

Collection and use of data in the Danish dairy herds ... an option for the dairies



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Industry 4.0, Thursday 11th October 2018



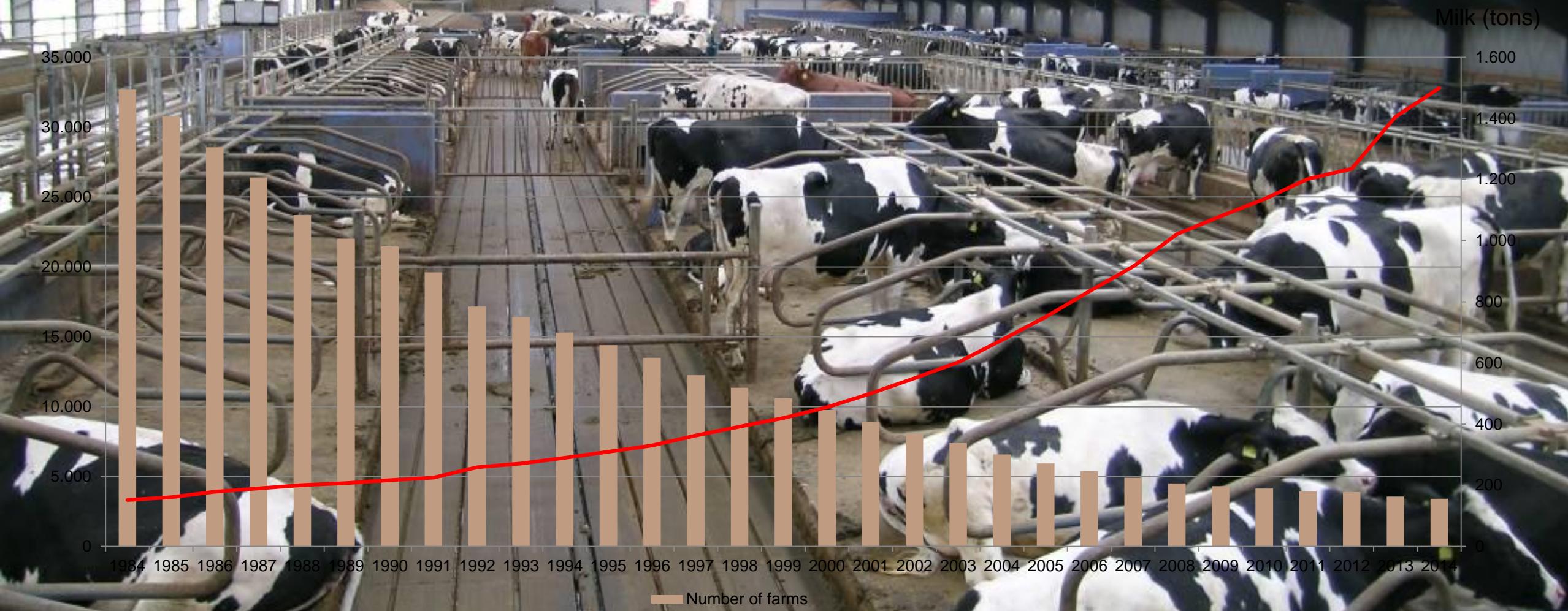
Any
data
here?

Agenda

- Introduction
- Danish cattle database
- Data collection
- DMS Dyreregistrering
- Usage in herds
- Sum up

