

## Association between pig leg health and lean meat growth in commercial organic herds

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## Different production environments - the same genetic material



Conventional



Organic



How does 'conventional' breeds suit organic production environments?

## The proportion of organic pigs with leg joint remarks (arthritis) at slaughter is high



Heldmer, 2012

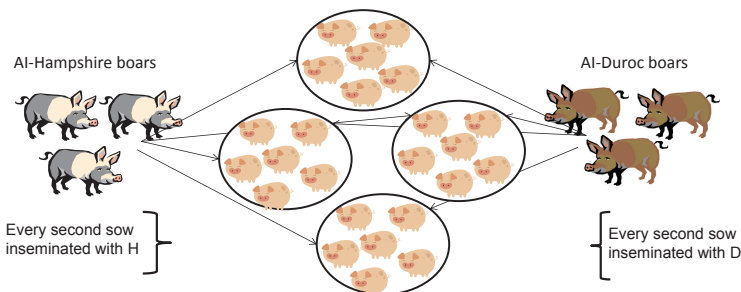
## Objectives

Assess associations between lean meat growth in pigs raised at commercial organic farms and

- Movement (live animals)
- Lameness (live animals)
- Swollen joints (live animals)
- Leg joint remarks at slaughter

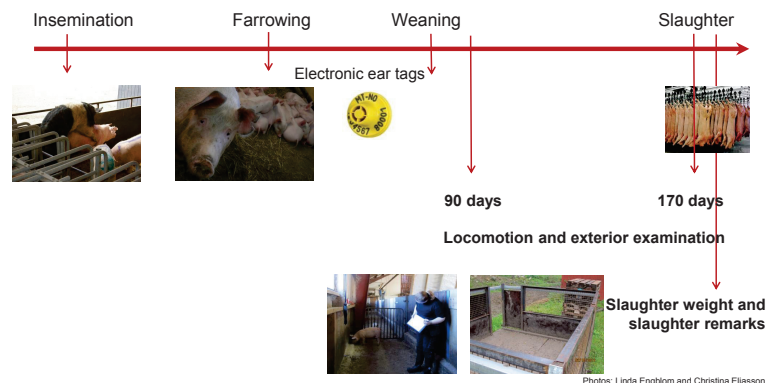


## Field study 4 commercial organic herds



Aim: 1000 slaughtered pigs with known sire (500 per breed)

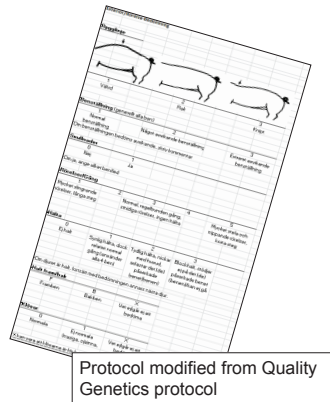
## Field study Jan 2012 to March 2013



## Locomotion and exterior examination

- Back
- Leg conformation
- **Movement**
- **Lameness**
- **Swollen leg joints**

- 909 pigs at examination 1 (90 ( $\pm 19.5$ ) days of age)
- 1012 pigs at examination 2 (170 ( $\pm 17.4$ ) days of age)



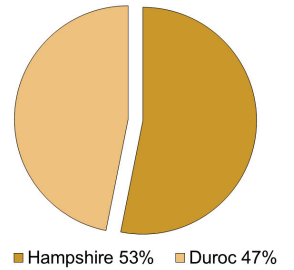
## Statistical analyses

99 litters (and Yorkshire x Landrace sows),  
1115 pigs at slaughter

SAS mixed (cont. scale)

$$y = X + \text{sire breed} + \text{gender} + \text{herd} + \text{sow}^{\text{random}}$$

X = leg health parameter

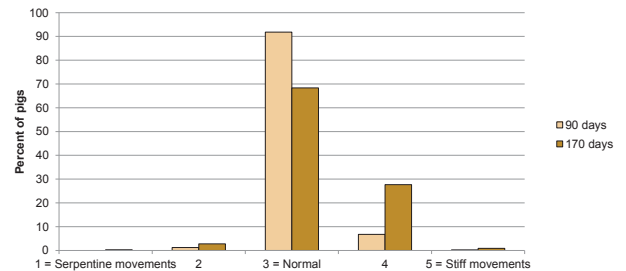


## Results – Sire breed



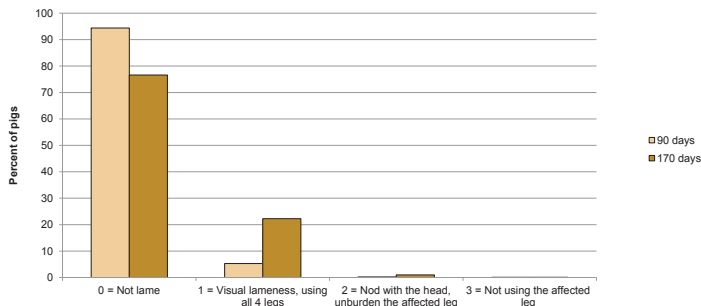
**No significant differences between sire breeds in leg health or production parameters**

## Results - Movement



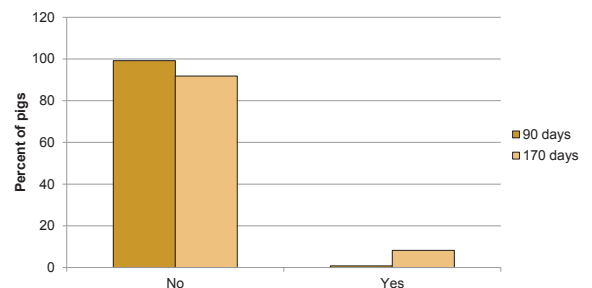
The proportion of pigs with mild movement disorders increases with age. The proportion of pigs with severe disorders was low.

## Results - Lameness



**The proportion of pigs with lameness increases with age.**

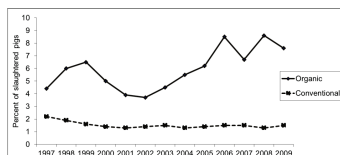
## Results - Swollen leg joints



The proportion of pigs with swollen leg joints increases with age.

## Leg joint remarks at slaughter

- Low prevalence!
- Just below 2 % of the pigs in the study had leg joint remarks at slaughter, in line with conventionally raised pigs.



**Could indicate no/weak relationships between clinical leg health and leg joint remarks at slaughter**

## Results - Growth

LSM	Hampshire	Duroc
Age at slaughter (days)	207	207
Slaughtered weight (kg)	89.2	90.6
Carcass meat %	56	56
Growth (g/day, birth to slaughter)	436	446
Lean meat growth (g/day)	244	250

## Results associations leg health - growth

- Pigs with severe movement disorders at the second assessment (just before slaughter) had:
  - Lower slaughter weight ( $p=0.038$ )
  - Slower growth rate ( $p=0.074$ )
  - Slower lean meat growth rate ( $p=0.061$ )

**Overall weak associations between leg health and growth. More severe leg disorders seem to be associated with poor growth**

## Conclusions

- No significant differences in leg health or lean meat growth in pigs from Swedish commercial organic herds with Hampshire or Duroc sire
- Low proportion of pigs with severe disorders
- Severe leg disorders could lead to reduced lean meat growth



**Thank you for your attention!**

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