

Crops Marketing and Management Update

Grains and Forage Center of Excellence

Dr. Todd D. Davis

Assistant Extension Professor – Department of Agricultural Economics

Vol. 2017 (8)

August 21, 2017

Topics in this Month's Update:

1. [USDA Releases Surprising Corn and Soybean Production Estimates](#)
2. [WASDE Update: Market Reacts to Larger than Expected Crops](#)
3. [Corn and Soybean Progress and Condition – Comparing 2017 to Previous Years](#)
4. [Crop Moisture and Weather Outlook Maps](#)
5. [2017 Corn and Soybean Risk Management Opportunities](#)
6. [Comparing Harvest-Time and January Cash Forward Contract Bids and Managing Risk](#)
7. [Projected Corn, Soybean, and Wheat Futures Trading Ranges to July 2018](#)
8. [Risk Management Game Plans for 2017 Corn and Soybeans: August Update](#)
9. [How Do I Get on the Email Distribution List to Receive this Newsletter?](#)

Topic 1. USDA Releases Surprising Corn and Soybean Production Estimates

Corn planted later than average in the Eastern Corn Belt combined with dry and hot weather in the Western Corn Belt during July created expectations of the August *Crop Production* report showing a lower yield than previously projected by USDA. The August *Crop Production* report is the first projection based on farmer survey as well as in-field measurements of the crop. Analysts surveyed before the report expected the 2017 U.S. corn yield at 166.2 bushels/acre (BPA) with the 2017 corn crop projected at 13.855 billion bushels. The analysts were slightly more conservative with their soybean projections but expected the U.S. soybean yield at 47.5 BPA with the 2017 crop pegged at 4.212 billion bushels.

USDA surprised the market with the initial corn yield projected at 169.5 BPA and the soybean yield at 49.4 BPA. These projections were only 1.2 bushels lower for corn than the July projection and 1.4 BPA above the July soybean estimate. Both USDA yield projections were outside the analysts' range of expected corn and soybean yields. These bearishly high yields weighed heavy on a market that was expecting USDA to start signaling that farmers will harvest smaller than expected corn and soybean crops and stocks have the potential to decline.

Table 1 compares the change in the harvested area, yield and production by state to the previous year. USDA projects corn production in the Midwest to be reduced 7.4% from last year. The smaller crop is a combination of lower acres (-2.9%) and lower yields for most of the Midwest states. The exceptions are Michigan (+8.3%), Nebraska (2.8%) and Ohio (+7.5%), which are projected to have larger yields than in 2016. USDA projects these states to harvest a larger corn crop this year than in 2016. Recognize that USDA-NASS is basing this yield projection on the ear count but have not collected test weight data or other variables that improve the yield forecast. Several Midwest states experienced hot and dry weather during pollination, which may have caused the kernels to abort or tip-back in filling ears. Both

problems would reduce projected yield from the August estimate. USDA projects the Midwest corn crop at 12.2 billion bushels, which would be a 7.4% reduction from 2016 if realized (Table 1).

USDA projects the Southern region to harvest a 6.8% smaller corn crop in 2017 as all of the states reduced area from 2016 (Table 1). USDA projects the South to harvest better yields than in 2016; however, only Alabama, Georgia, and Tennessee having yields large enough to offset the impact of the reduced area on production. USDA projections the Southern corn crop at 1.27 billion bushels (Table 1).

| Table 1. Corn Harvested Area, Yield and Production for 2017 (F) and 2016 for Midwestern and Southern States. | | | | | | | | | |
|--|------------------------|---------------|---------------|-----------------|--------------|--------------|------------------------------|---------------|--------------|
| | Harvested Area (1,000) | | % Change in | Yield (Bu/Acre) | | % Change in | Production (Million Bushels) | | % Change in |
| | 2017 (F) | 2016 | Acres | 2017 (F) | 2016 | Yield | 2017 (F) | 2016 | Production |
| Midwest States | | | | | | | | | |
| Illinois | 10,950 | 11,450 | -4.4% | 188 | 197 | -4.6% | 2,059 | 2,256 | -8.7% |
| Indiana | 5,370 | 5,470 | -1.8% | 173 | 173 | +0.0% | 929 | 946 | -1.8% |
| Iowa | 13,100 | 13,500 | -3.0% | 188 | 203 | -7.4% | 2,463 | 2,741 | -10.1% |
| Kansas | 5,000 | 4,920 | +1.6% | 133 | 142 | -6.3% | 665 | 699 | -4.8% |
| Michigan | 2,120 | 2,040 | +3.9% | 170 | 157 | +8.3% | 360 | 320 | +12.5% |
| Minnesota | 7,550 | 8,000 | -5.6% | 183 | 193 | -5.2% | 1,382 | 1,544 | -10.5% |
| Missouri | 3,100 | 3,500 | -11.4% | 162 | 163 | -0.6% | 502 | 571 | -12.0% |
| Nebraska | 9,500 | 9,550 | -0.5% | 183 | 178 | +2.8% | 1,739 | 1,700 | +2.3% |
| North Dakota | 3,450 | 3,270 | +5.5% | 121 | 158 | -23.4% | 417 | 517 | -19.2% |
| Ohio | 3,230 | 3,300 | -2.1% | 171 | 159 | +7.5% | 552 | 525 | +5.3% |
| South Dakota | 4,800 | 5,130 | -6.4% | 140 | 161 | -13.0% | 672 | 826 | -18.6% |
| Wisconsin | 3,050 | 3,220 | -5.3% | 162 | 178 | -9.0% | 494 | 573 | -13.8% |
| Midwest Total | 71,220 | 73,350 | -2.9% | | | | 12,234 | 13,216 | -7.4% |
| Southern States | | | | | | | | | |
| Alabama | 235 | 315 | -25.4% | 165 | 120 | +37.5% | 39 | 38 | +2.6% |
| Arkansas | 665 | 745 | -10.7% | 182 | 171 | +6.4% | 121 | 127 | -5.0% |
| Georgia | 320 | 340 | -5.9% | 178 | 165 | +7.9% | 57 | 56 | +1.5% |
| Kentucky | 1,260 | 1,400 | -10.0% | 171 | 159 | +7.5% | 215 | 223 | -3.2% |
| Louisiana | 460 | 550 | -16.4% | 192 | 165 | +16.4% | 88 | 91 | -2.7% |
| Mississippi | 540 | 720 | -25.0% | 185 | 166 | +11.4% | 100 | 120 | -16.4% |
| North Carolina | 820 | 940 | -12.8% | 140 | 129 | +8.5% | 115 | 121 | -5.3% |
| Oklahoma | 330 | 350 | -5.7% | 115 | 121 | -5.0% | 38 | 42 | -10.4% |
| South Carolina | 315 | 350 | -10.0% | 137 | 127 | +7.9% | 43 | 44 | -2.9% |
| Tennessee | 780 | 830 | -6.0% | 166 | 151 | +9.9% | 129 | 125 | +3.3% |
| Texas | 2,100 | 2,550 | -17.6% | 132 | 127 | +3.9% | 277 | 324 | -14.4% |
| Virginia | 330 | 340 | -2.9% | 140 | 148 | -5.4% | 46 | 50 | -8.2% |
| South Total | 8,155 | 9,430 | -13.5% | | | | 1,269 | 1,362 | -6.8% |
| Other States | 446 | 429 | +4.0% | 159.6 | 157.9 | +1.1% | 71 | 68 | +5.1% |
| United States | 83,496 | 86,748 | -3.7% | 169.5 | 174.6 | -2.9% | 14,153 | 15,148 | -6.6% |

