Outlook for Crop and Livestock Prices

Darrel Good
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US Corn Production

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (billion bushels)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>2.0</td>
</tr>
<tr>
<td>1981</td>
<td>4.0</td>
</tr>
<tr>
<td>1983</td>
<td>6.0</td>
</tr>
<tr>
<td>1985</td>
<td>8.0</td>
</tr>
<tr>
<td>1987</td>
<td>10.0</td>
</tr>
<tr>
<td>1989</td>
<td>12.0</td>
</tr>
<tr>
<td>1991</td>
<td>14.0</td>
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<td>1993</td>
<td>16.0</td>
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<td>1995</td>
<td>18.0</td>
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<td>1997</td>
<td>20.0</td>
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<td>1999</td>
<td>22.0</td>
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<td>2001</td>
<td>24.0</td>
</tr>
<tr>
<td>2003</td>
<td>26.0</td>
</tr>
<tr>
<td>2005</td>
<td>28.0</td>
</tr>
<tr>
<td>2007</td>
<td>30.0</td>
</tr>
</tbody>
</table>

2008 Illinois Farm Economics Summit
The Profitability of Illinois Agriculture: Looking Ahead in Extraordinary Times
Prospects for Land Values and Leases

Paul Ellinger
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2008 Illinois Farm Economics Summit
The Profitability of Illinois Agriculture: Looking Ahead in Extraordinary Times

Total Assets Used in Farming: United States

- Real estate: 87%
- Financial assets: 4%
- Crops stored: 1%
- Machinery: 5%
- Livestock and poultry: 3%

$2.34 Trillion

Source: Economic Research Service

Trillion
- Real Estate Assets: $2.042
- Real Estate Debt: $0.111

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Assets of Average Farmer

- Real Estate: 42%
- Machinery and Equipment: 29%
- Crop Inventory: 20%
- Financial Assets: 5%
- Other: 4%

$1.925 Million

2007 Illinois FBFM Data

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Relative Stability
Good Times
Bad Times
Relative Stability
Good Times


27 year average: S&P 500, 20.17
27 year average: Farmland, 30.15

Farmland based of returns to farmland, not average rental rates

2008 Illinois Farm Economics Summit
- Net returns to land
  - Level
  - Volatility
- Housing crisis
- Scope & economic situation of buyers
- Demand for recreational land
- Interest rates
- Capital gains tax rates

### 2008 Illinois Farm Economics Summit

<table>
<thead>
<tr>
<th>Region</th>
<th>$4.50 corn price</th>
<th>$10.00 soybean price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Northern</td>
<td>$178</td>
<td>$253</td>
</tr>
<tr>
<td>Central-High</td>
<td>$232</td>
<td>$307</td>
</tr>
<tr>
<td>Central-Low</td>
<td>$155</td>
<td>$232</td>
</tr>
<tr>
<td>Southern</td>
<td>$117</td>
<td>$188</td>
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</table>

Assume a $50/acre return for operator
Interpreted as maximum available for cash rent
Low: Pre-meltdown costs, High: Post-meltdown costs
<table>
<thead>
<tr>
<th>Region</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td>$63</td>
<td>$138</td>
</tr>
<tr>
<td>Central-High</td>
<td>$110</td>
<td>$185</td>
</tr>
<tr>
<td>Central-Low</td>
<td>$45</td>
<td>$122</td>
</tr>
<tr>
<td>Southern</td>
<td>$18</td>
<td>$89</td>
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</table>

Assume a $50/acre return for operator
Interpreted as maximum available for cash rent
Low: Pre-meltdown costs, High: Post-meltdown costs
At $3.50  
low: $1,705, high: $3,372  
3.3% rate: $4,598  
Corn price (soybean price = 2.22x)  

2008 Illinois Farm Economics Summit
- Moderate movement towards cash leases
- Adjustments tend to favor land owner
- Time lags
- Average cash rents do not tend to decrease
- More interest in variable cash rental arrangements
- Some custom farming still part of mix

Per Acre Cash Rents for Top 1/3, Mid 1/3 and Low 1/3
Cash Rent Leases by Land Quality, 2008

<table>
<thead>
<tr>
<th>Lease Type</th>
<th>Excellent</th>
<th>Good</th>
<th>Average</th>
<th>Fair</th>
</tr>
</thead>
<tbody>
<tr>
<td>High 1/3</td>
<td>$295</td>
<td>$258</td>
<td>$201</td>
<td>$155</td>
</tr>
<tr>
<td>Mid 1/3</td>
<td>$241</td>
<td>$207</td>
<td>$172</td>
<td>$138</td>
</tr>
<tr>
<td>Low 1/3</td>
<td>$200</td>
<td>$173</td>
<td>$148</td>
<td>$120</td>
</tr>
</tbody>
</table>

Source: Illinois Society of Professional Farm Managers and Rural Appraisers, March 2008
Comments from Mid-Year (August, 2008) Land Value and Leasing Survey...

- $43 per acre increase in cash rents from 2008 to 2009
- Overall, cash rents in 2008 averaged $238 on professionally managed farmland
- The average cash rent is expected to increase to $281 in 2009.
- Cash rent will vary with land productivity

Why more interest now in variable cash rent leases?

- Use of cash rent leases in general are increasing.
- Increase in farm profitability (short term?), pressure to raise cash rents.
- Currently, more variability in corn and soybean prices, uncertainty about future price directions.
- Higher input costs result in potential for larger losses if drop in prices and/or yields.

Source: Schnitkey and Lattz, farmdoc FEFO 08-17
Cash rent = \( \text{base rent} \times \frac{\text{actual yield} \times \text{actual price}}{\text{base yield} \times \text{base price}} \)

- Base rent plus bonus payment, bonus payment based on yield, price or both.
- Cash rent is based on $ per bushel harvested.
- Fixed percentage of gross revenue.

Source: Schnitkey and Lattz, farmdoc FEFO 08-17

Example assumptions
- Base rent is $185 / acre
- Base is set at 180 bu/acre and $4.20 corn price
- Actual yields: 200 bu and corn price of $3.50

Source: Schnitkey and Lattz, farmdoc FEFO 08-17
- Maximum and minimum levels
- How to determine price?
- Yields determined: farm vs. county
- FSA payments

- Downward pressure on land values
- Landowner/tenant: communication a key
- Operator may want to be proactive and consider taking the lead in proposing changes to farm leasing terms.
- Farm operators are assuming a higher level of risk
Try to avoid long term agreements in volatile economic conditions unless returns and costs are locked in.

If fixed cash rent arrangement, may want to consider flexible cash rent arrangement or crop share lease.

If fixed cash rent arrangement, may want to delay setting rent until more reasonable expectations for corn and soybean prices can be made.

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Crop Insurance Decisions in an Era of Increased Volatility

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Crop Insurance issues:

- New price levels and volatility render traditional commodity support programs less effective for management of revenue risk.
- Crop insurance viewed as risk management “cornerstone” with increased importance of effective usage. Product subsidy and selection issues of increased importance.
- Indemnity Price determination, impact of interactions with marketing decisions, new limits, and divergence from expected prices.
Price Expectations (Dec Fut)…

Implied by options market data …

CBOT Dec Futures, as of March sign-up date, except 2009 which is as of 12/10/08

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Sign-up Date Information:

<table>
<thead>
<tr>
<th>(corn information)</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
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</thead>
<tbody>
<tr>
<td>APH Indemnity Price</td>
<td>$2.00</td>
<td>$3.50</td>
<td>$4.75</td>
<td>??</td>
</tr>
<tr>
<td>GRP Price</td>
<td>$2.00</td>
<td>$2.95</td>
<td>$3.75</td>
<td>??</td>
</tr>
<tr>
<td>CRC, RA, GRIP Base Price</td>
<td>$2.59</td>
<td>$4.06</td>
<td>$5.40</td>
<td>??</td>
</tr>
<tr>
<td>RA volatility</td>
<td>0.23</td>
<td>0.26</td>
<td>0.30</td>
<td>??</td>
</tr>
<tr>
<td>CRC price factor</td>
<td>0.385</td>
<td>0.651</td>
<td>1.002</td>
<td>??</td>
</tr>
<tr>
<td>GRIP volatility</td>
<td>0.23</td>
<td>0.25</td>
<td>0.28</td>
<td>??</td>
</tr>
<tr>
<td>Expected Price (Dec F)</td>
<td>2.652</td>
<td>4.108</td>
<td>5.655</td>
<td>3.704</td>
</tr>
<tr>
<td>Variance of price</td>
<td>0.443</td>
<td>1.243</td>
<td>3.605</td>
<td>2.489</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.666</td>
<td>1.115</td>
<td>1.899</td>
<td>1.578</td>
</tr>
<tr>
<td>Prob &lt; 1.96 (app. LR)</td>
<td>13.563%</td>
<td>0.411%</td>
<td>0.104%</td>
<td>8.778%</td>
</tr>
<tr>
<td>Prob &lt; APH price</td>
<td>15.424%</td>
<td>31.990%</td>
<td>35.551%</td>
<td>??</td>
</tr>
<tr>
<td>Prob &lt; GRP price</td>
<td>15.424%</td>
<td>13.366%</td>
<td>13.701%</td>
<td>??</td>
</tr>
<tr>
<td>Prob &lt; CRC price</td>
<td>51.094%</td>
<td>53.537%</td>
<td>50.876%</td>
<td>??</td>
</tr>
<tr>
<td>Expected Price less Feb Ave</td>
<td>$0.06</td>
<td>$0.05</td>
<td>$0.26</td>
<td>??</td>
</tr>
</tbody>
</table>

