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# Relationship between Dairy Heifer RFI Classification and Milk Production during First Lactation



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## Introduction

Residual feed intake (RFI) is often used to classify feed use and efficiency in cattle. RFI is the difference between actual and predicted feed intake, making it independent of mature animal size. The stability of this trait over the entire life cycle of a dairy cow is not well understood. We measured the RFI of yearling dairy heifers using a forage-based ration in the GrowSafe™ system and then determined if this early production stage measure of RFI was related to milk production during their first lactation.

## Objective

To determine if postweaning RFI classification is correlated to milk production during first lactation.

## Materials and Methods

**RFI determination phase:** Two groups of dairy heifers over two consecutive years, 2011 and 2012, were placed on a 70 d feeding and intake trial using the GrowSafe® feed intake system.

**Lactating cow phase:** Heifers phenotyped for RFI using the GowSafe system grazed cool-season or warm-season annual grass pasture as lactating dairy cows. Cows grazed in paddocks with forage availability set to 3x expected intake. Cows rotated to new forage twice daily. Daily milk production was recorded during the lactation phase.

**Statistical analysis:** Multiple regression was used to predict RFI based on milk production and metabolic body weight of cows during the lactation phase.

## Results

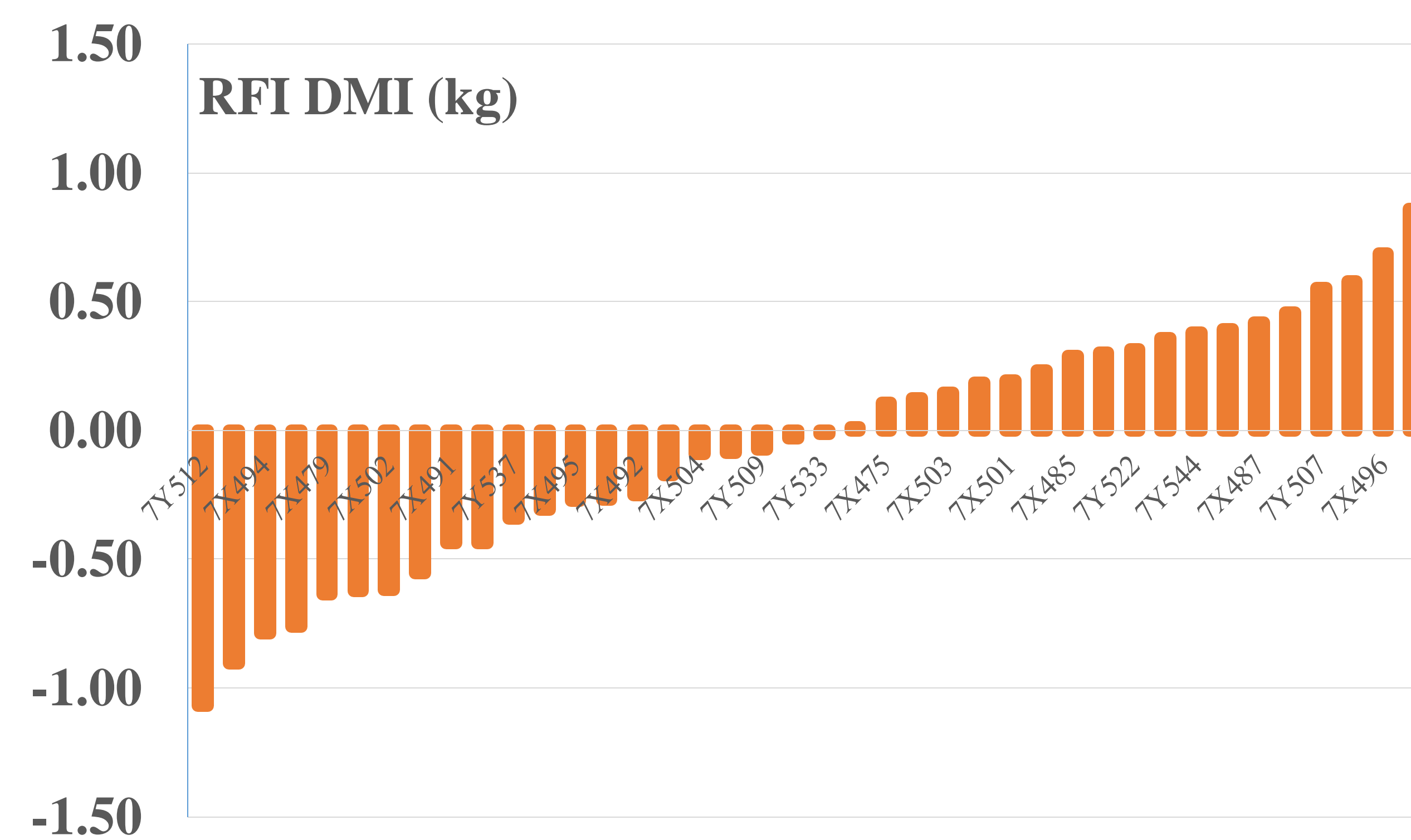


Figure 1: RFI classification of individual dairy heifers

## Conclusions

1. Residual feed intake of heifers ranged +/- 10% from predicted intake.
2. Results show that RFI classification as heifers did not relate to milk production during first lactation.
3. Further work should evaluate primiparous cows to see how RFI changes over the life cycle of a dairy animal

