Reproductive management of dairy herds – a bio-social approach

Agnes Przewozny

Humboldt University of Berlin, Germany
Department of Crop & Animal Sciences

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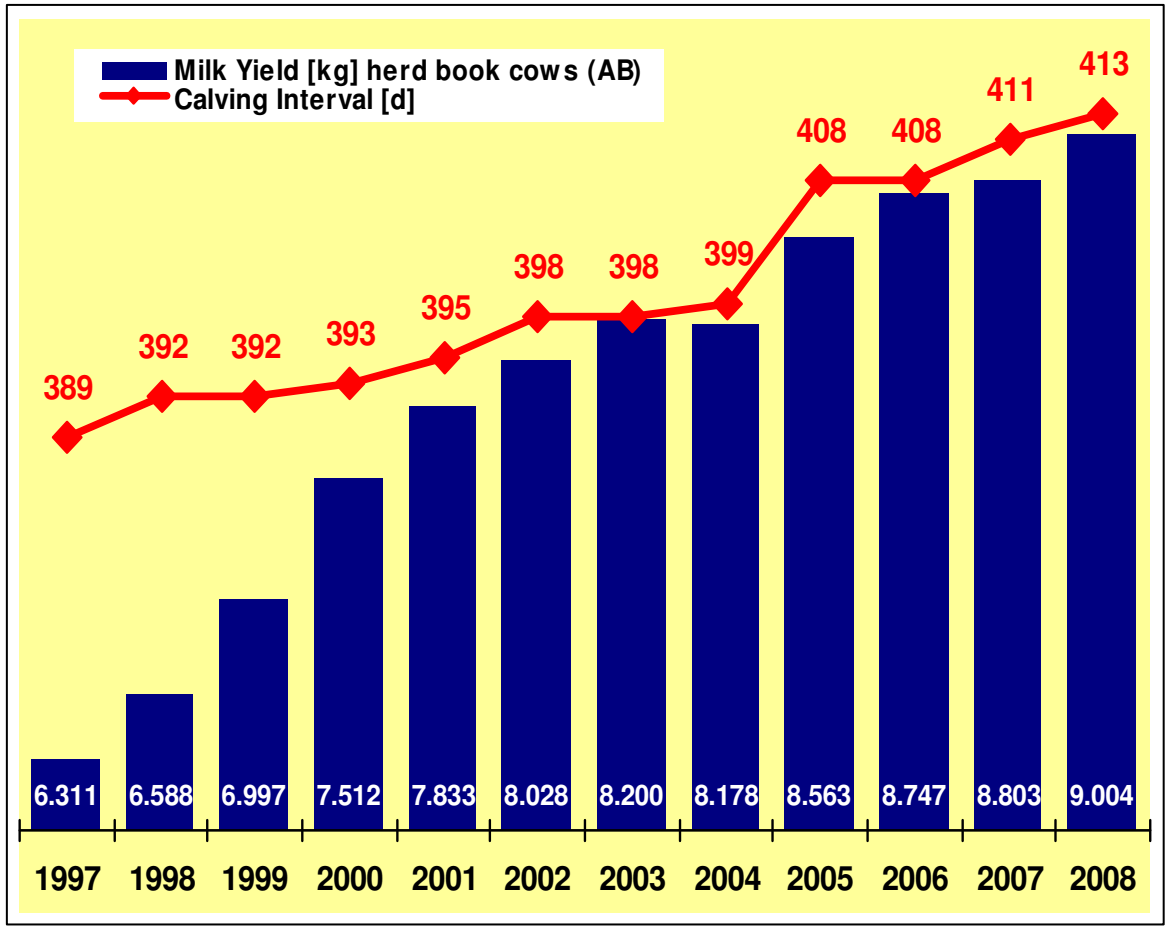
1. Background

- Development of fertility and milk yield



Years 1997-2010
Federal state Brandenburg, Germany

Source: Simon 2010, unpublished

Research Questions & Objectives

→ **Analysis of management aspects with regard to reproductive & milk performance of dairy herds:**

