**Potential factors affecting resumption of cyclicity in grazing cows**

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Introduction

The interval from calving to commencement of luteal activity is an important fertility characteristic in lactating dairy cows. Early beginning of estrous cyclicity increases the probability of an early insemination after calving. It means shortening the interval from calving to conception. A recent study has shown that there are some potential factors affecting resumption of cyclicity in the first 60 days postpartum in grazing cows. This project aims to identify the relationships between resumption of cyclicity after calving and other potential factors, including Parity, age of the cow at calving, daily milk production, incidence of diseases, body condition score at partum, 30 days, 45 days, 60 days, and one genetic variant in the gene IGF-1 that probably affect the resumption of ovarian cyclicity.

Methods

Cow data of this report was gotten from Animal Science Department of University of Florida. Data was cleaned first, including converting character type response variable to numeric type (0 and 1) and removing spaces from DISEASE variable. Then I evaluated multi-collinearity and used stepwise selection to select the most appropriate model. Subsequently, I ran the logistic regression to fit the model, tested the significance, estimated the predicted values. Finding the outliers, high leverages and influential points is the next step. Accordingly, I plotted the result of high leverages and influential points using ggplot2.

Results

The best fitting model of this study is . Apart from the AGE variable, other predictors are significant. There are outliers, high leverages and influential points in the data.