Effect of Mixing Entire Males with Females and Slaughter Strategy on Behaviour, Growth and Boar taint

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Entire Male Production

Agression and sexual behaviour

Animal Welfare / Carcass quality

Herd Management

2 strategies tested

Group composition

Splitting departures
Material and Methods

2 batches: 120 males and 120 females
10 pigs / pen (9 weeks old)

Group Composition

<table>
<thead>
<tr>
<th></th>
<th>UNISEX</th>
<th>MIXED</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>10 ♀</td>
<td>5 ♂️ 5 ♂️</td>
</tr>
<tr>
<td>M</td>
<td>10 ♂️</td>
<td>5 ♂️ 3 ♂️</td>
</tr>
</tbody>
</table>

Slaughter Strategy

1D 2D 1D 2D 1D 2D
Animal behaviour

S: Direct observation per scan sampling: length 2.5h, interval 10 min

V: Video observation: 12 h, 4 days
### Main Behaviour

<table>
<thead>
<tr>
<th>Category</th>
<th>Behaviour Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual</td>
<td>Mounting / attempts (sexual or not): MTM</td>
</tr>
<tr>
<td>Social</td>
<td>Nosing/Licking: ano genital area – sheath: SOPM</td>
</tr>
<tr>
<td></td>
<td>Positive Behaviour: SOP</td>
</tr>
<tr>
<td></td>
<td>Negative Behaviour (agression): AG: SON</td>
</tr>
<tr>
<td>Feeding, Drinking, Urination, Defecation</td>
<td></td>
</tr>
<tr>
<td>Exploration / Locomotion</td>
<td></td>
</tr>
<tr>
<td>Rest</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>
Measurements

- Animal behaviour (S)
  Direct observation per scan sampling:
  length 2.5h, interval 10 min

- Lesion scoring – lameness (L)

- Backfat sample: scatol / androstenone

Diagram:
- Entering
- 1 week
- Departure 1
- Departure 2
- Weeks
- Backfat Samples
- L L L L
Social Behaviour and Lesions

Period 1

Social Negative Behaviour

<table>
<thead>
<tr>
<th></th>
<th>Social Negative Behaviour</th>
<th></th>
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</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>MF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0,4</td>
<td>0,9</td>
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</table>

Scratches

<table>
<thead>
<tr>
<th></th>
<th>Scratches</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>MF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>23,7</td>
<td>18,9</td>
</tr>
</tbody>
</table>

* % of all behaviour recorded per pen

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Social Behaviour and Lesions

**Social Negative Behaviour**

<table>
<thead>
<tr>
<th></th>
<th>Period 1</th>
<th></th>
<th>Period 2</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>MF</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>a</td>
<td>0,4</td>
<td>0,9</td>
<td>0,7</td>
<td>0,6</td>
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</tbody>
</table>

**Scratches**

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<td></td>
<td>F</td>
<td>MF</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>a</td>
<td>23,7</td>
<td>18,9</td>
<td>22,7</td>
<td>20,5</td>
</tr>
</tbody>
</table>

* % of all behaviour recorded per pen

**EAAP 2013 - Nantes**
Sexual Behaviour

Period 1

Sexual B. : MTM

F 0.06
MF 0.4
M 0.96

* % of all behaviour recorded per pen

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Sexual Behaviour

Period 1

Sexual B. : MTM

- More males, more sexual behaviour
- No impact of females on sexual behaviour

* % of all behaviour recorded per pen
<table>
<thead>
<tr>
<th>Pig Pairs</th>
<th>Negative social B.</th>
<th>Agression</th>
<th>Positive social B.</th>
<th>Nosing sheath-ano/genital area</th>
<th>Mouting - Attempts</th>
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</thead>
<tbody>
<tr>
<td>♂♂</td>
<td>18.0 b</td>
<td>8.3 b</td>
<td>55.7 a</td>
<td>20.6 c</td>
<td>5.6 b</td>
</tr>
<tr>
<td>♂♀</td>
<td>3.9 a</td>
<td>0.6 a</td>
<td>83.6 c</td>
<td>3.7 b</td>
<td>9.0 b</td>
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<tr>
<td>♀♂</td>
<td>3.8 a</td>
<td>0 a</td>
<td>73.2 b</td>
<td>20.3 bc</td>
<td>0 a</td>
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<tr>
<td>♀♀</td>
<td>2.0 a</td>
<td>0 a</td>
<td>94.4 d</td>
<td>2.4 a</td>
<td>0.4 a</td>
</tr>
</tbody>
</table>

KW test:
- Negative social B.: ***
- Agression: ***
- Positive social B.: ***
- Nosing sheath-ano/genital area: ***
- Mouting - Attempts: ***
Departure of the Heaviest Pigs: Impact on Social Behaviour and Lesions
Departure of pigs: No major effect on negative social behaviour. A decrease in lesion score.
Evolution in Agressive Behaviour

Mean number of behaviour recorded per pig

Short term agressions

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Departure of the Heaviest Pigs: A Decrease in Sexual Behaviour

Sexual Behaviour: MTM

Heavy Pigs: more Mounting Behaviour?
Agressive and Sexual Behaviour of the Heaviest Pigs in Period 1

» Heavy Males «: less active (AG, MTM)

Mean number of behaviour recorded per pig

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### Effect of Mixing Strategy on Growth (ADG, g/d)

<table>
<thead>
<tr>
<th></th>
<th>Unisex</th>
<th></th>
<th>Mixed</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>♂</td>
<td>♀</td>
<td>♂</td>
<td>♀</td>
<td>S</td>
<td>D</td>
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<tr>
<td>Batch 1</td>
<td>971 a</td>
<td>894 bc</td>
<td>948 ab</td>
<td>867 c</td>
<td>S 0.001</td>
<td>D 0.001</td>
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<td>Batch 2</td>
<td>855</td>
<td>820</td>
<td>788</td>
<td>787</td>
<td>G 0.04</td>
<td></td>
</tr>
</tbody>
</table>

G : unisex or mixed; S : sex; D : nb of departures
Factors Affecting Boar Taint

Mixing strategy

Androstenone
µg/g liquid fat

- Mixed: 0.58
- Unisex: 1.04

Scatol,
µg/g liquid fat

- Mixed: 0.14
- Unisex: 0.18

Slaughter Strategy

1D

- Androstenone: 0.74
- Scatol: 0.13

2D

- Androstenone: 1.14
- Scatol: 0.22

Samples taken at the 2nd departure

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Conclusion

Mixing Males and Females
- No / positive effect on behaviour
- Lesion score, androstenone level: lower
- Growth: lower

Slaughter Strategy: 2D vs 1D
- A possible effect on scatol level

Adapt management strategy to the current situation in the farm
Thank you for your attention

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