USDA projects the U.S. corn crop at 14.15 billion bushels, which is a 6.6% reduction from the record 2016 crop if realized. This smaller crop would still be the third largest corn crop in history if realized.

USDA projects the Midwest region to harvest a slightly smaller soybean crop than in 2016 (Table 2). While the region increased harvested area by 7.6% over 2016, lower yields are expected to negate the impact of the larger area (Table 2).

Notice that the states with the largest increase in harvested area – North Dakota (+19.2%), Michigan (+11.2%), Kansas (+17.2%) are also projected to have lower yields than last year. North Dakota (-20.5%), Kansas (-14.6%), and Nebraska (-4.9%) have experienced inclement weather as have the rest of the Midwest Region. USDA currently projects that all of the Midwest states will have a lower soybean yield this year than in 2016 (Table 2).

In contrast, USDA projects that the Southern states will almost all harvest higher yielding soybeans this year. USDA projects the Southern region to increase soybean production by 13.6% over last year's crop. This increase is a combination of both increased area (+6.3%) and much better yields than in 2016 (Table 2).

The 2017 U.S. soybean crop is projected at a new record 4.38 billion bushels where the 7.2% increase in harvested area offsets the 5.2% lower projected yield. Again, this production estimate is preliminary, and the market expects USDA to reduce the size of the 2017 corn and soybean crops in future reports.

The December 2017 corn and the November 2017 soybean futures contracts closed sharply lower in the aftermath of the reports. The December 2017 corn futures contract closed \$0.15 ¼ lower on the report day and by August 18 was \$0.20 ½ per bushel lower than the closing price on August 9 (before the report). Soybeans, with the surprising yield increase, closed \$0.33/bushel lower on the report day with selling continuing to a recent contract low

of \$9.24 ¼ on August 15 which was \$0.49/bushel lower than the closing price on August 9. As of August 18, the November 2017 soybean contract is \$0.35 ½ below the price before the release of the August report.

| | Harvested Area (1,000) | | % Change in Acres | Yield (Bu/Acre) | | % Change in Yield | Production (Million Bushels) | | % Change in Production |
|------------------------|------------------------|---------------|-------------------|-----------------|-------------|-------------------|------------------------------|--------------|------------------------|
| | 2017 (F) | 2016 | | 2017 (F) | 2016 | | 2017 (F) | 2016 | |
| Midwest States | | | | | | | | | |
| Illinois | 10,340 | 10,050 | +2.9% | 58 | 59 | -1.7% | 600 | 593 | +1.1% |
| Indiana | 5,890 | 5,640 | +4.4% | 55 | 58 | -4.3% | 324 | 324 | -0.1% |
| Iowa | 9,950 | 9,450 | +5.3% | 56 | 61 | -7.4% | 557 | 572 | -2.5% |
| Kansas | 4,700 | 4,010 | +17.2% | 41 | 48 | -14.6% | 193 | 192 | +0.1% |
| Michigan | 2,290 | 2,060 | +11.2% | 49 | 51 | -3.0% | 112 | 104 | +7.9% |
| Minnesota | 8,150 | 7,500 | +8.7% | 49 | 53 | -6.7% | 399 | 394 | +1.4% |
| Missouri | 5,900 | 5,540 | +6.5% | 49 | 49 | +0.0% | 289 | 271 | +6.5% |
| Nebraska | 5,650 | 5,150 | +9.7% | 58 | 61 | -4.9% | 328 | 314 | +4.3% |
| North Dakota | 7,150 | 6,000 | +19.2% | 33 | 42 | -20.5% | 236 | 249 | -5.2% |
| Ohio | 4,990 | 4,840 | +3.1% | 53 | 55 | -2.8% | 264 | 264 | +0.3% |
| South Dakota | 5,360 | 5,170 | +3.7% | 41 | 50 | -17.2% | 220 | 256 | -14.1% |
| Wisconsin | 2,140 | 1,950 | +9.7% | 48 | 55 | -12.7% | 103 | 107 | -4.2% |
| Midwest Total | 72,510 | 67,360 | +7.6% | | | | 3,625 | 3,641 | -0.4% |
| Southern States | | | | | | | | | |
| Alabama | 440 | 410 | +7.3% | 44 | 32 | +37.5% | 19 | 13 | +47.6% |
| Arkansas | 3,500 | 3,100 | +12.9% | 49 | 47 | +4.3% | 172 | 146 | +17.7% |
| Georgia | 170 | 240 | -29.2% | 44 | 30 | +46.7% | 7 | 7 | +3.9% |
| Kentucky | 1,890 | 1,780 | +6.2% | 52 | 50 | +4.0% | 98 | 89 | +10.4% |
| Louisiana | 1,260 | 1,190 | +5.9% | 53 | 49 | +9.3% | 67 | 58 | +15.7% |
| Mississippi | 2,220 | 2,020 | +9.9% | 52 | 48 | +8.3% | 115 | 97 | +19.1% |
| North Carolina | 1,670 | 1,660 | +0.6% | 38 | 35 | +8.6% | 63 | 58 | +9.2% |
| Oklahoma | 530 | 470 | +12.8% | 27 | 29 | -6.9% | 14 | 14 | +5.0% |
| South Carolina | 370 | 405 | -8.6% | 36 | 31 | +16.1% | 13 | 13 | +6.1% |
| Tennessee | 1,720 | 1,630 | +5.5% | 45 | 45 | +0.0% | 77 | 73 | +5.5% |
| Texas | 150 | 145 | +3.4% | 35 | 31 | +12.9% | 5 | 4 | +16.8% |
| Virginia | 590 | 600 | -1.7% | 37 | 36 | +2.8% | 22 | 22 | +1.1% |
| South Total | 14,510 | 13,650 | +6.3% | | | | 674 | 593 | +13.6% |
| Other States | 45 | 55 | -18.2% | 43.8 | 43.1 | +1.6% | 2 | 2 | -16.8% |
| United States | 88,731 | 82,736 | +7.2% | 49.4 | 52.1 | -5.2% | 4,381 | 4,307 | +1.7% |

