Evaluation of the BHBCheck™ Blood Ketone Test

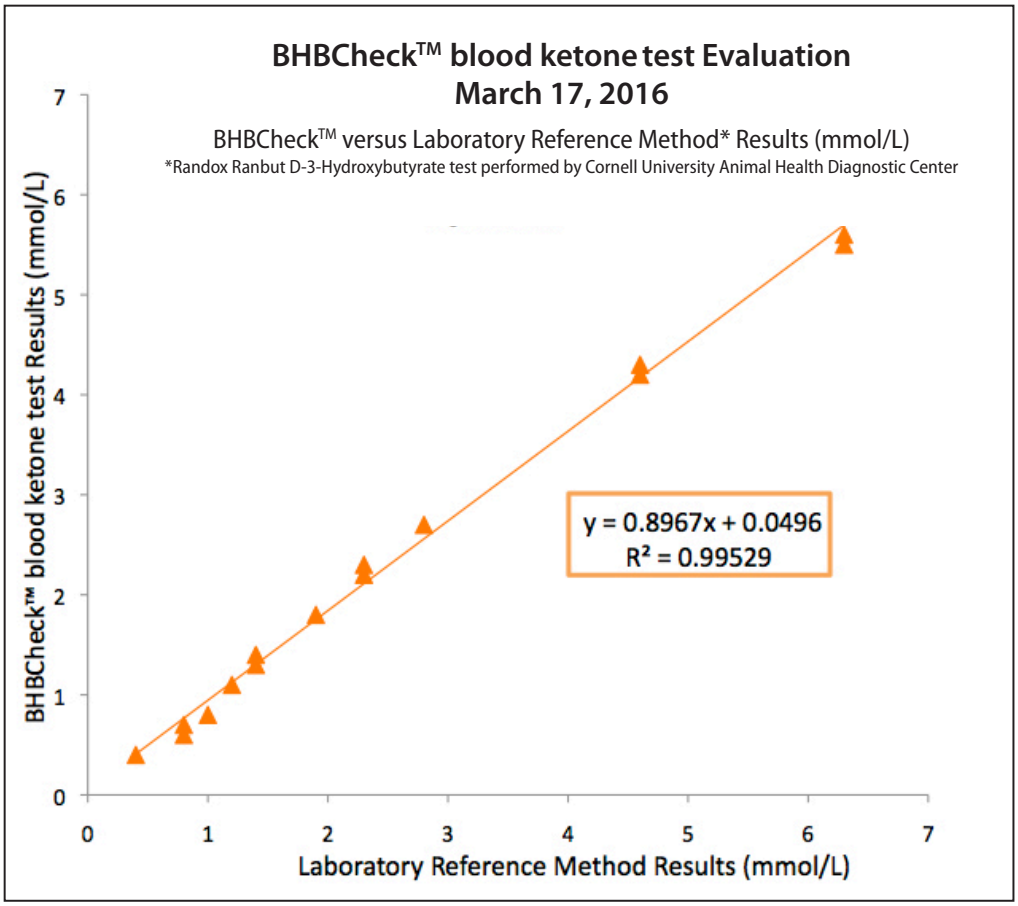
The BHBCheck™ blood ketone test is a new, hand-held instrument developed for on-farm detection of sub-clinical ketosis in dairy cows.

SAMPLE PREPARATION:

Heparnized bovine whole blood samples were purchased from Biological Specialty Corporation (Colmar, PA). The samples were split into aliquots, and each aliquot was spiked to a targeted level of BHB. Each spiked whole blood aliquot was split and a portion of each sample was tested on the cow-side test system. The other portion was centrifigured to separate the red blood cells from plasma for evaluation at an independent reference laboratory (Animal Health Diagnostic Center (AHDC) at Cornell University). The staff at AHDC used the Randox Ranbut D-3-Hydroxybutyrate test on a Mod P Roche - Hitachi to determine the concentration of BHBA in each of the samples.

