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

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

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)
Locomotion and exterior examination

• Back
• Leg conformation
• Movement
• Lameness
• Swollen leg joints

• 909 pigs at examination 1 (90 ±19.5) days of age
• 1012 pigs at examination 2 (170 ±17.4) days of age

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.

Protocol modified from Quality Genetics protocol

Statistical analyses

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

SAS mixed (cont. scale)
\[ y = X + \text{sire breed} + \text{gender} + \text{herd} + \text{sowrandom} \]

\( X = \text{leg health parameter} \)

Hampshire 53% Duroc 47%
**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.

**Results - Growth**

<table>
<thead>
<tr>
<th></th>
<th>Hampshire</th>
<th>Duroc</th>
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</thead>
<tbody>
<tr>
<td>Age at slaughter (days)</td>
<td>207</td>
<td>207</td>
</tr>
<tr>
<td>Slaughtered weight (kg)</td>
<td>89.2</td>
<td>90.6</td>
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<tr>
<td>Carcass meat %</td>
<td>56</td>
<td>56</td>
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<tr>
<td>Growth (g/day, birth to slaughter)</td>
<td>436</td>
<td>446</td>
</tr>
<tr>
<td>Lean meat growth (g/day)</td>
<td>244</td>
<td>250</td>
</tr>
</tbody>
</table>

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

**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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