June 10th

**Johannes Frandsen, SEGES Cattle**

**II Session**

**ICAR 2015, Technical Workshop,**

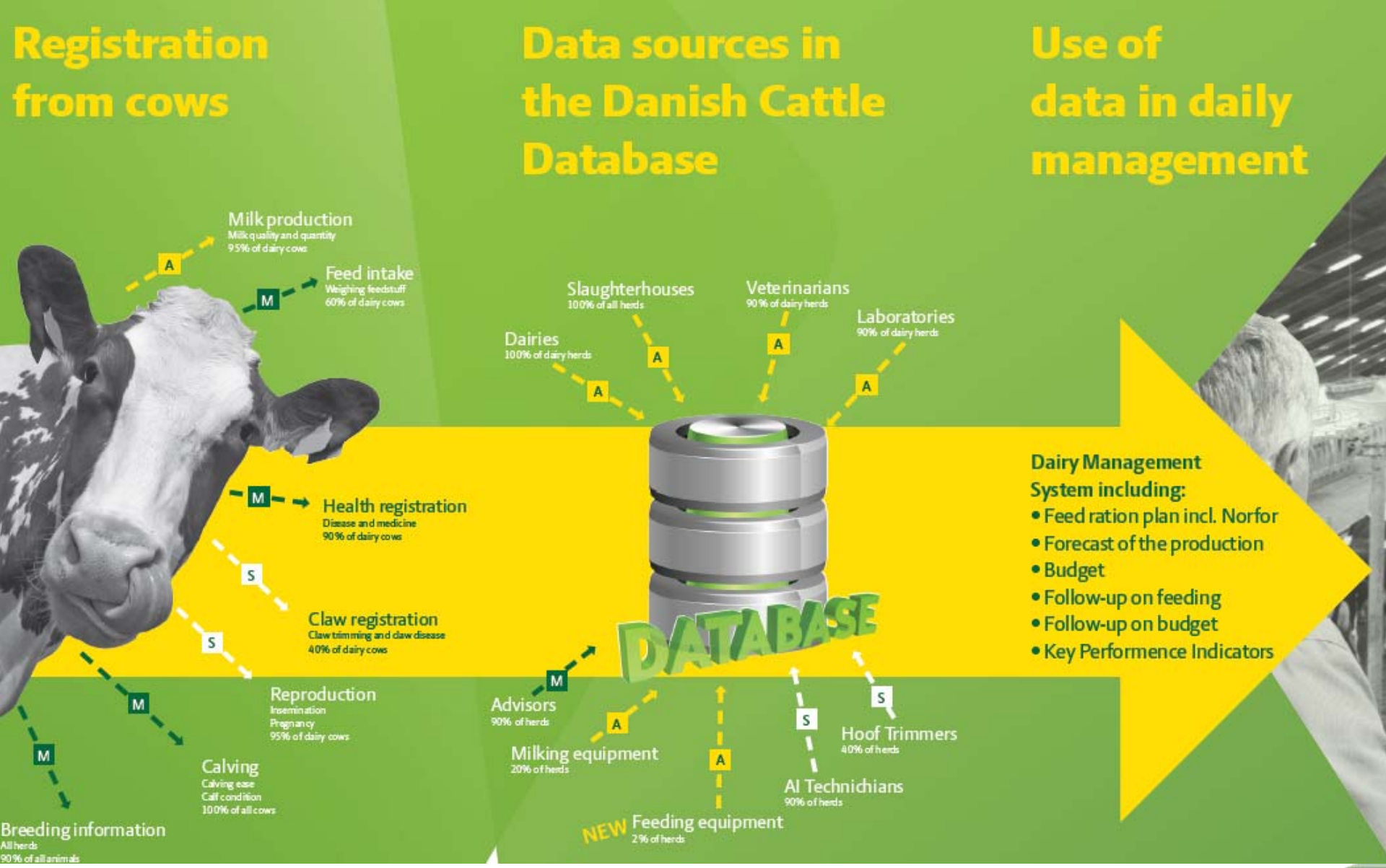
**Krakow, Poland**

# BENCHMARKING IN DAIRY PRODUCTION "HOW TO TRANSFORM DATA TO VALUABLE DECISION SUPPORT"

SEGES

# DECISION SUPPORT ON RECORDED DATA

- Farmer do record a lot of data
- Cattle databases do receive a lot of data
- In Denmark all these data end up in the same database
  - Mandatory – milk recording – breeding data – veterinary data – dairy data – slaughter data – lab. data etc.
- Data are stored on “raw level”
- Data are enriched and transformed into key figures by more or less sophisticated algorithms
- The calculations runs each night in the Data Ware House


