Sharpen the saw ... concepts, resources & issues

June 11, 2008

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ISU Swine Field Specialist
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Market Forces
Corn – July contract

3.8 X higher

Market Forces
GOLD – June contract

4 X higher

Market Forces
Monthly Corn and Monthly Gold

Corn
Gold
Market Forces
US Dollar Index – June contract

Market Forces
Wheat – July contract

Market Forces
Light Crude Oil – June contract

Market Forces
Lean Hogs – June contract
Market Forces
Ethanol Production

<table>
<thead>
<tr>
<th></th>
<th>Oct 07</th>
<th>$1.52</th>
<th>$3.40</th>
<th>RATIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov 07</td>
<td>$1.74</td>
<td>$2.22</td>
<td>$4.10</td>
<td>3.2</td>
</tr>
<tr>
<td>Dec 07</td>
<td>$1.94</td>
<td>$2.00</td>
<td>$4.75</td>
<td>3.2</td>
</tr>
<tr>
<td>Jan 08</td>
<td>$2.19</td>
<td>$2.25</td>
<td>$5.71</td>
<td>3.8</td>
</tr>
<tr>
<td>Feb 08</td>
<td>$2.13</td>
<td>$0.90</td>
<td>$5.30</td>
<td>3.41</td>
</tr>
<tr>
<td>Mar 08</td>
<td>$2.32</td>
<td>$1.19</td>
<td>$5.82</td>
<td>2.7</td>
</tr>
<tr>
<td>Apr 08</td>
<td>$2.46</td>
<td>$1.34</td>
<td>$6.28</td>
<td>3.3</td>
</tr>
</tbody>
</table>

**Market Forces**

**Ethanol Production**

• Thumb-rule: 10 cents/gallon increase = 30 cents/bushel.

• If ethanol is worth $3/gal today, the value of the corn going to an ethanol plant would be about $8/bushel.

**National Pork Producer Council Statement**

• Economists estimate the pork industry will need to reduce production by at least 10%—meaning a reduction of 600,000 sows—to restore profitability.
Current Situation

- May 30, 2008 – Grimms & Plain
  - Weekly slaughter 1,828,000 (6.2% over 07')
  - Large Cold storage (23% over 07')
  - Ia-Mn Apr. 1  $49.54/cwt
    May. 20  $82.43/cwt
  - Exports higher ... 18% of production
    1 out of every 5 pigs

- May 30, 2008 – Plain
  - Weekly Sow slaughter
    * mid-March to mid-April (15% over 07')
    * slowing (08’ weekly average 8%)

- May 30, 2008 – Steve Meyer
  - Sow slaughter
    * 1.1% lower March inventory
    * Canada – 20% lower sow inventory

How do we reduce the sow herd 10% - choices ...

- Do nothing and wait until 10% of the industry goes out of business and the sows go to town. (ownership transfers don't count)
  .. or..
- Industry reduces output 10%
  .. or ..
- Rest of World removes sows ... export?

Have we had enough sow liquidation?

- June 27th ... next Hogs & Pig report
What Tools do you have in your Tool Box ???

Cash marketing
Forward Contracts
Futures Contracts
Options Contracts

Insurance based products ...
Livestock Risk Protection (LRP)
Livestock Gross Margin (LGM)

Revenue:
- Market Hog $$$

Expense:
- CORN - $
- SOYBEAN MEAL - $

= Gross Margin $100 +

Remaining Expenses:
- Feed Other and Additives $6.00
- Veterinary and medical $1.00
- Fuel, repairs, utilities $1.20
- Marketing, miscellaneous $4.00
- Interest on feed and other = $
- Labor $9.00/hr. (0.50 hrs) = $4.50

Fixed Costs
- Machinery, facilities $13.04

Profit/Loss: $

Livestock Gross Margin-LGM

- Insures Gross Margin
  -- market price, price of corn and soybean meal
- Coverage Period:
  Each month pigs will be marketed 2-5 mo later level - 100, 95, 90 or 85%
- Availability:
  Only last business day of each month after futures market closes until 9:00 am (central) on following business day

Factors....
Season Price Pattern
Market Cycles
Risk Tolerance
Market Forces ... summary

- Be aware of market interactions
  Longer term impact of gold/dollar on corn
- Consider Gross Return
  LH revenue – Corn & SBM cost
- Be prepared to respond

More with Less??