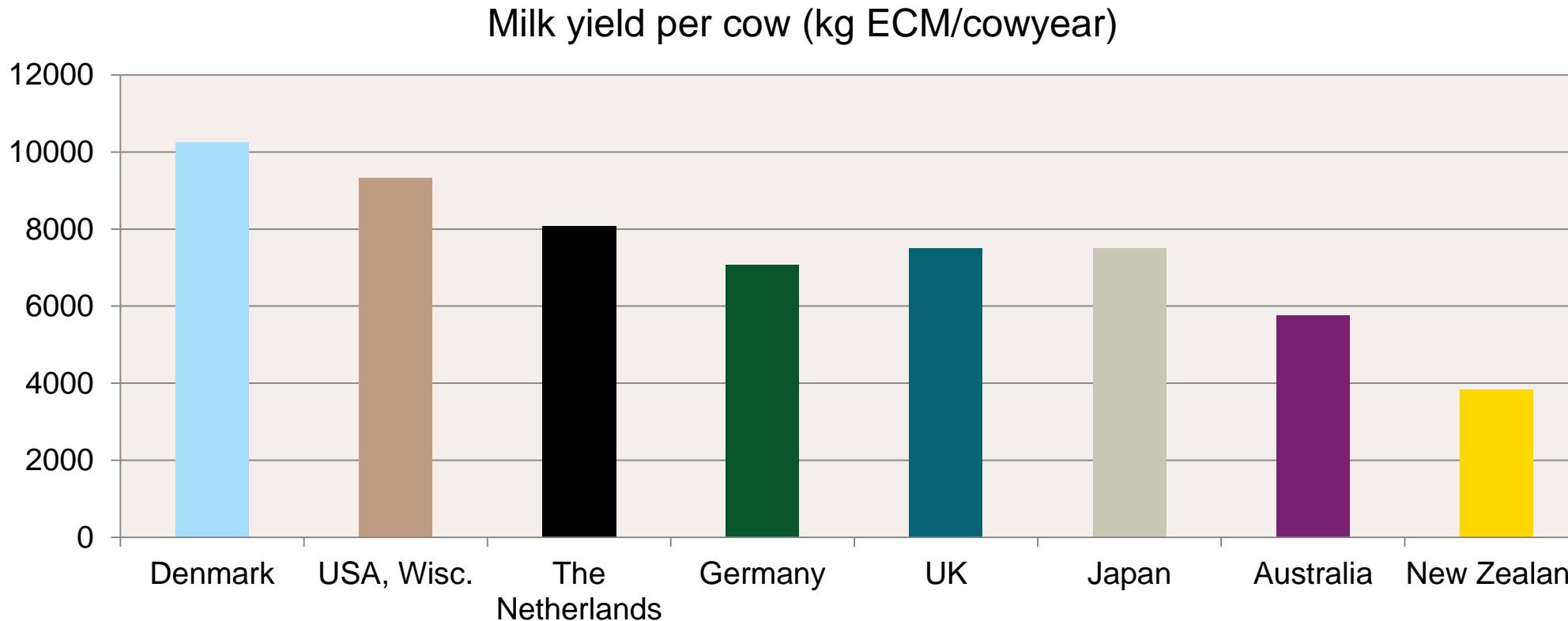


Number of farms and milk production



Danish Dairy Farmers Among the most Efficient in the World

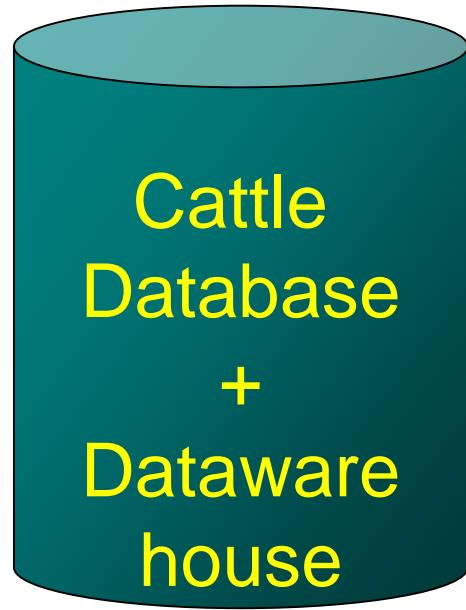
- Today 3,000 dairy farms
- 190 cows per farm (50 – 3,000)
- 2 employees per farm (0 – 20)



What is the Danish Cattle Database?

Complete database of cattle farmers and cattle in Denmark

- **Information on every cattle owner in Denmark**
- **All cattle identified by individual ear tag (both dairy and beef)**
- **All herds (animal at all times and the herds location)**



