Born to be a loser cow?

Louise Dybdahl Pedersen[1]
Hanne Jørgensen[1]
Elise Norberg[1]
Morten Kargo Sørensen[1,2]
Peter Thomsen[1]

[1]Faculty of Agricultural Sciences, Aarhus University
[2]Knowledge Center for Agriculture, Cattle

Acknowledgements

- Project finansing:

What is a loser cow?

- One of the new Danish words in the 00’s
- Commonly used among dairy farmers
- A cow with generally lower health and production status

Scientific definition (Thomsen et al. 2007)

Clinical examination of:

- Lameness
- Hock lesions
- Other cutaneous lesions
- Condition of hair coat
- Body condition score
- Vaginal discharge
- General condition

Loser cow score

Exact pathogenesis is not known

The loser cow score

Clinical observation:

	1	2
Lameness	1-5	**Conversion**
Hock lesions	1-4	Direct scaling
Other cutaneous lesions	1-4	
Condition of hair coat	1-3	Geometrically progressive scale:
Body condition score	1-4	
Vaginal discharge	1-2	$0, 2^0, 2^1, 2^2, 2^3$
General condition	1-3	

The loser cow score

Clinical observation:

	1	2
Lameness	1-5	0,1,2,4,8
Hock lesions	1-4	0,0,1,2
Other cutaneous lesions	1-4	0,0,1,2
Condition of hair coat	1-3	0,1,2
Body condition score	1-4	0,0,4,8
Vaginal discharge	1-2	0,2
General condition	1-3	0,4,8

3 Sum

The first loser cows study

- Prevalence 3.2%
- Consequences:
  - Reduced average daily milk yield
  - Higher # medical treatments
  - Higher mortality
  - Higher work load for farmer
- Problem we need to be aware of!

Why do we have them?

- Risk of being a loser cow increases with:
  - Age
  - Twin birth

  Cow level

  - High average SCC
  - Hard cubicle surface
  - No grazing

  Herd level

The animal breeders question

Is the loser cow state only influenced by management

or is there a

genetic component?

Are some cows born to be loser cows?

Aim of study

- Estimate genetic parameters for the loser cow score and the underlying traits

Data

- Data from Thomsen *et al.* 2007:
  - 6,098 Holstein Friesian cows
  - 39 loose housing herds (>100 cows/herd)
  - 3 clinical examinations/herd
  - All cows observed
  - Reduced loser cow score

Data analysis

- Multitrait model:

Observation =	herd	fixed
	+ season	fixed
	+ age at first calving	fixed
	+ scoring location	fixed
	+ parity(lactation stage)	fixed
	+ a	random
	+ pe	random
	+ e	random

- Statistical analysis performed in DMU

Results

- **Heritability** and genetic correlations

Trait	Loser cow	Hock lesions	Other lesions	Lameness	Hair coat
Loser cow	**0.08**				
Hock lesions	0.75	**0.07**			
Other lesions	0.72	0.68	**0.05**		
Lameness	0.89	0.44	0.46	**0.12**	
Hair coat	0.25	0.04 $_{NS}$	0.42	0.29	**0.05**

Main conclusions

- The loser cow score is heritable
- No single trait explains the loser cow score
- Lameness most important single component

Results published:

Jørgensen et al. 2010. J. of Dairy Sci. 93 (9): 4386-4390

Perspectives

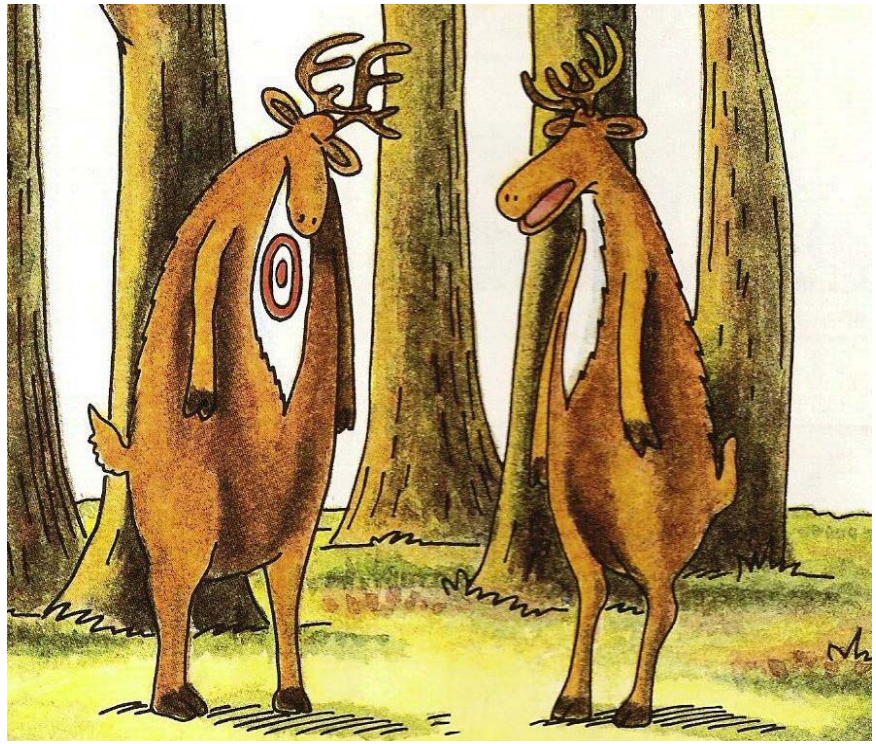
- Include loser cow score in a total merit index
- Include loser cow score in a health or welfare index
- Use for monitoring welfare of population
- …

Next steps…

- Correlation of loser cow score with:
  - Milk yield
  - Mastitis incidence
  - Dairy character
  - Longevity
- Inbreeding coefficient vs. loser cow score

Born to be a loser cow?

Yes!



"Bummer of a birthmark, Hal."