Registration from cows
Data sources in the Danish Cattle Database
Use of data in daily management
Milk production
Milk quality and quantity
95% of dairy cows
A
Feed intake
Weighing feedstuff
60% of dairy cows
M
Slaughterhouses
100% of all herds
Veterinarians
90% of dairy herds
Laboratories
90% of dairy herds
Dairies
100% of dairy herds
A
A
A
A
M
Health registration
Disease and medicine
90% of dairy cows
S
Claw registration
Claw trimming and claw disease
40% of dairy cows
S
M
Reproduction
Insemination
Pregnancy
95% of dairy cows
M
Calving
Calving ease
Calf condition
100% of all cows
Breeding information
All herds
90% of all animals
DATABASE
M
Advisors
90% of herds
A
Milking equipment
20% of herds
A
NEW
Feeding equipment
2% of herds
S
S
Hoof Trimmers
40% of herds
AI Technichians
90% of herds
Dairy Management System including:
• Feed ration plan incl. Norfor
• Forecast of the production
• Budget
• Follow-up on feeding
• Follow-up on budget
• Key Performence Indicators



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# USEFUL DECISION SUPPORT

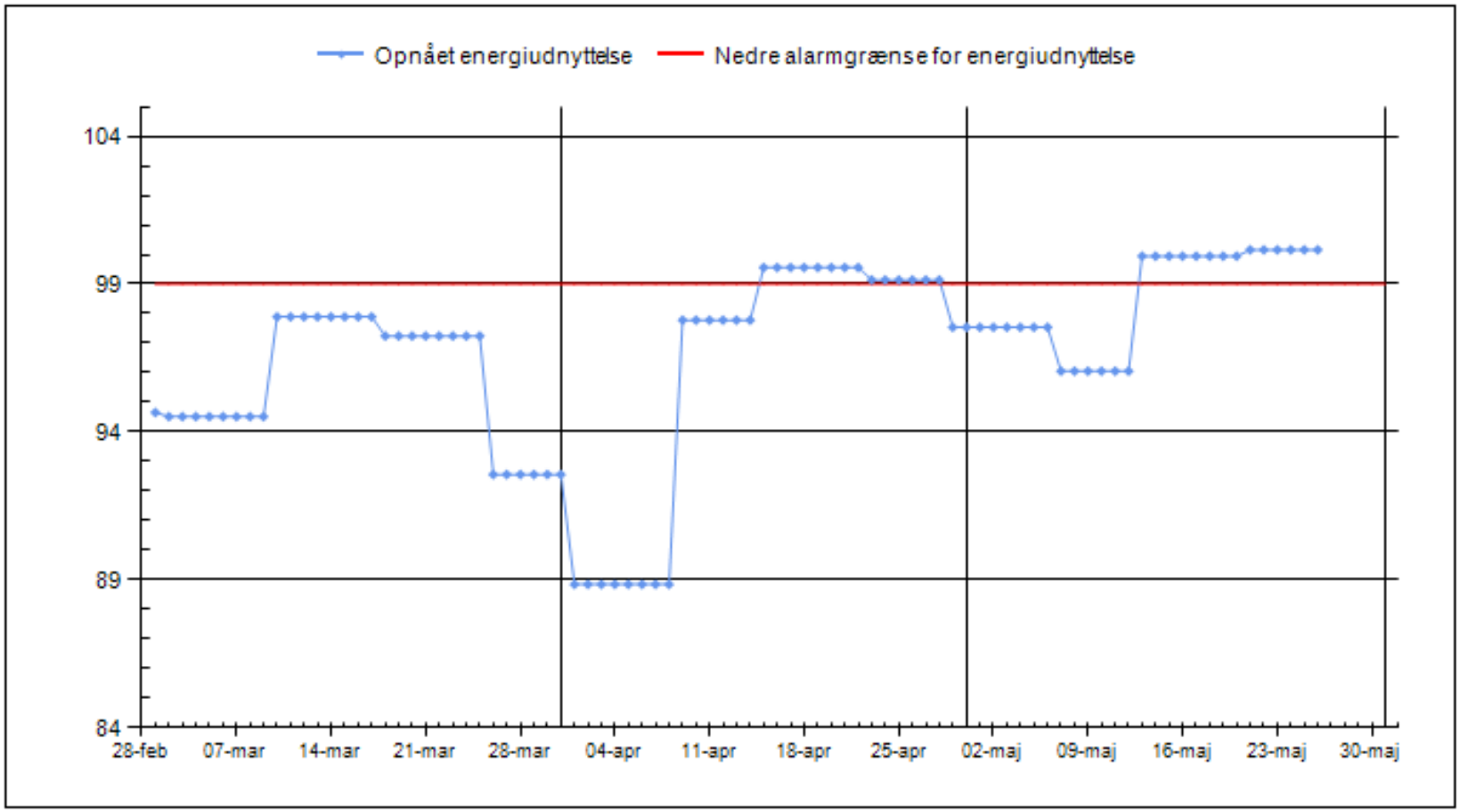
In DMS (Dairy Management System) we find 3 different tools for 3 different user decision situation

