Everything is harder during the summer months, because ….

things that work during other times of the year aren’t as effective when it gets hot.

How does the Summer Heat affect Sows?

• Sows have to maintain a normal body temperature of 100 to 103°F at all times.
• Climatic environment associated with the summer increases their body temperature.
• Pigs respond by using physiological mechanisms to stay cool.
• These aren’t very efficient so pigs are very susceptible to becoming “heat stressed”.

Negative Effects of High Body Temperature on Reproduction

• Indirect - reduction in feed intake, especially during lactation decreases nutrients available for recovery of the reproductive system.
• Direct – increase in maintenance requirements and suppression of certain hormones even if feed intake is normal.
Management Considerations

- Ventilation (Settings)
- Lactation (Nutrient Intake)
- Breeding (Estrus Intensity)

Ventilation Management

- Make sure all components of ventilation system are set to be activated before temperature reaches “heat-stress” levels for sows.

Ventilation Management

- For sows, the upper limit of their thermo-neutral zone is 80°F.

- However, the thermal load that sows must deal with is affected by humidity and temperature (heat index or apparent temperature).

Heat Index Chart for Humans – each 5% increase in humidity is roughly the same as increasing the temperature by 1 – 2°F

http://www.srh.noaa.gov/elp/wxcalc/heatindex.html

Heat Index Chart for Pigs – At 50% humidity, the sow thinks it is 81°F when the air temp. is 80°F

http://www.srh.noaa.gov/elp/wxcalc/heatindex.html
• As a result, ventilation systems should be set to fully activated around

78°F for farrowing barns

(78°F feels like 79°F which is less than 80°F); and

74°F for gestation barns

(74°F feels like 79°F which is less than 80°F).

Lactation Management

• Maximizing nutrient intake should be the primary goal

• Typically, this is accomplished by combinations of increasing nutrient density and changing feeding strategies

For a sow eating 12 lbs of feed, her diet would need 1.4 Mcal of ME and 17.5% crude protein for her to meet daily demands of lactation.

<table>
<thead>
<tr>
<th>Sow Feed Intake</th>
<th>12 lbs</th>
<th>1.4 Mcal/lb</th>
<th>17.5%</th>
<th>17 Mcal ME</th>
<th>2.1 lbs protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrient Content of Ration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Daily Nutrient Requirements</td>
</tr>
</tbody>
</table>

If feed intake dropped to 9 lbs, then her diet would need 1.9 Mcal of ME and 23.3% crude protein for her to meet daily demands of lactation.

<table>
<thead>
<tr>
<th>Sow Feed Intake</th>
<th>9 lbs</th>
<th>1.9 Mcal/lb</th>
<th>23.3%</th>
<th>17 Mcal ME</th>
<th>2.1 lbs protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrient Content of Ration</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Realistic Feed Intakes of Lactating Sows on N.C. Farms (1998 – 2008)

• Jan – May 14.3 lbs
• June 12.1 lbs
• July 10.6 lbs
• August 8.8 lbs
• Sept. 10.6 lbs
• Oct. - Dec. 13.7 lbs

Lactation Management

• Formulation of a diet that contains 23% protein is challenging nutritionally and not practical economically.

• However, some adjustment for sow diets (lactation and gestation) during the summer months is warranted.

• Adjusting normal management routines to promote daily feed intake is also important.
Cumulative Daily Feed Intake Patterns for Sows

Feed consumed (lbs)

Time

Feeding 2
11 lbs, Summer
14 lbs, Winter

Feeding 1
10 lbs, Summer

Feeding 3
12 lbs, Summer
11 lbs, Summer

Trickle or Continuous

Boar Exposure and Standing Reflex in Sows

Pheromones in boar’s saliva are the primary “initiator” of the standing reflex.

Maintenance of the standing reflex depends on continued exposure to pheromones and fatigue level of sow.

Breeding Management

• Operate under the assumption that the intensity of the behaviors associated with estrus and breeding will be reduced

• Subtle adjustments in how things are done are necessary

Boar Exposure during the Summer

• Pheromone production and activity of boars decreases.

• Ventilation rates are higher so pheromones in air are exhausted faster.

• Sows become fatigued over a shorter time period.

All of these equate to reduced intensity of estrous behavior for shorter periods of time

Lactation Management

• It appears that sows tend to eat smaller amounts more frequently during the summer and wait until cooler periods of the day.

• Feeding more frequently or adopting trickle or continuous feeding strategies partially alleviates reduction in feed intake.

Adjustments in Detection of Estrus during the Summer

• Begin early in morning – sows are rested and testosterone levels highest in boars.

• Consider using several boars in a rotation – keeps active boars in front of sows.

• Don’t wait too long to breed after sows are found in estrus.
A common way to check and breed sows on some farms is to separate detection of estrus from insemination.

1. Weaned sows placed in heat check row.
2. These are checked for estrus first.
3. Estrous females moved across aisle to breeding row.
4. All inseminations (first and second) are done after estrous sows in heat check row identified and moved.

In order to prevent sows from getting fatigued because they are essentially stimulated to show a standing reflex twice in a short period of time, performing estrous detection and insemination simultaneously on small groups of sows should be considered.

1. Weaned sows placed in crates
2. Small groups are checked for estrus.
3. Sows in estrus are not moved.
4. Instead, they are bred immediately.

This process is repeated until all sows have been checked and bred.

Detection of Estrus

- Sometimes it is useful to attempt to control when a sow shows estrus after weaning.
- PG600 can be used for this.
- PG600 mode of action is to give the sow’s endocrine system a boost, not restart one that is shut down.

PG600 Strategies

- Treat sows at weaning.
- Treating only sows that haven’t shown estrus several days after weaning usually doesn’t work well.
- Let ambient temperature, sow feed intake during lactation and herd history be your guides for using it.
**Summer Check List for Sows**

- Adjust ventilation system settings based on heat index or apparent temperature.

- Feed lactation and gestation diets with increased nutrient density and consider increasing feeding frequency.

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**Summer Check List for Sows**

- Adjust heat detection and breeding procedures on the premise that estrus will be less intense and shorter.

- Examine historical weaning-to-estrus data to determine whether PG600 might be useful in tightening return pattern of sows.