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U.S. Department of Agriculture

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FUELING ETHANOL: IMPLICATIONS FOR LIVESTOCK PRODUCERS

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Fueling Ethanol: Implications for Livestock Producers

Presented by

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Iowa State University
Implication for Pork Producers

• Cost of production impact

– 1997-2006
  • Omaha corn = $2.09
  • Decature 48% SBM $188
  • ISM barrows and gilts live weight $42.18
  • ISU farrow to finish cost estimate $39.92

– 12 bu/head, 270# live weight
  • $1 higher corn = $4.44 = $44-45/cwt
  • $2 higher corn = $8.88 = $48-49/cwt
Impact on Feedlot Cattle Cost and Returns

- **1997-2006**
  - Calf: $101.96 / $71.69
  - Yearling: $90.35 / $72.00
  - Fed: $74.18

- **60 Bushels and 1250# pay weight**
  - $1 higher corn = $4.80/cwt, $8.50 on 7cwt
  - $2 higher corn = $9.60/cwt, $17 on 7cwt
# DDGS Production and Usage

<table>
<thead>
<tr>
<th>Description</th>
<th>Mil Ton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential production</td>
<td>46.8</td>
</tr>
<tr>
<td>5.5 Billion Bu. Corn</td>
<td></td>
</tr>
<tr>
<td>Potential use</td>
<td></td>
</tr>
<tr>
<td>COF @ 20%</td>
<td>7.10</td>
</tr>
<tr>
<td>Dairy @ 20%</td>
<td>6.13</td>
</tr>
<tr>
<td>Hogs @ 15%</td>
<td>6.72</td>
</tr>
<tr>
<td>Total</td>
<td>19.95</td>
</tr>
<tr>
<td>Excess for export or use</td>
<td>26-27</td>
</tr>
</tbody>
</table>

*Source: Iowa State University, University Extension*
Key Questions

• How much distillers grains can I feed and how does it impact feed costs and profitability for cattle and hogs?
Maximum Inclusion Rates of DDGS in Swine Diets

- **Nursery pigs (> 7 kg)**
  - Up to 25%

- **Grow-finish pigs**
  - Up to 20% (higher levels may reduce pork fat quality)

- **Gestating sows**
  - Up to 50%

- **Lactating sows**
  - Up to 20%

Assumptions: no mycotoxins, formulate on a digestible amino acid and available phosphorus basis

*Source: Shurson, U of MN*
### Performance and Carcass Traits by DDGS in Diet

<table>
<thead>
<tr>
<th></th>
<th>DDGS 0</th>
<th>DDGS 10</th>
<th>DDGS 20</th>
<th>DDGS 30</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADG, lbs</td>
<td>1.90\textsuperscript{a}</td>
<td>1.89\textsuperscript{a}</td>
<td>1.82\textsuperscript{b,c}</td>
<td>1.78\textsuperscript{b,d}</td>
</tr>
<tr>
<td>Feed:Gain</td>
<td>2.78\textsuperscript{a}</td>
<td>2.78\textsuperscript{a}</td>
<td>2.78\textsuperscript{a}</td>
<td>2.94\textsuperscript{b}</td>
</tr>
<tr>
<td>Final BW</td>
<td>257.2\textsuperscript{a}</td>
<td>258.7\textsuperscript{a}</td>
<td>250.6\textsuperscript{b}</td>
<td>246.2\textsuperscript{b}</td>
</tr>
<tr>
<td>No. of days</td>
<td>103.5</td>
<td>103.5</td>
<td>103.5</td>
<td>103.5</td>
</tr>
<tr>
<td>Dressing, %</td>
<td>73.4\textsuperscript{c}</td>
<td>72.8\textsuperscript{c}</td>
<td>72.1\textsuperscript{d}</td>
<td>71.9\textsuperscript{d}</td>
</tr>
<tr>
<td>Lean, %</td>
<td>52.6</td>
<td>52.0</td>
<td>52.6</td>
<td>52.5</td>
</tr>
</tbody>
</table>

a,b Means within row with unlike superscripts differ ($P < 0.05$).
c,d Means within row with unlike superscripts differ ($P < 0.10$).