- The daily management - KPI
- Finding improvement potentials - Benchmarking
- Finding the “gaps” in the production – The analyzing system (where and why did the production not perform)
- These 3 modules are part of the complete management tool; DMS, which also includes modules for:
  - Recording and daily management
  - Feeding planning and optimizing
  - Planning, budgeting and economical follow up

# THE DAILY MANAGEMENT - KPI

| Topic | Status | Key figure (unit) | Achieved | Alarm limit | Reporting period |
|---|---|---|---|---|---|
| Milk | ✓ | Milk delivered (kg/day) | 8.906 | Min 7.835 \ Max 9.072 | Latest delivery |
| | ✓ | Milk quality (number of deduc-tions) | 0 | | Latest measure-ment |
| Reproduction | ✓ | Inseminations of cows (Numbers) | 8 | Min 3 | Last 7 days |
| | ● | Inseminations of heifers (Numbers) | 1 | Min 2 | Last 7 days |
| | ● | Not pregnancy examined cows (Numbers) | 4 | Max 0 | Last day |
| | ✓ | Not pregnancy examined heifers (Numbers) | 0 | Max 0 | Last day |
| Health | ✓ | Disease treatment, cows (Numbers) | 0 | Max 4 | Last 7 days |
| | ✓ | New infection, lactation (%) | 8 | Max 15 | Last milk recording |
| | ✓ | New infection, dry period (%) | 14 | Max 35 | Last milk recording |
| | ✓ | Dead animals (Numbers) | 0 | Max 1 | Last 7 days |
| Feeding | ✓ | Energy efficiency (%) | 97 | Min 93 | Last feed control |
| | ● | Milk minus feed cost (kr/kg ECM) | 1,38 | Min 1,50 | Last feed control |