- Is it possible to find areas in your swine operation that you could reduce output with little impact on profit?

Planned Pig Flow

- "Begin with end in mind”
  - Size of Nursery & Finisher Buildings
  - Size of Groups to sell (SEW or Nursery Piglets)

Planned Pig Flow ... breeding sources

- Seasonal Breeding Target = Weaned Sows - Sows Culled + Repeat Breeders + Gilts
Seasonal Impact

<table>
<thead>
<tr>
<th>Month</th>
<th>Farrowing Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>74.00%</td>
</tr>
<tr>
<td>Feb</td>
<td>81.00%</td>
</tr>
<tr>
<td>Mar</td>
<td>85.00%</td>
</tr>
<tr>
<td>Apr</td>
<td>89.00%</td>
</tr>
<tr>
<td>May</td>
<td>86.00%</td>
</tr>
<tr>
<td>Jun</td>
<td>89.00%</td>
</tr>
<tr>
<td>Jul</td>
<td>90.00%</td>
</tr>
<tr>
<td>Aug</td>
<td>88.00%</td>
</tr>
<tr>
<td>Sep</td>
<td>87.00%</td>
</tr>
<tr>
<td>Oct</td>
<td>81.00%</td>
</tr>
<tr>
<td>Nov</td>
<td>77.00%</td>
</tr>
<tr>
<td>Dec</td>
<td>76.00%</td>
</tr>
</tbody>
</table>

Farrowing Rate - month Bred

<table>
<thead>
<tr>
<th>Month</th>
<th>Farrowing Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>86.00%</td>
</tr>
<tr>
<td>Feb</td>
<td>89.00%</td>
</tr>
<tr>
<td>Mar</td>
<td>90.00%</td>
</tr>
<tr>
<td>Apr</td>
<td>88.00%</td>
</tr>
<tr>
<td>May</td>
<td>87.00%</td>
</tr>
<tr>
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<td>Aug</td>
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<tr>
<td>Sep</td>
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</tr>
<tr>
<td>Oct</td>
<td>81.00%</td>
</tr>
<tr>
<td>Nov</td>
<td>85.00%</td>
</tr>
<tr>
<td>Dec</td>
<td>89.00%</td>
</tr>
</tbody>
</table>

Selection starts from the beginning ...

Select Mating
- BLUP

Select Structure and Growth
Provide Extra Care
- avoid stress
- nutrition/environment

Select Structure
Target
- Weight... 300 lbs
- Age... Expose Boar 160 days
- Service... 2nd or 3rd estrus

Brainstorming the List

**PRRS** has been shown to cost $10/hd
- Closing the herd for 6-9 months has been shown to stop PRRS shedding.
- Risk of re-infection or bio-security slip

Increase weaning age.
- K-state study showed $.59/pig/extra day in faster growth, less loss – morbidity and death
  - Value in growth rate may or may not be important

Wean-to-Finish ADG

<table>
<thead>
<tr>
<th>Wean age, d</th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>1.36</td>
<td>1.54</td>
</tr>
<tr>
<td>21</td>
<td>1.51</td>
<td>1.59</td>
</tr>
<tr>
<td>18</td>
<td>1.40</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>1.28</td>
<td></td>
</tr>
</tbody>
</table>

Linear, P<0.001
SE= 0.02; 0.01 lb
ADG = Does not account for weight or days lost due to mortality in this study.
**Wean-to-Finish Mortality**

<table>
<thead>
<tr>
<th>Wean age, d</th>
<th>Mortality, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>9.4</td>
</tr>
<tr>
<td>15</td>
<td>7.9</td>
</tr>
<tr>
<td>18</td>
<td>6.8</td>
</tr>
<tr>
<td>21</td>
<td>3.6</td>
</tr>
<tr>
<td>15.5</td>
<td>3.9</td>
</tr>
<tr>
<td>18.5</td>
<td>3.4</td>
</tr>
<tr>
<td>21.5</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Linear, P<0.01
SE = 0.95; 0.50%

**Effect of lactation length and average daily feed intake on farrowing rate**

- 9.2 lbs
- 9.2 to 12.5 lbs
- 12.5+ lbs

**Disadvantaged pigs**

- Lightweight
  - Survival rate much less in pigs < 2.75 lb

**Economic of Gestation Feed**

(Assuming Average Feed Cost is $220/ton)