### Revenue and Return per Head Over Feed Cost by Treatment

<table>
<thead>
<tr>
<th>DDGS 0</th>
<th>DDGS 10</th>
<th>DDGS 20</th>
<th>DDGS 30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carcass wt</td>
<td>187.4</td>
<td>186.9</td>
<td>178.9</td>
</tr>
<tr>
<td>Revenue, $60 carcass</td>
<td>$112.47</td>
<td>$112.17</td>
<td>$107.34</td>
</tr>
<tr>
<td>Return Over Feed Cost Per Head</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$2/175</td>
<td>81.64</td>
<td>82.91</td>
<td>80.62</td>
</tr>
<tr>
<td>$3/185</td>
<td>73.47</td>
<td>74.72</td>
<td>72.67</td>
</tr>
<tr>
<td>$4/195</td>
<td>65.30</td>
<td>66.52</td>
<td>64.72</td>
</tr>
</tbody>
</table>

60 Pound starting weight, same days on feed, no difference in percent lean. Dressing percent DDGS0=DDGS10 and DDGS20=DDGS30

DDGS priced at 85% of corn price

**Iowa State University**
University Extension
Implication for Pork Producers

• Higher feed costs
  – Bid into lower pig prices
  – Lower carcass weights
  – Reduced production
  – Globally competitive

• DGS potential
  – Pork fat quality limitation
  – DGS product variability
  – DGS are evolving
Implications for Beef Producers

- DGS is not CGF
- Wet is better than dry
- Inclusion rates
  - 20-40% of dry matter is common
  - 60% WDGS in research
  - Lower marbling and quality grade at levels over 40%
  - Sulfur levels must be managed
Feed Efficiency & ADG Response To WDG Inclusion Rate

\[ y = -0.0007x^2 + 0.043x + 3.6604 \quad R^2 = 0.914 \]

\[ y = 0.0005x^2 - 0.0406x + 6.5271 \quad R^2 = 0.8867 \]

Vander Pol et al., 2006 Nebraska Beef Rep. and 2005 Midwest ASAS
Feed Efficiency & ADG Response To DDG Inclusion Rate

\[ y = -0.0006x^2 + 0.0292x + 3.3054 \]
\[ R^2 = 0.8625 \]

\[ y = 0.0006x^2 - 0.0389x + 6.3466 \]
\[ R^2 = 0.6988 \]

Performance

Level of diet DM (DDGS)

Buckner et al., 2007 Nebraska Beef Rep.
Assume: 95% of corn price, $0.10/bushel increase corn price, costs covered, 153 days from Vander Pol et. al. (2006 Nebraska Research Report)
Implications for Beef Producers

• **Higher feed cost**
  – Lower calf and yearling prices
  – Higher pasture costs
  – Heavier placement weights
  – Lighter carcasses
  – Fewer Choice cattle

• **DGS potential**
  – Wet is lower cost
  – Can use higher levels
  – Regional availability
Long-Term Implications

• Economics depends on
  – Inclusion rate
  – Price of DDGS relative to corn & SBM
  – DDGS is global, WDGS is local

• Long term at retail counter
  – Monogastrics: low inclusion DDGS
  – Ruminants: high inclusion WDGS
  – Pork price increase relative to beef
Corn Price and Basis Risk

- Expect increased volatility
  - Matching expansion of plants with expansion of acres
  - Short crop concerns
  - Policy thresholds
  - Basis shifts and variation
FEB 8, 2007 CORN BASIS
Basis Calculated from CBOT MAR futures price 399.8 cents per bushel

Legend
- Major Markets

<VALUE>
- 15.1 - 20
- 10.1 - 15
- 5.01 - 10
- 0.001 - 5
- -4.99 - 0
- -9.9 - -5
- -14.9 - -10
- -19.9 - -15
- -24.9 - -20
- -29.9 - -25
- -34.9 - -30
- -39.9 - -35
- -44.9 - -40
- -49.9 - -45
- -54.9 - -50
- -60 - -55
Strategic Risk

• Physical control of grain?
  – Will it be there in August
  – Building and managing storage
  – Financing inventory

• Source of DGS
  – Single supplier or low bid
  – Managing variability
Rural Communities Needs Both Ethanol and Livestock

- 100 million gallon ethanol plant
  - 37 million bushels of corn
  - 80 people directly employed
- 37 million bu corn Direct jobs
  - Farrow-finish 800
  - Or Wean-finish 242
  - Or Beef feedlot 278
Summary

- Bioeconomy is changing agriculture!!!!!
- New price level for corn and animal products
- New rations for livestock
- Exciting destination
- Exciting journey
Thank you!

Any Questions?
www.econ.iastate.edu/faculty/lawrence/