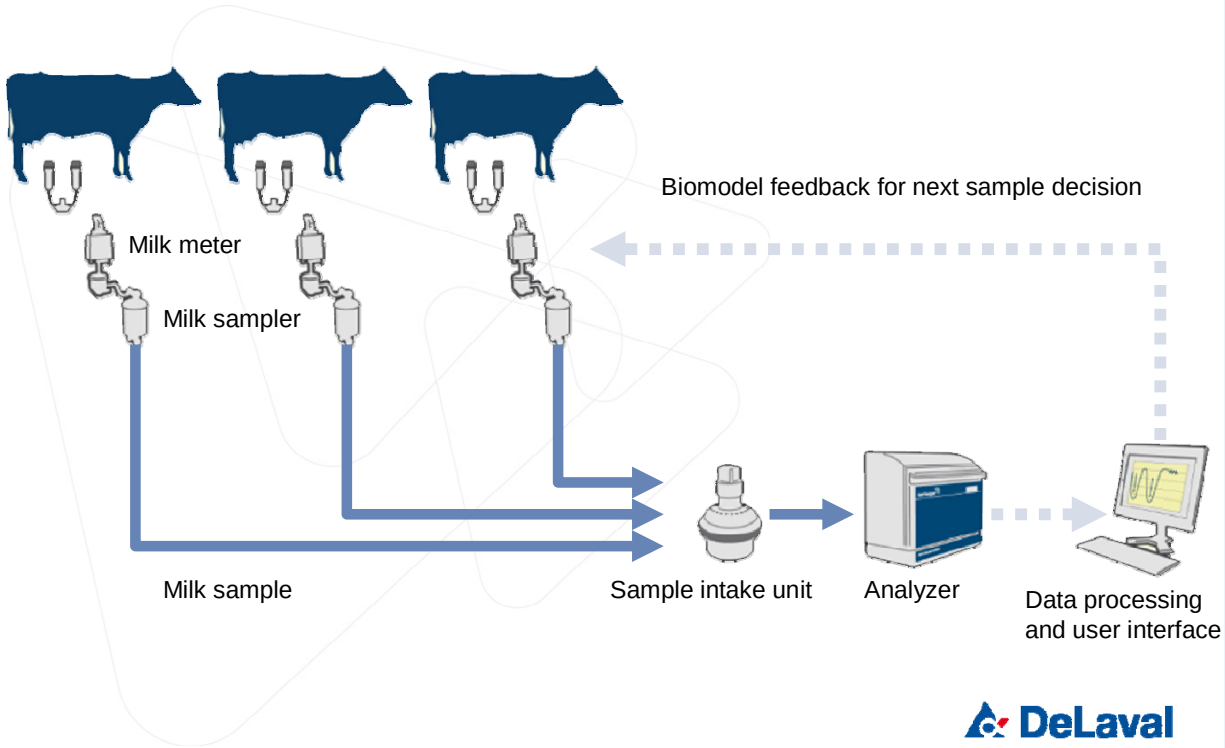
Herd Navigator - real time herd management

How to benefit from frequent measurements!

Tove Asmussen

Herd Navigator - an overview:

Herd Navigator systematic procedure



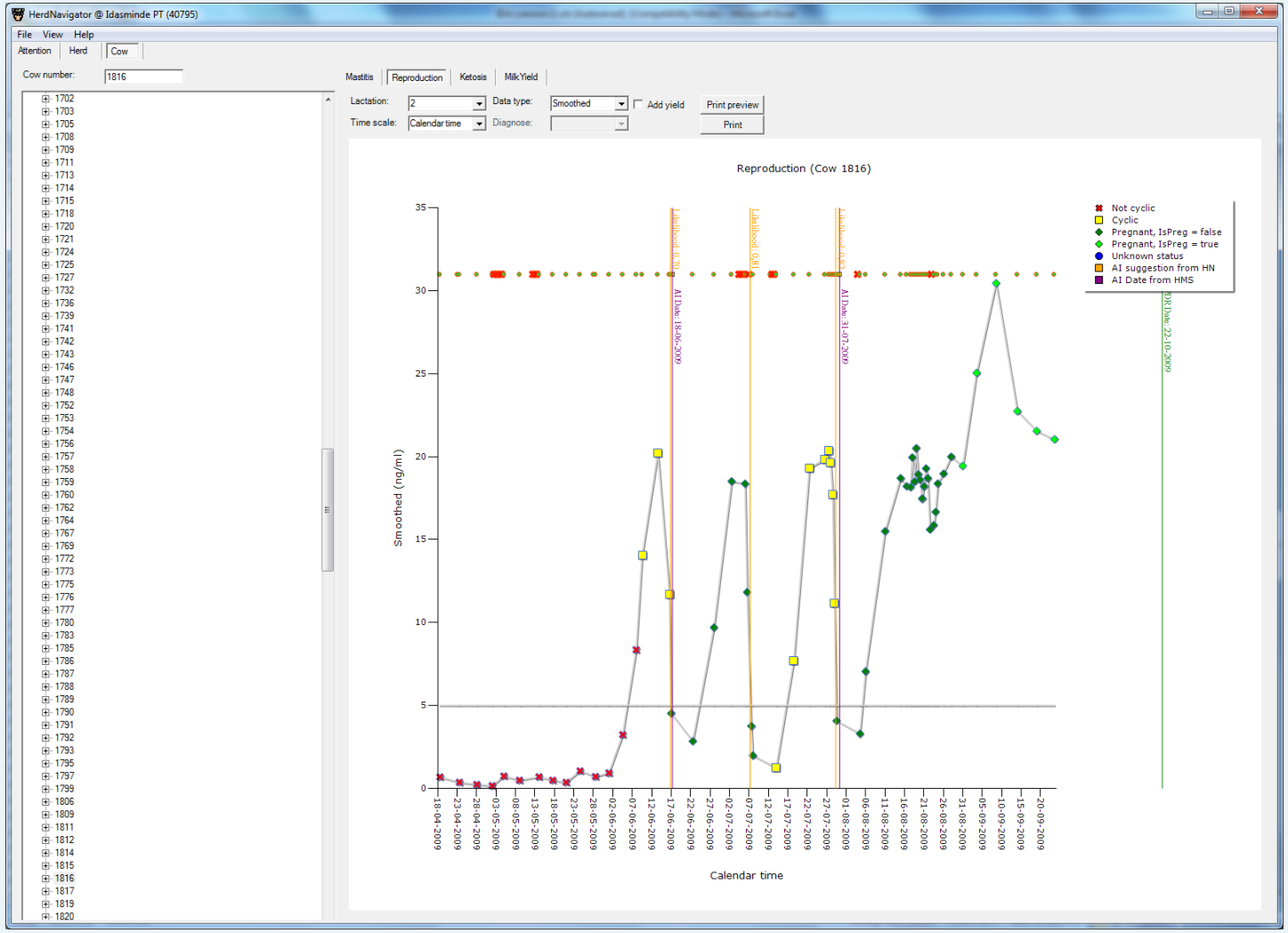
Parameters analysed

Focus area	Parameter analyzed in milk	Early/on time detection
Reproduction	Progesterone	Heat Silent heat Pregnancy Abortion Cysts Anoestrus
Udder health	LDH – lactate dehydrogenase	Mastitis Subclinical mastitis
Feeding and energy balance	Urea BHB – beta hydroxybutyrate	Feed ration – protein Ketosis Subclinical ketosis Secondary metabolic disorders