Topic 2. WASDE Update: Market Reacts to Larger than Expected Crops

Since everybody “knew” that USDA would reduce the corn and soybean yields used in the balance sheets, the market logically expected ending stocks for both commodities to decline from the July projections. The August projections came as a surprise as USDA currently projects soybean stocks to increase from the July estimate with only a slight reduction in corn ending stocks from the July report.

| Table 3. U.S. Corn Supply and Use | | | | | | Table 4. U.S. Soybean Supply and Use | | | | | |
|---|---------------|---------------|---------------|---------------|-------------------|--------------------------------------|--------------|--------------|--------------|-------------------|--|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | Change from 16-17 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | Change from 16-17 | |
| | | | Estimated | Projected | | | | Estimated | Projected | | |
| Planted Area (million) | 90.6 | 88 | 94.0 | 90.9 | -3.1 | 83.3 | 82.7 | 83.4 | 89.5 | +6.1 | |
| Harvested Area (million) | 83.1 | 80.8 | 86.7 | 83.5 | -3.2 | 82.6 | 81.7 | 82.7 | 88.7 | +6.0 | |
| Yield (bushels/acre) | 171 | 168.4 | 174.6 | 169.5 | -5.1 | 47.5 | 48 | 52.1 | 49.4 | -2.7 | |
| ----- Million Bushels ----- | | | | | | ----- Million Bushels ----- | | | | | |
| Beginning Stocks | 1,232 | 1,731 | 1,737 | 2,370 | +633 | 92 | 191 | 197 | 370 | +173 | |
| Production | 14,216 | 13,602 | 15,148 | 14,153 | -995 | 3,927 | 3,926 | 4,307 | 4,381 | +74 | |
| Imports | 32 | 67 | 55 | 50 | -5 | 33 | 24 | 25 | 25 | +0 | |
| Total Supply | 15,479 | 15,401 | 16,940 | 16,573 | -367 | 4,052 | 4,140 | 4,528 | 4,777 | +249 | |
| Feed and Residual | 5,323 | 5,131 | 5,425 | 5,450 | +25 | 1,873 | 1,886 | 1,890 | 1,940 | +50 | |
| Food, Seed & Industrial | 6,560 | 6,635 | 6,920 | 7,000 | +80 | 1,843 | 1,936 | 2,150 | 2,225 | +75 | |
| Ethanol and by-products | 5,200 | 5,206 | 5,450 | 5,500 | +50 | 96 | 97 | 104 | 101 | -3 | |
| Exports | 1,864 | 1,898 | 2,225 | 1,850 | -375 | 49 | 24 | 14 | 35 | +21 | |
| Total Use | 13,748 | 13,664 | 14,570 | 14,300 | -270 | 3,862 | 3,944 | 4,158 | 4,301 | +143 | |
| Ending Stocks | 1,731 | 1,737 | 2,370 | 2,273 | -97 | 191 | 197 | 370 | 475 | +105 | |
| Stocks/Use | 12.6% | 12.7% | 16.3% | 15.9% | -0.4% | 4.9% | 5.0% | 8.9% | 11.0% | +2.1% | |
| Days of Stocks | 46 | 46 | 59 | 58 | -1 | 18 | 18 | 32 | 40 | +7.8 | |
| U.S. Marketing-Year Average Price (\$/bu) | \$3.70 | \$3.61 | \$3.35 | \$3.30 | -\$0.05 | \$10.10 | \$8.95 | \$9.50 | \$9.30 | -\$0.20 | |

USDA’s projected corn yield of 169.5 BPA is a 1.2 BPA reduction from the July report and trimmed production by 102 million bushels from July. A 14.15 billion bushel corn crop would be 995 million bushels less than 2016 if realized

(Table 3). Projected carry-in of 2.37 billion bushels dampens the effect of a smaller crop. Corn supply is currently pegged to be reduced by 367 million bushels from 2016 (Table 3). USDA reduced new crop feed and export use by 25 million bushels each from the July report which reduced corn use to 14.3 billion bushels. Since USDA projects supply to decrease more than use, ending stocks are expected to be 2.27 billion bushels. With corn stocks only 97 million bushels less than 2016, this minor reduction is projected to keep the U.S. marketing-year average (MYA) price at similar levels to 2016 (Table 3).

USDA increased old-crop soybean use by 40 million bushels due to a 50 million bushel increase in exports and a 10 million bushel reduction in crush. The net result is that old-crop stocks were trimmed 40 million bushels from the July report (Table 4). The 1.4 BPA increase in yield added 121 million bushels to the 2017 soybean crop. Even with a 75 million bushel increase in exports from the July report, the strong soybean demand is not projected to be able to absorb the growth in supply. USDA projects 2017-18 soybean stocks to increase to 475 million bushels (Table 4). Larger stocks will limit soybean price as USDA projects the U.S. MYA soybean price at \$9.30/bushel (Table 4).

| | 2014-15 | 2015-16 | 2016-17 Estimated | 2017-18 Projected | Change from 16-17 |
|---|---------|---------|----------------------|----------------------|----------------------|
| Planted Acres (million) | 56.8 | 55 | 50.2 | 45.7 | -4.5 |
| Harvested Acres (million) | 46.4 | 47.3 | 43.9 | 38.1 | -5.8 |
| Yield (bushels/acre) | 43.7 | 43.6 | 52.6 | 45.6 | -7.0 |
| ----- Million Bushels ----- | | | | | |
| Beginning Stocks | 590 | 752 | 976 | 1,184 | +208 |
| Production | 2,026 | 2,062 | 2,310 | 1,739 | -571 |
| Imports | 149 | 113 | 118 | 150 | +32 |
| Total Supply | 2,766 | 2,927 | 3,403 | 3,074 | -329 |
| Food | 958 | 957 | 949 | 950 | +1 |
| Seed | 79 | 67 | 61 | 66 | +5 |
| Feed and Residual | 122 | 152 | 154 | 150 | -4 |
| Exports | 854 | 775 | 1,055 | 975 | -80 |
| Total Use | 2,014 | 1,952 | 2,219 | 2,141 | -78 |
| Ending Stocks | 752 | 976 | 1,184 | 933 | -251 |
| Stocks/Use | 37.3% | 50.0% | 53.4% | 43.6% | -9.8% |
| Days of Stocks | 136 | 183 | 195 | 159 | -36 |
| U.S. Marketing-Year Average Price (\$/bu) | \$5.99 | \$4.89 | \$3.89 | \$4.80 | +\$0.91 |

Source: August 2017 WASDE - USDA: WAOB.

