Corn and Soybean Outlook

November 16, 2022
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Overview

- Old crop
- Supply and Demand
- Inflation and Input Costs
- Bridging the price risk gap
Old crop

- Storage is a powerful marketing tool
- Futures prices

<table>
<thead>
<tr>
<th>Contract</th>
<th>Last</th>
<th>Change</th>
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<tbody>
<tr>
<td>ZSY00 (Cash)</td>
<td>1413-0s</td>
<td>+12-0</td>
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<tr>
<td>ZSF23 (Jan '23)</td>
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<td>+16-6</td>
</tr>
<tr>
<td>ZSH23 (Mar '23)</td>
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<td>+17-0</td>
</tr>
<tr>
<td>ZSK23 (May '23)</td>
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<td>ZSN23 (Jul '23)</td>
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<td>ZSQ23 (Aug '23)</td>
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<td>+14-4</td>
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<thead>
<tr>
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<th>Change</th>
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<tbody>
<tr>
<td>ZCY00 (Cash)</td>
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<td>ZCZ22 (Dec '22)</td>
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<td>ZCK23 (May '23)</td>
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<td>ZCN23 (Jul '23)</td>
<td>661-4</td>
<td>+7-6</td>
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</table>
Tennessee Monthly Average Corn Basis At Elevators and Barge Points

### 5-Year Avg

- **Jan**: -0.60
- **Feb**: -0.40
- **Mar**: -0.20
- **Apr**: 0.00
- **May**: 0.20
- **Jun**: 0.40
- **Jul**: 0.60
- **Aug**: 0.80
- **Sep**: 0.20
- **Oct**: 0.00
- **Nov**: -0.20
- **Dec**: -0.40

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### 2022

- **Jan**: -0.60
- **Feb**: -0.40
- **Mar**: -0.20
- **Apr**: 0.00
- **May**: 0.20
- **Jun**: 0.40
- **Jul**: 0.60
- **Aug**: 0.80
- **Sep**: 0.20
- **Oct**: 0.00
- **Nov**: -0.20
- **Dec**: -0.40

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**Real. Life. Solutions.**
Tennessee Monthly Average Soybean Basis At Elevators and Barge Points

Price ($/bu)

Jan  Feb  Mar  Apr  May  Jun  Jul  Aug  Sep  Oct  Nov  Dec

2022  5-Year Average
Tennessee Corn and Soybean Cash Price Increases

Tennessee Corn Average Price Improvement from September by Month, 2013/14 to 2020/21 Marketing Years

Tennessee Soybean Average Price Improvement from September by Month, 2013/14 to 2020/21 Marketing Years
### World Corn Production, Consumption, Ending Stocks, Days-on-hand, and MYA Price, 2013/14-2022/23

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Production</strong></td>
<td>40.44</td>
<td>41.65</td>
<td>39.95</td>
<td>44.43</td>
<td>42.59</td>
<td>44.44</td>
<td>44.20</td>
<td>44.46</td>
<td>47.93</td>
<td>46.00</td>
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<td><strong>Use</strong></td>
<td>37.43</td>
<td>38.39</td>
<td>39.45</td>
<td>41.92</td>
<td>43.12</td>
<td>44.54</td>
<td>44.62</td>
<td>45.13</td>
<td>46.64</td>
<td>46.07</td>
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<tr>
<td><strong>Ending Stocks</strong></td>
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<td>11.01</td>
<td>12.27</td>
<td>13.85</td>
<td>13.44</td>
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<td>12.10</td>
<td>11.53</td>
<td>12.11</td>
<td>11.84</td>
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<tr>
<td><strong>Days on Hand</strong></td>
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<td>104.7</td>
<td>113.5</td>
<td>120.6</td>
<td>113.8</td>
<td>104.1</td>
<td>99.0</td>
<td>93.2</td>
<td>94.8</td>
<td>93.8</td>
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<tr>
<td><strong>US MYA Price</strong></td>
<td>$4.46</td>
<td>$3.70</td>
<td>$3.61</td>
<td>$3.36</td>
<td>$3.36</td>
<td>$3.61</td>
<td>$3.56</td>
<td>$4.53</td>
<td>$6.00</td>
<td>$6.80</td>
</tr>
</tbody>
</table>