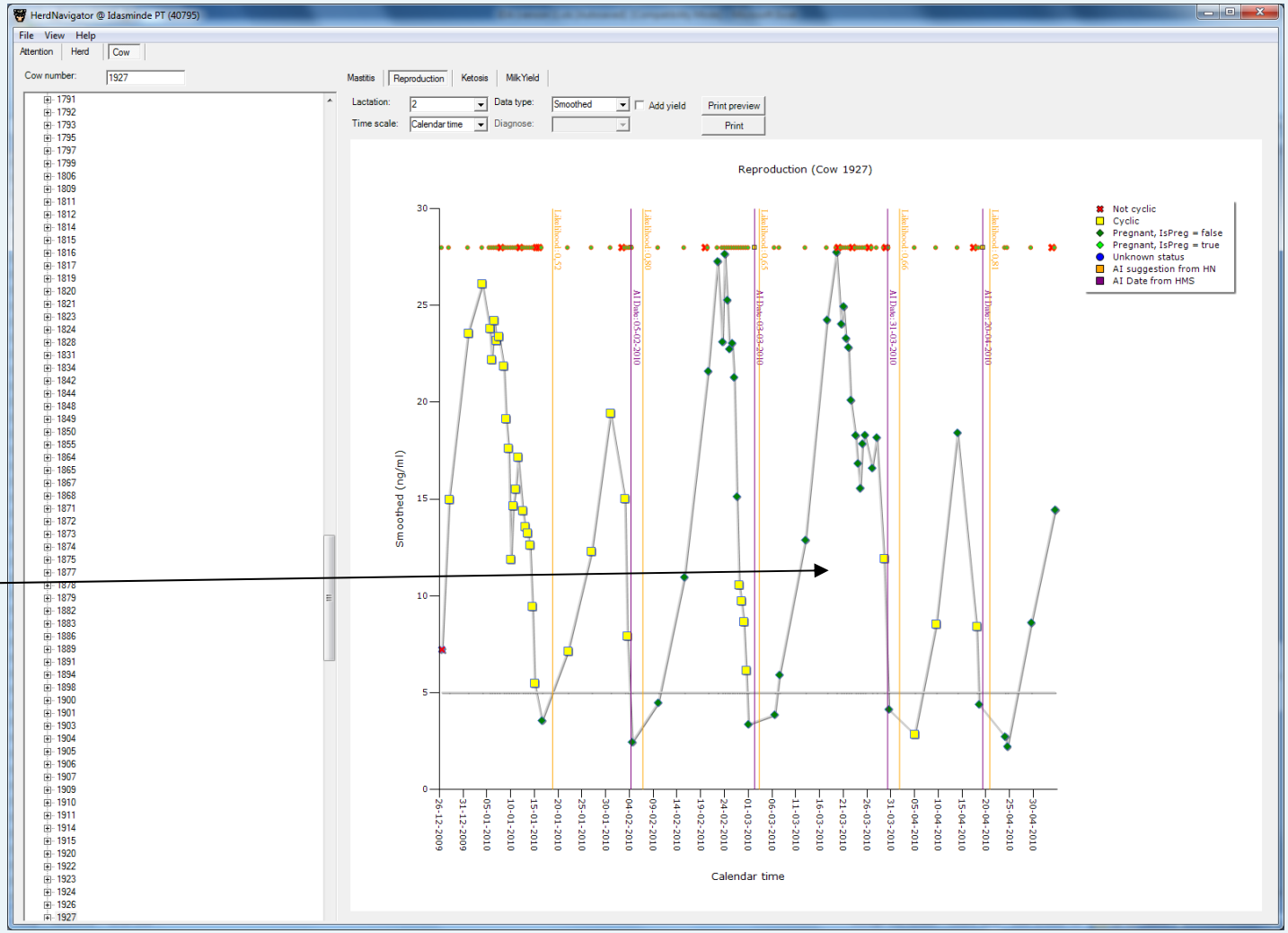
Moving from monthly towards daily information opens for new parameters to be monitored

- Milk recording offering monthly information
- Bulk samples analysed offers more frequent analyses
- Breeding information, from daily to monthly!
- Milk meters etc in the parlor or analyses equipment connected to Milking Robots gives access to daily information
- Herd Navigator gives daily update on reproduction, mastitis, metabolic disorders and feeding, and recommend actions

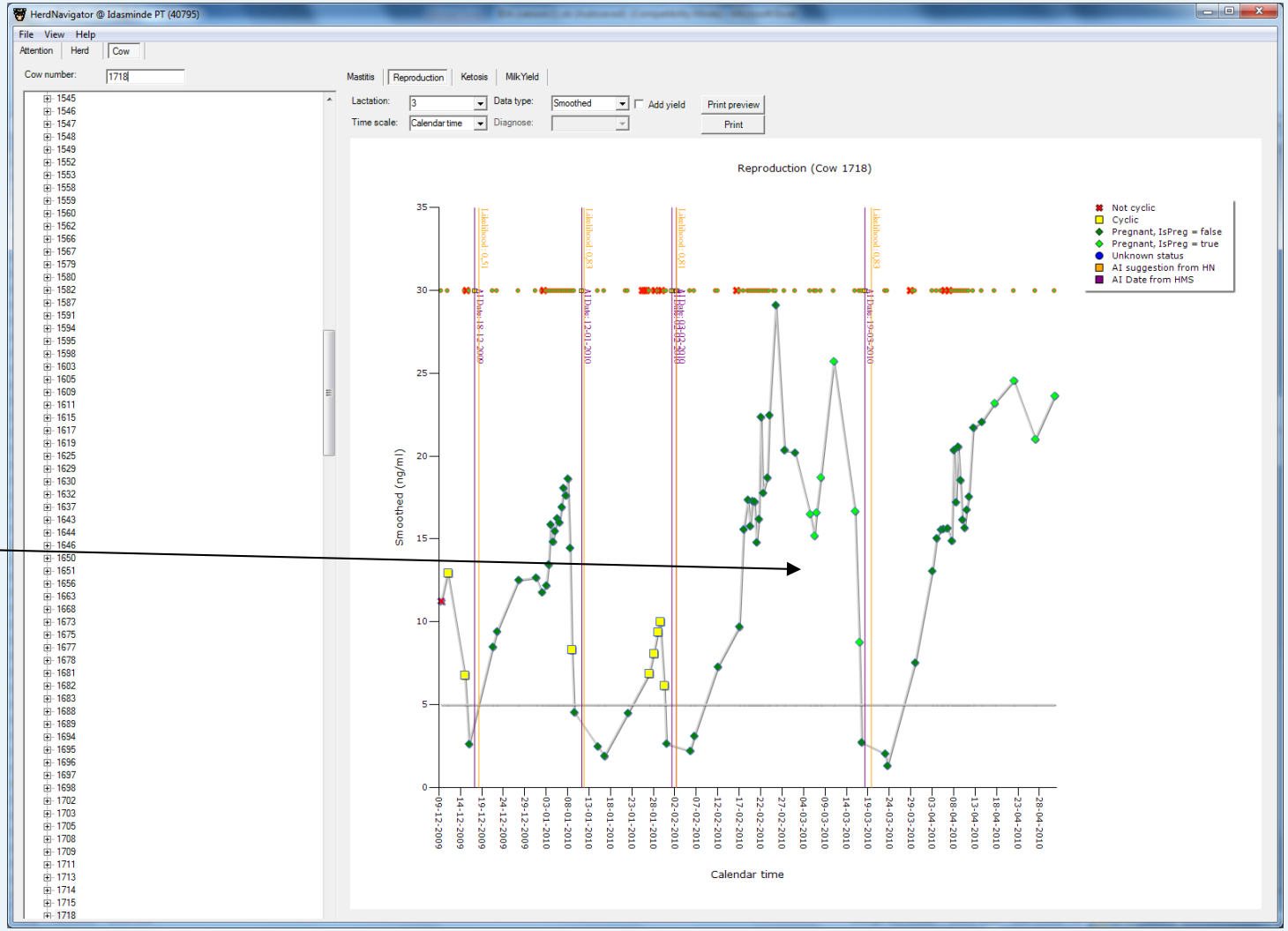
Progesteron curve: Normally cycling cow becomes pregnant!



