**Response to the list of corrections**

Thank you for your hard work and feedback. Please find a list of responses to all of the corrections and reference to the page numbers in the CORRECTED thesis.

We will submit a ‘clean’ thesis to SB-PGR once corrections have been accepted.

We have produced a version with corrections highlighted and send to the Internal Examiner for easy checking.

**Response to the general points**

1. Given the focus on economics and environmental impact of dairy production and heifer rearing, there should be more focus on these areas in the literature review. – **Added**
2. This discussion section is important in terms of displaying the Candidates understanding of the findings of the research, limitations of the research and future research requirements. This section could be improved if a fuller and deeper analysis of future research requirements, limitations and industry implications of the research were provided along with the novel findings from this research compared to other studies. For limitations for example, there was a lot of focus in the literature review around immunity in calves, acute phase response etc. but this was not measured? - **Added to the further research and conclusions**
3. There are minor errors throughout the thesis that should be corrected before finalising the thesis i.e formatting, typos, punctuation, references and abbreviations. - **Tried to correct these and always use Grammarly**
4. References underlined in some sections of the thesis (discussion) and not in others. - **Corrected**
5. Ad libitum in italics in places and not in others. - **Corrected**
6. Enteric disease was high in this study, but mortality was exceptionally low. Is there a proper explanation provided for this? – **We agree!** **This is described in the further research and conclusions. To be frank, Jean managed the calves and always ensures a low mortality rate. The farm does have a lot of enteric disease, but this can be a common problem on farms according to the literature review < 70% of calves being treated for enteric disease according to the literature review.**

**Response to the specific points**

1. P6 WW, LW and MW need defining in the Abstract too (you have the other acronyms!) - **Added**
2. P6 Abstract: add one more line explaining the significance of your results
3. P7: 48.5kg – \_clarify what this relates to – **Clarification has been added**
4. P16: consideration of osmotic threshold – check wording – **Re-worded**
5. P16: within in calves – correct wording - **Corrected**
6. P18: Bach et al – check punctuation of reference **Batch, 2011 has been corrected to Bach, 2011**
7. P21: capitals for PP? **Edited to add postpartum interval as PPI**
8. P22: length of herd? - **Edited**
9. P23: check punctation of first line on the page – **Edited**
10. P24 Excellent lit review but needs a bridge to the aims and hypotheses of the thesis: what is the research gap / knowledge gap that you are seeking to address? By the end of the intro we have been presented with a lot of information but no clarity about where the gaps are.
11. P25 Full number/reference of Ethics application should be included. Ideally I would like to see the application details as an appendix. **Home Office project license. PPL No.: P78FDB0C3 added.**
12. P25 LW should have units (presumably kg) - **added**
13. P.29: Formulation of the concentrates should be provided – **added to all relevant Table footers**
14. P30 measurements twice daily: over what period? Was this 7 days per week? **Every day, so yes 7 d a week, Clarified**
15. P32 “at 12 of age” presumably months? Needs specifying - **added**
16. P33: The CO2 eq – \_third line on the page. Check wording - **Corrected**
17. P33 MR costs of £1.500/t : something is not correct here please correct - **Corrected**
18. P34 there is a discrepancy between the N in Table 6 (30 per group) and the N on p25 (TED n=22). One of these is not correct and needs editing. In fact in general up to P37 there are different Ns in the different tables: these need to be explained.

This is because it is the number remaining alive at that point, same going forwards, so tables have had explanations were required. This includes using 15 pens of two calves for intake measurements. **Clarified**

1. P38-39 Note that while milk yield in kg/d is lower in Treated vs untreated cows, days in milk is higher. Since these point in opposite directions, should you be comparing total milk yield? We used 305 d milk yield, because lactation was longer due to a longer calving interval and days in milk on heifers that were treated. So it’s a complex issue we needed to resolve by using 305 d yield. We could use total yield, but longer lactation and calving interval are a negative, and less efficient**. Clarified**
2. P42: Second last line – \_brackets around 0.8? - **Added**
3. P43 typo “naval” should be “navel” - **Corrected**
4. P44: brackets around 0.93? **Added**
5. P48 typo on the ; in L3 - **Corrected**
6. P49: Check wording first line of Further Research **Clarified**
7. P49 Change the order of the Further Research and Conclusions sections so that Conclusions are LAST. At the moment they are not very punchy. Identify the main points and their implications and write this out very clearly – I would suggest with no abbreviations so that it is fully intelligible as a standalone piece. – **Clarified**

L M Peddle.