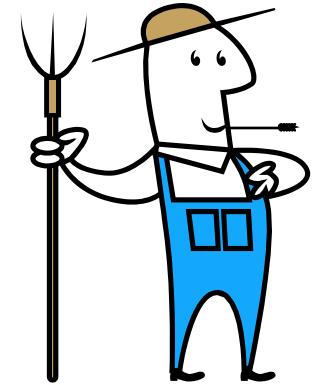
Cooperation with the authorities

Used by research institutions

Statistics

The farmer is the owner of the data in the Danish Cattle Database

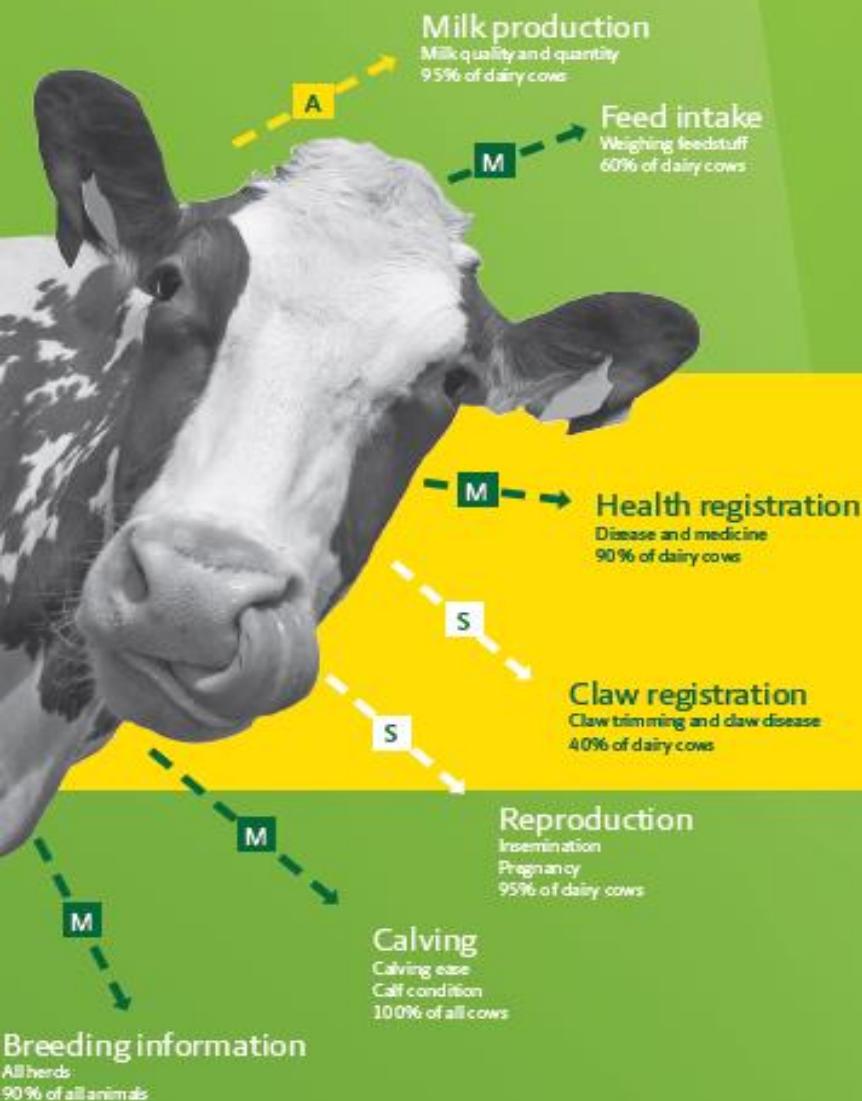
By signature the farmer legalizes veterinarians, livestock and breeding consultants, hoof trimmers, dairy factories etc. to see or use data of his herd



The benefit for these are that they only deliver data for their own area, but have access to all data in their daily work



Registration from cows



Data sources in the Danish Cattle Database



Use of data in daily management

-
- Dairy Management System including:
- Feed ration plan incl. Norfor
 - Forecast of the production
 - Budget
 - Follow-up on feeding
 - Follow-up on budget
 - Key Performance Indicators

DMS and connecting IT-systems

Thursday, October
4, 2018



E.G.

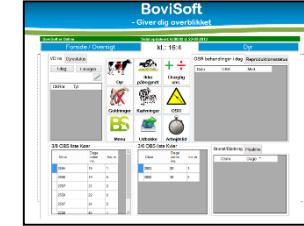
- Breeding
- Milk recording
- Dairies
- Slaughter houses
- Milking systems
- Other external systems



DMS



SmartCow

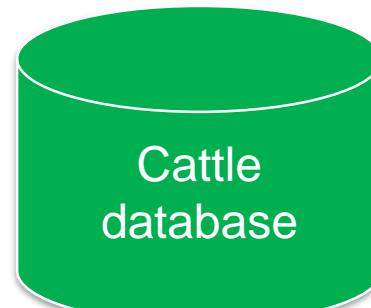


BoviSoft



Claw Health
Registration

Single Sign On
Webservicelayer



DMS Dyreregistrering

Tuesday 13.12.2016 - Herd: 123456 - John Farmer

SELECT HERD



DAILY TASKS

Cow info Find animals

Select herd	Order	Registration															
Herd 123456 All cows	02020																

Animals in focus

TODAY'S TREATMENTS	REPRODUCTION COWS
	REPRODUCTION HEIFERS
OBSERVATIONS FROM SMARTKOEN	HOOF FOLLOW-UP

Notifications

Your registrations do not match the one of the counterpart
Buyer has not made the incoming registration - check your outgoing

?

1

To do lists

5 DAYS	7 DAYS	12 - 16 DECEMBER 2016					Add +	?
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY				
Drying off	Cows to veterinarian	Cows for calving box	Pregnancy check heifers	Move to heifers				
Pregnancy check cows	Move from heifers	Heifers for calving box	Calves for sale					

News and status

New features in DMS See the veterinarian registrations of welfare in DMS
Compare the latest welfare evaluation with earlier evaluations in the list Welfare evaluation.

Video



Key performance To do lists Feeding

USERS

- 1,500 daily users
- 3,100 weekly users
- 110 advisors
- 230 veterinarians
- 150 AI assistants

Ongoing tasks			
Inseminator Check for insemination	Hoof trimmer Cows for hoof trimming	Hoof trimmer Heifers for hoof trimming	Slaughter Mark cows for slaughter

Udsætning	Overfør til liste	Hornstatus	Registrering						Bemærkninger			
Udsæt	Genindsæt	Inseminør	Klovbeskærer	Hornet Pollet	Kælvning	Beh.diag	Beh.øvrige	Inseminering	Brunst og Blødning	Slagtning	Vejning	Rediger

