Determining when to cull sows

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Outline

- Optimal parity to cull sows
- Recommendations for culling
  - Gilts
  - Sows
- Culling summary
Optimal parity to cull sows

Dhuyvetter (2007)

Table 1. Parity Distribution and Production from Sow Herd

<p>| Parity prior to culling \n|---|---|---|---|---|---|---|---|---|---|---|</p>
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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</thead>
<tbody>
<tr>
<td>Percent of farrowings from each parity (steady-state parity distribution)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Parity 1</td>
<td>100.0</td>
<td>53.6</td>
<td>38.2</td>
<td>30.7</td>
<td>26.4</td>
<td>23.3</td>
<td>21.4</td>
<td>19.7</td>
<td>18.5</td>
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<tr>
<td>Parity 2</td>
<td>46.4</td>
<td>33.2</td>
<td>26.6</td>
<td>22.7</td>
<td>20.2</td>
<td>18.6</td>
<td>17.0</td>
<td>16.2</td>
<td>15.5</td>
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<tr>
<td>Parity 3</td>
<td>28.6</td>
<td>23.0</td>
<td>19.5</td>
<td>17.4</td>
<td>15.9</td>
<td>14.7</td>
<td>13.9</td>
<td>13.2</td>
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<tr>
<td>Parity 4</td>
<td>19.8</td>
<td>16.8</td>
<td>15.2</td>
<td>13.6</td>
<td>12.7</td>
<td>12.1</td>
<td>11.4</td>
<td></td>
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<tr>
<td>Parity 5</td>
<td>14.5</td>
<td>12.9</td>
<td>11.8</td>
<td>10.9</td>
<td>10.3</td>
<td>10.0</td>
<td></td>
<td></td>
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<tr>
<td>Parity 6</td>
<td>11.1</td>
<td>10.0</td>
<td>9.5</td>
<td>8.9</td>
<td>8.6</td>
<td></td>
<td></td>
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<tr>
<td>Parity 7</td>
<td>8.6</td>
<td>8.2</td>
<td>7.6</td>
<td>7.3</td>
<td></td>
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<tr>
<td>Parity 8</td>
<td>7.3</td>
<td>6.7</td>
<td>6.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Parity 9</td>
<td>5.8</td>
<td>5.5</td>
<td></td>
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<td>Parity 10</td>
<td>4.5</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
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<tr>
<td>Average parity</td>
<td>1.00</td>
<td>1.46</td>
<td>1.90</td>
<td>2.32</td>
<td>2.70</td>
<td>3.07</td>
<td>3.40</td>
<td>3.76</td>
<td>4.05</td>
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<tr>
<td>Total pigs sold/year</td>
<td>22,756</td>
<td>23,599</td>
<td>24,078</td>
<td>24,399</td>
<td>24,614</td>
<td>24,758</td>
<td>24,823</td>
<td>24,839</td>
<td>24,792</td>
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<tr>
<td>RETURNS $/hd</td>
<td>-$13.71</td>
<td>-$3.21</td>
<td>-$0.04</td>
<td>$1.45</td>
<td>$2.17</td>
<td>$2.67</td>
<td><strong>$2.88</strong></td>
<td>$3.03</td>
<td>$3.03</td>
</tr>
</tbody>
</table>
Important to retain early parity sows

Dhuyvetter (2007)
Recommendations for culling gilts

- Poor structural conformation
- Poor underlines
  - Teat number
  - Teat quality
- Gilts with an old age at puberty
Cull buck-kneed gilts

Side view of front leg

Normal
Weak pastern
Buck-kneed

Photos courtesy of NHF

Keep
Keep
Cull
Cull gilts with straight rear pasterns

Keep

Keep

Cull

Photos courtesy of NHF
Cull gilts with poor underlines

- Must have at least 13 functional teats
- Underlines should be prominent and well spaced

Photos courtesy of NHF
Cull gilts with an old age at puberty

- For gilts, age at puberty is the single best indicator of lifetime production

Stayability to parity four, %

Age at puberty, days

\[ y = -3.35x + 77.23 \]

\[ R^2 = 0.92 \]

NPPC MLP, unpublished
Recommendations for culling sows

- Common culling codes
  - Reproductive failure
  - Farrowing productivity
  - Body condition
  - Locomotion/structural conformation
  - Management
Old age, parity