1. Husbandry system: floors & lying areas
2. Reproductive management: heat detection
3. Personnel management: motivating employees

→ **How are these 3 management aspects related with reproductive & milk performance?**

→ **How are the biological and social aspects of farm management related?**

2. Material & Methods …

Data I

→ **Questionnaire Survey** in 84 dairy farms

→ Stratified Random Sample:

days open

>9 dairy cows

→ ~ 10 % of dairy farms in Brandenburg

→ 25,114 cows

→ Face-to-Face interviews in 2007:
& Direct observations

→ Herd manager or farm owner

Data II

→ Herd means from **milk performance testing** in 2007:

Calving Interval & 305-days Milk Yield

…. Material & Methods

Data Analyses:

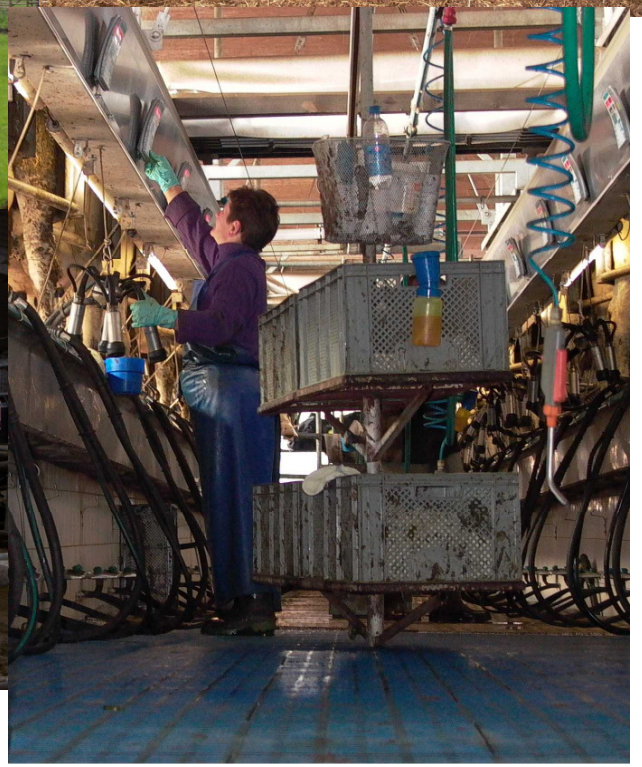
→ Qualitative Data:

Inductive Approach following Strauss & Corbin (1990)
ATLAS.ti Software
Iterative Coding of Text Data
Merging Codes to Categories
→ Statistical analysis

→ Quantitative Data:

Dependent variables: → 305-day Milk Yield [kg]
→ Calving Interval [days]
Explorative & Descriptive Methods
T-tests, Variance Analyses

3. Results



Reproductive & Milk Performance

Mean:

Herd Size
306.3 cows
n = 80
SD ± 238.3

305-d Milk Yield
8555 kg/ 305 d
n = 80
SD ± 1132,9

Calving Interval
413.2 days
n = 80
SD ± 18.73

Relations:

HS ↑ ↷ **MY** ↑
r = 0.29
p = 0.01

MY ⇧ ↷ **CI** ⇩
r = -0.188
p = 0.10

Cow Comfort & Performance …

Floors:		**Wet ?** [absolute and %]				Σ	
		Yes		**NO**		absolute	%
Non-slippery ? [absolute and %]	**Yes**	14	**17,5 %**	7	**8,8 %**	21	26,3 %
	No	57	**71,3 %**	2	**2,5 %**	59	73,8 %
	Σ	71	88,8 %	9	11,3 %	80	100 %

- dry & non-slippery floors: CI = **398.2 d** (n = 7 SD ± 14.47)
- wet & slippery floors: CI = **414.8 d** (n = 55 SD ± 20.20)
- **Difference of means CI:** **16.6 d** p = 0.055
- Floors & Milk Yield → n.s.