Cycling cow has Early Embryo Death



Cow having an abortion 7 weeks pregnant



Reproduction data, 4 herds

	Farm 1	Farm 2	Farm 3	Farm 4
No of cows started	76	188	198	119
Heat det. Rate %	95.2	96.2	96.5	96.8
No of cows pregnant	66	149	158	92
No of AI, pregn cows	99	316	261	189
% pregnant 1st AI	67	41	56	49

A closer look:

	Farm 1	Farm 2	Farm 3	Farm 4
No of cows started	76	188	198	119
Heat det. Rate %	95.2	96.2	96.5	96.8
Post Partum Anoestrus (%)	**10.5**	17.6	13.6	**31.9**
Early Embryo Death %	**10.6**	19.6	16.5	18.4
Abortion (>35 days) %	11.8	14.5	12.9	16.3
Follicular Cysts %	22.4	**15.4**	21.2	32.8
Luteal Cysts (%)	21.1	**12.2**	24.7	23.5

Conclusions Reproduction

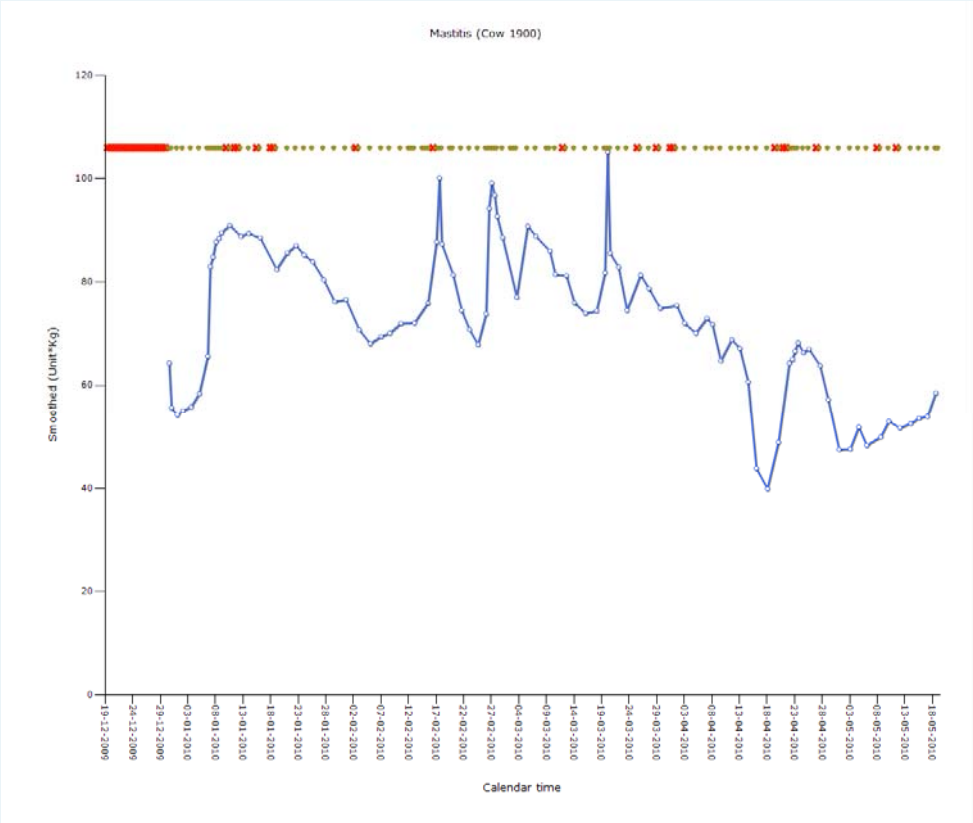
At single cow level:

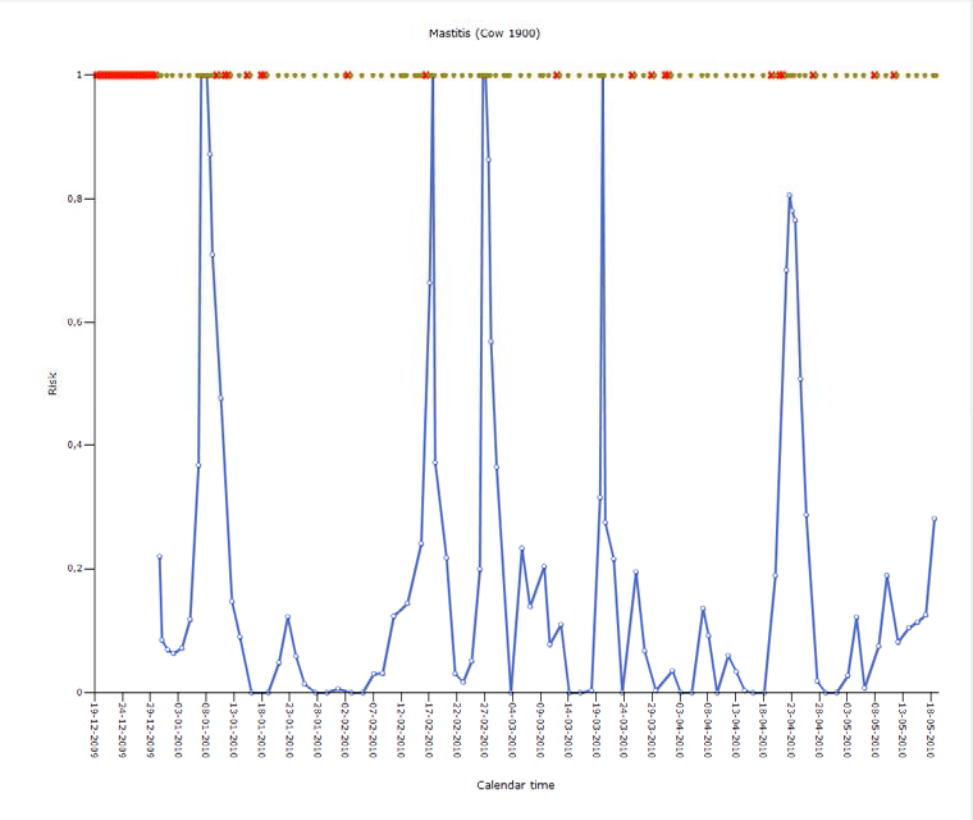
- Non-pregnant cows are detected immediately!
- Pregnancies can be checked without manual pregnancy check
- Reproductive disorders (e.g. cysts) can be detected immediately