# REPORT BEHIND THE KEY FIGURE FOLLOWING THE FEED EFFICIENCY



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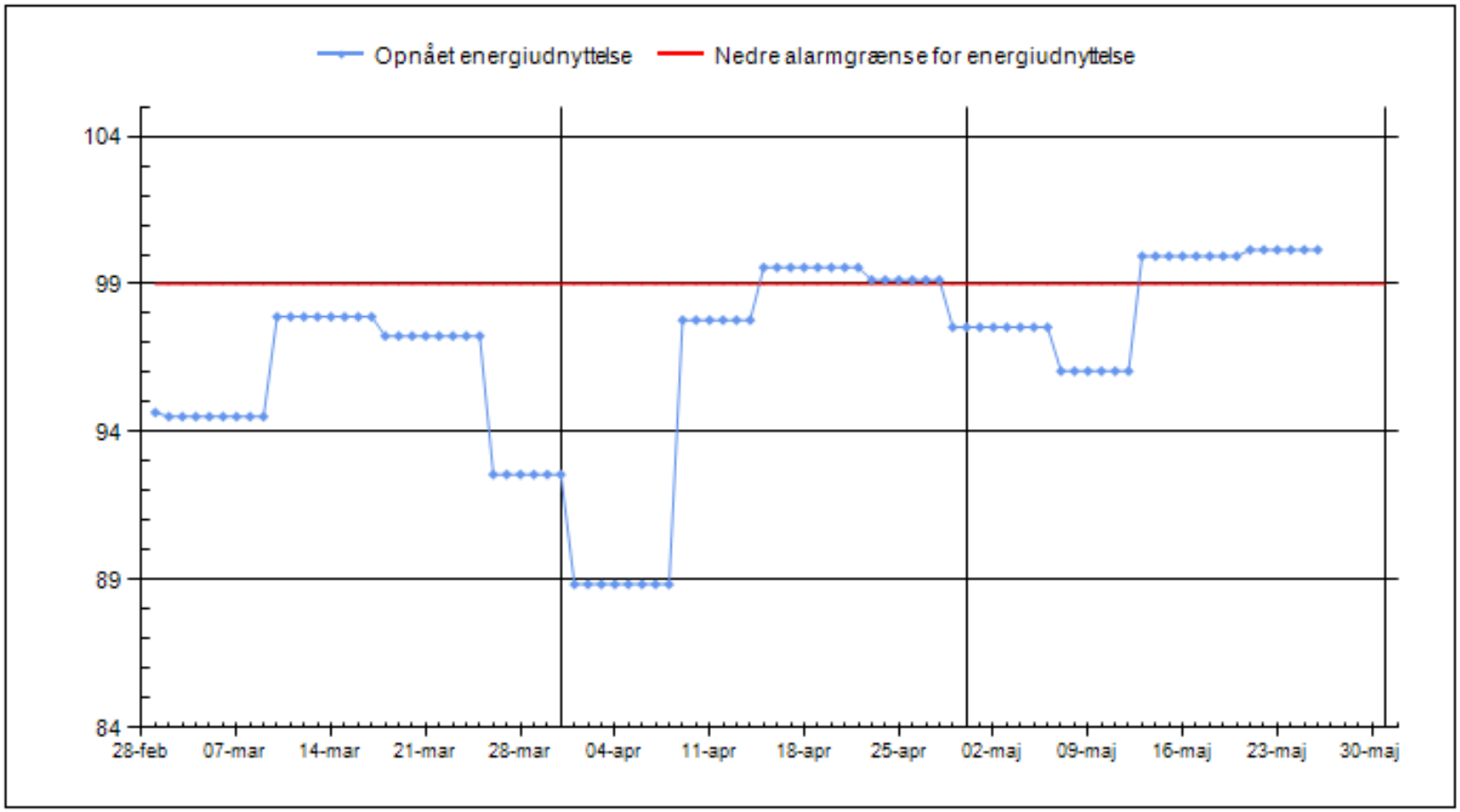


# FINDING IMPROVEMENT POTENTIALS - BENCHMARKING

How can I improve the production -> Benchmark the Key figures against:

- My own goals
- The production last year/period
- Benchmarking groups with similar production
  - Size, yield, breed, milking system…

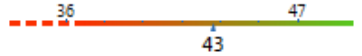
The system calculate each night:

- Key figures based om newest information/data
- Benchmarking groups
- Percentiles

# BENCHMARKING EXAMPLE

| STATUS | Key figure | Value | Ref | Goal | Compared to Group | Rank |
|---|---|---|---|---|---|---|
| **Basisoplysninger - Basisoplysninger** | | | | | | |
| | Number of cows | 89,4 | 91,7 | | 25% laveste 104,5 / 25% højeste 182,9 / 89,4 | |
| | Udsætterpct., køer (%) | 52,6 | 29,4 | | 35,2 / 49,6 / 52,6 | |
| **Mælk - YKTR** | | | | | | |
| | Årsydelse pr. ko (Kg EKM) | 9.409 | 8.878 | 9.900 | 9.504 / 10.171 / 9.409 | 57 / 71 |
| | Daily yield per cow | 25,8 | 24,3 | | 26,0 / 27,9 / 25,8 | 57 / 71 |
| | Leveringsprocent (%) | 98 | 98 | | 95 / 98 / 98 | |

# BENCHMARK ON REPRODUCTION

| STATUS | NØGLETAL (ENHED) | OPNÅET | REFERENCE VÆRDI | MÅL | OPNÅET VÆRDI I FORHOLD TIL SAMMENLIGNINGSGRUPPEN | RANGERING |
|---|---|---|---|---|---|---|
| **Reproduktion - Nøgletal** | | | | | | |
| | Start ins., køer (Dage) | 38 | 41 | 40 |   | |
| | Insemineringspct., køer (%) | 74 | 47 | 85 |   | 10 / 474 |
| | Drægtighedspct., køer (%) | 43 | 43 | 40 |   | 201 / 474 |
| | Reproduktionseffektivitet, køer | 0,31 | 0,20 | 0,34 |   | 14 / 474 |
| | Start ins., kvier (Mdr.) | 13,4 | 13,2 | 14,0 |   | |
| | Insemineringspct., kvier (%) | 81 | 89 | 80 |   | 11 / 464 |
| | Drægtighedspct., kvier (%) | 54 | 63 | 60 |   | 260 / 464 |
| | Reproduktionseffektivitet, kvier | 0,44 | 0,56 | 0,48 |   | 22 / 463 |
| | Alder v. 1. kælvning (Mdr.) | 23,4 | 23,7 | |   | |