- Global corn supplies are susceptible to continued developments in Ukraine-Russia, South American second crop corn production (speed of soybean harvest), and Northern hemisphere planted acreage estimates.
# U.S. Corn Production, Consumption, Ending Stocks, Days-on-hand, and MYA Price, 2013/14-2022/23

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<tbody>
<tr>
<td><strong>Use</strong></td>
<td>11.53</td>
<td>11.88</td>
<td>11.76</td>
<td>12.35</td>
<td>12.36</td>
<td>12.22</td>
<td>12.18</td>
<td>12.07</td>
<td>12.48</td>
<td>12.02</td>
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<tr>
<td><strong>Exports</strong></td>
<td>1.92</td>
<td>1.87</td>
<td>1.90</td>
<td>2.30</td>
<td>2.44</td>
<td>2.07</td>
<td>1.78</td>
<td>2.75</td>
<td>2.47</td>
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<td><strong>Ending Stocks</strong></td>
<td>1.23</td>
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<td>1.92</td>
<td>1.23</td>
<td>1.38</td>
<td>1.18</td>
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<tr>
<td><strong>Days on Hand</strong></td>
<td>33.4</td>
<td>46.0</td>
<td>46.4</td>
<td>57.1</td>
<td>52.8</td>
<td>56.7</td>
<td>50.2</td>
<td>30.4</td>
<td>33.6</td>
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- U.S. Export sales will be key for projected ending stocks and price direction.
- In Tennessee, the state corn deficit will be amplified until the new crop is harvested (higher basis increased out of state purchases).
### World Soybean Production, Consumption, Ending Stocks, Days-on-hand, and MYA Price, 2013/14-2022/23

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<tbody>
<tr>
<td>Ending Stocks</td>
<td>2.35</td>
<td>2.92</td>
<td>2.91</td>
<td>3.50</td>
<td>3.67</td>
<td>4.20</td>
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<td>3.68</td>
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<tr>
<td>Days on Hand</td>
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<td>95</td>
<td>91</td>
<td>105</td>
<td>107</td>
<td>121</td>
<td>96</td>
<td>100</td>
<td>95</td>
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<tr>
<td>US MYA Price</td>
<td>$13.00</td>
<td>$10.10</td>
<td>$8.95</td>
<td>$9.47</td>
<td>$9.33</td>
<td>$8.48</td>
<td>$8.57</td>
<td>$10.80</td>
<td>$13.30</td>
<td>$14.00</td>
</tr>
</tbody>
</table>

- Global soybean prices will be heavily influenced by South American weather and crop progress.
- China soybean imports from the US and potential geopolitical escalation remains a wild card.
- Strong global demand is projected.
U.S. Soybean Production, Consumption, Ending Stocks, Days-on-hand, and MYA Price, 2013/14-2022/23

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<tr>
<td>Use</td>
<td>1.84</td>
<td>2.02</td>
<td>2.00</td>
<td>2.05</td>
<td>2.16</td>
<td>2.22</td>
<td>2.27</td>
<td>2.24</td>
<td>2.31</td>
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<td>1.64</td>
<td>1.84</td>
<td>1.94</td>
<td>2.17</td>
<td>2.13</td>
<td>1.75</td>
<td>1.68</td>
<td>2.27</td>
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<td>2.04</td>
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<tr>
<td>Ending Stocks</td>
<td>0.09</td>
<td>0.19</td>
<td>0.20</td>
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<td>0.44</td>
<td>0.91</td>
<td>0.52</td>
<td>0.26</td>
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<tr>
<td>Days on Hand</td>
<td>10</td>
<td>18</td>
<td>18</td>
<td>26</td>
<td>37</td>
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<td>48</td>
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- U.S. stocks are projected to be tight, but a lot will depend on competition for export markets with Brazil.
- Increased domestic crush has the potential to provide substantial changes to soybean markets.
Inflation and Interest Rates