2008 Illinois Farm Economics Summit
What might happen in 2009?...

2009 – Dec Futures as of 12/10/08

Market Expected Price
(e.g., actual at sign up)

Low Feb ave – increase prob of Rev payment

High Feb ave – increased HR values

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Premiums and Risk Subsidies

- Premiums (costs of insurance products) are federally subsidized. Subsidy rates are set in the Agricultural Risk Protection Act of 2000 and can be adjusted annually. Subsidy rates vary by coverage level and type of insurance.

Current Subsidy Schedule:

<table>
<thead>
<tr>
<th>Insurance</th>
<th>CAT</th>
<th>50%</th>
<th>55%</th>
<th>60%</th>
<th>65%</th>
<th>70%</th>
<th>75%</th>
<th>80%</th>
<th>85%</th>
<th>90%</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Farm-level</td>
<td>1</td>
<td>0.67</td>
<td>0.64</td>
<td>0.64</td>
<td>0.59</td>
<td>0.59</td>
<td>0.55</td>
<td>0.48</td>
<td>0.38</td>
<td>0.33</td>
</tr>
<tr>
<td>GRIP</td>
<td>1</td>
<td>0.59</td>
<td>0.59</td>
<td>0.55</td>
<td>0.55</td>
<td>0.55</td>
<td>0.51</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example – a producer’s total premium for Corn Crop Revenue Coverage is $84/acre at 70% coverage. The producer pays $34.44 and the federal government pays $49.56. If accurately rated, producers should make more in payments than they pay in premiums over time.
A&O Subsidies

Crop insurance companies receive administrative and operating (A&O) subsidies from the Federal government for delivering crop insurance products. These subsidies are set by the SRA and averaged about 21.6% across all policies in 2007.

2008 A&O Subsidies, % of Tot. Prem.

<table>
<thead>
<tr>
<th>Coverage Level</th>
<th>Product APH</th>
<th>Revenue Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>70% or less</td>
<td>24.2%</td>
<td>20.8%</td>
</tr>
<tr>
<td>80%</td>
<td>21.7</td>
<td>18.7</td>
</tr>
<tr>
<td>85%</td>
<td>21.0</td>
<td>18.1</td>
</tr>
<tr>
<td>90%</td>
<td>19.4</td>
<td>19.4</td>
</tr>
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</table>

Revenue products include CRC, RA and IP. Group products include GRP and GRIP. Proposed reductions in A&O subsidy of 2-5% go into effect beginning in 2009 unless rescinded. Vary by LR experience.


Multi-Peril Insurance Products

1. Farm-based products
   - Actual Production History (APH)
   - Income Protection (IP)
   - Revenue Assurance (RA)
   - Crop Revenue Coverage (CRC)

2. County-level or Group products
   - Group Risk Plan (GRP)
   - Group Risk Income Plan (GRIP)
   - Group Risk Income Plan, Harvest Price option (GRIP-HP)
Farm Insurance Products

1. Yield insurance
   – Actual Production History (APH) pays based on the number of bushel shortfall times (cash intent) price

2. Revenue without guarantee increase
   – Revenue Assurance – Base Price (RA-BP) and IP pay when a revenue index from yield times futures price is below guaranteed revenue.

3. Revenue with guarantee increase
   – Crop Revenue Coverage (CRC) and Revenue Assurance – Harvest Price (RA-HP) pay when crop revenue index is below yield times the higher of base price or harvest price. Essentially includes the option on price increasing in the guaranteed revenue.

County-Level Products

1. Yield insurance
   – Group Risk Plan (GRP) pays when county average yields are below elected fraction of expected level.

2. Revenue without guarantee increase
   – Group Risk Income Plan (GRIP) pays percentage shortfall in county-based revenue index (average yield times average futures price) times an available revenue level. The Maximum protection can be very high.

3. Revenue with guarantee increase
   – GRIP-HR, like GRIP but with additional feature that guaranteed revenue increases if prices increase.
Revenue Insurance “Prices”

“Base” Price:
Corn – CBOT Dec. contract avg. in February
Soybeans – CBOT Nov. contract avg. in Feb.

“Harvest” Price:
Corn – CBOT Dec. avg in October (CRC) and November (RA, GRIP)
Soybeans – CBOT Nov. contract avg. in October

Crop Revenue Coverage and Revenue Assurance – Harvest Price

- Revenue insurance pays when “available” revenue index is below guaranteed level – not your actual revenue. Marketing gains/losses against springtime fall futures need to be considered.

- Increase in guaranteed revenue if Harvest Price is greater than Base Price (embedded call option*) has value, but can be offset by difference between futures and average Feb futures.

- Increase in guarantee good for “aggressive” users of forward contracts or futures contracts

* max price change for 2009 and beyond is to 2 times base price, no down side limit
Group Plan features

- Indemnity based on county yields, not own farm yields
- Group Plans (GRP, GRIP, GRIP HR) – county insurance products may work well if yields are highly correlated with county’s. Does NOT matter if your yields are higher or not.
- Easy to administer, often works well for farms spread over large regions.
- Not settled until county yields are final in following year.
- Payments can be very large due to 1.5 factor in maximum liability, high resulting “leverage” in protection.
- High prices, low yields, average revenue often results in high payments under GRP and GRIP-HR, but not GRIP; High yields, low prices, both GRIP and GRIP-HR can make high payments but not GRP.

Evaluating Choices:

McLean Illinois Farmer-Paid premiums (2008, basic units, no BYE election)

<table>
<thead>
<tr>
<th>Coverage Election</th>
<th>APH</th>
<th>RA-BP</th>
<th>RA-HP</th>
<th>CRC</th>
<th>GRP</th>
<th>GRIP</th>
<th>GRIP - HR</th>
</tr>
</thead>
<tbody>
<tr>
<td>50%</td>
<td>$1.32</td>
<td></td>
<td></td>
<td>$3.16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55%</td>
<td>$1.85</td>
<td></td>
<td></td>
<td>$4.49</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60%</td>
<td>$2.56</td>
<td></td>
<td></td>
<td>$6.08</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65%</td>
<td>$3.88</td>
<td>$5.62</td>
<td>$9.07</td>
<td>$9.15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70%</td>
<td>$5.29</td>
<td>$9.67</td>
<td>$14.95</td>
<td>$12.45</td>
<td>$3.35</td>
<td>$6.99</td>
<td>$10.98</td>
</tr>
<tr>
<td>75%</td>
<td>$7.72</td>
<td>$16.48</td>
<td>$24.69</td>
<td>$18.35</td>
<td>$4.65</td>
<td>$14.30</td>
<td>$19.86</td>
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<tr>
<td>80%</td>
<td>$11.60</td>
<td>$27.64</td>
<td>$40.82</td>
<td>$28.11</td>
<td>$7.13</td>
<td>$23.50</td>
<td>$29.73</td>
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<tr>
<td>85%</td>
<td>$17.66</td>
<td>$45.82</td>
<td>$65.89</td>
<td>$44.19</td>
<td>$10.17</td>
<td>$37.86</td>
<td>$46.48</td>
</tr>
<tr>
<td>90%</td>
<td>$15.39</td>
<td></td>
<td></td>
<td>$59.61</td>
<td>$72.35</td>
<td></td>
<td></td>
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</tbody>
</table>

(note: local examples uses in each workshop location)
### Evaluating Choices:

**McLean Illinois Frequency of Claim**

<table>
<thead>
<tr>
<th>Coverage Election</th>
<th>APH</th>
<th>RA-BP</th>
<th>RA-HP</th>
<th>CRC</th>
<th>GRP</th>
<th>GRIP</th>
<th>GRIP - HR</th>
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</thead>
<tbody>
<tr>
<td>50%</td>
<td>0.42%</td>
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<td></td>
<td>0.54%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55%</td>
<td>0.72%</td>
<td></td>
<td></td>
<td>1.16%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60%</td>
<td>1.50%</td>
<td>9.02%</td>
<td>11.60%</td>
<td>5.16%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65%</td>
<td>2.64%</td>
<td>13.54%</td>
<td>17.12%</td>
<td>8.54%</td>
<td>2.52%</td>
<td>10.28%</td>
<td>12.48%</td>
</tr>
<tr>
<td>70%</td>
<td>4.56%</td>
<td>18.62%</td>
<td>23.04%</td>
<td>14.84%</td>
<td>4.62%</td>
<td>16.24%</td>
<td>19.92%</td>
</tr>
<tr>
<td>75%</td>
<td>7.76%</td>
<td>24.76%</td>
<td>32.52%</td>
<td>23.04%</td>
<td>8.08%</td>
<td>22.84%</td>
<td>28.68%</td>
</tr>
<tr>
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<td>12.20%</td>
<td>31.86%</td>
<td>42.38%</td>
<td>33.64%</td>
<td>13.52%</td>
<td>30.22%</td>
<td>39.46%</td>
</tr>
<tr>
<td>85%</td>
<td>18.26%</td>
<td>38.84%</td>
<td>51.92%</td>
<td>43.84%</td>
<td>19.52%</td>
<td>37.82%</td>
<td>48.16%</td>
</tr>
<tr>
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<td>21.54%</td>
<td>45.82%</td>
<td>57.80%</td>
<td>48.84%</td>
<td>26.52%</td>
<td>44.76%</td>
<td>55.24%</td>
</tr>
</tbody>
</table>

*(note: local examples uses in each workshop location)*

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### Evaluating Choices:

**McLean Illinois**

**Estimated Net Average Cost of Insurance (as of sign-up date)**

<table>
<thead>
<tr>
<th>Coverage Election</th>
<th>APH</th>
<th>RA-BP</th>
<th>RA-HP</th>
<th>CRC</th>
<th>GRP</th>
<th>GRIP</th>
<th>GRIP - HR</th>
</tr>
</thead>
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<tr>
<td>50%</td>
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<td></td>
<td></td>
<td>$2.92</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55%</td>
<td>$1.44</td>
<td></td>
<td></td>
<td>$3.87</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60%</td>
<td>$1.72</td>
<td></td>
<td></td>
<td>$4.80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65%</td>
<td>$2.22</td>
<td>-$1.03</td>
<td>-$0.68</td>
<td>$5.87</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70%</td>
<td>$2.21</td>
<td>-$2.03</td>
<td>-$1.91</td>
<td>$5.98</td>
<td>$0.95</td>
<td>-$10.24</td>
<td>-$11.24</td>
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<tr>
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<td>-$2.52</td>
<td>-$2.46</td>
<td>$6.41</td>
<td>$0.21</td>
<td>-$13.81</td>
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<td>80%</td>
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<td>-$0.84</td>
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<td>-$0.72</td>
<td>-$19.46</td>
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</tr>
<tr>
<td>85%</td>
<td>$2.13</td>
<td>$4.02</td>
<td>$5.54</td>
<td>$9.86</td>
<td>-$3.15</td>
<td>-$23.90</td>
<td>-$37.83</td>
</tr>
<tr>
<td>90%</td>
<td></td>
<td>-$6.31</td>
<td>-$24.53</td>
<td>-$6.21</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*(note: local examples uses in each workshop location)*
Risk Reduction Impacts:

Probabilities of Revenue With Insurance

Probability
No Insurance
RA
HP 85%
CRC 85%
GRP 90%
GRIP HP 90%

Revenue ($/ acre)

$175 $275 $375 $475 $575 $675 $775

Risk Reduction Impacts Vary by Product

<table>
<thead>
<tr>
<th>Product</th>
<th>50%</th>
<th>55%</th>
<th>60%</th>
<th>65%</th>
<th>70%</th>
<th>75%</th>
<th>80%</th>
<th>85%</th>
<th>90%</th>
</tr>
</thead>
<tbody>
<tr>
<td>APH</td>
<td>-0.19</td>
<td>-0.22</td>
<td>-0.26</td>
<td>-0.30</td>
<td>-0.37</td>
<td>-0.44</td>
<td>-0.49</td>
<td>-0.55</td>
<td></td>
</tr>
<tr>
<td>RA-BP</td>
<td>-0.28</td>
<td>-0.34</td>
<td>-0.40</td>
<td>-0.45</td>
<td>-0.49</td>
<td>-0.54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RA-HP</td>
<td>-0.31</td>
<td>-0.37</td>
<td>-0.43</td>
<td>-0.49</td>
<td>-0.54</td>
<td>-0.59</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRC</td>
<td>-0.22</td>
<td>-0.26</td>
<td>-0.31</td>
<td>-0.37</td>
<td>-0.43</td>
<td>-0.49</td>
<td>-0.54</td>
<td>-0.58</td>
<td></td>
</tr>
<tr>
<td>GRP</td>
<td>-0.18</td>
<td>-0.21</td>
<td>-0.25</td>
<td>-0.28</td>
<td>-0.31</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRIP</td>
<td>-0.19</td>
<td>-0.22</td>
<td>-0.25</td>
<td>-0.29</td>
<td>-0.32</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRIP-HR</td>
<td>-0.23</td>
<td>-0.26</td>
<td>-0.30</td>
<td>-0.33</td>
<td>-0.36</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

IL Averages based on iFARM simulation models
Future Issues:

- Enterprise unit subsidy adjustment in 2009 – intended to more nearly equalize dollar subsidy to that under basic/optional units.
- Conversion of price limits (CRC, GRIP, RAHP) to 2*base price and no downside limit. No treatment of ave-Feb vs. end-of-Feb prices....
- Revised A&O, reduced group policy subsidy rates.
- BE and related endorsements simplified/expanded.
- Potential New Products, “Combo” in 2011
- Base and indemnity price convergence – 2011.

Thanks!

farmdoc Crop Insurance main page:
http://www.farmdoc.uiuc.edu/cropins/index.asp

email questions or comments:
sherrick@illinois.edu
The New Farm Bill: Analyzing Your Options

Nick Paulson
University of Illinois
npaulson@illinois.edu

Commodity Program Options

- Producers have choice between:
  - (1) Traditional programs
    - Direct payments
    - Countercyclical payments
    - Marketing loans
  - (2) ACRE option
    - Direct payments with 20% cut
    - ACRE revenue plan
    - Marketing loans with 30% cut in loan rates
Commodity Program Options

- The choice between program options
  - Starts with 2009 crop year
  - Traditional programs are default
  - If/when ACRE is chosen, that choice lasts through the life of the Farm Bill (through 2012)
  - Choice most likely made on FSA farm id basis

Traditional Programs

- Maintains direct payments, countercyclical payments, marketing loan programs as in 2002 farm bill
  - Adjustments to loan rates and target prices
  - No base acre or yield adjustments
  - 83.3% payment rates for '09-'11

- Payment Limits
  - Direct $40,000
  - Countercyclical $65,000
  - Marketing loan gains unlimited
### Traditional Programs

#### Counter-cyclical program
- Makes payments when season average prices are below trigger prices.

<table>
<thead>
<tr>
<th></th>
<th>Corn</th>
<th>Soybeans</th>
<th>Wheat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target price</td>
<td>$2.63</td>
<td>$6.00</td>
<td>$4.17</td>
</tr>
<tr>
<td>Direct Payment Rate</td>
<td>$0.28</td>
<td>$0.44</td>
<td>$0.52</td>
</tr>
<tr>
<td>Trigger Price</td>
<td>$2.35</td>
<td>$5.56</td>
<td>$3.65</td>
</tr>
<tr>
<td>Loan Rate</td>
<td>$1.95</td>
<td>$5.00</td>
<td>$2.94</td>
</tr>
<tr>
<td>Maximum Payment Rate</td>
<td>$0.40/bu</td>
<td>$0.56/bu</td>
<td>$0.71/bu</td>
</tr>
</tbody>
</table>
ACRE Program

- ACRE based on a state-level revenue index for each program crop
  - ACRE is a put option on state-level revenue
  - Guarantees 90% of expected revenue

- Yield Component: 5-year average of state yields

- Price Component: 2-year average of national prices

ACRE Program

- Payments are based on planted acreage
  - Limited to base acreage total
  - If planted acres > base, farmer chooses which acres to enroll

- Payment limits
  - Direct: $40,000 minus 20% of DP ($32k)
  - ACRE: $65,000 plus 20% of DP ($73k)
  - Marketing loan gains unlimited (but lower loan rates)
ACRE Program