The wheat balance sheet, which has not had a lot to brag about for a while, has ending stocks projected to move in the right direction – lower.

USDA reduced the 2017 wheat yield by 0.6 BPA from the July report, which reduced the crop by 21 million bushels from July. USDA projects the 2017 wheat crop to be 571 million bushels less than 2016. Export demand is expected to be 80 million bushels less than 2016. Any increase in exports above current projections will aid in the reduction of stocks.

USDA projects wheat stocks to decline to 933 million bushels, which is still a 43.6% stocks-to-use ratio. Lower wheat stocks are expected to support a higher MYA price of \$4.80/bushel, which is a \$0.91/bushel increase from 2016-17 (Table 5).

Topic 3. Corn and Soybean Progress and Condition – Comparing 2017 to Previous Years

The U.S. corn crop is slightly behind the five-year average of reaching the dough stage and 6% behind in reaching the dent stage by August 20 (Table 6). Of the top-five corn states (highlighted yellow), only Indiana is ahead of the five-year average progress for dent stage (Table 6).

| Rank by Production | Dough Stage 8/20/2017 | Change from 5-Year Average | Dent Stage 8/20/2017 | Change from 5-Year Average |
|--------------------|-----------------------|----------------------------|----------------------|----------------------------|
| 15 Colorado | 50% | -8% | 7% | -9% |
| 2 Illinois | 91% | +4% | 41% | -5% |
| 5 Indiana | 80% | +3% | 40% | +6% |
| 1 Iowa | 78% | +3% | 21% | -11% |
| 7 Kansas | 83% | -2% | 40% | -6% |
| 14 Kentucky | 76% | +1% | 57% | +1% |
| 12 Michigan | 56% | -8% | 11% | -2% |
| 4 Minnesota | 72% | -1% | 13% | -11% |
| 8 Missouri | 90% | +1% | 64% | +4% |
| 3 Nebraska | 83% | +0% | 28% | -8% |
| 18 North Carolina | 97% | +1% | 89% | +2% |
| 11 North Dakota | 50% | -9% | 6% | -8% |
| 9 Ohio | 70% | -5% | 16% | -10% |
| 16 Pennsylvania | 47% | -14% | 6% | -17% |
| 6 South Dakota | 65% | -10% | 13% | -8% |
| 17 Tennessee | 96% | +0% | 72% | -1% |
| 13 Texas | 92% | +4% | 77% | +8% |
| 10 Wisconsin | 51% | -3% | 5% | -9% |
| 18-State | 76% | -1% | 29% | -6% |

Source: USDA-NASS: Crop Progress, August 21, 2017.

| Production Rank | Acres Report 6/30/17 | % Very Poor + % Poor Condition 8/20/2017 | Potential Acres in VP&P Condition 8/20/2017 | % Good + % Excellent Condition 8/20/2017 | Potential Acres in G&E Condition 8/20/2017 |
|-------------------|----------------------|--|---|--|--|
| 15 Colorado | 1,400 | 3% | 42 | 81% | 1,134 |
| 2 Illinois | 11,100 | 14% | 1,554 | 54% | 5,994 |
| 5 Indiana | 5,500 | 17% | 935 | 53% | 2,915 |
| 1 Iowa | 13,500 | 12% | 1,620 | 61% | 8,235 |
| 7 Kansas | 5,300 | 14% | 742 | 57% | 3,021 |
| 14 Kentucky | 1,350 | 4% | 54 | 77% | 1,040 |
| 12 Michigan | 2,500 | 12% | 300 | 56% | 1,400 |
| 4 Minnesota | 8,000 | 3% | 240 | 82% | 6,560 |
| 8 Missouri | 3,250 | 9% | 293 | 61% | 1,983 |
| 3 Nebraska | 9,800 | 13% | 1,274 | 63% | 6,174 |
| 18 North Carolina | 880 | 7% | 62 | 72% | 634 |
| 11 North Dakota | 3,700 | 17% | 629 | 50% | 1,850 |
| 9 Ohio | 3,500 | 9% | 315 | 60% | 2,100 |
| 16 Pennsylvania | 1,400 | 1% | 14 | 92% | 1,288 |
| 6 South Dakota | 340 | 27% | 92 | 42% | 143 |
| 17 Tennessee | 840 | 2% | 17 | 86% | 722 |
| 13 Texas | 2,400 | 3% | 72 | 79% | 1,896 |
| 10 Wisconsin | 4,050 | 9% | 365 | 71% | 2,876 |
| 18-State | 78,810 | 12% | 8,618 | 62% | 49,963 |

Source: USDA-NASS: Crop Progress, August 21, 2017; USDA-NASS: Crop Progress, June 30, 2017.