… Cow Comfort & Performance

Lying Areas:		**Flexible? [%]**			
Dry? [%]		**No**	tolerably	**Yes**	Σ
	No	**16,4**	7,7	3,1	26,2
	tolerably	12,3	12,3	6,2	30,8
	Yes	6,2	7,7	**29,9**	43,1
	Σ	33,8	27,7	38,5	100

- **wet & hard**: **8300** kg milk/ 305 d (n = 10 SD ± 1194.058)
  CI = **419,1 d** (n = 10 SD ± 19.232)

- **dry & flexible**: **9410** kg milk/ 305 d (n = 19 SD ± 884.679)
  CI = **408,9 d** (n = 17 SD ± 23.111)

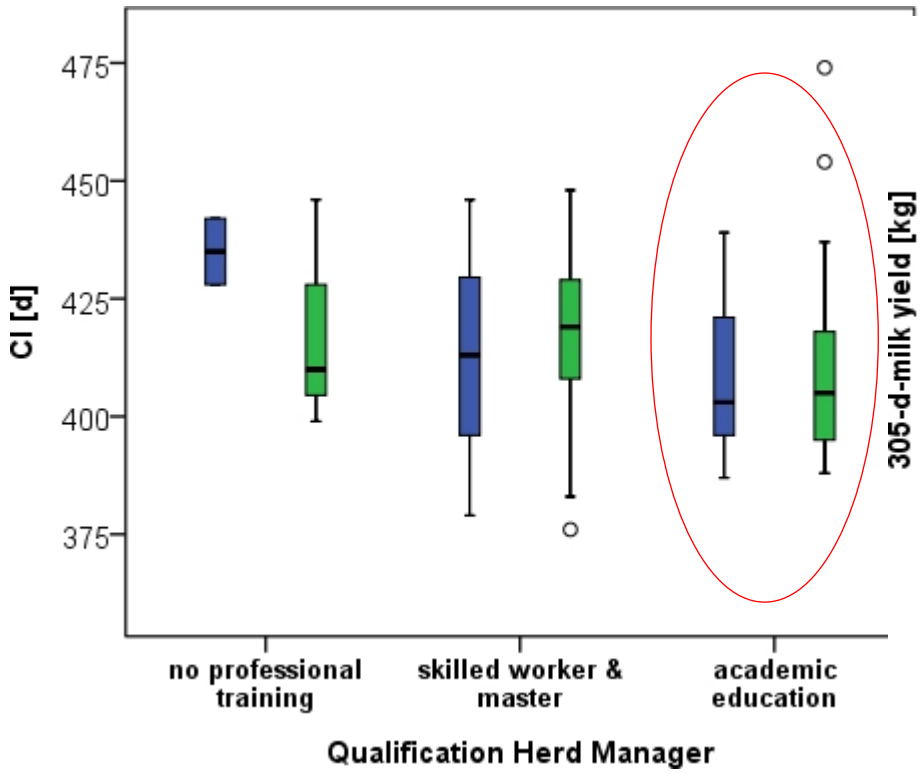
- **Differences**: **305-d MY → 1110 kg → p = 0.011** CI → 10.2 d → n.s. p=0.251