- Eligibility – “Double Trigger” program
  - Actual state revenue must fall below state guarantee level
  - Actual farm revenue must fall below farm guarantee level

- Implications
  - Losses could be triggered at state level, but not at farm level (farmer would not receive a payment)
  - Losses could be triggered at farm level, but not at state level (nobody would receive a payment)

ACRE Program

- Payments are crop specific, but whole farm must be enrolled in ACRE
  - Example: Cannot enroll corn base under ACRE and soybean base under traditional

- Revenue guarantee cannot change by more than 10% from previous year
  - 10% “cups” and “caps”
ACRE Payment Mechanics

- ACRE Payments are made if:
  - State revenue falls below state trigger
  - Farm revenue falls below farm trigger

- Payment Calculations
  - 0.833 x State Revenue Loss x Farm Yield Factor
    - State Revenue Loss = Revenue Guarantee – Actual Revenue
    - Farm Yield Factor = (Farm Yield/State Yield)

2009 ACRE Yield Component

<table>
<thead>
<tr>
<th></th>
<th>Corn</th>
<th>Soybeans</th>
<th>Wheat</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>180</td>
<td>-50-</td>
<td>59</td>
</tr>
<tr>
<td>2005</td>
<td>143</td>
<td>46.5</td>
<td>61</td>
</tr>
<tr>
<td>2006</td>
<td>163</td>
<td>48</td>
<td>-67-</td>
</tr>
<tr>
<td>2007</td>
<td>175</td>
<td>-43-</td>
<td>-57-</td>
</tr>
<tr>
<td>2008</td>
<td>179*</td>
<td>46*</td>
<td>64</td>
</tr>
<tr>
<td>2009 Yield Guarantee</td>
<td>172*</td>
<td>47*</td>
<td>61</td>
</tr>
</tbody>
</table>

*Projected
### 2009 ACRE Price Component

<table>
<thead>
<tr>
<th></th>
<th>Corn</th>
<th>Soybeans</th>
<th>Wheat</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>$4.20</td>
<td>$10.10</td>
<td>$6.48</td>
</tr>
<tr>
<td>2008*</td>
<td>$4.00*</td>
<td>$9.00*</td>
<td>$6.70*</td>
</tr>
<tr>
<td>2009 Price Guarantee</td>
<td>$4.10*</td>
<td>$9.55*</td>
<td>$6.59*</td>
</tr>
<tr>
<td>*Projected</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 2008 Illinois Farm Economics Summit

### 2009 Revenue Guarantees

<table>
<thead>
<tr>
<th></th>
<th>Corn</th>
<th>Soybeans</th>
<th>Wheat</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009 Revenue Guarantee</td>
<td>$635</td>
<td>$404</td>
<td>$362</td>
</tr>
<tr>
<td>2010 Guarantee cup/cap</td>
<td>$571</td>
<td>$364</td>
<td>$325</td>
</tr>
<tr>
<td></td>
<td>$698</td>
<td>$444</td>
<td>$398</td>
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</tbody>
</table>

### 2008 Illinois Farm Economics Summit
## ACRE Payment Examples

<table>
<thead>
<tr>
<th></th>
<th>Yield</th>
<th>Price</th>
<th>ACRE Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>180</td>
<td>$3.50</td>
<td>$4.68</td>
</tr>
<tr>
<td>Soybeans</td>
<td>50</td>
<td>$8.00</td>
<td>$3.97</td>
</tr>
<tr>
<td>Wheat</td>
<td>65</td>
<td>$5.50</td>
<td>$4.29</td>
</tr>
</tbody>
</table>

*Remember there is a cap on ACRE payments ($73k)*
ACRE vs. Traditional

- **Chance of payments for 2009:**
  - ACRE – relatively high
  - CCP – relatively low (but getting bigger)

- **Potential size of payments for 2009:**
  - Larger under ACRE, up to payment cap

- **Over time:**
  - ACRE revenue guarantee moves with market
  - CCP based on fixed price levels
  - 10% cup/cap limits are important
  - ACRE payments will tend to occur in consecutive years

---

ACRE vs. Traditional

- **Target price - direct rate**
  - **Break-even (with land)**
  - **Break-even (without land)**

- **Year**
  - 00 01 02 03 04 05 06 07 08 09

---

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Considerations

- ACRE requires producers to give up a portion of guaranteed direct payments
- Double Trigger Rule
  - How closely do your farm’s yields follow the state?
  - ACRE is NOT a substitute for crop insurance
- Operation characteristics
  - Base vs. planted acres
  - Size
  - Land tenure
  - Leverage

Program Option Side-by-Side

<table>
<thead>
<tr>
<th>Traditional Program Option</th>
<th>ACRE Program Option</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct Payments</strong></td>
<td><strong>Direct Payments</strong></td>
</tr>
<tr>
<td>$40,000 limit</td>
<td>$32,000 limit</td>
</tr>
<tr>
<td>Payments reduced by 20%</td>
<td></td>
</tr>
<tr>
<td><strong>Marketing Loan Program</strong></td>
<td><strong>Marketing Loan Program</strong></td>
</tr>
<tr>
<td>No payment limit</td>
<td>No payment limit</td>
</tr>
<tr>
<td>Loan rates reduced by 30%</td>
<td></td>
</tr>
<tr>
<td><strong>Counter-Cyclical Program</strong></td>
<td><strong>ACRE Program</strong></td>
</tr>
<tr>
<td>$65,000 limit</td>
<td>$73,000 limit</td>
</tr>
<tr>
<td>Payments based on:</td>
<td>Payments based on:</td>
</tr>
<tr>
<td>Fixed target prices</td>
<td>State-level revenue</td>
</tr>
<tr>
<td>Base acreage</td>
<td>Planted acreage</td>
</tr>
</tbody>
</table>
Disaster Assistance (SURE)

- **Supplemental Disaster Assistance**
  - Supposedly replaces ad hoc disaster assistance
  - Covers whole farm losses, based on whole-farm revenue

- **Eligibility**
  - (1) Crop insurance must be purchased for all crops
  - (2) Farm located in, or next to, a declared disaster county (or) significant farm-level losses

- **Greatest benefit in areas with high yield variability**
  - greater chance of disaster designation

Income Limitations

<table>
<thead>
<tr>
<th>2002 Farm Bill</th>
<th>2008 Farm Bill</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2.5 million AGI cap unless 75% of income from farming</td>
<td>Direct Payments: $750,000 AGI cap</td>
</tr>
<tr>
<td>Other Commodity Programs: $500,000 AGI cap</td>
<td>Disaster Assistance: $1 million AGI cap unless 66.6% of income from farming</td>
</tr>
</tbody>
</table>
Payment Attribution

- 2008 Farm Bill eliminates the “3-entity” rule
- Program payments will now be directly attributed for payment limit purposes
  - Likely tied back to Social Security Numbers
  - Spouses actively engaged are also eligible
  - Will likely affect organizational structure considerations

Crop Insurance

- Target loss ratio of overall program reduced
- Subsidy rates on area plans reduced
  - GRP
  - GRIP
Additional Resources

- USDA Farm Bill Side-by-Side Comparison
  http://www.ers.usda.gov/FarmBill/2008/

- FSA Homepage
  http://www.fsa.usda.gov/

- FarmPolicy blog
  www.farmpolicy.com/
Illinois Farm Income Outlook

Dale Lattz
University of Illinois
d-lattz@illinois.edu

2008 Illinois Farm Economics Summit
The Profitability of Illinois Agriculture: Looking Ahead in Extraordinary Times

Today’s presentation...

