Managing Feed Drops in Gestation

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Why are we talking about drop boxes?

- Brief review of in-barn determination of box setting in commercial barns.
- Setting boxes to the correct level.
- Is the box dropping what it is set to?

Methods of gestation drop box setting

1) All boxes set to the same drop amount
2) Each sow given visual evaluation and assigned a feed level
3) Sows are scanned for backfat and weight taped to determine body weight, then assigned a feeding level
4) Hybrids of all the above or within method

Setting all boxes to same drop amount

- Advantage:
  1) Lowest labor, little to no training needed
- Disadvantages:
  1) Causes more thin and over conditioned sows
  2) Can lead to decreased reproductive performance
  3) Can lead to higher culling rates

Adjusting boxes based on visual assessment of body condition

- Advantage:
  1) More observation of sow body condition
- Disadvantages:
  1) Must have well trained staff to access condition
  2) Labor intensive
     - Adjusted 1-5 times during gestation
  3) Generally does not account for sow body weight
  4) Rapid adjustments are generally practiced
     - Must continually adjust to prevent over-corrections
Adjusting boxes based on backfat and body weight

- **Advantages:**
  1. Most accurate method to adjust body condition
  2. Allows for gradual change of body condition
  3. Removes the human error in accessing body condition and guessing of sow weight

- **Disadvantages:**
  1. Must have trained staff to perform backfat and weight tape measurements correctly
  2. Must commit time at breeding to complete
  3. Re-access sows in mid gestation for body condition

Flank measurement to estimate body weight

\[ BW^{0.333} \text{ in kg} = \frac{0.0511 \times \text{Flank-to-flank, cm}}{0.5687} \]

Flank measurement to estimate body weight

Feeding level from d 0 to 101, lb/day

<table>
<thead>
<tr>
<th>Flank to flank, inches</th>
<th>Estimated weight, lb</th>
<th>Backfat at breeding, mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9 to 11</td>
<td>12 to 14</td>
</tr>
<tr>
<td>&lt; 35.5</td>
<td></td>
<td></td>
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<tr>
<td>35.6 to 38.3</td>
<td></td>
<td></td>
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<tr>
<td>38.4 to 41.1</td>
<td></td>
<td></td>
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<tr>
<td>41.2 to 43.9</td>
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<td></td>
</tr>
<tr>
<td>&gt; 44.0</td>
<td></td>
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<tr>
<td></td>
<td>250 to 325</td>
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<tr>
<td>325 to 400</td>
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<td>400 to 475</td>
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<td>475 to 550</td>
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<tr>
<td>550 to 650</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.0</td>
<td>4.4</td>
</tr>
<tr>
<td></td>
<td>5.5</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td>5.9</td>
<td>5.4</td>
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<tr>
<td></td>
<td>6.4</td>
<td>5.9</td>
</tr>
<tr>
<td></td>
<td>6.9</td>
<td>6.4</td>
</tr>
</tbody>
</table>

- Assumes diet with 1.5 Mcal ME/lb
- All sows fed additional 2 lb/d from d 102 to 115
- Sows maintained at or above 68°F

Bump Feeding in Late Gestation

- A common practice is to increase the drop box amount in late gestation (d 90) by 1-2 lbs.
- Data is mixed in terms of true benefit of this practice – depends on sow body condition.
- Will increase feed cost by $3.50 to $5.00 per sow
- Our recommendation based on the data - Bump thin sows no more than 2 lb and no sooner than d 90 of gestation

Feed drop set at 6 lbs – Highest level it can be adjusted
Feeding level from d 0 to 101, lb/day

<table>
<thead>
<tr>
<th>Flank to estimated weight, lb</th>
<th>9 to 11</th>
<th>12 to 14</th>
<th>15 to 17</th>
<th>&gt; 18</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 35.5</td>
<td>250 to 325</td>
<td>5.0</td>
<td>4.4</td>
<td>3.9</td>
</tr>
<tr>
<td>35.6 to 38.3</td>
<td>325 to 400</td>
<td>5.5</td>
<td>5.0</td>
<td>4.4</td>
</tr>
<tr>
<td>38.4 to 41.1</td>
<td>400 to 475</td>
<td>5.9</td>
<td>5.4</td>
<td>4.9</td>
</tr>
<tr>
<td>41.2 to 43.9</td>
<td>475 to 550</td>
<td>6.4</td>
<td>5.9</td>
<td>5.4</td>
</tr>
<tr>
<td>&gt; 44.0</td>
<td>550 to 650</td>
<td>6.9</td>
<td>6.4</td>
<td>5.8</td>
</tr>
</tbody>
</table>

With this drop design, feeding 1 time per day, cannot accomplish bump feeding for the thinnest sows needing the additional feed. Some sows can not get enough throughout gestation on a daily basis to bring back to condition.

Managing Boxes for Over and Under Conditioned sows

- If sows are set to individual feeding levels, placing thin and over-conditioned sows side by side undermines this practice.
- An over conditioned mature sow – 4.8 lb/d
- A thin mature sow – 6.4 lb/d
- Stealing of feed occurs, causing the thin sow not to gain as much weight and the over conditioned sow not to lose as much as predicted.

Managing Boxes for Over and Under Conditioned sows

- Ideally, over conditioned, moderate and thin sows are placed next to each other in respective condition groups within a farrowing group.
- Relatively easy to implement – have to move the sows anyway from breeding area to gestation stalls.
- Simply move by body condition group.
  - At least find the extremes and place together

How accurate are different feed drops?
Since drops are volumetric, they do not account for changes in diet bulk density.

Barnes et al. (2010) reported:
- Corn-soy with 15% DDGS diet - ~ 48 lb/bu
- Corn-soy with 15% DDGS & 20% wheat midds - ~ 40 lb/bu

As diet ingredients change, drop boxes should be measured to determine the proper setting.

### Measuring accuracy feed drops

<table>
<thead>
<tr>
<th>Feeder setting, lb</th>
<th>Actual amount dropped, lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3.05</td>
</tr>
<tr>
<td>4</td>
<td>3.80</td>
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<tr>
<td>5</td>
<td>5.15</td>
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<tr>
<td>6</td>
<td>6.20</td>
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<tr>
<td>7</td>
<td>7.30</td>
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<tr>
<td>8</td>
<td>8.75</td>
</tr>
<tr>
<td>9</td>
<td>9.80</td>
</tr>
<tr>
<td>10</td>
<td>10.3</td>
</tr>
</tbody>
</table>

Slope = 0.9; Intercept = 0.383

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### Drop Box Maintenance

- Boxes that drop feed directly on floor in stalls wastes feed and allows more “stealing”
- Do stalls not in use have boxes shut off?
Drop Box Take Home:

- Different methods for adjusting and setting boxes in gestation
- Advantages and disadvantages of each
- Review actual feed drop amounts
- Gestation drop box setting and feeding tools available at [www.ksuswine.org](http://www.ksuswine.org)
- Click on - Gestation Feeding Tools

Thank you!

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Research and
Extension