ACCURACY:

To evaluate the accuracy of the BHBCheck™ blood ketone test, ten levels of BHB ranging from 0.4 mmol/L (native) to 6.5 mmol/L were created. The samples were run in duplicate in the BHBCheck™ blood ketone test. The results of the BHBCheck™ versus the reference laboratory are illustrated in the graph below:



CONCLUSION:

The results from this study indicate that the BHBCheck™ blood ketone test provides accuracy comparable to the reference laboratory.

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PRECISION:

The precision of the BHBCheck™ blood ketone test system was evaluated for repeatability at 1.0 mmol/L . A spiked sample was tested with 20 BHBCheck™ blood ketone test strips (four on each of five distinct BHBCheck™ meters). A summary of the results is shown in the table below:

BHBCheck™ blood ketone test Precision Results (mmol/L)	
n:	20
Average:	1.0
SD:	0.04
CV:	4.3%

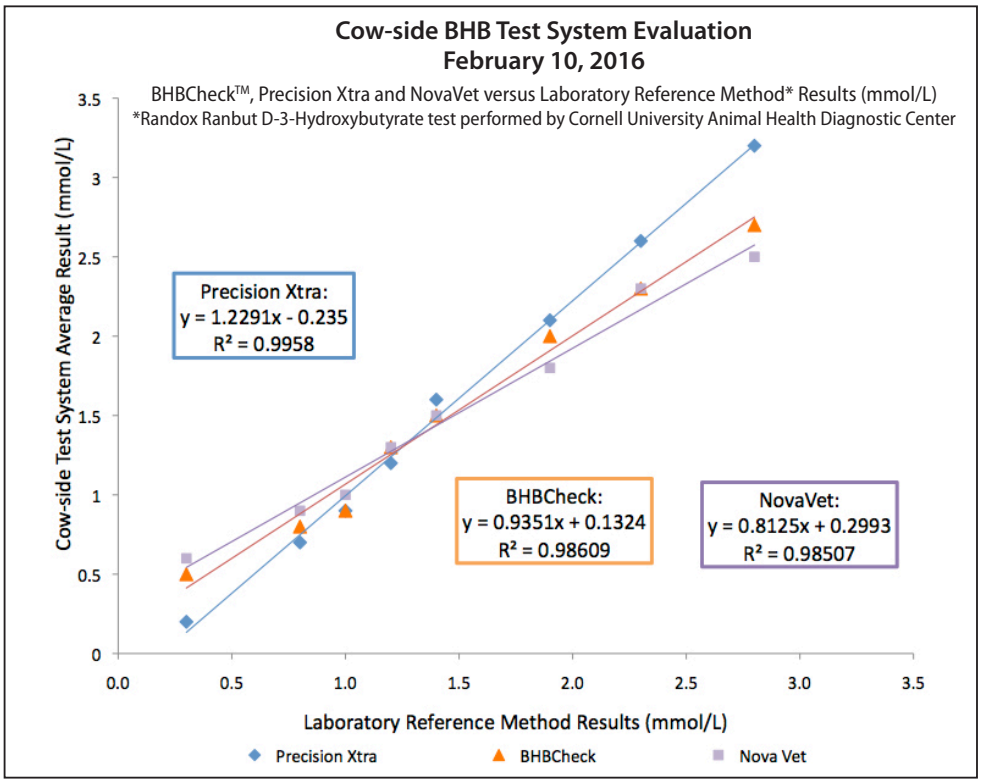
CONCLUSION:

The results indicate that the BHBCheck™ blood ketone test provides repeatable results.

COMPARISON TO COMPETITIVE PRODUCTS:

To compare the performance of the BHBCheck™ with competitive products, eight levels of BHB were created ranging from 0.3 mmol/L (native) to 3.0 mmol/L. The samples were tested in duplicate on each system — the BHBCheck™ blood ketone test system, the Precision Xtra® Blood Ketone Monitoring System, and the NovaVet Blood Ketone Monitoring System.

The results of all three cow-side test systems versus the reference laboratory are illustrated in the graph below:



CONCLUSION:

BHBCheck™ blood ketone system results are comparable to the reference laboratory and it performs as well or better than the Precision Xtra® Blood Ketone Monitoring and the NovaVet Blood Ketone Monitoring systems.