- Some thoughts on the current status of the farm economy
- A look at a few trends on Illinois farms
- Income projections for 2008
- What about 2009?
- Summary and conclusions
Current status of the farm economy

- Extreme commodity price volatility
- Escalating input costs, but some have seem to peaked (fertilizer) and others declining (fuel)
- Continued pressure to raise cash rents when 2009 price and input cost projections do not support it
- More than the usual amount of uncertainty regarding 2009 planting intentions due to higher input costs and commodity price volatility
- The factors outlined above have led to changes in purchasing behavior and applications rates for certain inputs (fertilizer) by some producers

---

Trends on Illinois Grain Farms

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tillable acres</td>
<td>923</td>
<td>959</td>
<td>977</td>
<td>1,005</td>
<td>1,019</td>
<td>14%</td>
</tr>
<tr>
<td>Percent owned</td>
<td>24</td>
<td>24</td>
<td>23</td>
<td>23</td>
<td>23</td>
<td>-4%</td>
</tr>
<tr>
<td>Percent crop share</td>
<td>43</td>
<td>41</td>
<td>40</td>
<td>40</td>
<td>38</td>
<td>-18%</td>
</tr>
<tr>
<td>Percent cash rent</td>
<td>34</td>
<td>36</td>
<td>37</td>
<td>37</td>
<td>39</td>
<td>21%</td>
</tr>
<tr>
<td>Crop returns</td>
<td>381.91</td>
<td>423.44</td>
<td>406.97</td>
<td>480.75</td>
<td>656.68</td>
<td>47%</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>38.71</td>
<td>46.05</td>
<td>53.54</td>
<td>54.86</td>
<td>65.97</td>
<td>40%</td>
</tr>
<tr>
<td>Pesticides</td>
<td>32.94</td>
<td>32.49</td>
<td>36.08</td>
<td>31.16</td>
<td>32.72</td>
<td>6%</td>
</tr>
<tr>
<td>Seed</td>
<td>30.11</td>
<td>32.52</td>
<td>36.10</td>
<td>39.23</td>
<td>46.18</td>
<td>42%</td>
</tr>
<tr>
<td>Crop total</td>
<td>101.76</td>
<td>111.07</td>
<td>125.72</td>
<td>125.26</td>
<td>144.87</td>
<td>33%</td>
</tr>
<tr>
<td>Fuel and oil</td>
<td>10.47</td>
<td>12.80</td>
<td>16.50</td>
<td>18.37</td>
<td>21.03</td>
<td>49%</td>
</tr>
<tr>
<td>Insurance</td>
<td>12.68</td>
<td>14.59</td>
<td>15.09</td>
<td>19.22</td>
<td>25.21</td>
<td>53%</td>
</tr>
</tbody>
</table>

Source: Illinois FBFM Association
Projecting 2008 incomes

- Use a sample of Illinois FBFM grain farms with historical financial records.
- Use projections of yields and prices to determine revenue for each farm.
- Adjust historical expenses and financial data for each farm.
- Project net farm income and net worth change for each farm in the sample.

Sample Farms by Size

- 701 grain farms
- Average farm: 1,002 total acres, 786 operator acres
Good Corn and Soybean Yields

2008 corn yield second highest ever

Increasing/Decreasing Grain Prices*

* Marketing year average for Illinois
Key Assumptions

- Estimated prices received / year end inventory price
  - Corn: $3.50 / bu.
  - Soybeans: $8.50 / bu.
  - Wheat: $6.30 / bu.
- Only farm program payments are direct payments, no LDP’s or CC payments
- No estimate of crop insurance income included but there will be some payments

Key Assumptions – cont.

- Marketing margins on old crop
  - Corn: Gain of $0.96/bu. – 67% of crop ($4.71)
  - Soybeans: Gain of $1.73/ bu. – 63% of crop ($11.73)
- Pricing opportunities on new crop
  - Corn – 25% sold at $4.50 ($1.00 over inv.)
  - Soybeans – 25% sold at $10.25 ($1.75 over inv.)
- Use NASS November report of district projections of yields
### Estimated Yields

<table>
<thead>
<tr>
<th>Crop Reporting District</th>
<th>Soybean Yield</th>
<th>Corn Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northwest</td>
<td>52</td>
<td>50</td>
</tr>
<tr>
<td>Northeast</td>
<td>51</td>
<td>48</td>
</tr>
<tr>
<td>West</td>
<td>48</td>
<td>51</td>
</tr>
<tr>
<td>Central</td>
<td>54</td>
<td>53</td>
</tr>
<tr>
<td>East</td>
<td>55</td>
<td>51</td>
</tr>
<tr>
<td>West Southwest</td>
<td>49</td>
<td>51</td>
</tr>
<tr>
<td>East Southeast</td>
<td>49</td>
<td>45</td>
</tr>
<tr>
<td>Southwest</td>
<td>33</td>
<td>50</td>
</tr>
<tr>
<td>Southeast</td>
<td>37</td>
<td>44</td>
</tr>
<tr>
<td>NASS Weighted Average</td>
<td>49</td>
<td>49</td>
</tr>
</tbody>
</table>

November 2008 NASS projections. Yields adjusted to represent differences between NASS and FBFM.

### Other Key Assumptions

- Average increase in farm size -- 3.0%
- Operating expenses adjustments from 2007
  - Crop expenses -- 25% increase
  - Fuel and oil -- 30% increase
  - Other machinery expenses -- 10% increase
  - All other expenses -- 15% increase
- Machinery economic depreciation -- 10% increase
- Land values -- 15% increase
- Interest expense – no change
Net Farm Income

2004 $92,614
2005 58,204
2006 94,617
2007 197,736

2008 $180,000 – $200,000 Estimate

About $66,600 of income due to marketing gain from 2007 crop sold in 2008.

Net farm income does not include:

- Payments for operator labor/family withdrawals
- Nonfarm income
- Income and SE taxes

Net Farm Income 2001 - 2008

Figure 1. Average Net Farm Income on 701 Grain Farms Enrolled in FBFM, 2001 - 2008.

* 2008 Estimated 2001 – 2008 average net farm income = $95,987!!
Sensitivity of Estimate

<table>
<thead>
<tr>
<th>One bushel change in</th>
<th>Change in Average Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn yields</td>
<td>$ 1,800</td>
</tr>
<tr>
<td>Soybean yields</td>
<td>2,500</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Change in effective price</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn price - $.10</td>
<td>$ 8,500</td>
</tr>
<tr>
<td>Soybean price - $.25</td>
<td>3,500</td>
</tr>
</tbody>
</table>

Impact of Grain Prices

- Corn-$2.50  Soybeans-$6.25  NFI-$76,390
- Corn-$3.00  Soybeans-$7.50  NFI-$136,800
- Corn-$3.50  Soybeans-$8.50  NFI-$193,600
- Corn-$4.00  Soybeans-$10.00  NFI-$257,500
### Net Farm Income by Region

#### 2008 Net Farm Income by Region

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Northwest</td>
<td>$82,346</td>
<td>$42,473</td>
<td>$87,713</td>
<td>$204,997</td>
<td>$223,235</td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>$81,551</td>
<td>$35,078</td>
<td>$126,333</td>
<td>$216,501</td>
<td>$179,432</td>
<td></td>
</tr>
<tr>
<td>Central &amp; West</td>
<td>$84,872</td>
<td>$48,973</td>
<td>$92,557</td>
<td>$205,547</td>
<td>$215,217</td>
<td></td>
</tr>
<tr>
<td>East</td>
<td>$92,200</td>
<td>$71,320</td>
<td>$97,176</td>
<td>$208,670</td>
<td>$193,015</td>
<td></td>
</tr>
<tr>
<td>West Southwest</td>
<td>$114,462</td>
<td>$68,675</td>
<td>$109,196</td>
<td>$212,677</td>
<td>$239,966</td>
<td></td>
</tr>
<tr>
<td>East Southeast</td>
<td>$105,515</td>
<td>$76,022</td>
<td>$96,866</td>
<td>$215,991</td>
<td>$146,766</td>
<td></td>
</tr>
<tr>
<td>Southwest</td>
<td>$79,940</td>
<td>$52,054</td>
<td>$46,403</td>
<td>$120,614</td>
<td>$146,660</td>
<td></td>
</tr>
<tr>
<td>Southeast</td>
<td>$93,621</td>
<td>$65,607</td>
<td>$87,974</td>
<td>$121,860</td>
<td>$133,054</td>
<td></td>
</tr>
<tr>
<td>NASS Weighted Average</td>
<td>$92,614</td>
<td>$58,204</td>
<td>$94,617</td>
<td>$197,736</td>
<td>$193,613</td>
<td></td>
</tr>
</tbody>
</table>

---

2008 Illinois Farm Economics Summit

---

2008 Net Farm Income by Region

$223,200 -> $179,400

$167,300 -> $193,000

$255,900 -> $146,800

$240,000 -> $146,700

$146,700 -> $133,000

---

2008 Illinois Farm Economics Summit
Change in Net Farm Income
2007 to 2008

<table>
<thead>
<tr>
<th>Region</th>
<th>Change in Net Farm Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEST</td>
<td>$18,200</td>
</tr>
<tr>
<td>SOUTH</td>
<td>$31,800</td>
</tr>
<tr>
<td>EAST</td>
<td>$26,000</td>
</tr>
<tr>
<td>EAST SOUTHWEST</td>
<td>$27,300</td>
</tr>
<tr>
<td>SOUTHWEST</td>
<td>$11,200</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Region</th>
<th>Change in Net Farm Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOUTHEAST</td>
<td>$-15,700</td>
</tr>
<tr>
<td>SOUTHWEST</td>
<td>$-69,200</td>
</tr>
<tr>
<td>EAST SOUTHWEST</td>
<td>$-16,400</td>
</tr>
<tr>
<td>WEST</td>
<td>$-37,100</td>
</tr>
</tbody>
</table>