At herd level:

- Much more precise reasons for repro problems can be pointed out
  - E.g. irregular cycles in early lactation due to excessive mobilization of body fat (high yielders)

Mastitis alert, 1st time and chronical case





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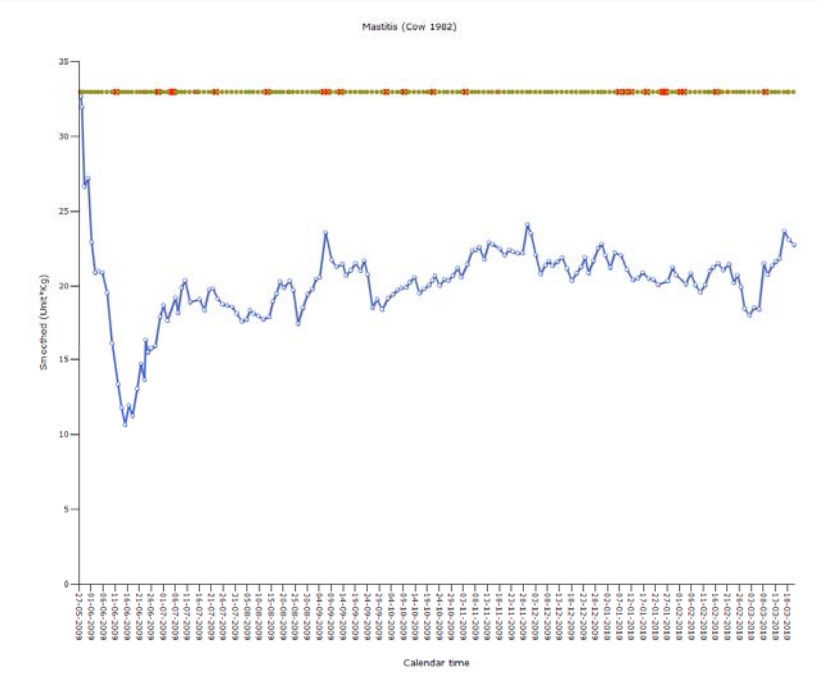
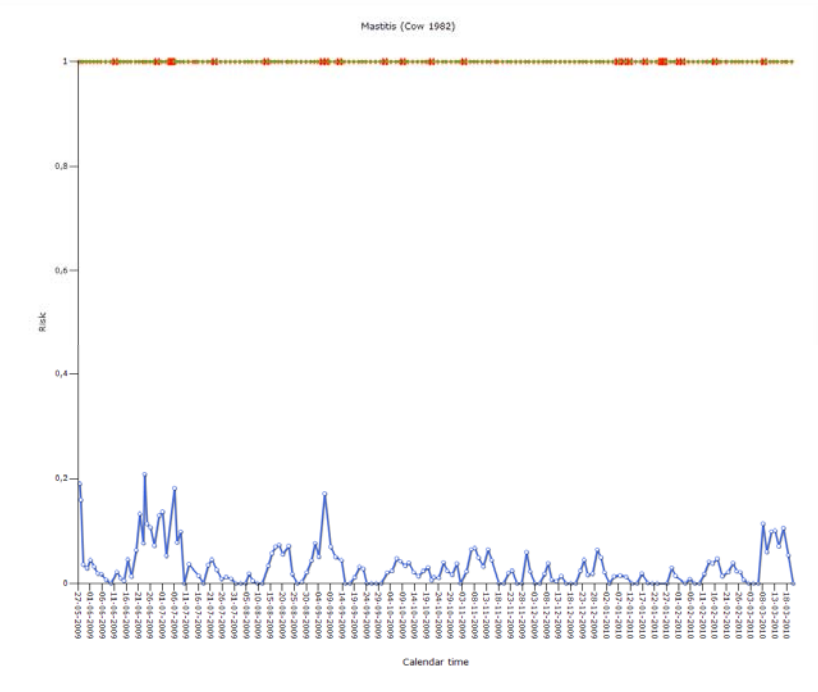
Udder status = Health





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Mastitis alerts, distribution throughout lactation

	Farm 2	
no of cows	37	
alerts, no of	1	2 to 4
Split in alerts, %	54	46
Occur < 25 days, %	27	0
25<x<100 days, %	36	68
later than 100 days, %	36	32