As of August 20, USDA rates 62% of the U.S. corn crop in good or excellent (GE) condition (Table 7). However, only one top-five corn state has more than 70% of the corn in GE condition. USDA projects that 12% of the corn crop in very poor or poor (VPP) condition with one top-five corn state with more than 15% in VPP condition (Table 7). Most of the highly rated GE corn is not in the most productive corn states. Using the *Acreage* survey estimates, about 8.6 million corn acres are potentially in VPP condition and 49.9 in GE condition (Table 7).

| Production Rank | State | Blooming Progress 8/20/2017 | Change from 5-Year Average | Pod Setting 8/20/2017 | Change from 5-Year Average |
|-----------------|----------------|-----------------------------|----------------------------|-----------------------|----------------------------|
| 11 | Arkansas | 99% | +1% | 96% | +5% |
| 1 | Illinois | 100% | +3% | 92% | +5% |
| 5 | Indiana | 96% | -1% | 86% | -2% |
| 2 | Iowa | 97% | -1% | 88% | +0% |
| 10 | Kansas | 95% | +5% | 79% | +13% |
| 15 | Kentucky | 84% | -2% | 71% | +2% |
| 17 | Louisiana | 100% | +0% | 100% | +3% |
| 13 | Michigan | 95% | -4% | 85% | -4% |
| 3 | Minnesota | 100% | +2% | 91% | +1% |
| 12 | Mississippi | 100% | +2% | 96% | +4% |
| 8 | Missouri | 92% | +4% | 75% | +11% |
| 4 | Nebraska | 100% | +0% | 89% | -1% |
| 18 | North Carolina | 90% | +8% | 64% | +2% |
| 9 | North Dakota | 96% | -3% | 88% | -5% |
| 6 | Ohio | 95% | -3% | 83% | -6% |
| 7 | South Dakota | 99% | +1% | 89% | +1% |
| 16 | Tennessee | 94% | +1% | 84% | +5% |
| 14 | Wisconsin | 96% | +1% | 87% | +3% |
| 18-State | | 97% | +0% | 87% | +2% |

Source: USDA-NASS: Crop Progress, August 21, 2017

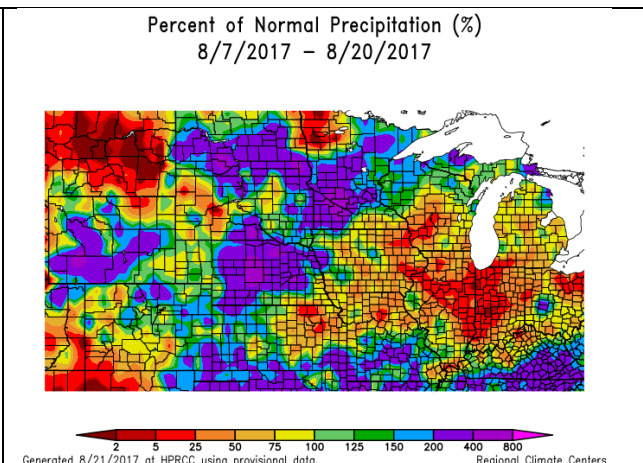
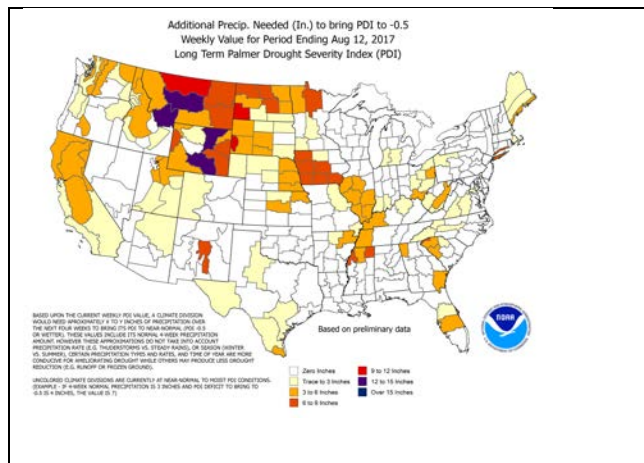
| Production Rank | State | Acreage Report 6/30/17 | % Very Poor + % Poor Condition 8/20/2017 | Potential Acres in VP&P Condition 8/20/2017 | % Good + % Excellent Condition 8/20/2017 | Potential Acres in G&E Condition 8/20/2017 |
|-----------------|----------------|------------------------|--|---|--|--|
| | | 1,000 Acres | % | 1,000 Acres | % | 1,000 Acres |
| 11 | Arkansas | 3,550 | 8% | 284 | 67% | 2,379 |
| 1 | Illinois | 10,400 | 12% | 1,248 | 60% | 6,240 |
| 5 | Indiana | 5,900 | 15% | 885 | 53% | 3,127 |
| 2 | Iowa | 10,000 | 14% | 1,400 | 58% | 5,800 |
| 10 | Kansas | 4,750 | 10% | 475 | 55% | 2,613 |
| 15 | Kentucky | 1,900 | 4% | 76 | 74% | 1,406 |
| 17 | Louisiana | 1,300 | 3% | 39 | 75% | 975 |
| 13 | Michigan | 2,300 | 12% | 276 | 57% | 1,311 |
| 3 | Minnesota | 8,200 | 6% | 492 | 74% | 6,068 |
| 12 | Mississippi | 2,250 | 5% | 113 | 71% | 1,598 |
| 8 | Missouri | 6,000 | 9% | 540 | 61% | 3,660 |
| 4 | Nebraska | 5,700 | 11% | 627 | 61% | 3,477 |
| 18 | North Carolina | 1,700 | 5% | 85 | 72% | 1,224 |
| 9 | North Dakota | 7,200 | 17% | 1,224 | 47% | 3,384 |
| 6 | Ohio | 5,000 | 14% | 700 | 54% | 2,700 |
| 7 | South Dakota | 5,400 | 22% | 1,188 | 42% | 2,268 |
| 16 | Tennessee | 1,750 | 5% | 88 | 80% | 1,400 |
| 14 | Wisconsin | 2,150 | 8% | 172 | 74% | 1,591 |
| 18-State | | 85,450 | 12% | 9,911 | 60% | 51,220 |

The August 21 *Crop Progress* survey shows that the U.S. soybean crop is at the five-year average rate of blooming and ahead of the average pod-setting pace (Table 8). Indiana and Nebraska, two top-producing soybean states, are slightly behind the five-year average pod-setting pace by a slim margin.