Changes to Net Worth

<table>
<thead>
<tr>
<th>Component</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Income</td>
<td>$193,613</td>
</tr>
<tr>
<td>- Family Living</td>
<td>71,725</td>
</tr>
<tr>
<td>+ Nonfarm Income</td>
<td>33,690</td>
</tr>
<tr>
<td>- Income Taxes</td>
<td>31,539</td>
</tr>
<tr>
<td>+/- Valuation Change</td>
<td>104,329</td>
</tr>
</tbody>
</table>

Total Change in Net Worth 2007 to 2008: $228,368

Assumptions:
- 15.0% increase in land values
- no change in machinery values
Significance of Government Payments

Average
Net Farm Income $193,613
Government Payments 16,930

Direct payments 16,930
Counter-cyclical payments 0
Loan deficiency payments 0

<table>
<thead>
<tr>
<th>Direct Payment</th>
<th>Counter Cyclical Payment</th>
<th>LDP Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>0.28</td>
<td>Corn 0.00</td>
</tr>
<tr>
<td>Soybeans</td>
<td>0.44</td>
<td>Soybeans 0.00</td>
</tr>
<tr>
<td>Wheat</td>
<td>0.52</td>
<td>Wheat 0.00</td>
</tr>
</tbody>
</table>

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What about 2009??

- **Disclaimer** - high probability of error in projections due to more than the usual amount of variability in input costs and grain prices, let alone yield estimations, but……
- Five year average trend yield for corn and soybeans, 180 bu./acre corn yield and 52 bu./acre soybean yield – Illinois
- Price projections from Darrel – 2009/10 marketing year price for corn = $4.50 and soybeans = $10.00
- Input cost changes from **2007**, crop costs up 98%, fuel down 20%, other machinery up 17%, other operating and overhead expenses up 35% (cash rent, insurance, etc.)

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What about 2009?? - results

- Corn-$4.50  Soybeans-$10.00  NFI=$116,118  
  (Darrel’s presentation)

- Corn-$3.50  Soybeans-$8.50  NFI=$6,579  
  (2008 end of year prices used in study)

- Corn-$3.00  Soybeans-$7.25  NFI=($55,786)  
  (Let’s not think about this!!)

- Corn-$4.00  Soybeans-$9.75  NFI=$69,000  
  (To cover farm operating costs and family living expense)

Conclusions and Summary

- Grain farms only, limited livestock returns
- Excellent corn yields, good soybean yields. Although declining, relatively good expected average prices received for corn and soybeans results in good incomes for 2008 for many producers
- Positive marketing margin from 2007 crop sold in 2008 a significant contribution to 2008 income (about one third)
- Government payments only 9% of net farm income
- Significant increase in some input costs in 2008
Conclusions and Summary – cont.

- Good incomes across most areas of the state, some regions higher and some lower than 2007
- Financial positions remains strong due to good incomes and strong asset values (land), but have we hit the peak for now
- Projections for 2009 look less optimistic due to higher input costs and lower grain prices
- Much more potential for larger income variability in 2009 due to marketing decisions, pricing of inputs and farmland leasing arrangements, give thought and implement plans for controlling risk

Thank you and have a Happy Holiday Season
Prospects for Crop Production Costs

Gary Schnitkey
University of Illinois
schnitke@illinois.edu

2008 Illinois Farm Economics Summit
The Profitability of Illinois Agriculture: Looking Ahead in Extraordinary Times

Outline

- Projected 2009 costs – pre “financial meltdown” (middle September)
- Projected 2009 costs – post “financial meltdown”
- Break-even prices, corn-minus-soybean returns
- Cash rents
Non-land cost for 2009

- All costs, except those associated with farmland.
- Pre meltdown prices
  - $1,000 per ton anhydrous ammonia
  - $1,000 per ton DAP
  - $900 per ton potash
  - $275 per unit on triple stack corn
  - $200 per unit of refugee corn
2009 Non-land Costs by Region (per acre)

<table>
<thead>
<tr>
<th>Region</th>
<th>Corn</th>
<th>Soybeans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td>$579</td>
<td>$331</td>
</tr>
<tr>
<td>Central, High-productivity</td>
<td>$568</td>
<td>$324</td>
</tr>
<tr>
<td>Central, Low-productivity</td>
<td>$577</td>
<td>$328</td>
</tr>
<tr>
<td>Southern</td>
<td>$555</td>
<td>$303</td>
</tr>
</tbody>
</table>

Not much difference in per acre costs across regions or productivity levels.
Per Acre Change in Costs, 2008 to 2009P

<table>
<thead>
<tr>
<th>Item</th>
<th>Corn</th>
<th>Soybeans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertilizer</td>
<td>$97</td>
<td>$53</td>
</tr>
<tr>
<td>Seed</td>
<td>48</td>
<td>13</td>
</tr>
<tr>
<td>Power *</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Crop insurance</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Interest</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$181</strong></td>
<td><strong>$85</strong></td>
</tr>
</tbody>
</table>

* Includes machinery repairs, depreciation, hire, and fuel.

Post-Meltdown
Crude Oil Prices (Spot Price, Cushing, OK)

<table>
<thead>
<tr>
<th>Date</th>
<th>Pre-Meltdown</th>
<th>Post-Meltdown</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Jan</td>
<td>100</td>
<td>120</td>
</tr>
<tr>
<td>2-Feb</td>
<td>105</td>
<td>120</td>
</tr>
<tr>
<td>2-Mar</td>
<td>107</td>
<td>120</td>
</tr>
<tr>
<td>2-Apr</td>
<td>108</td>
<td>120</td>
</tr>
<tr>
<td>2-May</td>
<td>110</td>
<td>120</td>
</tr>
<tr>
<td>2-Jun</td>
<td>115</td>
<td>120</td>
</tr>
<tr>
<td>2-Jul</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>2-Aug</td>
<td>125</td>
<td>120</td>
</tr>
<tr>
<td>2-Sep</td>
<td>130</td>
<td>120</td>
</tr>
<tr>
<td>2-Oct</td>
<td>135</td>
<td>120</td>
</tr>
<tr>
<td>2-Nov</td>
<td>140</td>
<td>120</td>
</tr>
<tr>
<td>2-Dec</td>
<td>145</td>
<td>120</td>
</tr>
</tbody>
</table>

Wholesale Prices

<table>
<thead>
<tr>
<th>Commodity</th>
<th>September 2008</th>
<th>November 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude Oil, Cash ($ per barrel, OK)</td>
<td>About $100</td>
<td>About $57</td>
</tr>
<tr>
<td>Anhydrous Ammonia ($ per ton, Gulf)</td>
<td>Over $800</td>
<td>About $350</td>
</tr>
<tr>
<td>DAP ($ per ton, Gulf)</td>
<td>Over $1,000</td>
<td>About $550</td>
</tr>
</tbody>
</table>

Above fertilizer prices are wholesale (fertecon.com), as of yet not seen much price decline at retail level.

Above prices will put downward pressure on farmer-paid prices. If prices come down fast, input suppliers may face financial difficulties.
Seed Costs

Per Acre Seed Costs, Projected 2008 and 2009

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>$61</td>
<td>$110</td>
</tr>
<tr>
<td>Soybeans</td>
<td>$43</td>
<td>$53</td>
</tr>
</tbody>
</table>

- USDA projects 90 million planted acres in 2009
  - 4 million more acres in 2008
  - In last 30 years, only 2007 had more corn acres (94 million)
- Difficult to get 90 million acres in 2007 without return changes

Non-land Costs

<table>
<thead>
<tr>
<th></th>
<th>Pre-Meltdown</th>
<th>Post-meltdown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anhydrous price (per ton)</td>
<td>$1,000</td>
<td>$600</td>
</tr>
<tr>
<td>DAP price (per ton)</td>
<td>$1,000</td>
<td>$800</td>
</tr>
<tr>
<td>Potash price (per ton)</td>
<td>$900</td>
<td>$600</td>
</tr>
<tr>
<td>Triple stack price (per unit)</td>
<td>$275</td>
<td>$210</td>
</tr>
<tr>
<td>Refugee price (per unit)</td>
<td>$200</td>
<td>$180</td>
</tr>
</tbody>
</table>

Central Illinois Non-land Costs:

<table>
<thead>
<tr>
<th></th>
<th>Pre-Meltdown</th>
<th>Post-meltdown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn (per acre)</td>
<td>$569</td>
<td>$470</td>
</tr>
<tr>
<td>Soybeans (per acre)</td>
<td>$324</td>
<td>$296</td>
</tr>
</tbody>
</table>

Aggressive cost reductions compared to what is currently observed.
**Break-even Prices - Corn**

Break-even Corn Prices by Region, Pre and Post-Meltdown

<table>
<thead>
<tr>
<th>Region</th>
<th>Cash Rent</th>
<th>Expected Yield</th>
<th>Pre-Meltdown</th>
<th>Post-Meltdown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td>$180</td>
<td>180</td>
<td>$4.22</td>
<td>$3.67</td>
</tr>
<tr>
<td>Central – High</td>
<td>$200</td>
<td>191</td>
<td>$4.02</td>
<td>$3.50</td>
</tr>
<tr>
<td>Central – Low</td>
<td>$160</td>
<td>171</td>
<td>$4.31</td>
<td>$3.73</td>
</tr>
<tr>
<td>Southern</td>
<td>$105</td>
<td>151</td>
<td>$4.37</td>
<td>$3.71</td>
</tr>
</tbody>
</table>

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**Break-even Prices - Soybeans**

Break-even Soybean Prices by Region, Pre and Post Meltdown

<table>
<thead>
<tr>
<th>Region</th>
<th>Cash Rent</th>
<th>Expected Yield</th>
<th>Pre-Meltdown</th>
<th>Post-Meltdown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td>$180</td>
<td>51</td>
<td>$10.02</td>
<td>$9.47</td>
</tr>
<tr>
<td>Central – High</td>
<td>$200</td>
<td>54</td>
<td>$9.74</td>
<td>$9.22</td>
</tr>
<tr>
<td>Central – Low</td>
<td>$160</td>
<td>50</td>
<td>$9.76</td>
<td>$9.20</td>
</tr>
<tr>
<td>Southern</td>
<td>$105</td>
<td>47</td>
<td>$8.89</td>
<td>$8.29</td>
</tr>
</tbody>
</table>

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Corn-Minus-Soybean Returns

- Corn-minus-soybean returns
  \[ \text{corn returns} - \text{soybean returns} \]
  positive number corn is more profitable than soybean

Historic Corn-Minus-Soybean Returns

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td>$44</td>
<td>$60</td>
</tr>
<tr>
<td>Central-High</td>
<td>$42</td>
<td>$60</td>
</tr>
<tr>
<td>Central-Low</td>
<td>$23</td>
<td>$50</td>
</tr>
<tr>
<td>Southern</td>
<td>$43</td>
<td>$32</td>
</tr>
</tbody>
</table>
Expected 2009

- Use pre-meltdown costs
- Project each Wednesday using CBOT futures prices
  - Dec 2009 corn contract
  - Nov 2009 soybean contract
  - Subtract $.50 basis

Dec 10, Projected Corn-Minus-Soybean Returns

Projected Corn-Minus-Soybean Return By Region, Dec 10 Futures Prices

<table>
<thead>
<tr>
<th>Region</th>
<th>Pre-Meltdown Costs</th>
<th>Post-Meltdown Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td>-$50</td>
<td>$31</td>
</tr>
<tr>
<td>Central-High</td>
<td>-$31</td>
<td>$50</td>
</tr>
<tr>
<td>Central-Low</td>
<td>-$73</td>
<td>$8</td>
</tr>
<tr>
<td>Southern</td>
<td>-$110</td>
<td>-$29</td>
</tr>
</tbody>
</table>

Still below the 2004-2007 averages when corn acres increase.

Much of the corn-belt outside of Illinois has central-low and southern Illinois yield and cost structure.
### Cash Rents

Operator and Land Returns, Per Acre

<table>
<thead>
<tr>
<th>Region</th>
<th>$4.50 corn price</th>
<th>$10.00 soybean price</th>
<th>$3.50 corn price</th>
<th>$9.00 soybean price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td>$303</td>
<td>$185</td>
<td>$282</td>
<td>$169</td>
</tr>
<tr>
<td>Central-High</td>
<td>$358</td>
<td>$233</td>
<td>$374</td>
<td>$203</td>
</tr>
<tr>
<td>Central-Low</td>
<td>$282</td>
<td>$169</td>
<td>$311</td>
<td>$183</td>
</tr>
<tr>
<td>Southern</td>
<td>$238</td>
<td>$137</td>
<td>$267</td>
<td>$153</td>
</tr>
</tbody>
</table>

Operator and land return is amount remaining to pay farmland and provide farmer a return.

Above are post meltdown costs.

### Summary

- Will see costs declines, timing is the issue.
- Question: How much corn will we plant
- Will cash rents come down?
Credit Impacts of the Financial Crisis

Paul Ellinger
University of Illinois
pellinge@illinois.edu

2008 Illinois Farm Economics Summit
The Profitability of Illinois Agriculture: Looking Ahead in Extraordinary Times
“Credit is a system whereby a person who can't pay gets another person who can't pay to guarantee that he can pay.”
Charles Dickens

“Modern man drives a mortgaged car over a bond-financed highway on credit-card gas.”
Earl Wilson

“There is no such thing as a free lunch.”
Unknown

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Henry Paulson

“Government owning a stake in any private U.S. company is objectionable to most Americans – me included. Yet the alternative of leaving businesses and consumers without access to financing is totally unacceptable. When financing isn’t available, consumers and businesses shrink their spending, which leads to businesses cutting jobs and even closing up shop.”

May we live in interesting times

- Bloomberg Financial Conditions Index
- October
  - 9.5 std. dev.
  - = winning lotto
    - 2 times in one week

Today
- 7.5 std. dev.
Growth of the crisis

- **Seeds of crisis**
  - Risk taking in housing
    - Homeowners
    - Lenders

- **Fertilized by**
  - Low interest rates
  - Leverage on leverage
  - Financial innovations
    - Lenders
    - Investors

Acceleration of growth of the crisis

- **Global spread**
  - Accentuated by leverage
  - Interconnectedness of financial/investment markets
  - Counterparty risks
  - Lack of transparency
  - Just how big?
  - Evolution of reliance on short-term funding markets/mechanisms
Source: Business Week

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2007 Foreclosure Rates

For current data: See NY Fed Dynamic Maps
Bank Run

Old fashion
- Depositors get worried
- Withdraw deposits
- Bank runs out of liquidity
- Liquidate assets

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Bank Run

2008 version
- Investment banks funded by short-term debt
- Invest in new mortgage based instruments
- A stressed/constrained/failed bank has to sell instruments at fire sale prices
- Other stronger institutions may have to value their securities at these prices, reducing asset value
- Short-term debt providers concerned about valuation and stop lending
- No confidence in market – flight from risk

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What about Agriculture?

Debt Service to Farm Income

If income drops 33%
no change in debt

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The Profitability of Illinois Agriculture: Looking Ahead in Extraordinary Times
Farm Debt to Asset Ratio

Debt to Asset:
Illinois Farmers

Illinois Average 27%

Greater than 60% 5%
Less than 10% 23%
40% to 60% 18%
20% to 40% 34%
10% to 20% 20%

77% less than 40% Debt to Asset

Economic Research Service

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How Much Debt?

- Start with your net income (3 year average)
  - Add depreciation and interest
  - Multiply by 3-5
  - Adequate range of debt to be serviced by cash flow being generated
- Debt to Asset levels below 40%
- Interest Expense/Gross Revenue below 15%

Lenders to Agriculture

- Farm Service Agency: 2,056
  - Individuals and others: 8,617
- Life Insurance companies: 11,152
- Commercial basis: 40,598
- Farm Credit System: 45,356
- Farm Service Agency: 2,878
  - Individuals and others: 13,128
- Commercial basis: 55,475
- Farm Credit System: 32,252
Total Farm Debt

Does not include other sectors of the supply chain

Perspective of $215 Billion

Does not include
Asset bank commercial paper MM Mutual Fund facil
Temporary guarantee for MM funds

Source: WSJ

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Credit Availability
Primary Sources of Funds

Community Banks
Regional and Large Banks
Farm Credit System
Insurance Companies
Captive Finance
Government

Equity & Earnings
Deposits
Short - Medium Term Borrowings
Issue Bonds and Notes
Premiums
Asset Backed Securities

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Individual Lenders in Production Agriculture

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The Profitability of Illinois Agriculture: Looking Ahead in Extraordinary Times

How Many Farms Does It Take?
Value of Ag Output - $200 Billion

- 389 Farms
- 30,495 Farms
- 34,085 Farms
- 3,201 Farms
- 2,000,000 Farms

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How Many Banks Does It Take?
% of Commercial Bank Loans to Agriculture