Cow card

OVERSIGT	REPRODUKITION	MÆLK	AFSTAMNING	AFKOM	OMSÆTNING	SUNDHED	VEJNING
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Stamdata	100000-05518	Reproduktion
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Status:	Ko	REPROSTATUS:	DRÆGTIG	FORVENTET KÆLVNING:	16-05-2017	INS./LØBN. DATO:	09-08-2016
Alder:	7 år						
Født:	25-09-2009	GOLDDATO:		DAGE TIL KÆLVNING:	224	DAGE EFTER INS./LØBN.:	56
Bes. nr.:	100000	REPROSYGDOMME:	Ja	DAGE FRA KÆLVNING:	204	ANTAL INS.:	6
Hold:	1 - VMS .1						

Lakt. nr.:	5	Mælk
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NTM:	-13	SENESTE 12 MDR.:	13706 kg EKM
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Lakt. værdi:	114	LIVSYDELSE:	59207 kg EKM
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Dage efter kælv:	204	SENESTE KONTROL:	
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Race:	HOL	DATO:	26-09-2016
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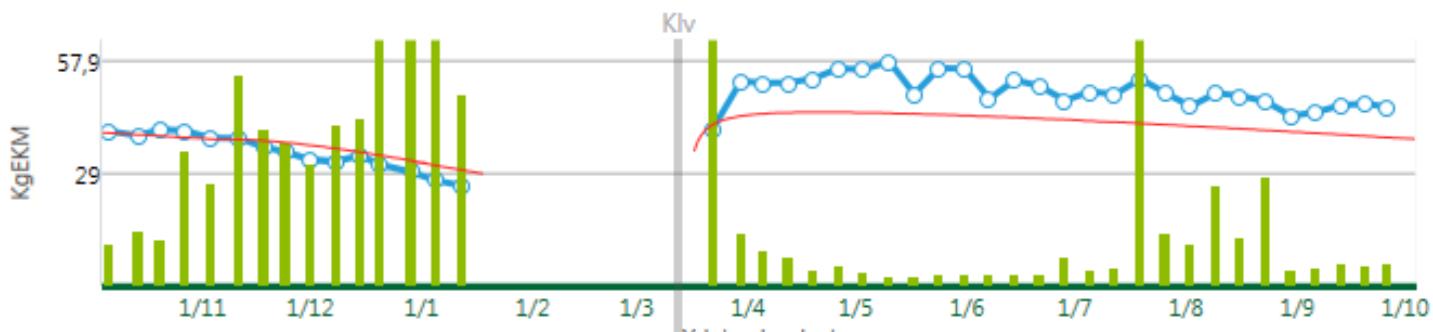
Stb. status:	Stambog	MÆLK:	46 kg EKM
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Mors dyrnr.:	42171-02587	FEDT:	3,19 %
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Fars navn:	VAR Elvis	PROTEIN:	3,16 %
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Udsætning:	-	Sundhed	
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Bemærkninger:			
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— Mælk, opnået ■ Celletal — Mælk, mål (Laktationskurveberegning)