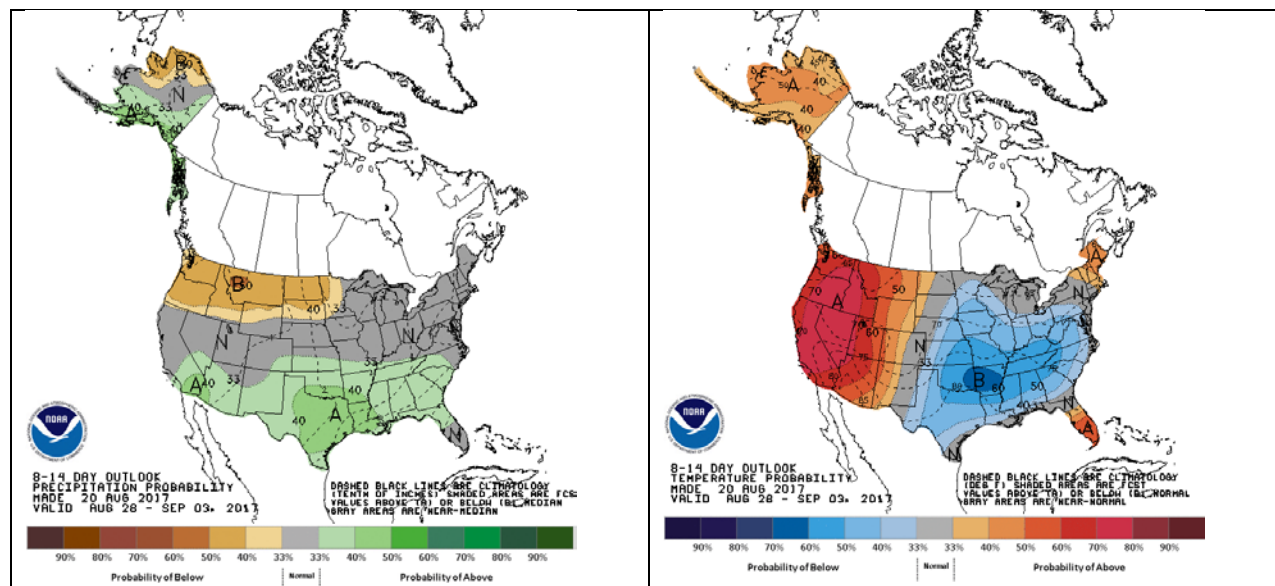
USDA reports 60% of the U.S. soybean crop in GE condition and 12% in VPP condition (Table 9). As in corn, most of the states with high GE ratings are outside of the core soybean-producing region. Using the *Acreage* survey, about 9.9 million soybean acres are potentially in VPP condition and 51.2 million acres in GE condition (Table 9).

Topic 4. Crop Moisture and Weather Outlook Maps

The map on the left shows the additional precipitation needed to bring soils out of drought conditions as measured by the Palmer drought index. The darker the color on the map indicates areas that need the most precipitation. Most of Western and Southern Iowa need 6 to 9 inches of rain, as of August 12, to relieve the drought. Similarly, Central and Southern Illinois would need 3 to 6 inches of rain to ease the moisture stress. The colorful map on the right shows the percentage of normal precipitation from August 7 to August 20. The dark red areas in central Illinois and Indiana indicates areas receiving about 25% to 50% of normal rainfall. The Western Corn Belt received above-average precipitation over that two-week period. The rain may have helped soybeans more than corn.



The 8 to 14 day period forecast, released August 20, provides above average probability of precipitation in the South but neutral probability across Nebraska, Iowa, Illinois and Indiana. This region is projected to have below-normal temperatures (map on the right) which may keep progress behind the average pace because the crops need heat to reach physiological maturity.



Topic 5. 2017 Corn and Soybean Risk Management Opportunities

Table 10 presents risk management alternatives for Western Kentucky corn production for 2017. The table provides several yield projections to illustrate the yield needed to find profitable pricing opportunities. The analysis compares three risk management alternatives. A cash-forward-contract (CFC) at \$3.43/bushel using DTN bids for Western Kentucky locations. The second marketing alternative is to hedge with commodity futures, or Hedge to Arrive (HTA) contracts, that would lock in an expected cash price at \$3.56/bushel assuming a -\$0.10/bushel harvest-time basis. The third alternative is to establish a price floor at \$3.39/bushel by buying a put option with a \$3.60 strike price that costs \$0.112 (Table 10).

Table 10 reminds managers that the corn market continues to lack risk management opportunities for the 2017 crop unless the farm routinely harvests corn yields of 190 bushels, as hedging with futures may lock in a positive return over input costs and rent of \$0.19/bushel (Table 10).

| Yield | 140 | 150 | 160 | 170 | 180 | 190 |
|---|-----------------|---------|---------|---------|---------|---------|
| TVC+Rent (\$/acre) | \$639 | \$639 | \$639 | \$639 | \$639 | \$639 |
| TVC+Rent (\$/bu) | \$4.56 | \$4.26 | \$3.99 | \$3.76 | \$3.55 | \$3.36 |
| CFC @ \$3.43 | -\$1.13 | -\$0.83 | -\$0.56 | -\$0.33 | -\$0.12 | +\$0.07 |
| Hedge @ \$3.66 + -\$0.10 basis = \$3.56 | -\$1.01 | -\$0.70 | -\$0.44 | -\$0.20 | +\$0.01 | +\$0.19 |
| Put: \$3.60 strike @ \$0.112 = \$3.39 floor | -\$1.18 | -\$0.87 | -\$0.61 | -\$0.37 | -\$0.16 | +\$0.02 |
| Strategies Evaluated on: | August 18, 2017 | | | | | |

Farms that routinely yield 190-bushel corn may be able to lock-in a profit above input costs and cash rent. Farms with lower expected yields do not have profitable risk management opportunities at current prices (Table 10).

| Yield | 25 | 35 | 45 | 55 | 65 |
|---|-----------------|---------|---------|---------|---------|
| TVC+Rent (\$/acre) | \$486 | \$486 | \$486 | \$486 | \$486 |
| TVC+Rent (\$/bu) | \$19.44 | \$13.89 | \$10.80 | \$8.84 | \$7.48 |
| CFC @ \$9.14 | -\$10.30 | -\$4.75 | -\$1.66 | +\$0.30 | +\$1.66 |
| Hedge @ \$9.38 + -\$0.10 basis = \$9.28 | -\$10.16 | -\$4.61 | -\$1.52 | +\$0.44 | +\$1.80 |
| Put: \$9.40 strike @ \$0.271 = \$9.03 floor | -\$10.41 | -\$4.86 | -\$1.77 | +\$0.19 | +\$1.55 |
| Strategies Evaluated on: | August 18, 2017 | | | | |

The largest projected returns for soybeans are from hedging. CFC provides a lower return. Those managers seeking to place a floor on price may be able to lock in a minimum return of \$1.55/bushel protected with put options with 65-bushel yields (Table 11).