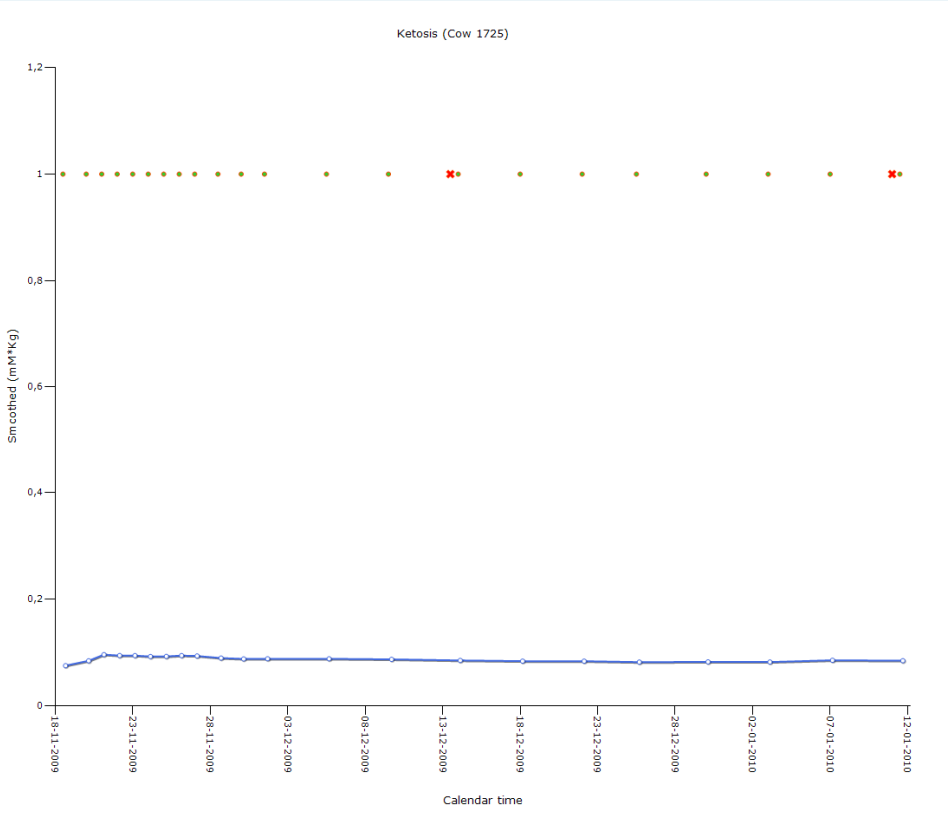
Comparison mastitis, three farms

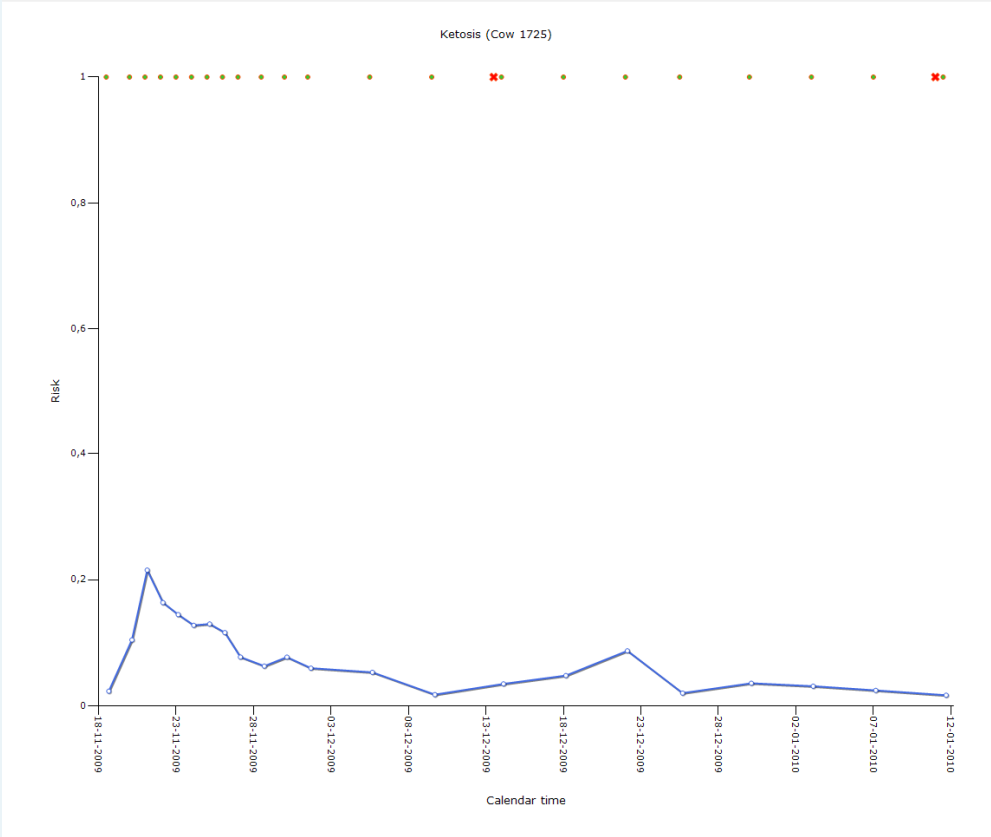
	Farm 1		Farm 2		Farm 3	
no of cows	25		37		25	
alert no	1	2 to 4	1	2 to 4	1	2 to 4
Split in alerts, %	65	35	54	46	39	61
Occur < 25 days	40	0	27	0	36	3
25<x<100 days	27	0	36	68	45	32
later than 100 days	33	100	36	32	18	65

Conclusions mastitis

- Single cows are pointed out at an early stage (3-4 days before clinical signs)
- Overview is given based on alerts, - not on treatments!
- Timing and types of alerts ”paints the picture”

Monitoring ketosis





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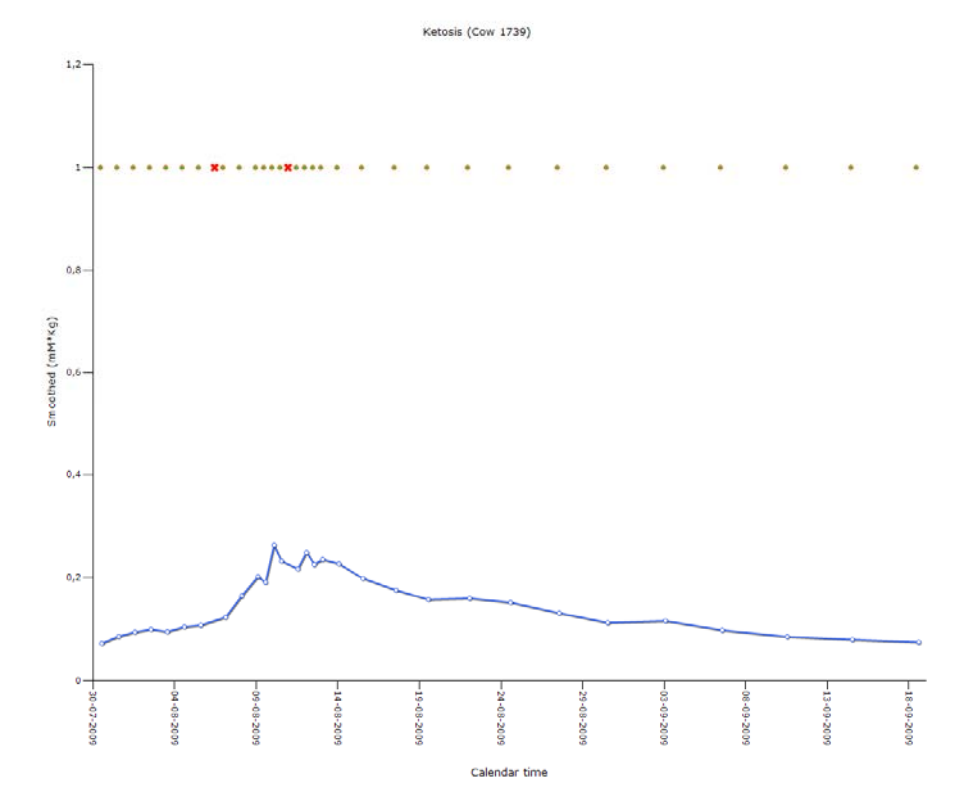
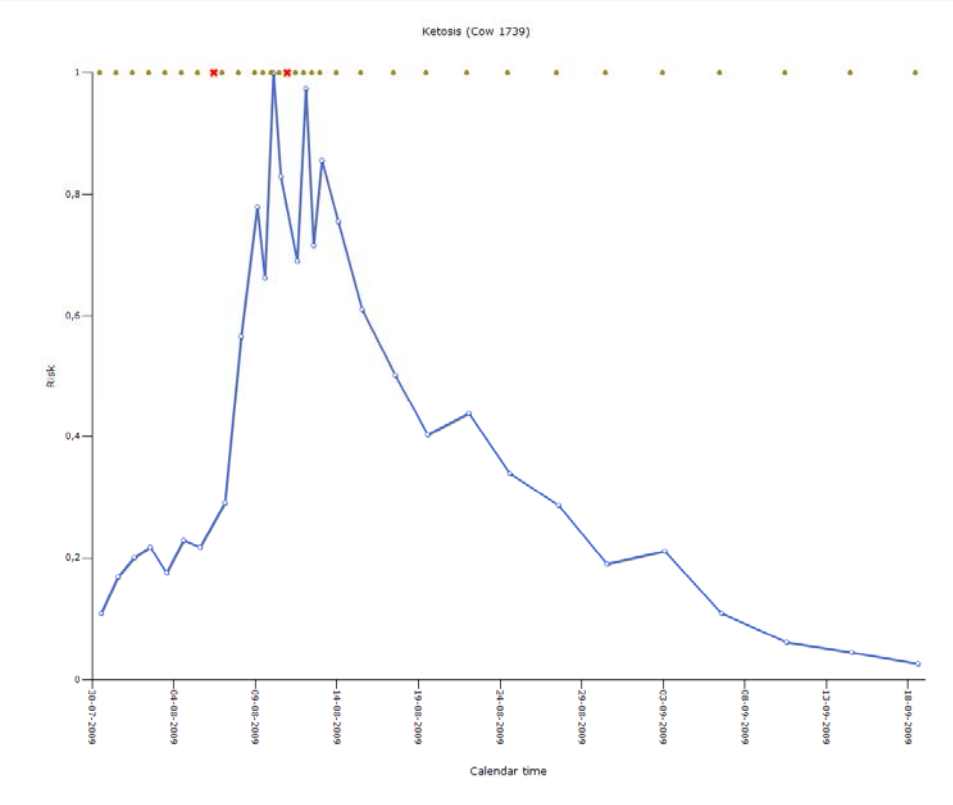
Subclinical ketosis alert