<table>
<thead>
<tr>
<th>Daily Feed</th>
<th>Feed Cost $</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>day</td>
</tr>
<tr>
<td>4.0</td>
<td>$.44</td>
</tr>
<tr>
<td>4.2</td>
<td>$.46</td>
</tr>
<tr>
<td>4.4</td>
<td>$.48</td>
</tr>
<tr>
<td>4.6</td>
<td>$.51</td>
</tr>
<tr>
<td>4.8</td>
<td>$.53</td>
</tr>
<tr>
<td>5.0</td>
<td>$.55</td>
</tr>
<tr>
<td>5.2</td>
<td>$.57</td>
</tr>
</tbody>
</table>

1 - Calibrate drop boxes
2 - Examine Sow Condition

**Feed to Sow Condition Score**

- Challenge your maternal genetics to see if they can perform at a lower condition score.

<table>
<thead>
<tr>
<th>Score</th>
<th>Condition</th>
<th>Detection of ribs, backbone, “H” bones, and pin bones</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Obvious</td>
</tr>
<tr>
<td>2</td>
<td>Thin</td>
<td>Easily detected with pressure</td>
</tr>
<tr>
<td>3</td>
<td>Ideal</td>
<td>Barely felt with firm pressure</td>
</tr>
<tr>
<td>4</td>
<td>Fat</td>
<td>None</td>
</tr>
<tr>
<td>5</td>
<td>Overly fat</td>
<td>None</td>
</tr>
</tbody>
</table>

*Taken from “Assessing Sow Body Condition” by R. D. Coffey, G. R. Parker, and K. M. Laurent (ASC 158; 1999).*

**Reproduction Efficiency**

- **Reduce Non-productive days**
  - Gestation feed cost ... approx. $.50/day
  - Timely identify and cull opens
    - Preg check with Real time ultrasound
  - Limit repeat services
- Use what you learned today to increase the percentage of first cycle sows bred.

**Economic of Feed Wastage**

Example: 60 to 260 Lbs.

\[
\begin{array}{|c|c|c|c|}
\hline
\% Feed Waste & Lbs Feed/Cwt gain & $Feed/pig & $Difference/pig \\
\hline
\text{Minimal} & 300 & 64.50 & < - - - \\
2 & 306 & 65.79 & < 1.29 \\
4 & 312 & 67.08 & + 3.87 \\
8 & 324 & 69.66 & + 5.16 \\
10 & 330 & 70.95 & + 6.45 \\
12 & 336 & 72.24 & + 7.74 \\
14 & 342 & 73.53 & + 10.32 \\
18 & 354 & 76.11 & + 10.32 \\
\hline
\end{array}
\]

It is not uncommon for feed wastage to exceed 10% on many swine farms.
**Replace/Adjust Feeders**

**Feed Budgets Are Essential**

- **Feed Budget by Ration:**
  - Last Feed Delivery:

<table>
<thead>
<tr>
<th>Ration</th>
<th>Phase (set range)</th>
<th>Pig per Group</th>
<th>Budget per Pig</th>
<th>Budget per Group</th>
<th>Delivered Feed</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>65-80</td>
<td>1.024</td>
<td>60.0</td>
<td>61,440</td>
<td>60,000</td>
</tr>
<tr>
<td>G2</td>
<td>90-130</td>
<td>1.021</td>
<td>95.0</td>
<td>96,995</td>
<td>94,000</td>
</tr>
<tr>
<td>F1</td>
<td>130-175</td>
<td>1.019</td>
<td>135.0</td>
<td>137,565</td>
<td>136,000</td>
</tr>
<tr>
<td>F2</td>
<td>175-230</td>
<td>1.015</td>
<td>160.0</td>
<td>182,700</td>
<td>184,460</td>
</tr>
<tr>
<td>F3</td>
<td>230-285</td>
<td>1.014</td>
<td>140.0</td>
<td>141,960</td>
<td>148,520</td>
</tr>
</tbody>
</table>

- Provide the **right feed** to the **right pig** for the **right amount of **time**”

**Evaluate Diet Particle Size**

- **Feed/gain increases 1.2% for every 100 microns above 700 microns**
  - Recommended micron size:
    - Hammermill - 700±2.25 microns
    - Rollermill – 700±2.0 microns
  - Excessive fine grinding (<600 microns)
    - Increases gastric ulcers
    - Increases bridging in bins and feeders
    - Increases dust
    - Increases energy cost of feed manufacturing

**Use Most Efficient Finishers**

- Used your Group Tracker records to shut down least efficient finisher.
  - Today a 2.6 conversion is over $10/pig more cost efficient than a 3.0 feed conversion barn.
Sale Weight

- As the cost of gain closes in on the market price the optimum sale weight will shift lower.
  - Seasonal decreases in price also has an influence to lower the sale weight for more profit.