20-04-2014: BAGLÆNS,
LANGTRUKKEN FØDSEL

OUTPUT FROM DMS

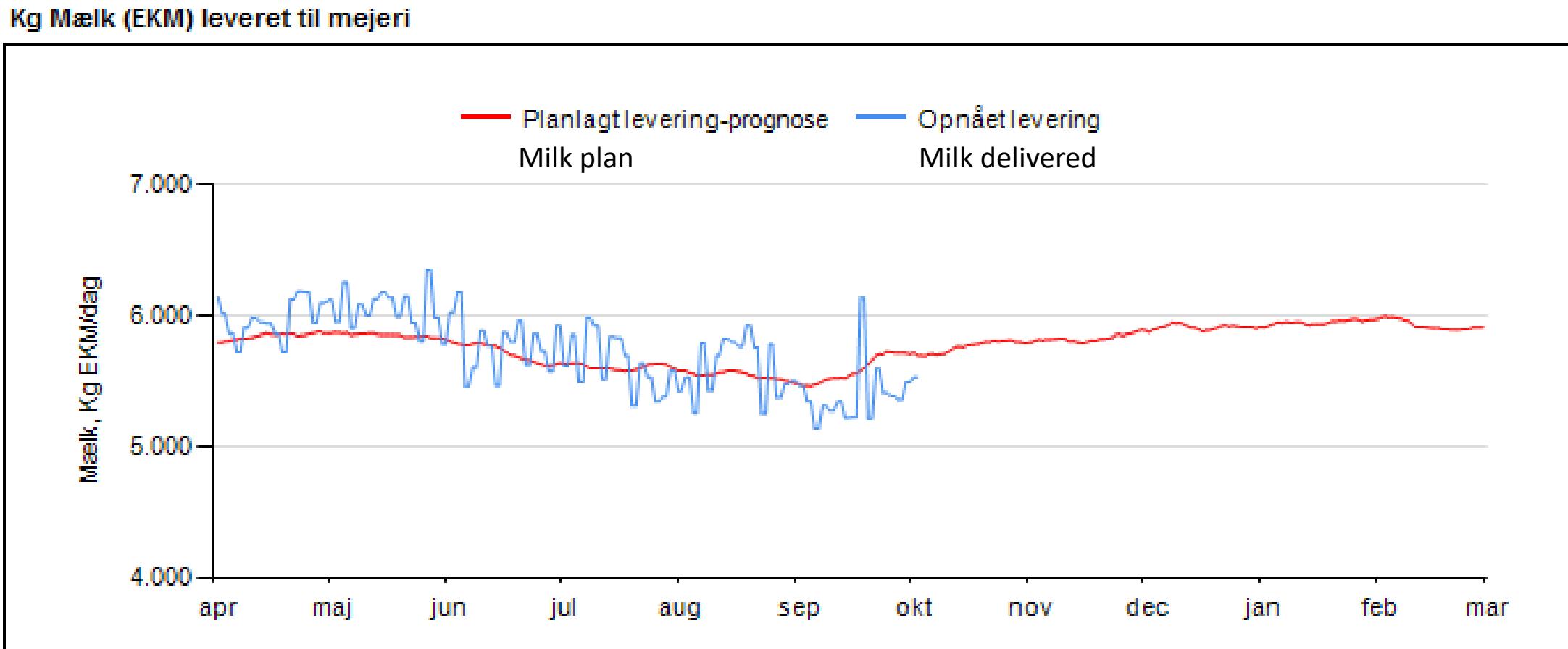
Key Performance Indicators

Topic	Status	Key figure (unit)	Achieved	Alarm limit	Reporting period
Milk	✓	ECM delivered (kg/day)	5.901	Min 5.850	Latest measurement
	✓	Milk yield per lactating cows (kg ECM/day)	37,1	Min 35,1	Latest measurement
	●	Milk quality (numbers of deductions)	1		Last 7 days
Reproduction	✓	Inseminations of cows (numbers)	14	Min 4	Last 7 days
	✓	Not pregnancy examined cows (numbers)	0	Max 0	Last day
Health	✓	Disease treatment, cows (numbers)	5	Max 5	Last 7 days
	●	Dead animals (numbers)	1	Max 0	Last 7 days
Feeding	✓	Energy efficiency (%)	103	Min 93	Last feed control
	●	Milk minus feed cost (kr/kg ECM)	1,15	Min 1,20	Last feed control

Benchmarking

Key figure (unit)	Value	Ref	Goal	Compared to group	Rank
Milk yield (kg ECM/year)	11.662	11.247	11.600	10.103 10.930 11.662	6/345
Mortality, calves 1-180 days (%)	6,1	1,8		2,4 8,1 6,1	186/312
Milking years pr. cow (years)	1,9	2,2	2,5	2,3 2,9 1,9	343/355
Cell count (1.000)	154	164	200	157 224 154	74/365

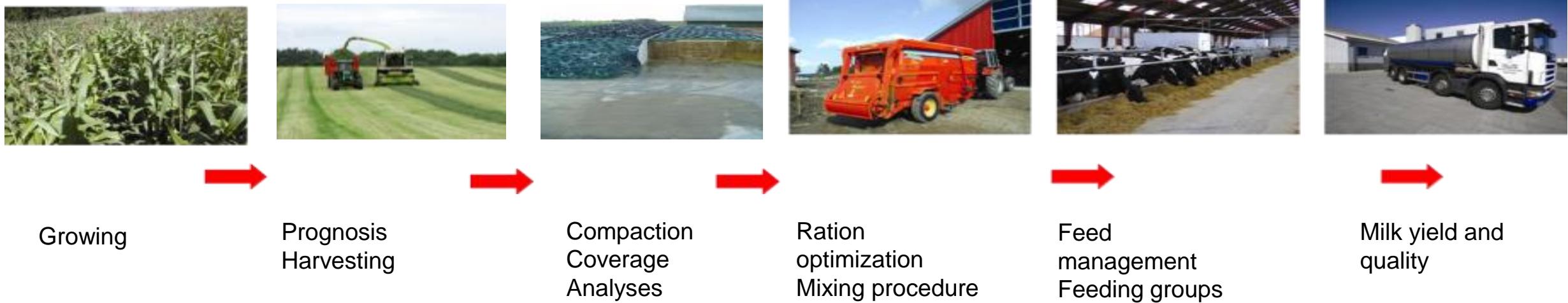
Milk delivered – per day



Benchmarking (choose between 100 different key figures – benchmark against similar group of milk producers)

STATUS	NØGLETAL (ENHED)	OPNÅET	REFERENCE VÆRDI	NEDRE ALARM	ØVRE ALARM	MÅL	OPNÅET VÆRDI I FORHOLD TIL SAMMENLIGNINGSGRUPPEN	RANGERING
▲ Basisoplysninger - Basisoplysninger								
	Antal årskøer (Antal)	198,6	193,6		200,0		25% laveste 85,1	25% højeste 167,6
▲ Mælk - YKTR								
	Årsydelse pr. ko (Kg EKM)	11.534 ⓘ	11.162		11.600		10.181	10.981
	Livsydelse i alt pr. ko (Kg EKM)	23.307	24.639				23.640	29.268
▲ Sundhed - Sygdomstilfælde								
	Klov- og lemmelidelser pr. årsko (Antal)	0,56	0,56				0,02	0,16
▲ Sundhed - Klove og lemmer								
	Andel køer med DD (%)	27,15	37,88				9,93	29,24
	Andel køer med nydannelser (%)	4,30	2,87				2,84	9,35
	Andel køer med byld i hvid linje (%)	0,52	0,54				1,09	5,38
	Andel køer med sålesår, svær (%)	1,03	1,26				1,74	4,83

