Prevalence and risk factors for limb and claw lesions and lameness in young sows

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Lameness and culling of young sows

- Irish sow culling rate increasing (0.7-1.0% p.a.), 50% (PigSys, 2014)
- Locomotory disorders are an important cause of culling
- c. 10% of sows culled for issues relating to lameness (Dewey et al., 1993; Boyle et al., 1998; Engblom et al., 2007)
- Sows culled for infertility etc. may also be lame!
- Culling for lameness and traumatic injuries is high in the early parities (Boyle et al., 1998; Engblom et al. 2007)
- Significant economic and welfare implications
Lesions and lameness in sows

- Relationship between limb & claw lesions & lameness (Smith, 1988; Bonde et al., 2004; KilBride et al., 2009; Calderón Díaz et al., 2013)
- Risk factors for lesions and lameness: flooring, group size, stocking density, genetics, parity, growth rate etc.
- Lameness higher in group than individual housing systems (Calderon Diaz., 2013)
- Slatted flooring is a major risk factor (KilBride et al., 2009)
- Lameness prevalence in group housing systems: 5 to 17% in England, 6 to 10% in Belgium and 8.8% in Finland (Heinonen et al., 2006; KilBride et al., 2009; Pluym et al., 2011; Pluym et al., 2013; Willgert et al., 2014)
Objective

To determine the prevalence of and risk factors for limb and claw lesions and lameness in replacement and pregnant gilts on Irish farms
Cross-sectional survey

- 68 pig farms surveyed in 2012 (24% of Irish farms)
- Integrated farms with +100 sows only
- Part of a larger study (+10,000 pigs inspected at all stages)
- Animal based measurements (lesions, lameness, BCS etc.)
- Resource based measurements (floor, feeder, pen, SD etc.)
- +200 questions on management (genetics, nutrition etc.)
- 1 pen of replacement gilts and 1 pen or 10 stalls of pregnant gilts randomly selected
- All inspected if ≤ 10 gilts/pen and 10 gilts inspected if >10/pen
Measurements

Locomotory ability scored as per Main et al., 2000:

- 0 = Normal
- 1 = Pig appears stiff
- 2 = Shortened stride
- 3 = No weight bearing on affected limb
- 4 = Affected limb elevated off floor
- 5 = Pig does not move

Non-lame

Lame (as per Kilbride et al., 2009)

Limb lesions (0-3)

Claw lesions (0/1)
Data Analysis

- All data entered into Microsoft access database
- Prevalence calculated for each lesion

  \[
  \text{No. of pigs with lesion score} \geq 1 \\
  \text{No. of pigs examined}
  \]

- Prevalence calculated for lameness

  \[
  \text{No. of pigs with lameness score} \geq 2 \\
  \text{No. of pigs inspected}
  \]

- Data were analysed using regression analysis in MLwiN 2.27
## Results

<table>
<thead>
<tr>
<th></th>
<th>Gilt status</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Replacement</td>
<td>Pregnant</td>
</tr>
<tr>
<td>No. farms</td>
<td>64</td>
<td>68</td>
</tr>
<tr>
<td>No. animals inspected</td>
<td>525</td>
<td>518</td>
</tr>
<tr>
<td>No. in groups</td>
<td>525</td>
<td>337</td>
</tr>
<tr>
<td>No. in stalls</td>
<td>0</td>
<td>181</td>
</tr>
<tr>
<td>% on fully slatted floors</td>
<td>47.8%</td>
<td>54.8%</td>
</tr>
<tr>
<td>% on partially slatted</td>
<td>45.3%</td>
<td>44.4%</td>
</tr>
<tr>
<td>% on solid floors</td>
<td>6.9%</td>
<td>0.8%</td>
</tr>
</tbody>
</table>
Prevalence of lameness

% affected

Replacement gilts  Pregnant gilts

0 1 2 >2

0 10 20 30 40 50 60 70 80 90 100
Prevalence of claw lesions in gilts

% affected

Replacement gilts

Pregnant gilts

- Overgrown toe
- Overgrown dew claw
- Broken toe
- Broken dew claw
- Amputated dew claw
Risk factors for lameness, limb and claw lesions in gilts

- Higher risk of lameness in group (48.1%) compared to individual (30.4%) housing systems (OR 3.66, CI 1.23 – 3.66)
- Higher risk of swellings to the limbs in replacement gilts separated from finisher stock at weights of >90kg compared with those separated at <50 kg (OR 3.1, CI 1.6-7.7)

![Bar chart showing the percentage of replacement gilts lame at different weights]

- % Replacement gilts lame:
  - <25kg: 13%
  - <45kg: 35%
  - <70kg: 38%
  - <90kg: 38%

- Weight at which gilts housed separately from finishers
Discussion

- No risk factors associated with flooring identified - uniformity of flooring across all farms
- High usage of slatted flooring linked to high prevalence of limb lesions and lameness – sow welfare concern
- Exacerbated by group housing
- Higher prevalence compared to other countries?
  - inclusion of score 2 as lame
- Housing/feeding replacement gilts same as terminal stock is a risk factor for limb lesions and potentially lameness
Conclusions

- High levels of limb lesions and lameness in young sows is related to the widespread use of slatted flooring and poses a concern for sow welfare and sow longevity.
- Preferential treatment of replacement gilts could help address this problem.
Any Questions?