Milchprüfring Bayern e.V.

The unfolding of new analytical concepts

managing expectations, challenges and disappointments

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ICAR
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INTERBULL


Your late husband was a very successful hunter?
...oh, no, a very unsuccessful vet...
© Uli Stein | Milchpur 1/2002

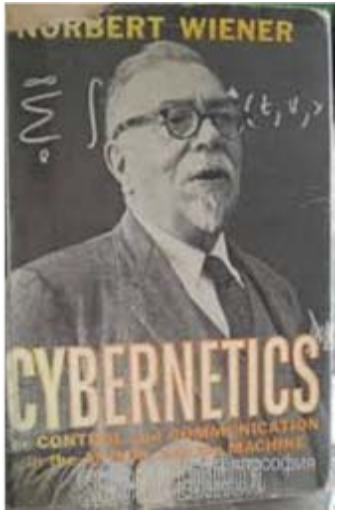
DIE MILCH KONTROLLE

Sicherheit, die Zukunft schafft.

Since the late 19th century DHI („Milchkontrolle“) is the backbone of dairy farming!

And analytics always have been a part of it (fat/Gerber).

You only can operate what you can measure!



➔ cybernetics

Norbert Wiener (1948):
"Cybernetics or Control and Communication in the Animal and the Machine"

Today we understand a dairy herd as a multitude of regulatory circuits (cows) and itself as one!
➔ Current challenges

How „Milchkontrolle“ developed…

…and adjusted to the respective contamporary challenges:

until 1970ies ➔ „value“ of a cow?

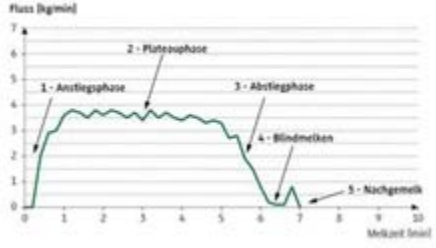
➔ kg, fat, protein [lactose] (independently recorded)

1980ies ➔ udder health? ➔ SCC (health management)

1990ies ➔ metabolism? ➔ urea (feeding management)

1990ies ➔ milkability? ➔ Lactocorder (herd management)

2000s ➔ ???



Recent challenges

Drivers for new analytical concepts

- computer technology – communication technology – automation – miniaturization – globalization – on-farm concepts – growing herds – growing productivity
  ➔ sensor systems and IT solutions to support herd management
  ➔ how digging information out of a vast mass of data?
- new options with new techniques and advances in analytics ➔ FTIR, ELISAs, …
- new socio-economic demands and challenges ➔ volatile markets / prices ➔ sustainability ➔ animal welfare ➔ animal well-being ➔ impact of dairying on humans (AMR, environment, …)

How to meet the challenges?

Use the USP of DHI!
(unique selling proposition)
Extract as much information as possible from a milk sample!

2000s

serological analyses
BHV1, Leukose, Brucellose

FTIR
Casein, fatty acids,
BHB, Aceton
pH-value, freezing point

[PCR etc.] ➔ sample quality

2010s

How are „our cows“ doing?

well-being
metabolism
udder health
Pregnancy
...

How to translate into analytical concepts?

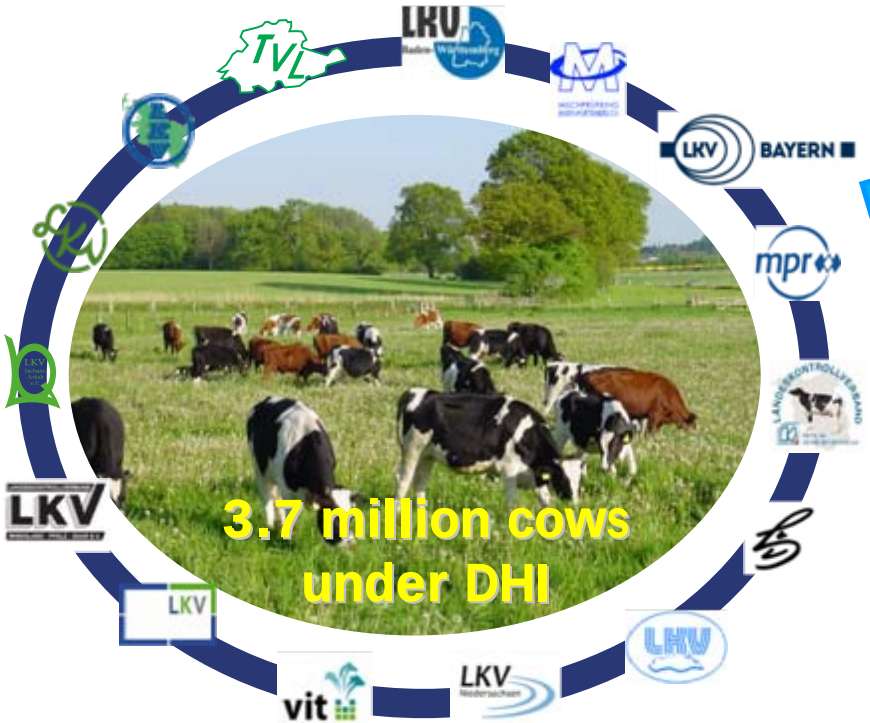
Example: differentiation of immune cells of the udder ➔ DSCC

- Knowing from science / theory ➔ DSCC can…
  - …specify the phase of an inflammation process (acute – chronic)
  - …be of prognostic value (cure - no cure, e.g. when treated with antibiotics)
- DSCC requires ➔ specific sampling (quarter milk, glass tubes, no preservation, short ways, cooling, specific analytical tools and knowledge, …)
- „DSCC in DHI? Simply not possible!“

➔ trade-off: feasable? gain of information vs. costs?

➔ decision making: market + plan + budget + supporters ➔ start

German Udder Health Program



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DLQ

milch Q plus

2012 – 2016

Prof. Dr. Volker KRÖMKER

ZellDiX

2016 – 2019

Univ.-Prof. Dr. Marcus G. Doherr

German Udder Health Program

milchQplus

2012 – 2016

- New key figures – based on SCC
- DSCC as a new diagnostic tool ➔ check the suitability of a new method under prevailing conditions in Bavaria/Germany (transport, preservation…) ➔ change of preservative for DHI samples in Bavaria in 2015
- Communication !!!

FOSS

ZellDiX

2016 – 2019

- Follow-up project for DSCC
- Diagnostic tools for practical use
- Communication !!!

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Still we only have a concept!

Expectations

DSCC in the DHI report as soon as possible

Tools for herd managers to better screen and decide

Data about (progress in) udder health

Challenges

Technical implementation

Data to proof practical value

Change DHI routine (sampling, frequency)

Practical implementation

Dissappointments

Time / progress

Investment needed

Hardware, Software
Change of routines, Working hours

Unexpected pitfalls

Competition

Innovation in analytics ≠ „plug and play“

Expectations

Dissappointments

Thank you!