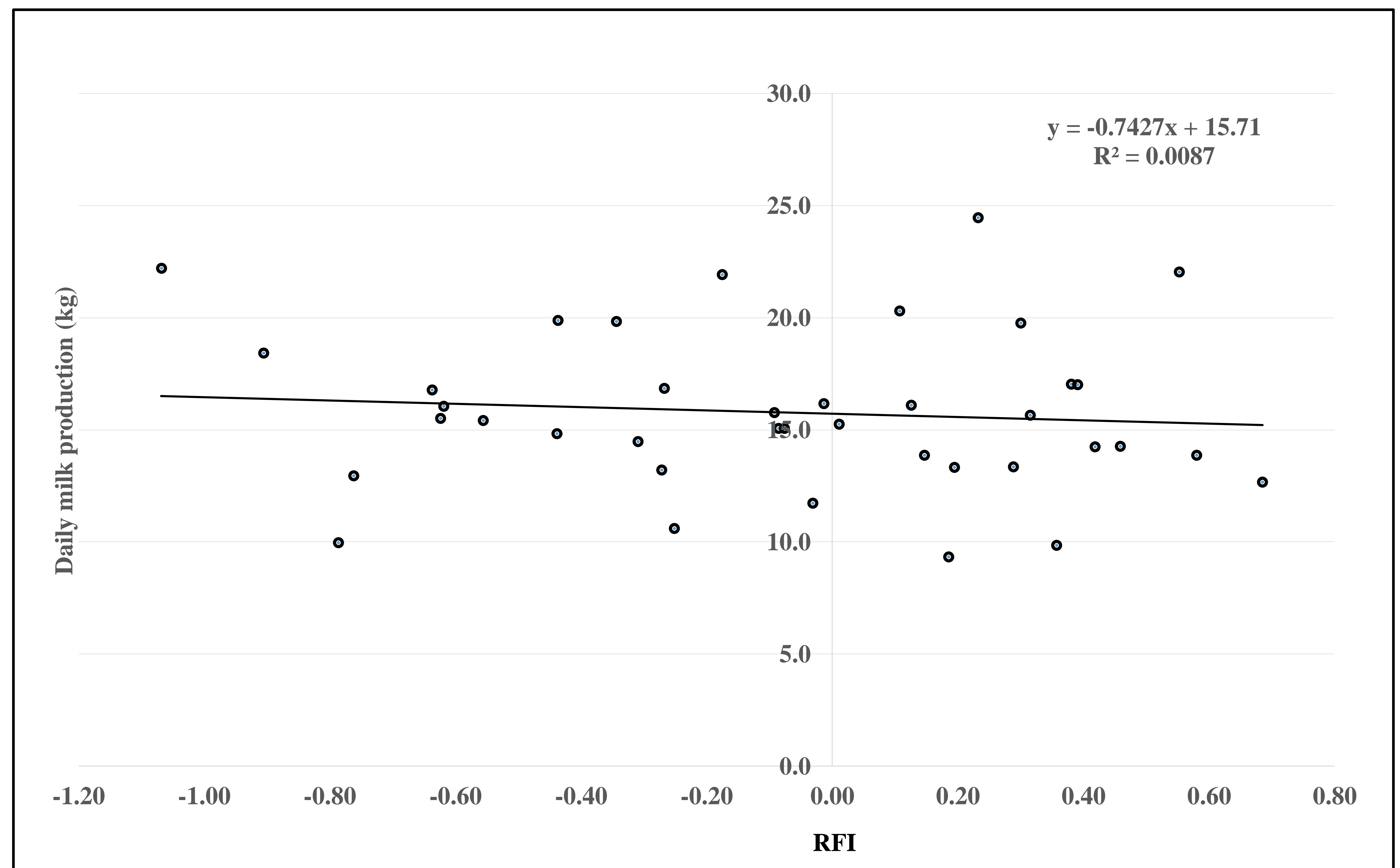


Figure 2: Heifer RFI regressed against daily milk production during 1<sup>st</sup> lactation