- Eliminate the use of this culling code!
  - Instead, use the specific reason the sow was culled
    - Did not conceive
    - Low number born alive
    - Poor milking
    - Management decision
    - Etc.
Reproductive failure

- Anestrus, no heat
  - Allow sows 3 weeks to cycle (Dijkhuizen et al., 1989)
- Did not conceive, return to estrus
  - Allow sows 2 estrous cycles to conceive (Dijkhuizen et al., 1989)
- Abortion
  - Allow to be rebred once
- Not in pig, negative pregnancy test
  - If breeding inventory is low consider rebreeding, otherwise cull??
- Prolapse
  - Cull
Farrowing rate of sows that did not conceive

*Repeat breeders generally have a greater litter size
Rebreeding sows that have aborted – limited data

Vargas et al. (2009)
Farrowing productivity

- Retained pigs
  - Cull

- Total number born (never cull after one poor litter)
  - Cull if TNB < 10 for three litters

- Poor mother
  - Number weaned
    - Cull if NW < 9 for two litters
  - # of teats
    - Cull if < 11 functional teats at farrowing
  - Milking ability
    - Cull after two poor litters (difficult to quantify)
Body condition

- Development of efficient BCS tools (sow body condition caliper) eliminates the excuse for sows not in proper BC
  - Very few sows should be culled for poor BCS
  - Sows should not be overconditioned
- If a sow becomes thin, increase feeding level
  - Cull if she doesn’t respond to feed increase, she likely has something wrong with her
Body condition

- Keep sows at a caliper score of 12 to 15

Photos courtesy of NHF
Locomotion/structural conformation

- Refer to slides 6 and 7
- Ideally gilts with poor structure will be culled leaving few problems in the sow herd
- Identifying problems requires
  - stockmanship skills
  - passion for job/motivation
Good structural conformation

Front and back feet parallel
Feet & leg lesions

- Identify sows with foot lesions
  - Overgrown hooves
    - Trim hooves & retain
    - Cull if you do not trim
  - Cracked toes
    - If severe
      - Move to recovery pen
      - Cull if she does not improve
  - Swollen joints
    - Move to recovery pen
    - Cull if she does not improve

Photos courtesy of Stalder, Karriker & NHF
Management

- Use this culling code for sows that are *not* culled based on the farm’s standardized culling criteria (e.g. sow is fine but bringing in x number of gilts and need to make room in the barn)

- Evidence suggests this culling code is underutilized
Culling summary

- Implement a culling strategy that is science based

- Cull gilts
  - Poor structural conformation – “buck kneed”
  - ≤ 12 functional teats, excess coarse teats
  - ~10 to 30% of gilts with an old age at puberty

- Cull sows
  - Old age
  - Reproductive failure
    - Anestrus - allow 3 to 4 weeks to cycle (4 weeks for early parity sows)
    - Did not conceive - allow 2 estrous cycles to conceive
    - Abortion - Allow to be rebred once
    - Not in pig, negative pregnancy test - If breeding inventory is low then rebreed, otherwise cull
    - Prolapse - cull
Culling summary

♦ Culling sows cont.

- Farrowing productivity
  - Retained pigs - cull
  - Total number born - cull if TNB < 10 for three litters
  - Poor mother
    - Number weaned - cull if NW < 9 for two litters
    - # of functional teats at farrowing - cull if < 11
    - Milking ability - cull after two poor litters
  - Body condition – very few sows should be culled for poor BCS

- Locomotion
  - Poor structural conformation – cull
  - Overgrown hooves – trim or cull
  - Cracked toes & swollen joints – allow time to recover, cull if worsens
  - Other injuries – allow time to recover, cull if worsens

- Management – use code for sows not removed based on the farm’s standardized criteria
Thank you for your time

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References

How accurate is your culling data?

- Knauer et al. (2007) evaluated the accuracy of sow culling codes across 8 farms
  - Culling codes were validated against slaughter checks and individual production data
  - 23% of the culling codes were judged to be inaccurate
### Accuracy of culling codes continued

<table>
<thead>
<tr>
<th>Culling code</th>
<th>% of sows inaccurately culled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old age</td>
<td>20</td>
</tr>
<tr>
<td>Did not conceive</td>
<td>30</td>
</tr>
<tr>
<td>Body condition</td>
<td>50</td>
</tr>
<tr>
<td>Farrowing productivity</td>
<td>30</td>
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Knauer et al. (2007)