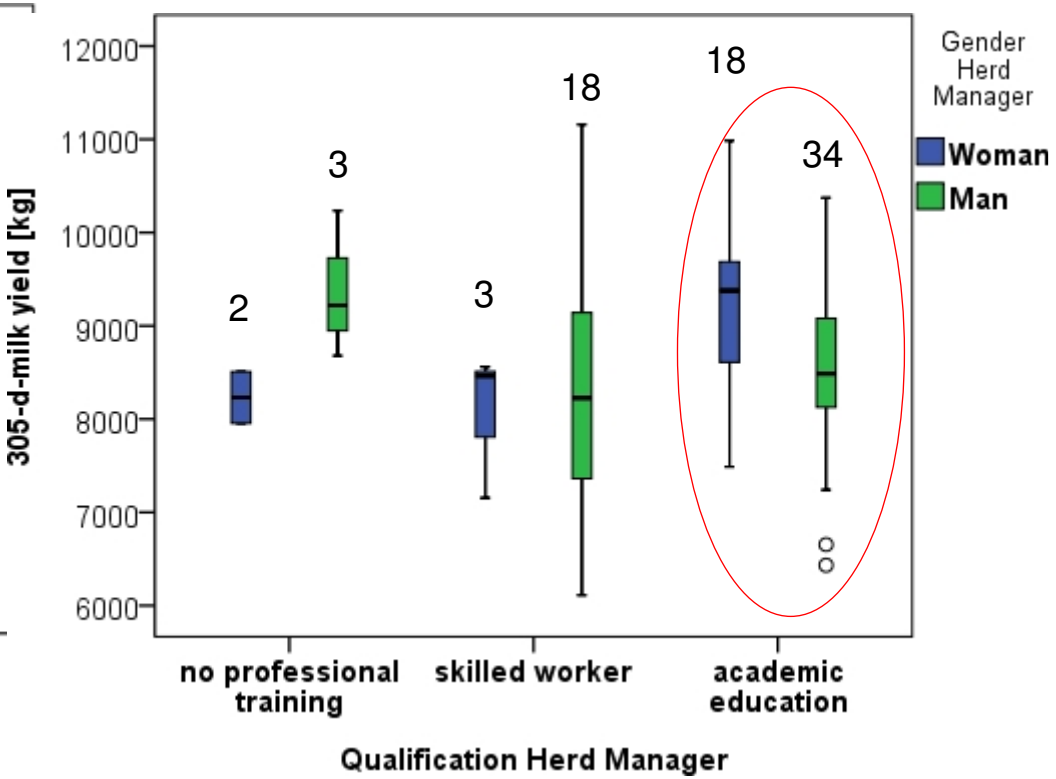
Heat Detection

- **Responsibility** for heat detection:
  → in **55.4%** of farms **one person** (n=83)
  → **calving interval** in tendency shorter: → difference **6.3 days** (p=0.129)
- Frequency, situation, pedometer & pregnancy control:
  → no direct relation to calving interval
- Additional use of **mating bulls**:
  → **57.1%** of farms keep bulls for natural mating
  → indicates heat detection is a big issue

Herd Manager & Herd Performance

- **Herd Managers:**
  - → 31 % Women & 69 % Men
  - → 66.7 % of Herd Managers graduated, in large farms 82 %





- **Diffences between Women & Men (graduated):**
  - → CI: 0.3 d (n.s.)
  - → 305-d Milk Yield: 752.9 kg (p=0.005)

Motivating Employees …

What do you do to motivate the employees in your farm ?

- **Performance Pay:** **26.2 %**
  → different performance pay schemes

- **Material &| Social Incentives:** **25 %**
  → material incentives, e.g. bonuses & farm products
  → social incentives, e.g. company party

- **Responsibility &| Communication:** **40.5 %**
  → delegation of responsibility to employees
  → striving for good communication

