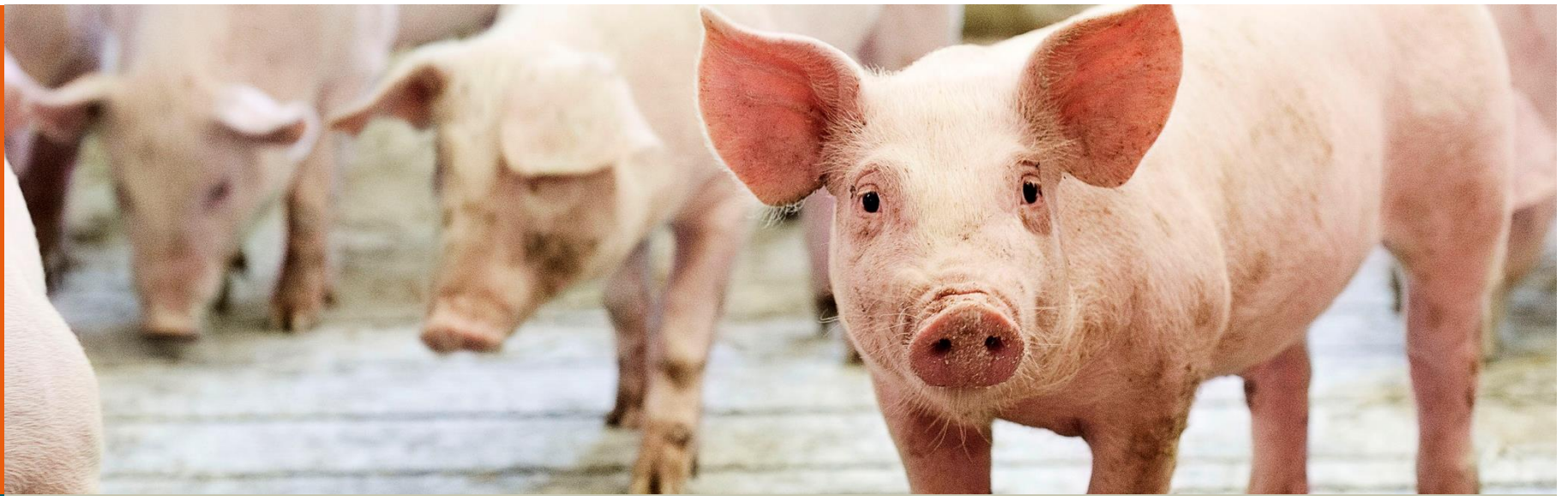


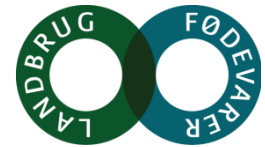


Censoring must be accounted for when selecting on social-genetic effects

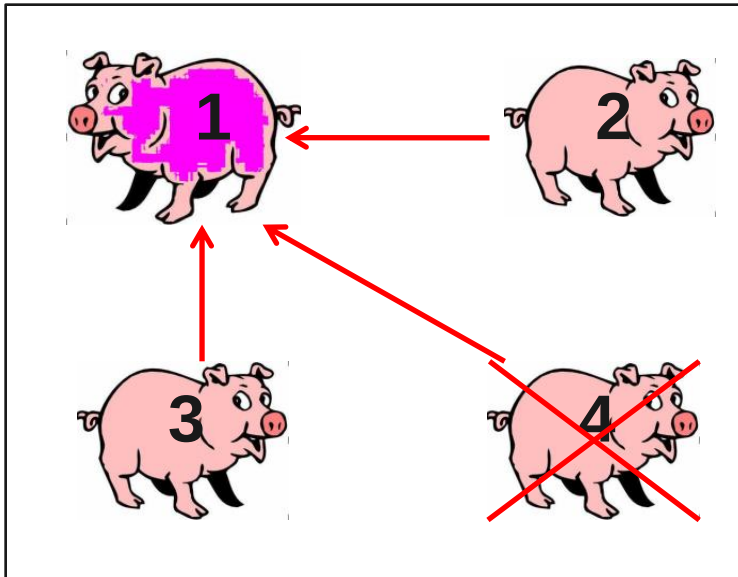
B. Ask, T. Ostersen, M. Henryon, and B. Nielsen*

