturer of commodity milk powders and their by-products.	The group risk and compliance review provides additional assurance over the robustness of the model and its inputs.

**Table B2 Outline of milk price calculation external reviews**

External Parties	
<b>External Auditors</b>	<b>Commerce Commission</b>
<p>Fonterra's external audit providers complete two audits annually which focus on the mechanics of the calculation.</p> <p>Their work includes providing assurance on the accuracy of the calculation and of data sourced from Fonterra's systems, and that the calculation is undertaken in accordance with the Manual.</p>	<p>The Commission reviews both the Manual and the base milk price calculation.</p> <p>This involves assessing whether the assumptions, inputs and processes used in calculating the milk price provide an incentive for Fonterra to operate efficiently and for contestability in the market for the purchase of milk from farmers.</p>
<b>Milk price group (MPG)</b>	<b>Milk Price Panel (MPP)</b>
<p>The milk price group is made up of three members. They include an independent member appointed by the board (Director), external member appointed by the board, and an analyst provided by an external provider.</p> <p>Responsibilities include:</p> <ul style="list-style-type: none"> <li>Calculating the base milk price for the season;</li> <li>Providing assurance to board with respect to milk price forecasts;</li> <li>Advising the Panel on the interpretation and administration of the Manual (including recommending amendments);</li> <li>Appointing and overseeing work of independent experts and reviewers; and</li> <li>Determining continued consistency of the Manual and its application with the milk price principles.</li> </ul>	<p>The MPP is formed from the Fonterra Board of Directors. Four of the members are independent, with one internal member. Therefore, the MPP is majority independent.</p> <p>The MPP oversees the governance of the Milk Price and the Manual, including changes to the Manual and verification by independent external experts. They are responsible for providing recommendations to the board.</p>

- B5 The base milk price calculation is extensively audited each year with five separate reviews conducted:
- B5.1 two external audit reviews focussing on the mechanics of the model;
  - B5.2 an internal audit and group risk and compliance declaration provide additional assurance over the robustness of the model and its inputs; and
  - B5.3 the Commission's calculation review assesses the consistency of the inputs, processes and assumptions with the purpose statement in s 150A of the Act.