

# Bovine Blood Glucose Concentrations: Point of Care Testing with Glucometers

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## Introduction

Blood glucose concentrations are commonly utilized to evaluate both metabolic and disease status of animals. The objective of this study was to compare the accuracy of two hand-held glucometers for field measurement of glucose in cattle.

## Materials and Methods

Blood and plasma glucose concentrations were evaluated in Angus-cross lactating cows (n=18), Angus-cross suckling calves (n=18), and yearling beef heifers (n=9). Correlation of duplicate readings on the same animal was evaluated on yearling beef heifers (n=9). Blood was collected into lithium heparin-coated tubes via jugular venipuncture and immediately placed onto test strips for the respective glucometer (Precision Xtra, Abbott Laboratories; ReliOn Confirm, ReliOn). Plasma glucose concentrations were analyzed on an automated analyzer (Beckman Coulter AU 480) as a gold standard.

## Results

Plasma glucose concentrations ranged from 56-111 mg/dl with a mean of 78.1 mg/dl. The Precision Xtra had a higher coefficient of determination ( $R^2 = 0.74$ ,  $P < 0.001$ ) as compared to the ReliOn Confirm ( $R^2 = 0.44$ ,  $P < 0.001$ ). The correlation on repeated samples for the Precision Xtra ( $r = 0.93$ ) was higher than for the ReliOn Confirm ( $r = 0.75$ ).

## Significance

Glucose concentrations were more accurate and repeatable with the Precision Xtra hand-held glucometer system as compared to the ReliOn Confirm. Based on data compiled in this study, the Precision Xtra glucometer can be used in the field to predict bovine blood glucose concentrations.