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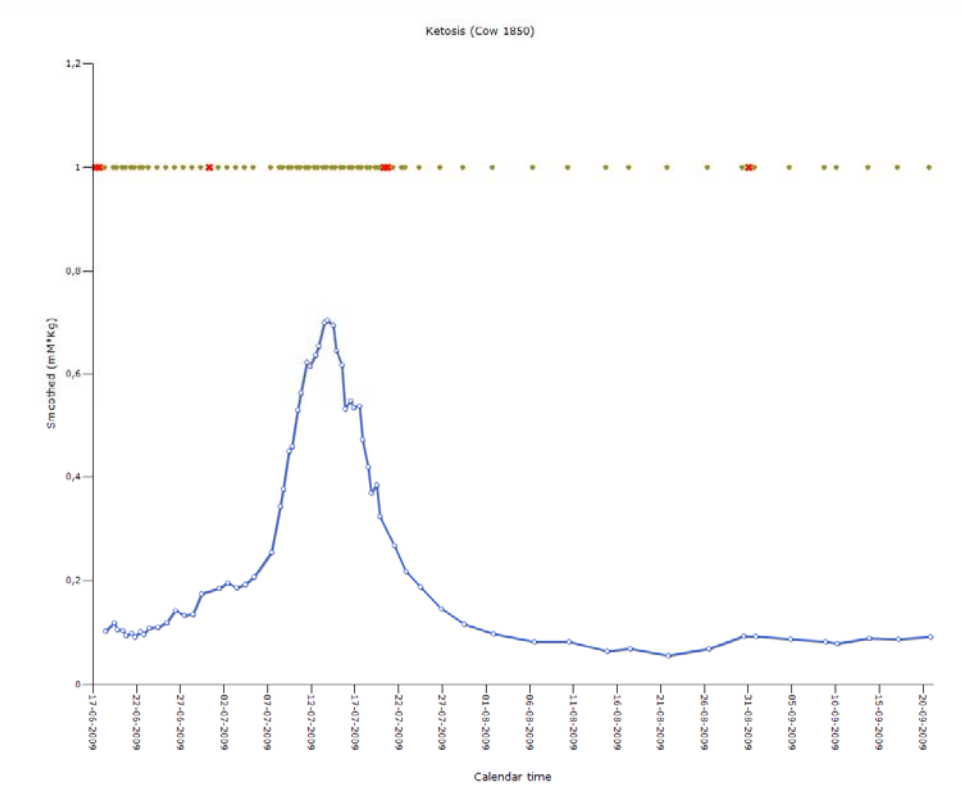
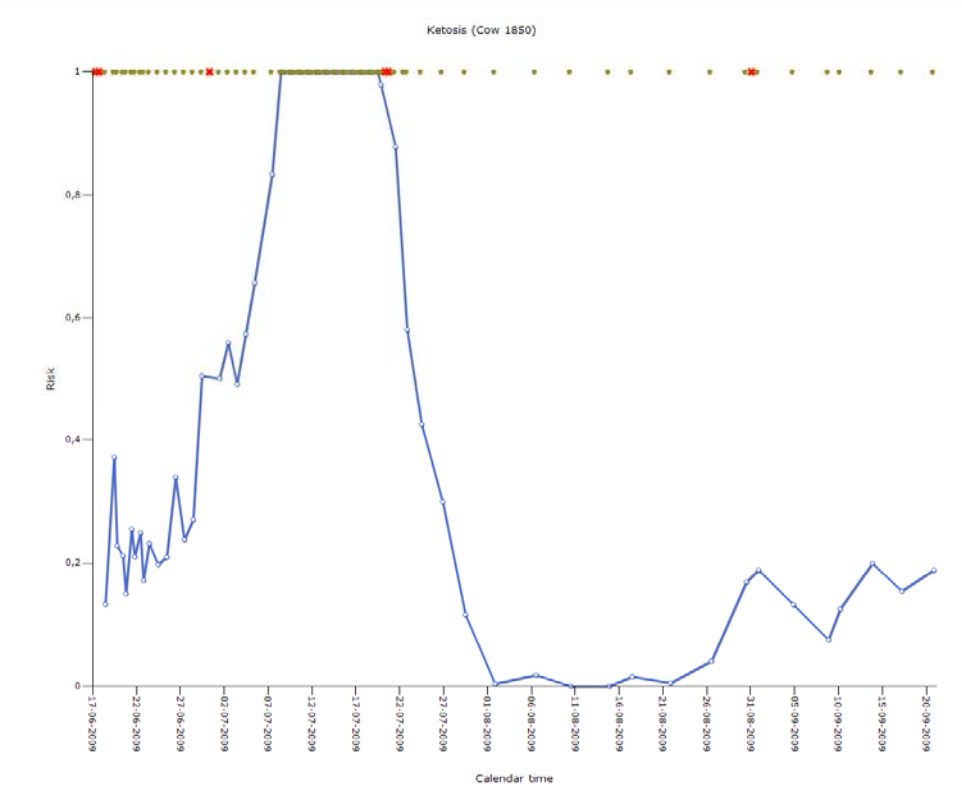
Clinical ketosis alert