- **Reprimand:** **8.3%**
  → disciplining measures

… Motivating Employees …

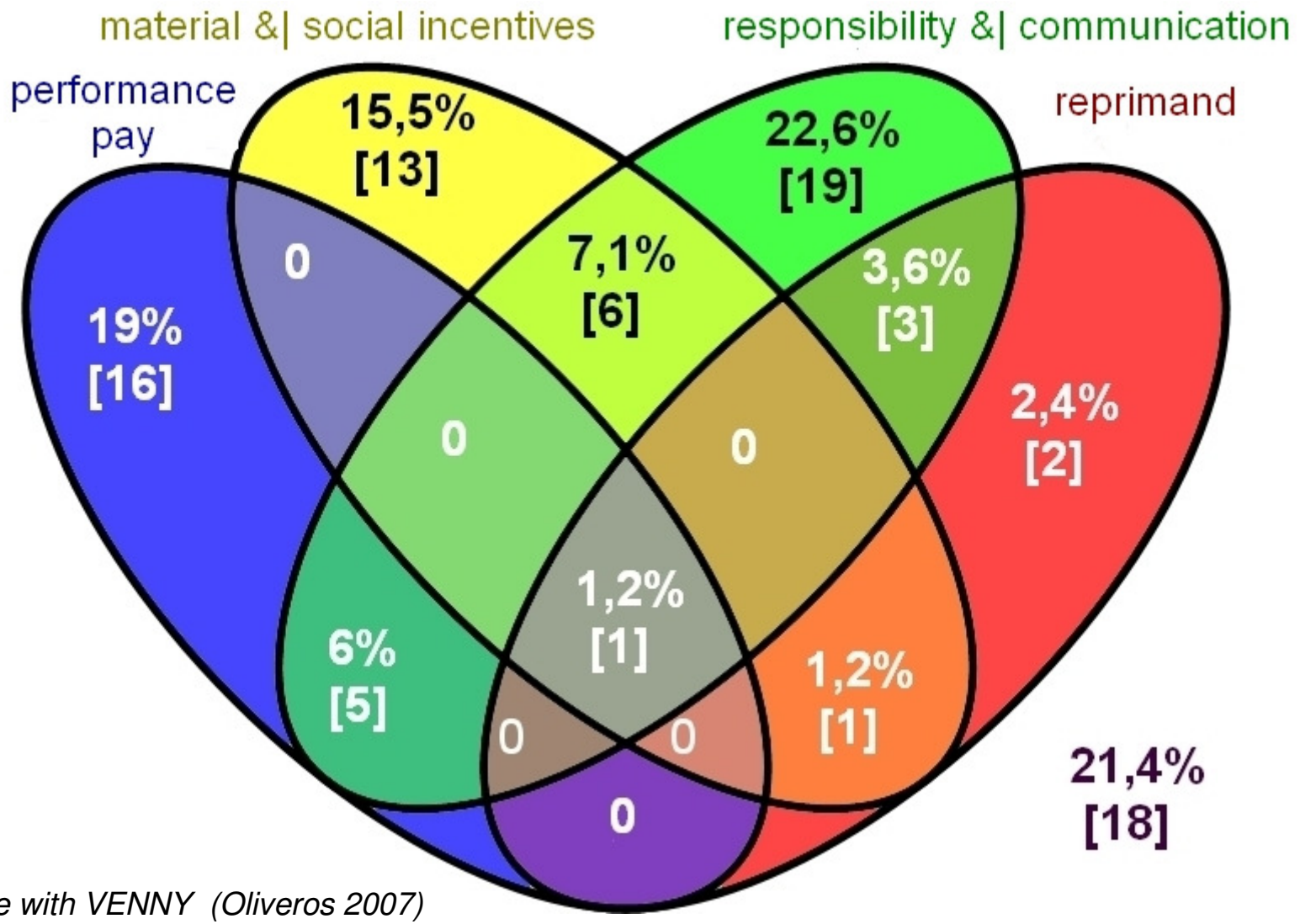
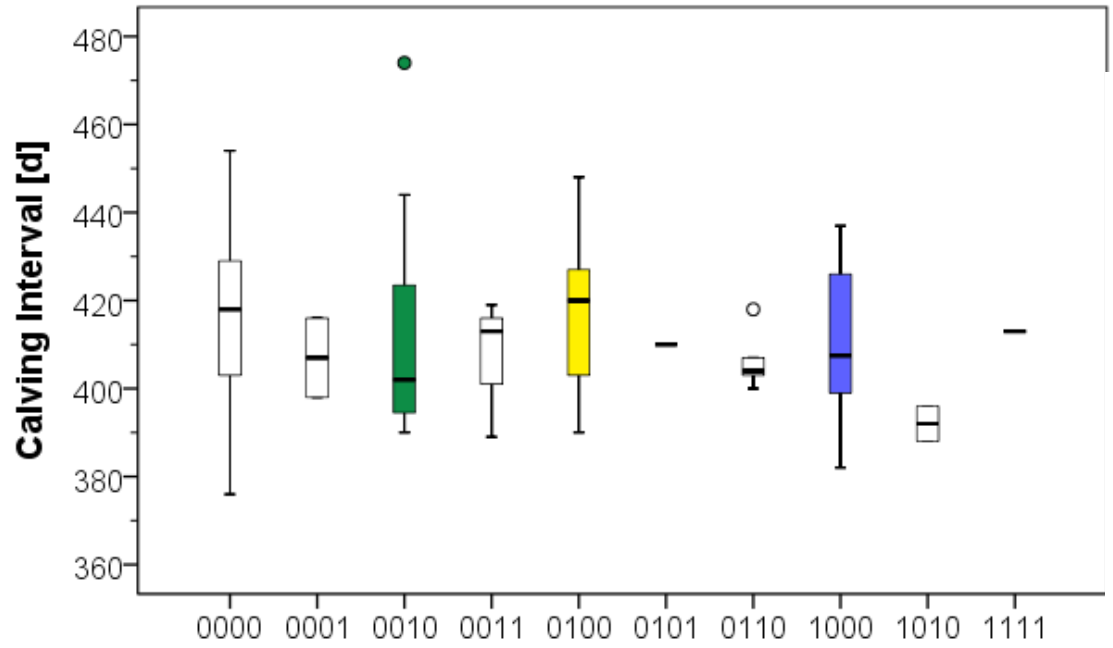
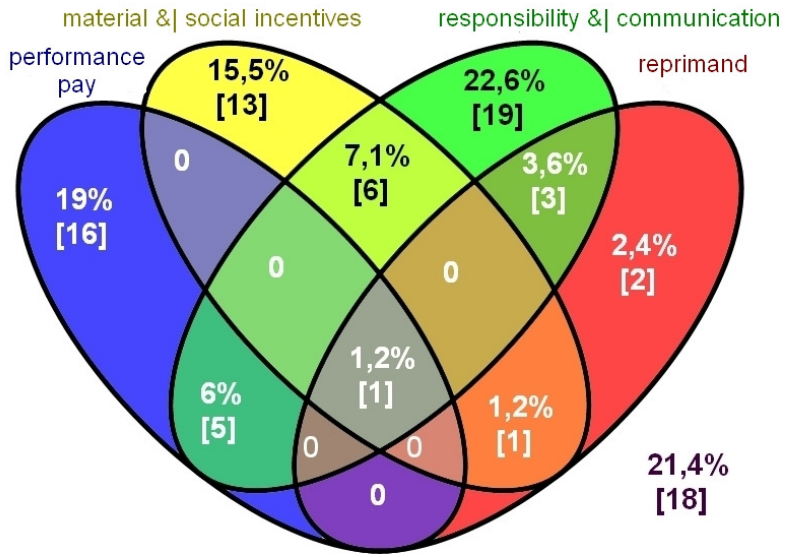
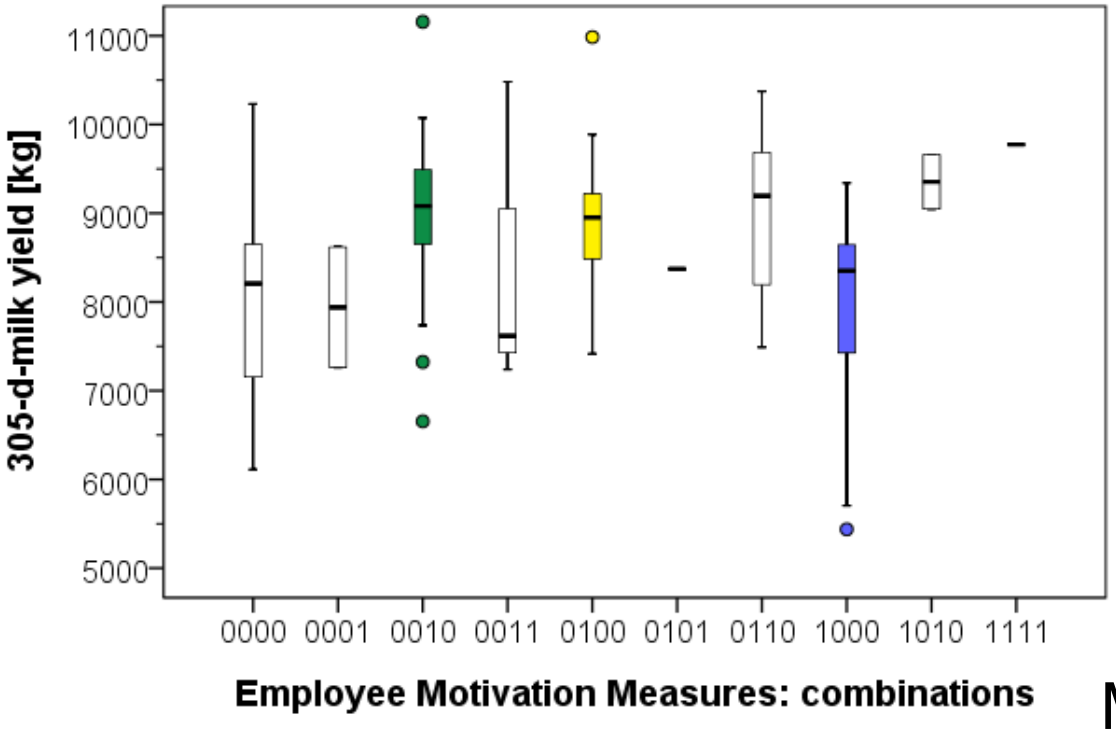
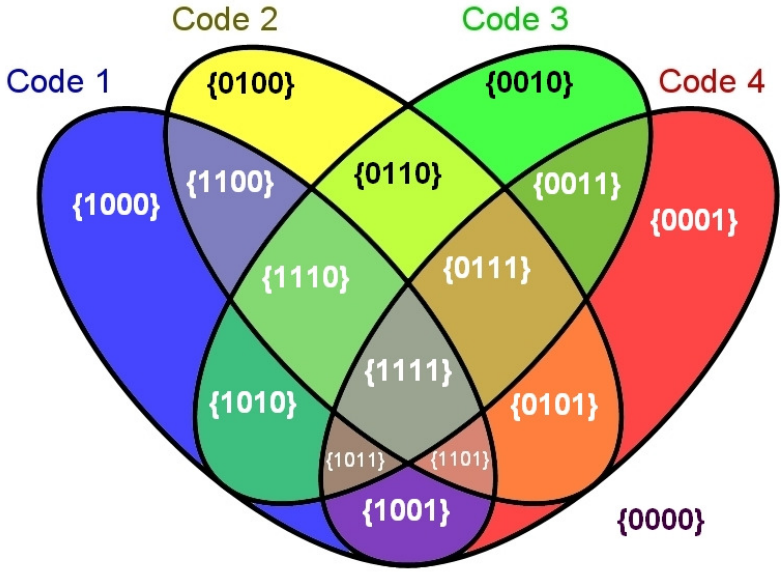


Figure made with VENNY (Oliveros 2007)









Motivation & Performance

4. Conclusions & Implications …

1. **Common free-stalls with cubicles mainly not appropriate for cow comfort, conditions of floors and lying area limiting performance.**

2. **Success of heat detection seems to depend more on responsibility than on situation, technique & frequency.**

3. **Performance pay as sole motivating measure not effective.**
4. **Motivating employees through delegation of responsibility & combination with other incentives more promising than performance pay.**

… Conclusions & Implications

❖ **Results underpin need for improved housing for animal welfare and performance.**

➢ Need for further research into **personnel management in dairy farming:**

- **Motivation Approaches & Payment Schemes**
- **Gender Aspects of Management**

<u>with regard to:</u>

→ **Human-Animal-Interaction**

→ **Herd Performance**

→ **Economic Effects**

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Thank you
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Agnes Przewozny

Humboldt University of Berlin

agnes.przewozny@agrar.hu-berlin.de