The social-interaction model and censoring

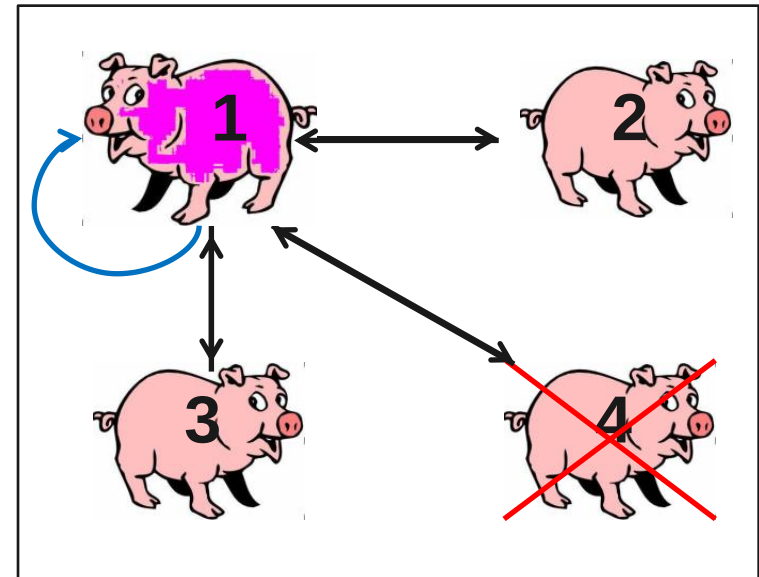
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Phenotype



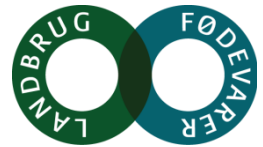
Breeding Value



Censoring due to mortality or involuntary culling

**To investigate the effect of
censoring on genetic parameters
and predictive ability
and how to deal with it**

Data



- ADG and FI
- 968 groups
- Group size 10-14
- $\bar{a}$: 0.11
- ~7% censoring
- ~55% groups with censoring
- 3 datasets:
 - All) All animals and groups included
 - NoCens) Excl. dead and culled animals
 - NoCensGr) Excl. groups with dead or culled animals

- A classical animal model

$$Y = Xb + Zg + Za + e$$

- A social-genetic model

$$Y = Xb + Zg + Za_d + \sum Za_s + e$$

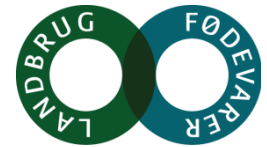
- A social-genetic model with weighting

$$Y = Xb + Zg + Za_d + \sum Z^*a_s + e$$

- Genetic parameter estimation (DMU)
- Predictive ability
 - $\hat{P}_{i,cl} = \hat{a}_{i,cl}$
 - $\hat{P}_{i,d} = \hat{a}_{i,d}$
 - $\hat{P}_{i,s} = \sum \hat{a}_{j,s}$
 - $\hat{P}_{i,t} = \hat{a}_{i,d} + \sum \hat{a}_{j,s}$

Genetic Parameters, ADG

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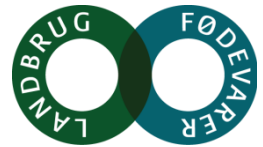
- Significant social effects for ADG

Data	$\sigma^2_{a,s}$
All	66
NoCull	47
NoCullGr	54

Model	$\sigma^2_{a,d}$	σ^2_e
AM	3381	5855
Social	3492	6047

Genetic Parameters, FI

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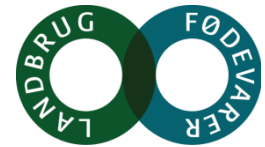
- Significant social effects for FI

Data	$\sigma^2_{a,s}$
All	7
NoCull	5
NoCullGr	1

Model	$\sigma^2_{a,d}$	σ^2_e
AM	116	207
Social	145	208

Predictive Ability, ADG

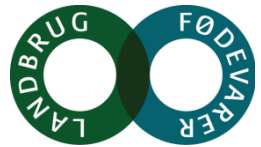
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	All	
	AM	Social
$\hat{P}_{i,cl}$	1.000	0.804
$\hat{P}_{i,d}$	0.982	0.864
$\hat{P}_{i,s}$		
$\hat{P}_{i,t}$		

Take-home messages

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- 1) Dead/culled animals important for social-genetic effects**
- 2) Weighting does not improve fit with censoring**
- 3) Social-genetic model predicts social-genetic effects best, whereas classical model predicts direct breeding values best.**