Heat Stress and the Breeding Herd

<table>
<thead>
<tr>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
<th>Feb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>Litters affected by heat stress on sows</td>
<td>Reduced boar fertility</td>
<td>Litters affected by reduced boar fertility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Levis, 1980

Effect Heat Stress on Boars (above 85F)

Heat stress in boars can be assessed by respiration rates:

- The normal respiration rate is 25-35 breaths per minute
- A respiration rate of 40-50 breaths should be treated as an alarm signal
- Under heat stress, it can rise up to 75 to 100 breaths per minute

Drip Cooling

- Start by 80 °F
- Provide .5-1.0 gal/hr
  - sized for minimal runoff from sow
- Placed 20” behind front headgate
  - Reduces feed wetting
  - Keeps young pigs dry
### Dippers and Heat (86 F)

<table>
<thead>
<tr>
<th></th>
<th>Corn - Soy</th>
<th>Corn-Soy + Fat</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADF, lb/d</td>
<td>11.7</td>
<td>10.2</td>
</tr>
<tr>
<td>Wt loss, lb</td>
<td>58.9</td>
<td>59.4</td>
</tr>
<tr>
<td>Resp Rate</td>
<td>87</td>
<td>70</td>
</tr>
<tr>
<td>Pigs wean, no</td>
<td>8.17</td>
<td>8.81</td>
</tr>
<tr>
<td>Wean wt, lb</td>
<td>14.4</td>
<td>14.6</td>
</tr>
</tbody>
</table>

### Water Dripping and Sow Performance

<table>
<thead>
<tr>
<th></th>
<th>Drip Off</th>
<th>Drip On</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADF, lb/d</td>
<td>7.8</td>
<td>12.3</td>
</tr>
<tr>
<td>Wt loss, lb</td>
<td>47</td>
<td>31</td>
</tr>
<tr>
<td>Days to estrus</td>
<td>5.2</td>
<td>4.7</td>
</tr>
</tbody>
</table>

### Evaporative Pad Coolers

Evaporative Cooling Pads (KoolCell Pads)

- Incoming air drawn through wet pads
- Air evaporates water from pads
  - Temp reduced
  - Moisture increased
- Temperature will decrease until RH nears 85%.
- When incoming air is humid (relative humidity >70%), air temp decrease will only be 5-10 F.
- When incoming air is relatively dry (<55% RH), air temp reduction may be 15 F or more.
Impact of Relative Humidity on Effectiveness of Evaporative Cooling

<table>
<thead>
<tr>
<th>Outside RH%</th>
<th>30</th>
<th>50</th>
<th>70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside Temp (F)</td>
<td>76</td>
<td>62</td>
<td>66</td>
</tr>
<tr>
<td>Pad Exit Temp (F)</td>
<td>84</td>
<td>67</td>
<td>73</td>
</tr>
<tr>
<td>80% efficiency</td>
<td>92</td>
<td>73</td>
<td>79</td>
</tr>
<tr>
<td>100</td>
<td>100</td>
<td>79</td>
<td>87</td>
</tr>
</tbody>
</table>

Meyer and Van Fossen, ISU, 1971

Circulation Fans
Plan View of Arrangement

Stir Fan Placement

Dirty Fans and Shutters
• 1/8 inch of dirt/dust can cause up to a 40% reduction in fan and shutter air flow.
**Curtain “Check-Points”**

- Over-lap with top of opening
  - Minimum 3 inches of overlap needed
  - Limit switch settings
  - Sagging

- Curtain integrity
  - End pockets
  - Rodent damage
  - Sagging

**More Available with Pork Board Publication**

- Look for the publication at: *Practical Ideas to Address High Feed and Production Costs*

- Available on the web: [www.porkboard.org](http://www.porkboard.org)

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**Thank you for attending**

**Questions …**

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