Response to reviewer comments

Reviewer – 3

Comment on Introduction

First of all the introduction section is too short, and mostly concentrate on buffalo population. The information about environmental factors that influenced milk production and reproduction should be extended. Also part concerned on lactation curves should be extended.

>>> Suggestion incorporated. Please see line 68-69, 75-87 and 91-98.

Comment on Material and methods

Lines 99-104– Should be carefully checked, and degree Celsius symbol should be used instead zero (0) or o-letter (o) in superscript.

>>> Suggestion incorporated. Please see line 118-124.

Line 142– The Table S1 should be omitted and not presented as supplementary table.

>>> Suggestion incorporated. We omitted.

Line 146– Write "100 g" instead "100g".

>>> Suggestion incorporated. Please see line 164.

Lines 153-154– The information about Excel spread should be omitted. It is obvious that data must be collected in a file and Excel file is one of the most popular options.

>>> Suggestion incorporated. Please see line 171.

Lines 166-167– R studio should be cited as: *R Core Team (2019). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.*
Also all R packages should be cited and the citation of Agricolae in R-package is: *Felipe de Mendiburu and Muhammad Yaseen (2020). agricolae: Statistical Procedures for Agricultural Research. R package version 1.4.0, https://myaseen208.github.io/agricolae/https://cran.r-project.org/package=agricolae.*

>>> Suggestion incorporated. We added citation. Please see line 183.

Line 191– There is no L effect in model 1 (see line 173), so write "(where n=1, 2 and 3, in which 1= less than 600 kg, 2 = 600-1000 kg, and 3= more than 1000 kg) for Model 2" instead "(where n=1, 2 and 3, in which 1= less than 600 kg, 2 = 600-1000 kg, and 3= more than 1000 kg) for Model 1 and Model 2" or correct the model in line 173.

>>> Suggestion incorporated. Please see line 207.

Lines 194-198– In results section there is lack of information about regression analysis. Please, add information about regression in result section or remove this lines from manuscript. Additionally, the information what correlation coefficients (Pearson or Sperman) were calculated should be added to this part of manuscript.

>>> Suggestion incorporated. We removed regression from the manuscript. Please see line 210-211.

Line 203– The formula of Wood function should be added and the estimated parameters (a, b and c) should be explained as under Table S3.

>>> Suggestion incorporated. Please see line 221-227 and 347-349.

Lines 213-214– The citation of nlme in R-package is required: *Pinheiro J, Bates D, R Core Team (2023). nlme: Linear and Nonlinear Mixed Effects Models. R package version 3.1-164, https://CRAN.R-project.org/package=nlme*

>>> Suggestion incorporated. We added a citation. Please see line 234.

Comments on Result

Tables 1 and 2– Change the title of tables. Don't write: "ANOVA and least square mean….". The table should be on one page. Clarify in the header that in table are LSM. Unify the space before and after ± symbols (see winter and summer for CLY and milk yield of 300 days). Check the significance of difference between seasons for CLP. The difference are significant, and all four seasons had superscript "a".

>>> Suggestion incorporated. Please see line 255-256, 285-286. The significance of difference between seasons were corrected – the superscript of summer should be b (Table 1).

Lines 229-230 and 273-274– If I proper understand, the values that differ significantly or highly significantly for a given factor (for example lactation) bear different letters. Please change the information.

>>> Suggestion incorporated. Please see line 262-263, 292-293.

Lines 231-232– The sentence is not clear. Probably, the SOC, Age, Population, AEZ, CI, and DP were significantly affected the CLP.

>>> Suggestion incorporated. Please see line 242-243.

Line 233– In all text only means should be written instead means with SEM, which will improve the readability of the text (applies to whole manuscript).

>>> Suggestion incorporated.

Figure 3– Combine Figure 3 and S1 in article as a graph composed of two: a) Average milk production and b) maximum milk production on test day records for different buffalo populations of Bangladesh under village condition.

>>> Suggestion incorporated. Figure 3 was updated as suggested.

Line 276– The Table S2 should be moved from supplementary materials to manuscript.

>>> Suggestion incorporated. Table S2 was moved to the main text and listed as Table 3.

Lines 284-286– Rewrite this sentence.

>>> Suggestion incorporated. Please see line 307-309.

Line 290– Check the MP-300d abbreviation.

>>> Suggestion incorporated. MP-300d should be MY300d. Please see line 313.

Table 3– The table and footnote should be on one page.

>>> Suggestion incorporated.

Line 301– In Table 3 there is no non-significant or significant correlation, so the sentence should be shortened: "**" indicating significant at (P< 0.01), and with "***" indicating highly significant at (P< 0.001).

>>> Suggestion incorporated. Please see line 325.

Line 307– The Table S3 should be moved from supplementary materials to manuscript as Table 4. This table contain goodness of fit parameters (R^2 and RMSE) which are important when the lactation curves are modelled.

>>> Suggestion incorporated. The Table S3 was moved from supplementary materials to manuscript listed as Table 5.

Comments on Discussion

Line 332– If "SOC significantly affected (P>0.01) LY" you should change ">" on "<".

>>> Suggestion incorporated. Please see line 362.

Lines 360-361– The sentence is not clear and should be rewritten. Probably CI was significantly affected by LMP-300d, population and agro-ecological zone (AEZ).

>>>> The sentence was rephrased. Please see line 388-392.

Line 381– The TD milk production data are presented in Table S2 not S1.

>>> Suggestion incorporated.

Comments on Supplementary materials

Figure S1, Tables S2 and S3 as I wrote before should be moved to manuscript. **Table S1** should be deleted. This way, important information will be included in the manuscript, and the supplementary materials part will be eliminated.

>>> Suggestion incorporated.

Table S2– The values that differ significantly are in one column not in one row. Use only SDM or SEM in table. Write "Mean^2 (kg)" in the header.

>>> Suggestion incorporated. We removed SEM from the table.