TOP MANAGEMENT IN THE FEED CHAIN



Feeding

Parameter	Unit	Achieved	Min/max
Feedintake	kg TS/day	26,6	25,8
Energy	MJ/kg TS	6,58	
Efficiency	%	92,1	93
Milk ÷ feed	DKR	1,25	1,20
CO ² Equivalent	Kg/day	14	

JLBK Kvægt - Tirsdag d. 02.10.2018

FODERPLAN > ALLE BESÆTNINGER KVÆG > TMRMIX 21-04-2017-2018

Foderplan	Udskrift	Vis	Fodermidler	Blanding	Rationsparametre	Min/max grænser	Resultat	Afslut
<input type="checkbox"/> Foderplan	<input type="checkbox"/> Udskrift	<input type="checkbox"/> Vise fodermidler i Kg TS ● Kg Gram	<input type="checkbox"/> Fodermidler	<input type="checkbox"/> Blanding	<input type="checkbox"/> Rationsparametre	<input type="checkbox"/> Min/max grænser	<input type="checkbox"/> Auto beregn	<input type="checkbox"/> Optimer test
<input type="checkbox"/> Gen	<input type="checkbox"/> Udskriv	<input type="checkbox"/> Vise fodermidler i Kg TS ● Kg Gram	<input type="checkbox"/> Tilgangsfjern	<input type="checkbox"/> Rediger	<input type="checkbox"/> Ny	<input type="checkbox"/> Optisk	<input type="checkbox"/> Tilgangsfjern	<input type="checkbox"/> Til standard
			<input type="checkbox"/> Beregn	<input type="checkbox"/> Optimer	<input type="checkbox"/> Test			

Generelt | Dyn og Grundopløsninger | Fodring |

Mælkende	Gold	Gold	Guld	Guld	Guld	Guld	Guld	Guld
Tidsløp pr. dyr pr. dag	Maks.D.	Maks.T.	Guld	Guld	Guld	Guld	Guld	Guld
Fodermidler	Enhed	Dæksg.	Tidsløp	Tidsløp	Tidsløp	Tidsløp	Tidsløp	Tidsløp
TMRMix 20-09-2018 Kg	52,6	71,3	50,0	50,0	50,0	50,0	50,0	50,0
Hvede Nærlækket Kg	17,0	17,0	5,0	5,0	5,0	5,0	5,0	5,0
Nærlækket Kg	1,0	1,0	0,0	0,0	0,0	0,0	0,0	0,0
Fodermix 22-08 Kg	100,0	100,0	11,5	11,5	11,5	11,5	11,5	11,5
2 x 5 vist sls 5 Kg	22,1	20,5	17,0	17,0	17,0	17,0	17,0	17,0
May silo 4 2017 Kg	33,0	21,0	17,4	17,4	17,4	17,4	17,4	17,4
Goldkålsløb 20-04-2018 Kg	49,4		29,4	29,4	29,4	29,4	29,4	29,4

Rationsparametre Enhed Opt. Tidsløp Totalt Totalt Totalt

Energiproduktion	Kcal	37.000	36.800	36.511
Tærstypcent%	%	50,4	50,4	50,3
Fodermidlets kg TS/	kg TS/	25,1	23,3	11,5
Grovfoderandel % af T	% af T	53,4	53,4	81,1
Kostpræmie pr. kg T	kr/kg	18,8	18,8	18,8
Energiopptaket MJ/kg	MJ/kg	181,8	185,5	63,3
Energi	MJ/kg	0,01	0,00	5,49
Energibalance	kg	50,4	50,4	50,4
Residualpris	kg/kg T	167	167	144
Rapporten i alt	g/dag	4099	3038	1660
Oplænsligt rapporten	g/dag	64	64	48
AAT i foder	%	15,0	14,6	14,0
AAT i foder / NEL i fø gMj	%	15,0	14,6	14,0
AAT belønne	%	94,7	91,9	102,0
Lysen	% af A	0,06	0,00	0,00

JLBK Kvægt - Tirsdag d. 02.10.2018

FODERKONTROL > ALLE BESÆTNINGER KVÆG > FBO_TEST28-09-2018

Foderkontrol	Udskrift	Vis enhed	Foderregistrering	Markedata	Rationsparametre	Negletal	Resultat	Afslut
<input type="checkbox"/> Foderkontrol	<input type="checkbox"/> Udskrift	<input type="checkbox"/> Vise Ration pr. dyr i ● Kg TS ● Kg TS (kg)	<input type="checkbox"/> Markedata	<input type="checkbox"/> Negletal	<input type="checkbox"/> Resultat	<input type="checkbox"/> Afslut		
<input type="checkbox"/> Gen	<input type="checkbox"/> Udskriv udskrift	<input type="checkbox"/> Kg	<input type="checkbox"/> Vis/rediger	<input type="checkbox"/> Genindtes	<input type="checkbox"/> Genindtes markoplys.	<input type="checkbox"/> Tilgangsfjern	<input type="checkbox"/> Beregn	<input type="checkbox"/> Foderkontrol