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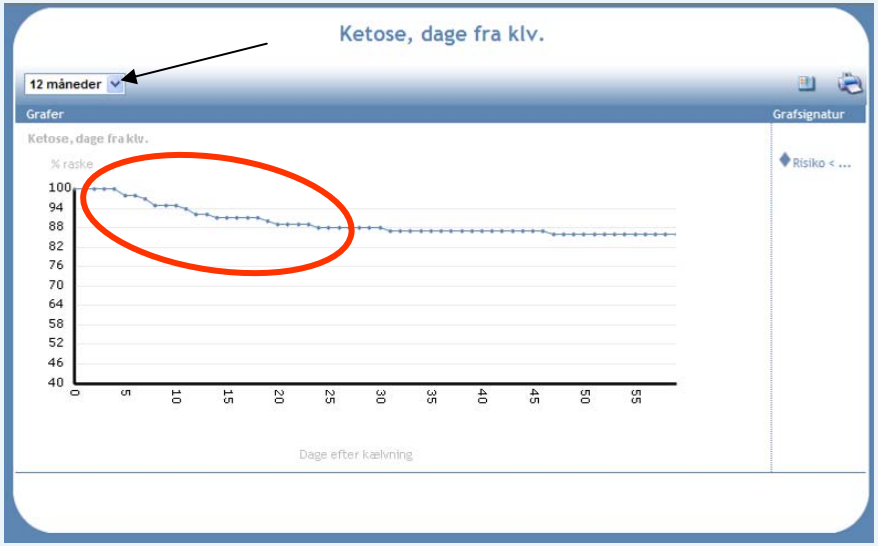
Share of cows with ketosis, Farm 1, over time



- The problem was detected
- A solution was implemented
- 15% went down to 5%

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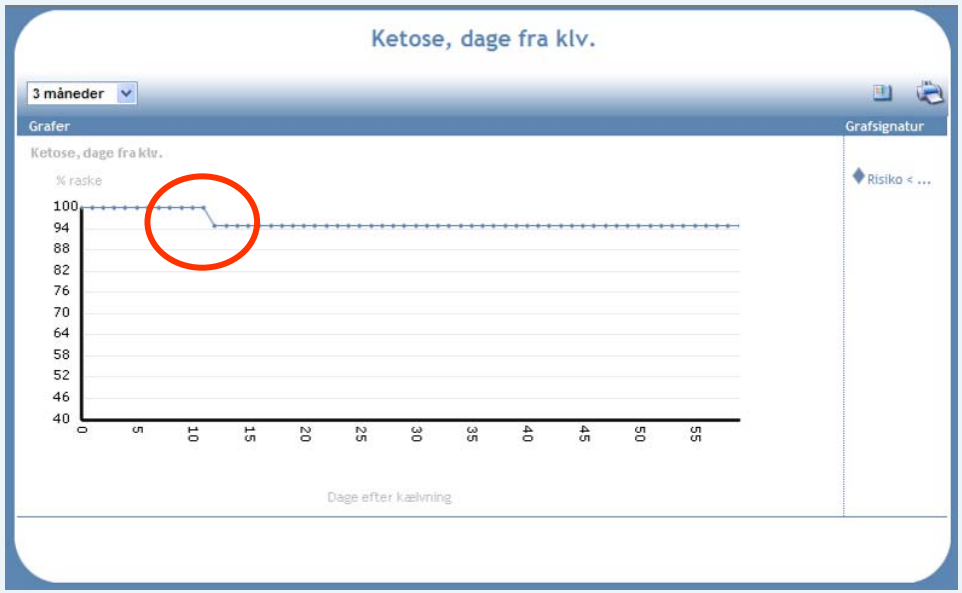
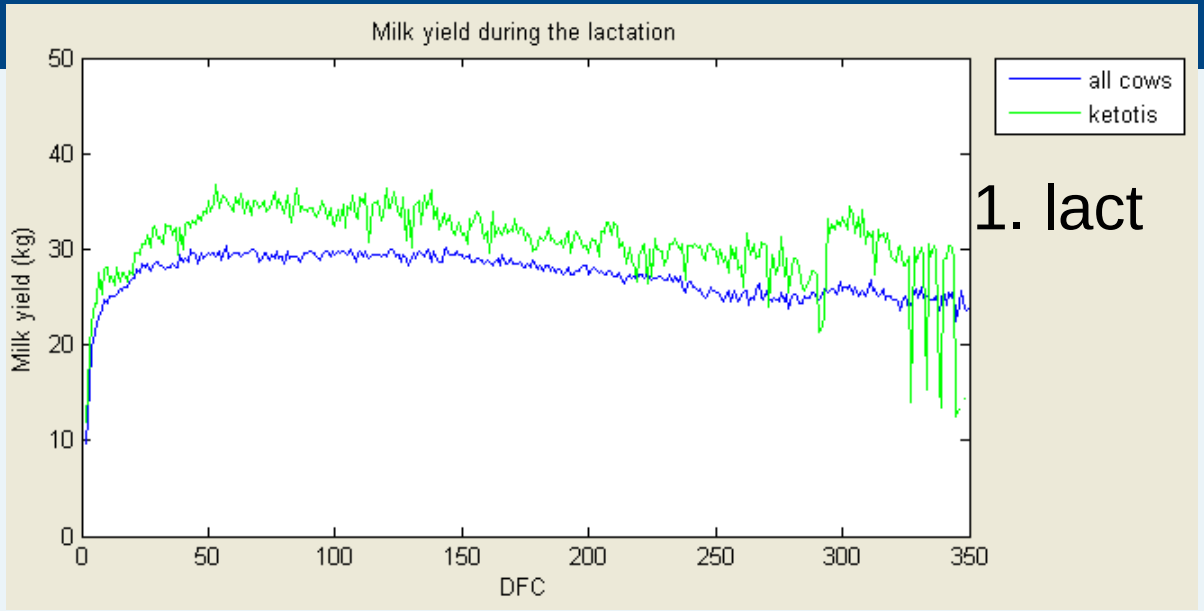
Ketosis frequency indicates how well cows get started!



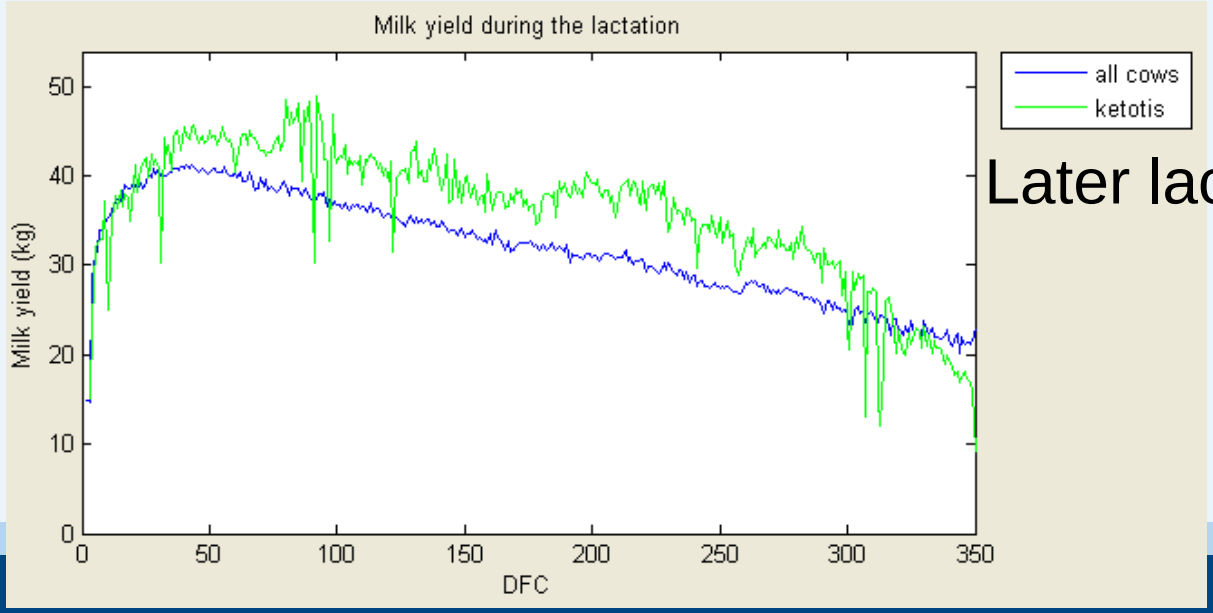
Farm 1

Farm 2

Farm 1, Milk yield for cows with high BHB levels



1. lact



Later lact.