Topic 6. Comparing Harvest-Time and January Cash-Forward-Contract Bids and Managing Risk

Figures 1 and 2 compare current harvest-time and January CFC bids to budgeted variable costs, land rent, fixed costs, and a minimum storage cost from October harvest to January. The production costs, fixed costs, and land rent are from the University of Kentucky *Farm Business Management Program* budgets for Western Kentucky assuming harvested yields of 170 bushels and 55 bushels, respectively, for corn and soybeans. The minimum storage costs include the opportunity cost of deferred revenue at harvest (5% annual interest), shrink (1.25% corn, 0.25% soybean) and \$0.10 per bushel cost of additional handling and labor to move grain in and out of storage. These are bare minimum costs of on-farm storage from harvest to January. The minimum on-farm storage costs are budgeted at \$0.196/bushel for corn and \$0.252/bushel for soybeans.

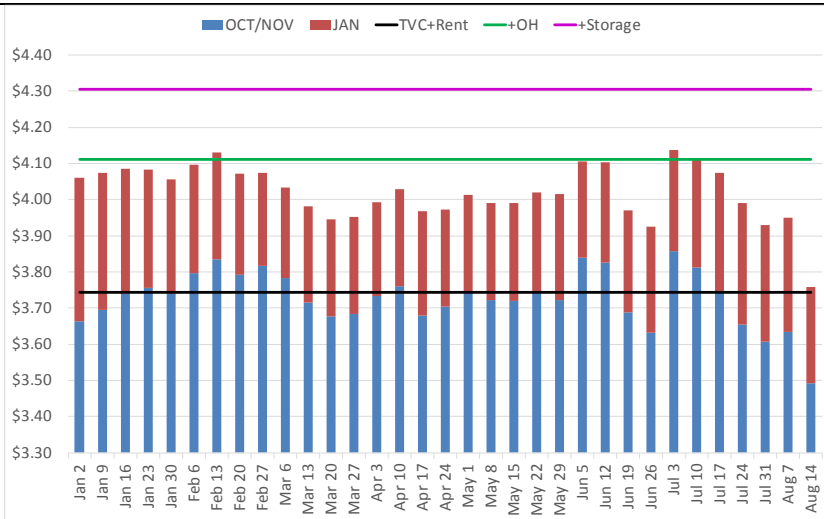


Figure 1. October 2017 and January 2018 Corn Cash Forward Bids with Per Bushel Costs for Inputs plus Rent, Overhead, and Storage. Analyzed on August 18, 2017.

Figure 1 compares the October corn CFC (blue column), January CFC (red column) to production costs plus rent (black line), overhead costs (green line) and minimum storage costs to January (purple line).

While not covering storage costs, the July 3rd weekly average January CFC provided the last best risk management opportunity for those wanting to lock in a price before January delivery. As prices have traded lower, managers need to know per bushel costs to accurately set pricing objectives. Current bids are well below the cost of overhead and storage to January 2018 (Figure 1).

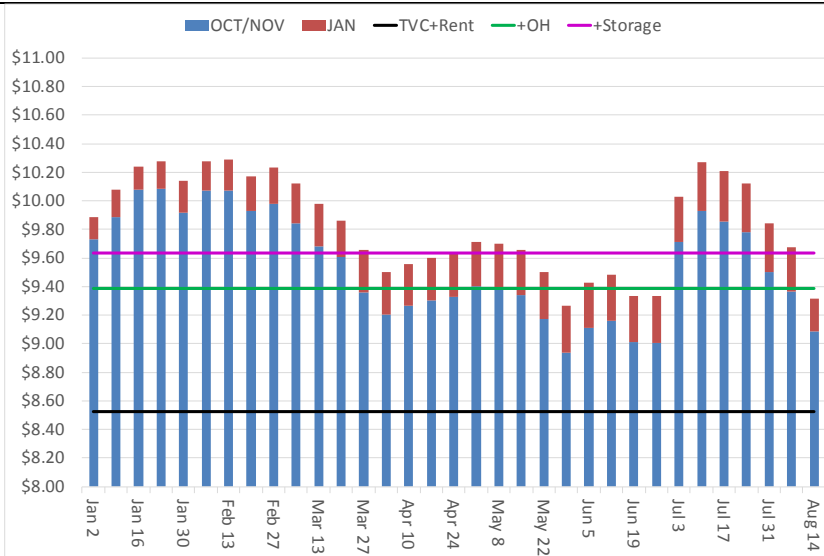


Figure 2. October 2017 and January 2018 Soybean Cash Forward Bids with Per Bushel Costs for Inputs plus Rent, Overhead, and Storage. Analyzed on August 18, 2017.

Managers are no longer projected to be able to lock in a price that covers economic costs plus storage to January (Figure 2). This pricing opportunity was available in January and February with the futures rally in July providing another risk management opportunity.

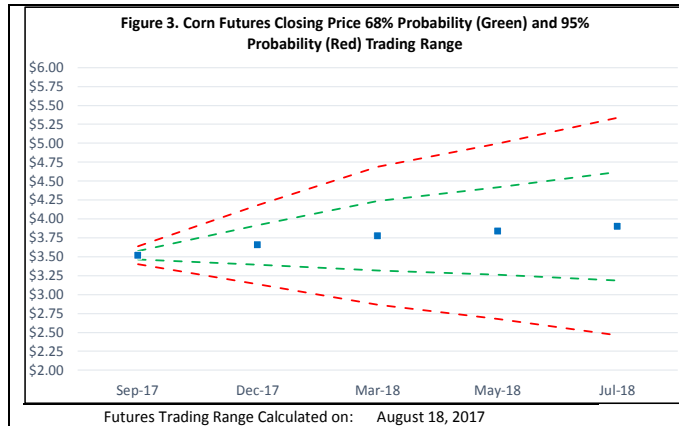
Managers need to understand their **per bushel** costs to guide their marketing. Spot prices tend to decline into harvest so managers should determine the amount of production more than the available on-farm storage and analyze pricing alternatives rather than selling at harvest into the spot market at low prices. Access to low-cost storage helps in finding pricing opportunities at profitable levels.