Generelt | Dyrprædag | Foderkontrol |

Maletproduktion

Fodermidletsbelægning

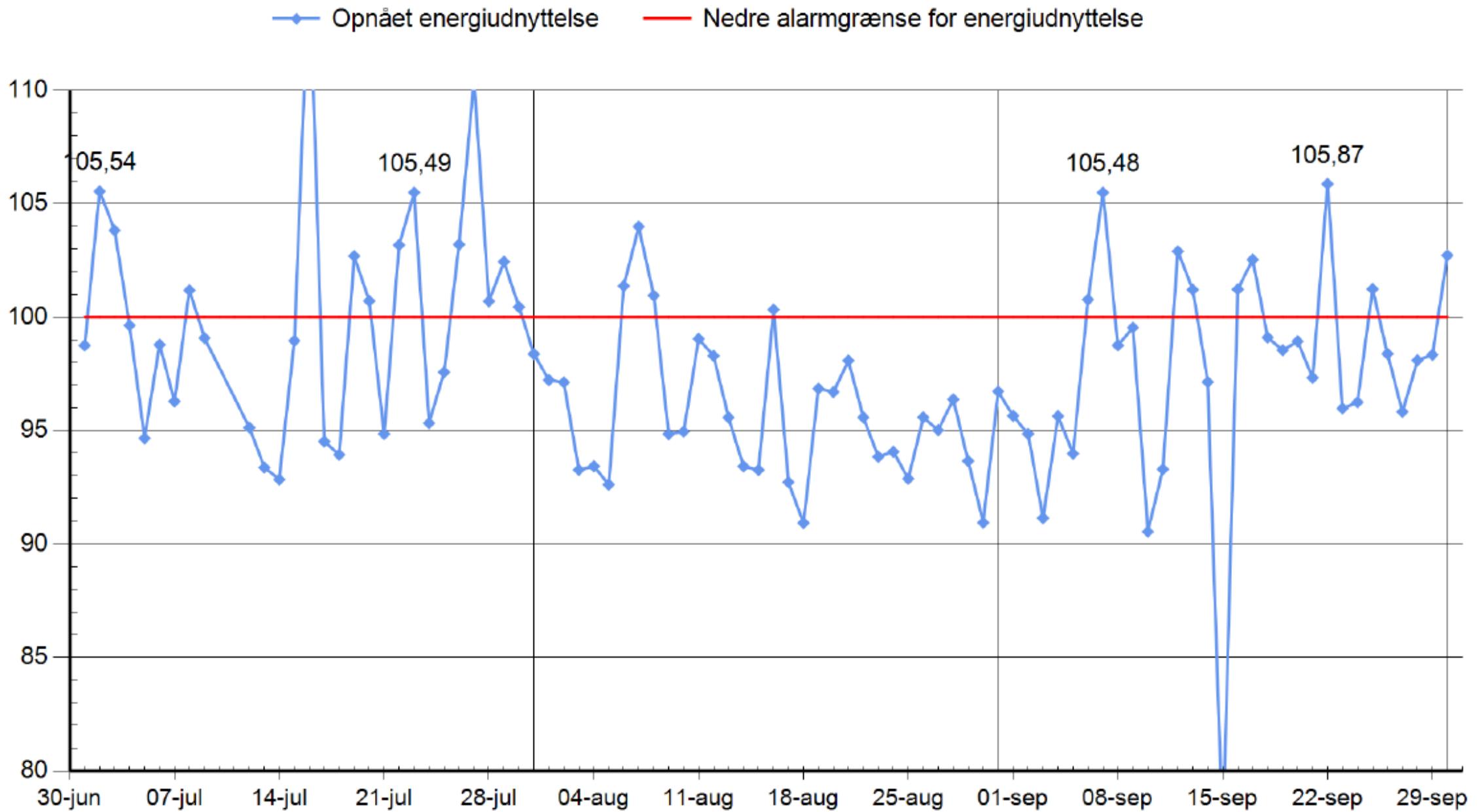
Rationsparametre

Negletal

Negletal	Enhed	Min	Optimalt	Maks.
Energiproduktion	%	98,1		
EKM pr. kg tænkaff	kg/kg TS	1,50		
Dagsproduktion af mælkende ko, opnadt	kg EKM/dag	0,0		
Dagsproduktion pr. mælkende ko, mælt	kg EKM/dag	41,0		
Mælkproduktion pr. kg EKM	kr/kg EKM	2,73		
Mælkproduktion pr. dyr	kr/dag	109,10		
Foderkostpris pr. DOM	kr/kg DOM	0,93		
Foderkostpris pr. dyr	kr/dag	97,97		
Mælk minus kost pr. dyr	kr/dag	72,04		
Mælk minus foder pr. kg EKM	kr/kg EKM	1,80		
Købt foder pr. kg EKM	kg/kg EKM	0,25		
Kraftfoderomkostning pr. kg EKM	kr/kg EKM	0,72		
Kraftfoderpris pr. kg EKM	kr/kg EKM	0,94		
Nedbrytningspris	%	32,4		