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# FINDING THE “GAPS” IN THE PRODUCTION – THE ANALYZING SYSTEM

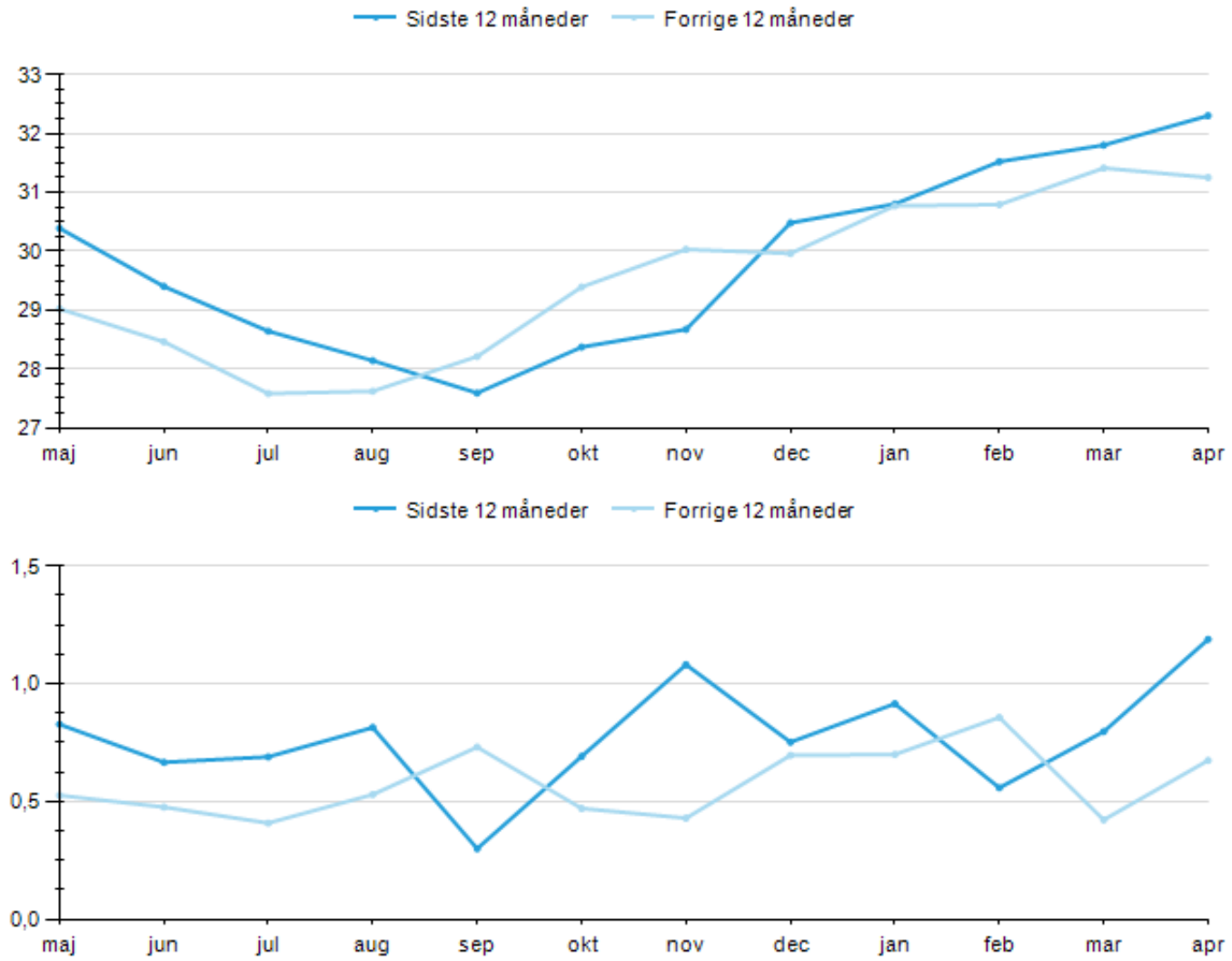
Where did the production not perform optimal

- Period of the year
- Reproduction
- Feeding
- Other areas?

