KETOSIS SCREENING IN THE FRAME OF DHI TESTING – USABILITY AND EXPERIENCE FROM AROUND THE GLOBE

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KETOSIS – THE PROBLEM

- Negative energy balance
- Incidence: 25 to 60%
- Costs per case: $289

Mc Art et al., 2013, 2015; Mahrt et al., 2015
KETOSIS – DEFINITION & TESTING

- Ketone bodies elevated in blood
- Cow-side tests labour-intensive
- Availability of DHI samples and FTIR technology
Indirect calibration developed:

Correlation to wet-chemistry: 0.82 (DeRoos et al. 2007)
1) Performance of laboratory analysis

2) Communication of results to dairy farmers
All laboratories offering ketosis screening participate in QA programme:

Valacta, reference results (wet chemistry method) for 100 random samples
Provision of BHB pilot samples

Frequency: 1/month
QA PROGRAMME IN FRANCE

- All laboratories offering ketosis screening participate in QA programme:

Reference laboratory, wet chemistry method
10 reference samples for BHB (0.05-0.25 mmol/l) and 5 samples for acetone (0.10-0.20 mmol/l)

Frequency: 1/month
Action Team S03b: New applications of IR spectrometry

New guideline to be published in 2017
COMMUNICATION OF RESULTS

BHB (and Ac)

Cow-related data (e.g. DIM)

+ other parameters, e.g. %fat

+ cow-site test

Ketosis:
- yes/no
- risk group (e.g. 1-5)
- index (e.g. K!)
No consensus on correlation

e.g., Dodds et al., 1981; Enjalbert et al., 2001; Denis-Robichaud et al., 2014
MILK BHB AND MILK YIELD

Santschi et al. 2016

Test day milk yield (kg)

<0.15 0.15-0.19 ≥0.20

Milk BHB (mmol/l)

a-c = P <0.05
n = 498,310
Test day SCC (k cells/ml) vs. Milk BHB (mmol/l) and Mastitis

- Santschi et al. 2016
- a-c = P <0.05
- n = 498,310
Mike Larson, general manager of Larson Acres (2,400 dairy cows)

“We were surprised to learn just how many of the cows in our herd had subclinical ketosis. Since there were no symptoms, the condition went otherwise undetected and untreated.”

“It has helped us to not only understand the frequency of subclinical ketosis in our herd but also the patterns behind the subclinical cases. This allowed us to focus on those challenge areas.”
A MESSAGE TO TAKE HOME

- Simple, practical, rapid and inexpensive tool
- Keys to success in establishment: QA and communication
- Evidence of success of ketosis screening in various countries

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