SE



Typical feed ration for 11.500 kg ECM

Nutrient	In feed ration
Dry matter intake, kg DM/day	24.0
Net energy lactation, MJ/day	159
AAT to energy ratio, g/MJ	15.8
Protein balance in rumen, g/kg DM	11
Protein, g/kg DM	165
Fatty acids, g/kg DM	30
NDF, g/kg DM	315
Starch, g/kg DM	230

Weekly White Board meetings – Data is an important part



DMS (DAIRY MANAGEMENT SYSTEM)

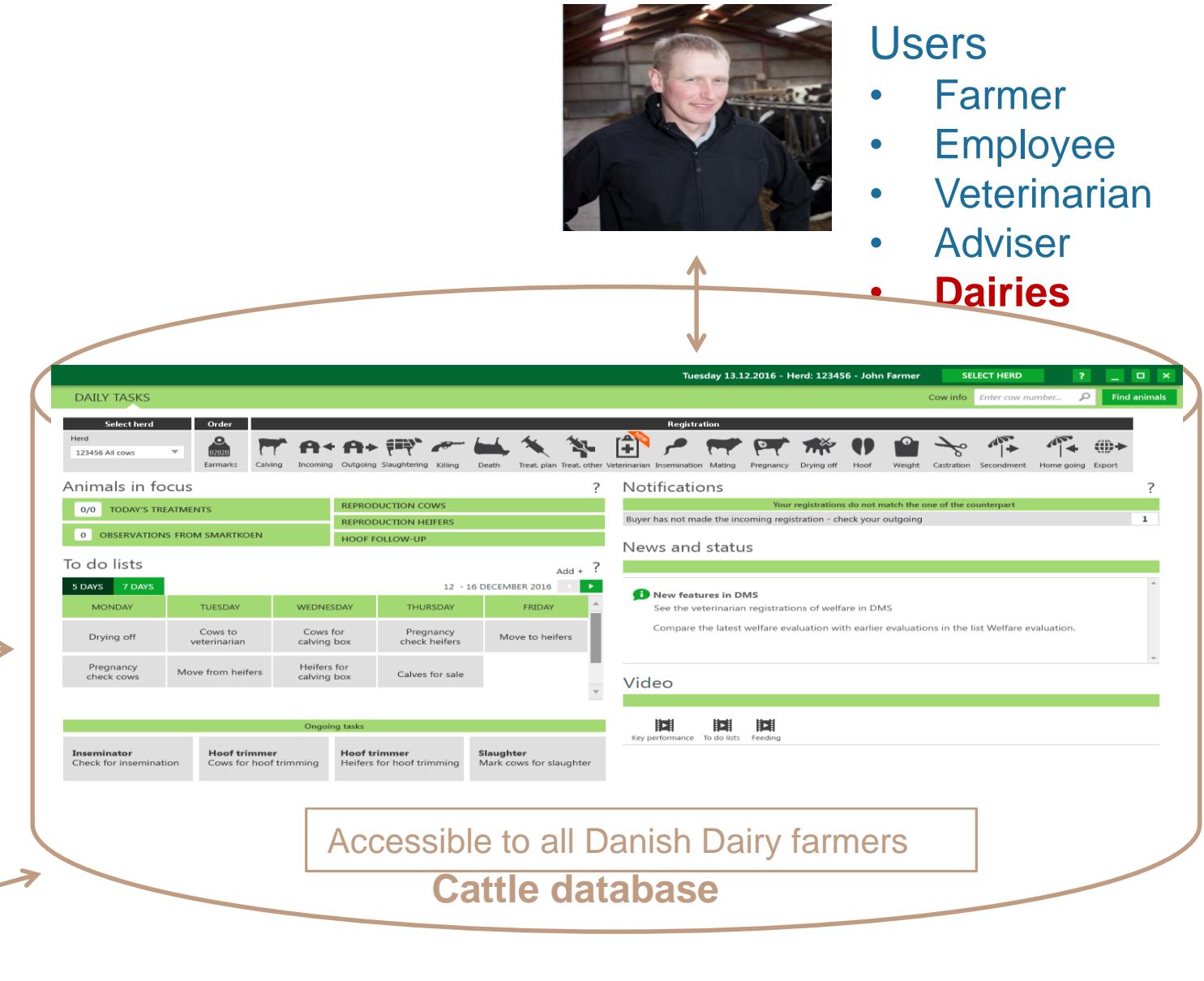
Registration
Daily management
KPI's and Benchmark
Production analysis
Feeding management
Financial reporting

Data Sources:

- Dairies
- Slaughterhouses
- Eurofins | Steins
- Veterinarians
- Eartag companies
- Milking equipment
- Destruction
- ...

External databases

National Database (mandatory)



Thank you for your attention!