- Cows getting increased BHB concentration in milk has a steeper lactation curve after calving
- If treated/fed correctly then milk yield for these cows will be above average!

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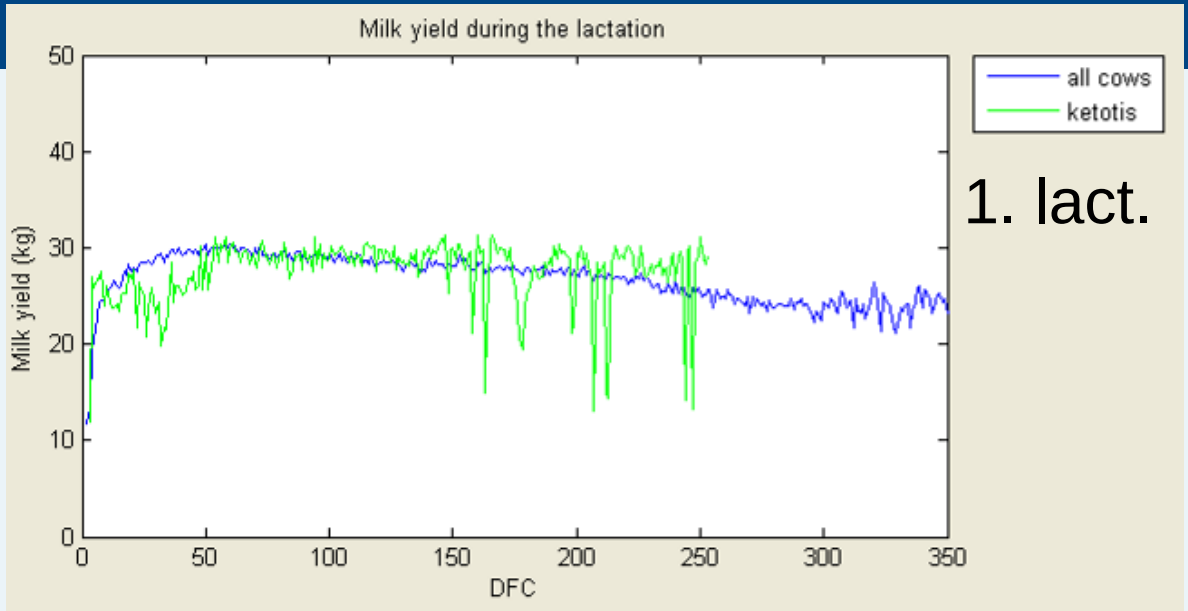
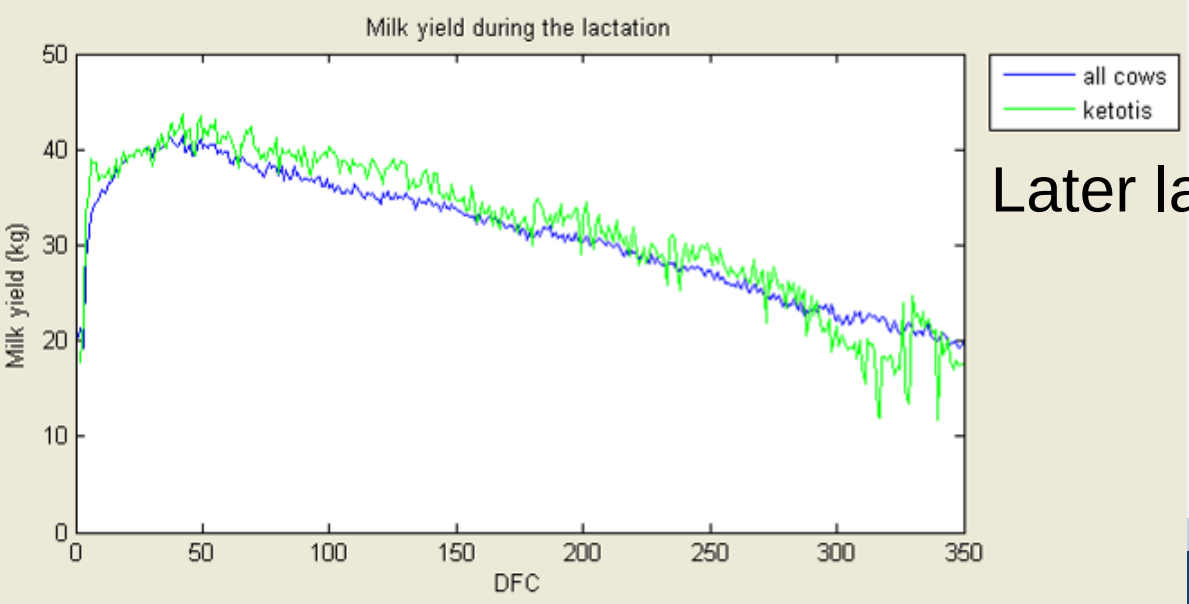
Farm 2, Milk yield for cows with high BHB levels



1. lact.



Later lact.

- Cows with high BHB levels produces on average level!
- TMR is fed which here means that all milking cows are fed the same ratio

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Conclusions Ketosis

- Cows with subclinical and clinical ketosis is readily detected
- By use of Herd Navigator ketosis cows can be treated immediately and remain high yielders
- Herd statistics on type and timing of alerts is basis for an action plan

Over all benefits

	Farm 1	Farm 2	Farm 3	Farm 4
Empty days at start	112	108	114	125
Empty days now	85	83	84	118
Reduction	**27**	**25**	**30**	**7**

Statements from users of Herd Navigator

- ”During spring where my focus have been on the field work I still had a very good overview of my herd”
- ”We were surprised about the level of subclinical ketosis and we changed our feeding”
- ”We are now able to monitor the transistion period and help the cow through this period by proactive decisions”
- ”We use the reproductive diagnoses from HN to support the vet.”
- ”We use use the progesterone curves to confirm pregnancy at day 35 from AI”

Summary

- Reduction in empty days
- Changes in feeding
- Efficient mastitis prevention program
- Monitoring the herd performance
- Early markers for changes in the herd
- Hidden information are transferred to visible signs
- Improved basis for decisions
- Profit improvement varies from 150 – 200 € per cow per year