Usefulness of acidity and temperature of the rumen and abomasum in diagnosing SARA in dairy cows after calving

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Abstract

The aim of the research was to determine the relationship between the acidity and temperature of the contents of the reticulorumen and abomasum in the first 10 days after calving and to evaluate these factors as predictive traits for the diagnosis of subclinical acidosis.

The acidity and temperature of the contents of the reticulorumen and abomasum were measured using specific smaXtec boluses manufactured for animal care. According to the directions of the manufacturer, the boluses were inserted into the reticulorumen of the cows researched with the help of a specific tool. The boluses were inserted into the abomasum by way of surgery, laparotomy and abomasotomy through the right flank. The readings of 7 cows were taken on a total of 10 days, twice a day (at 9 a.m. and at 9 p.m.). In total, 140 measurements were taken.

The acidity of the reticulorumen is associated with the acidity of the abomasum. The acidity of the rumen increases, if the acidity of the reticulorumen increases also. A negative correlation was observed between the pH of the contents of the abomasum and this temperature. The increase in the acidity (decrease of pH) of the contents of the reticulorumen increases its temperature and also increases the temperature of the contents of the abomasum. There is a positive statistically significant dependence between the reticulorumen content temperature and the rectal temperature.

Through measurement of the ruminoreticular temperature, it is possible to predict the health status of a cow's stomach in regard to acidosis.

Key words: reticulorumen, abomasum, pH, temperature, acidosis

Introduction

Subacute ruminal acidosis (SARA) is likely to arise when an easily palatable, high-energy diet meets a ruminal environment that is not adapted to this type of diet. This condition can be seen in the digestive tracts of fresh dairy cows. In this case, an increase in short-chain fatty acids will occur. Eventually, this can result in a decrease in the ruminal pH to below 5.5 (Kleen et al. 2003). Higher levels of intake may also predispose the rumen to SARA, since the salivary buffer secretion may not adequately compensate for...