- Government Spending
  - Infrastructure & IRA
- Energy Prices
- Supply Chain Disruptions
- Increased Production Costs
- Increased Capital Costs

![Graph showing Bank Prime Rate and Monthly Inflation Rate from 2018-09-01 to 2022-09-01. The graph includes a significant rise in the inflation rate, peaking at 7.7% in 2022-09-01.]
40 Years Of Diesel Fuel Inventory

Million Barrels

Minimum and Maximum Range From 1982 to 2021

2022
106.4 Million Barrels
Down 15% YoY
Fertilizer Price

Liquid Fertilizer Price, 2020-2022

- 10-34-0
- ANHYD (82-0-0)
- UAN28
- UAN32

Dry Fertilizer Price, 2020-2022

- DAP (18-46-0)
- MAP (11-52-0)
- POTASH (0-0-60)
- UREA (46-0-0)
Rising interest rates will cost you money

<table>
<thead>
<tr>
<th>Interest Rate</th>
<th>3.25%</th>
<th>5.5%</th>
<th>7.5%</th>
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<tbody>
<tr>
<td>Interest</td>
<td>$22,114</td>
<td>$37,552</td>
<td>$51,361</td>
</tr>
<tr>
<td>Change</td>
<td>-</td>
<td>$15,438</td>
<td>$29,247</td>
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<tr>
<td>Cost ($/acre)*</td>
<td>$11.06</td>
<td>$18.77</td>
<td>$25.68</td>
</tr>
</tbody>
</table>

* Assumes 2000 acres
What will it cost to produce a crop in 2023?

- Input purchase timing / availability
- Finance charges
- Land costs

- Variable depending on location and yield target
  - 175 bu corn ~ $750-$1,000
  - 50 bu soybeans ~ $400-$700
Bridging the Price Risk Gap

- New crop futures price offerings
  - Corn $6.26/bu
  - Soybeans $13.97/bu
- Target yield
  - Corn 175 bu/acre
  - Soybeans 50 bu/acre
- Projected revenue
  - Corn $1,095/acre
  - Soybeans $699/acre
- Projected cost of production
  - Corn $1,000/acre
  - Soybeans $650/acre
- Breakeven price
  - Corn $5.71
  - Soybean $13.00
- 2023 Dec or Nov Put
  - Corn
    - Strike $5.70
    - Premium $0.35
    - Floor $5.35
  - Soybean
    - Strike $13.00
    - Premium $0.54
    - Floor $12.46
- Can you make up 35 and 54 cents through storage/basis/other marketing?
Corn: Bridging the Price Risk Gap

• On March 1,
  – If Dec Corn > $5.70
    • Option is out-of-the money = exit and recover a portion of the $0.35 cent premium.
  – If $5.35<Dec Corn<$5.70
    • Recover a portion of the premium or maintain position
  – If Dec Corn < $5.35
    • Option is in-the-money ($5.35-Dec Corn) maintain the option position.

• Provides low-cost price protection until crop insurance is determined February 1-28.
Soybean: Bridging the Price Risk Gap

• On March 1,
  – If Nov Soybean > $13.00
    • Option is out-of-the-money = exit and recover a portion of the $0.54 cent premium.
  – If $12.46<Nov Soybean<$13.00
    • Recover a portion of the premium or maintain position
  – If Nov Soybean < $12.46
    • Option is in-the-money ($12.46- Nov Soybean) maintain the option position.

• Provides low-cost price protection until crop insurance is determined February 1-28.
Bridging the Price Risk Gap Summary

• Options can protect against downside price risk in the futures market until crop insurance prices are determined March 1.

• If the Put Option is out of the money recoup a portion of the premium (part of 35 or 54 cents).

• If the Put Option is in the money maintain the position as added protection until sales are made.
Take Home Message

• Input prices are high and are likely to remain high in 2023.

• Remove some of the financial risk between now and when crop insurance guarantees are established.

• Substantial volatility exists in commodity markets.

• Volatility in prices are outside of producer control, managing your price risk is not.
November 16, 2022
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THANK YOU