15 Banks 474 Banks

821 Banks

332 Banks 5,184 Banks

0% 20% 40% 50% 100%

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Crisis Initial Impact on Commercial Banks

- Dog bone
  - Farm and bank size
- Regional differences
- Fed actions
  - Insurance & Capital infusions
- Potential for enhanced documentation/underwriting/regulation
- Potential exposures to interest rate risk

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Farm Credit System

- Government Sponsored Entity (GSE)
- Strong capital position
- Acquires funds via capital markets
  - Unintended consequences of gov’t actions
  - Funding costs spreads have increased
  - Longer term bonds harder to place
  - Vulnerabilities: Securities portfolio & Pilgrims Pride
- Key lenders to elevators/input suppliers
- Growth in some assn. slowed by Farmer Mac limitations

Farmer Mac

- Another agricultural GSE
- Guarantee portfolio quality remains strong (11/10)
- Focus on increasing capital
- $65 Million infusion from Farm Credit System
  - Investments in Fannie and Lehman, impairment losses $97 million
- FCS standbys now more limited
- Similar issues in funding to Farm Credit System
Insurance Companies

- Typically, larger real estate loans
  - Dependence on larger farms access to working capital
- Some evidence of scaling back new lending
  - capital and earnings related

Captive Finance Suppliers

- Asset back security market dried up
- Commercial paper more limited
- Input suppliers facing cash flow stresses of volatile product prices
Summary: Agricultural Lenders - Shorter term

- Current financial health, in general, strong
- Credit generally availability for traditional farmers
- 2008 farmer earnings/payback in Midwest relatively secure
  - Grain farmers v protein markets
- Increased risk spreads, partially offset by cost of funds declining

Summary: Agricultural Lenders - Shorter term, cont.

- Longer term fixed-rate financing may be limited
- Largest impact on credit availability will likely be the affects the economic crisis has on profit margins and land values
- Operating lenders may feel impact first if cash rents don’t adjust
Summary: Other Issues in the Ag Finance Landscape

- Some agribusiness financing concerns:
  - Ethanol
  - Grain elevators
  - Input suppliers
  - Trade letters of credit
- If crisis deepens, domino potential in agriculture

Challenges: Producer Risk Pipeline

- Commodity price risks
- Input price risks
- Cash rent
- Interest rate risks
- Counterparty risks

Pushed back to producer
Financial Strategies to Fly Above the Turbulence

- Monitor and maintain liquidity
- Internal budgeting
- Understand risk management alternatives
- Communication with your lender/land owner
- Plan for higher income taxes

2008 Illinois Farm Economics Summit

Thank You

Dr. Paul Ellinger, professor
University of Illinois
217-333-5503
pellinge@illinois.edu
www.farmdoc.uiuc.edu/ellinger/

It is almost next year!!

2008 Illinois Farm Economics Summit
Crop Value and Volatility in a New Era

Scott Irwin
University of Illinois
sirwin@illinois.edu

2008 Illinois Farm Economics Summit
The Profitability of Illinois Agriculture: Looking Ahead in Extraordinary Times

"Prices have changed so much for what we sell and buy that it is almost impossible to feel confident in the decisions you make."

-- Agriculture Online, July 5, 2008
Monthly Farm Price of Corn in Illinois, January 1947- November 2008*

*November: mid-month

Monthly Farm Price of Corn in Illinois, January 1947- November 2008 and Projected Future Range*

*H: High, A: Average, L: Low

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Monthly Farm Price of Soybeans in Illinois, January 1947-November 2008 and Projected Future Range*

- High Price: $17.56
- Average Price: $10.58
- Low Price: $7.51

Monthly Farm Price of Wheat in Illinois, January 1947-November 2008 and Projected Future Range*

- High Price: $10.15
- Average Price: $5.80
- Low Price: $3.30

*H: High, A: Average, L: Low
Take Home Points: Part 1

- Evidence suggests that prices are likely establishing a higher average
- $3 corn, $8 soybeans, and $3.50 wheat are not inconsistent with new price range
- Prices can quickly rebound to much higher levels (see 73-75!)
- Concern: Long-lasting, world-wide economic contraction


- Avg.=$19.18
- Avg.=$44.74
Weekly Crude Oil Futures Price and Corn Price at Iowa Ethanol Plants, 01/26/07-12/05/08

Relationship Between Nearby Crude Oil Futures Price and Corn Price at Iowa Ethanol Plants, 01/26/08-12/05/08

\[ y = 0.0369x + 1.0025 \]

\[ R^2 = 0.7409 \]
Crude Oil

Gasoline

Ethanol

Corn

Weekly Crude Oil Futures Price and RBOB Gasoline Futures Price, 01/26/07-12/05/08
Relationship Between Weekly Crude Oil Futures Price and RBOB Gasoline Futures Price, 01/26/07-12/05/08

\[ y = 0.0212x + 0.4807 \]

\[ R^2 = 0.8508 \]

---

Weekly RBOB Gasoline Futures Price and Ethanol Price at Iowa Plants, 01/26/07-12/05/08
Relationship Between Weekly RBOB Gasoline Futures Price and Ethanol Price at Iowa Plants, 01/26/07-12/05/08

\[ y = 0.67x + 0.51 \]

\[ y = 0.4484x + 1.0097 \]

\[ R^2 = 0.6274 \]

Weekly Ethanol and Corn Prices at Iowa Plants, 01/26/07-12/05/08

Ethanol (right-scale)

Corn (left-scale)

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Relationship between Corn and Ethanol Price at Iowa Plants, 01/26/07-12/05/08

\[ y = 2.6914x - 1.2926 \]
\[ R^2 = 0.6664 \]

Corn Price $/bu.

Ethanol Price ($/bu.)

Computing the Maximum Price that an Ethanol Processor Can Bid for a Bushel of Corn

**Gross Revenue:**
- Ethanol: $1.50/gal x 2.8 gal./bu. = $4.20/bu.
- DDGS: $120/ton/2,000 x 17.75 lbs./bu. = $1.06/bu.
- Total: $5.26/bu.

**Non-Corn Costs**
- Variable: $1.34/bu.
- Fixed: $0.56/bu.
- Total: $2.00/bu.

**Maximum Bid Price for Corn:** $3.26/bu.
Weekly Price of Corn and Maximum Bid Price at Iowa Ethanol Plants, 01/26/07-12/05/08

![Graph showing weekly price of corn and maximum bid price at Iowa ethanol plants from 01/26/07 to 12/05/08.](image)

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---

**Fundamental Values Relative to Ethanol**

<table>
<thead>
<tr>
<th>Ethanol Price</th>
<th>Corn Price</th>
<th>Soybean Price</th>
<th>Wheat Price</th>
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<td>1.20</td>
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<td>5.16</td>
<td>2.63</td>
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<td>6.16</td>
<td>3.14</td>
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<td><strong>2.93</strong></td>
<td><strong>7.17</strong></td>
<td><strong>3.66</strong></td>
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<td><strong>1.50</strong></td>
<td><strong>3.34</strong></td>
<td><strong>8.17</strong></td>
<td><strong>4.17</strong></td>
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<tr>
<td>1.60</td>
<td>3.75</td>
<td>9.18</td>
<td>4.68</td>
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<tr>
<td>1.70</td>
<td>4.15</td>
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<td>5.19</td>
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<tr>
<td>1.80</td>
<td>4.56</td>
<td>11.18</td>
<td>5.71</td>
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### Take Home Points: Part 2

- Ethanol processors are the marginal bidders for corn in the short- to intermediate-run.
- Volatility in energy markets is transmitted directly into agricultural markets.
- Each step of the energy chain between crude oil and corn is a source of risk.
- Energy policies will play a key role in determining ethanol prices in 2009.

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Average Illinois Corn Prices

US Soybean Production
Average Illinois Wheat Prices

<table>
<thead>
<tr>
<th>Year</th>
<th>Price ($/bu.)</th>
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<tbody>
<tr>
<td>1985/1986</td>
<td>1.00</td>
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<td>1986/1987</td>
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<tr>
<td>1987/1988</td>
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<td>1988/1989</td>
<td>4.00</td>
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<td>1989/1990</td>
<td>5.00</td>
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<tr>
<td>1990/1991</td>
<td>6.00</td>
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US Commercial Pork Production

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (millions of pounds)</th>
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<tbody>
<tr>
<td>1989</td>
<td>13000</td>
</tr>
<tr>
<td>1991</td>
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<td>2007</td>
<td>22000</td>
</tr>
<tr>
<td>2009</td>
<td>23000</td>
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</table>

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Average Illinois Hog Prices

US Commercial Beef Production

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