The analyzing system gives you

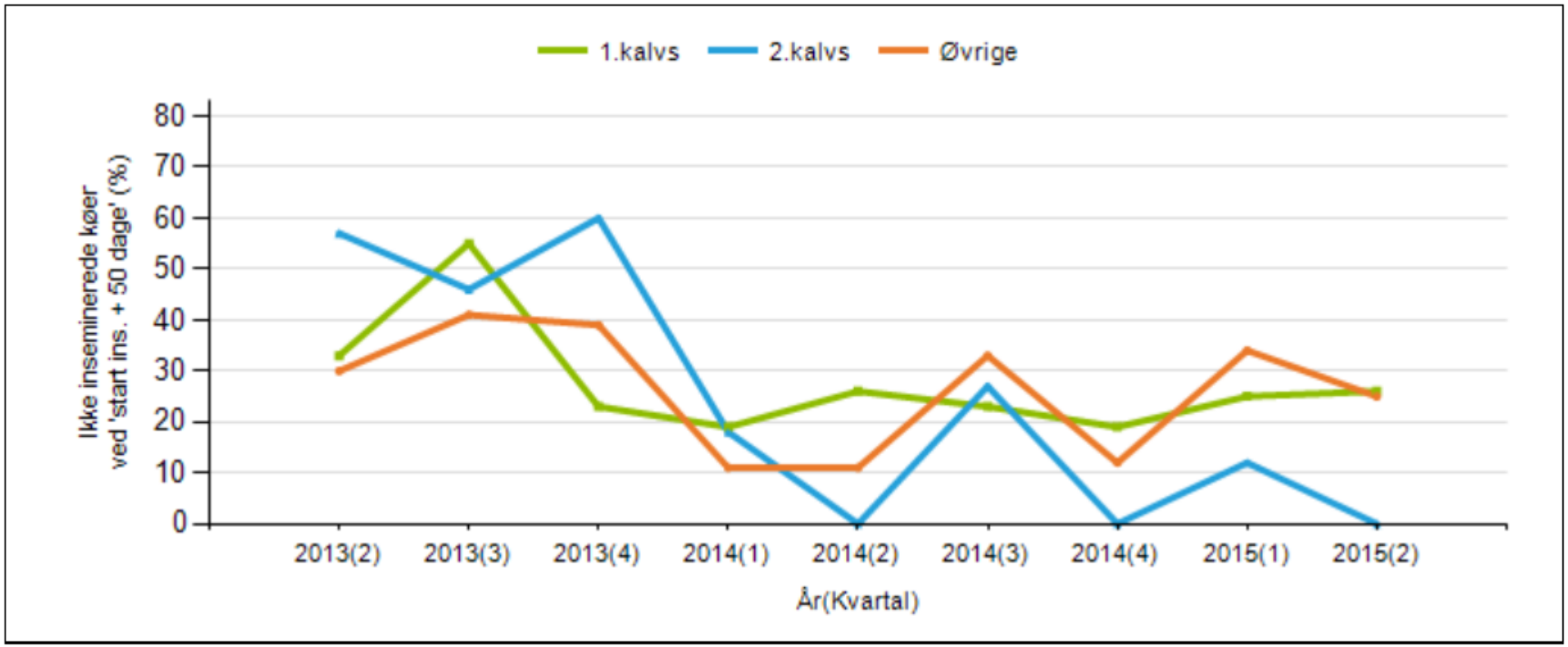
- The history of the data
- Advanced analyses
- Graphically overview

# KEY FIGURE - DAILY YIELD PER COW (KG ECM) AND NUTRITIONAL DISEASES



# ANALYSE ON INSEMINATION START

**Ikke insemineret ved start inseminering + 50 dage**



# SUMMERY

- The cattle database receives data from a whole variety of sources
- Data are transformed to valuable decision support in 3 tools:
  - The daily management - KPI
  - Finding improvement potentials - Benchmarking
  - Finding the “gaps” in the production – The analyzing system
- The modules are part of the complete DMS, the tool used by farmer and advisors in Denmark

# THANKS FOR YOUR ATTENTION

More information?

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