Topic 7. Projected Corn, Soybean, and Wheat Futures Trading Ranges to July 2018

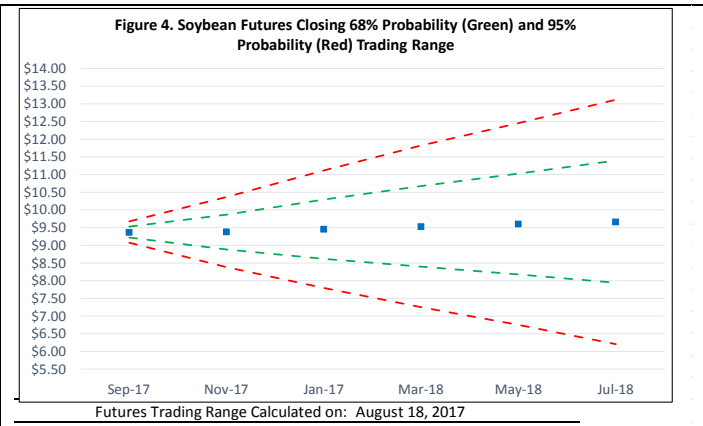
Understanding the probabilistic trading ranges based on current futures market volatility will help managers gauge the likelihood of reaching their pricing objectives. Figures 3 – 5 provide the projected futures price trading range,

by futures contract month, based on the contracts' volatility for the previous 21-day period. The green lines represent the range that describes the 68% probability of the projected trading range with the red line representing 95% likelihood of the expected trading range. Notice how these projections fan out for the contracts that will expire later this year or in 2018. That is because there is more time until expiration; thus, there is a wider potential trading range for these deferred futures contracts.

Figure 3 provides the probabilistic trading range for the corn futures contracts from September 2017 to July 2018. There is a 68% probability that the December 2017 corn contract will trade between \$3.40 and \$3.92 and a 95% probability that the December 2017 corn contract will trade between \$3.14 and \$4.18 (Figure 3). Looking at the potential to hedge stored corn from the 2017 harvest, the 68% trading range for the March 2018 corn contract is \$3.32 to \$4.23 (Figure 3).

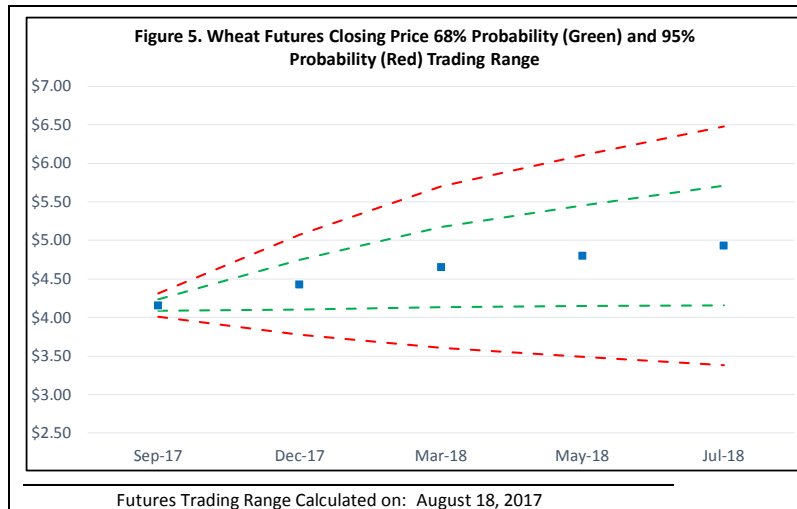


Trading range calculated on August 18, 2017, using the average volatility of the previous 21-day period. The 68% probability range is the closing futures price on August 18, 2017, plus and minus one standard deviation. The 95% probability range is the closing price plus and minus two standard deviations.



Trading range calculated on August 18, 2017, using the average volatility of the previous 21-day period. The 68% probability range is the closing futures price on August 18, 2017, plus and minus one standard deviation. The 95% probability range is the closing price plus and minus two standard deviations.

Figure 4 provides the probabilistic trading range for soybean futures contracts from September 2017 to July 2018. The November 2017 soybean futures have a 68% probability of trading between \$8.88 to \$9.87 with a 95% likelihood of trading between \$8.39 and \$10.37 (Figure 4). For hedging stored 2017 soybeans, the March 2018 soybean contract has a 68% probability trading range of \$8.40 to \$10.68 (Figure 4).



Trading range calculated on August 18, 2017, using the average volatility of the previous 21-day period. The 68% probability range is the closing futures price on August 18, 2017, plus and minus one standard deviation. The 95% probability range is the closing price plus and minus two standard deviations.

Figure 5 provides the probabilistic trading range for wheat futures contract from September 2017 to July 2018 contracts. The December 2017 futures contract has a 68% probability of trading from \$4.10 to \$4.75 (Figure 5). The 95% probability trading range is \$3.78 to \$5.07 (Figure 5).

The July 2018 wheat futures closed at \$4.93/bushel on August 18, 2017. Those planning to sell winter wheat in June 2018 should monitor this market for pricing opportunities either through HTA contracts or with CFC to price a percentage of planned 2018 production above budgeted input and land cost. The trading range forecasted for the July 2018 contract is wide with a 68% probability of trading between \$4.15 and \$5.71 per bushel.

Topic 8. Risk Management Game Plans for 2017 Corn and Soybeans: August Update

This newsletter continues the update on the pre-harvest risk management plan initially described in the January 2017 newsletter. Both corn and soybean markets are rather depressing due to reaction to weather and USDA reports.

The December 2017 corn futures contract (Figure 6) has returned lower to prices last reached in August 2016. After trading sideways most of the year, the *Crop Production* report triggered the slide lower. Resistance lines are in the \$3.65 and \$3.70 range with further resistance at \$3.75. The contract is near the \$3.60 support. Managers needing to sell corn at harvest and have yet to establish a price might consider \$3.75 as a respectable futures target. A higher price will require a change in market's expectation of size of the 2017 corn crop and level of ending stocks. Any production reduction may not happen until the October or November reports.

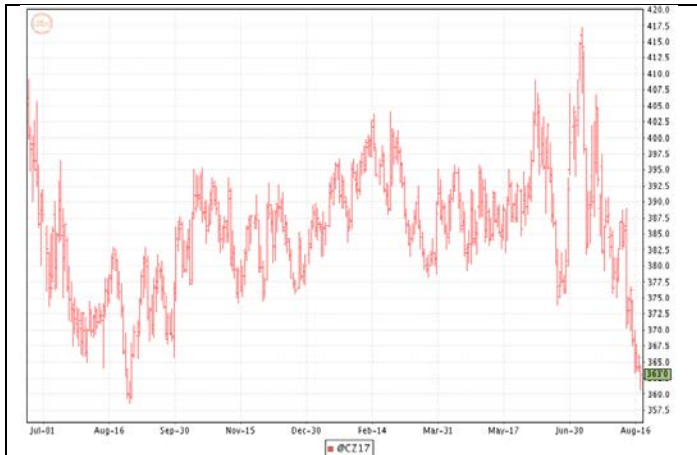


Figure 6. December 2017 Corn Futures Contract Chart (as of August 21, 2017).

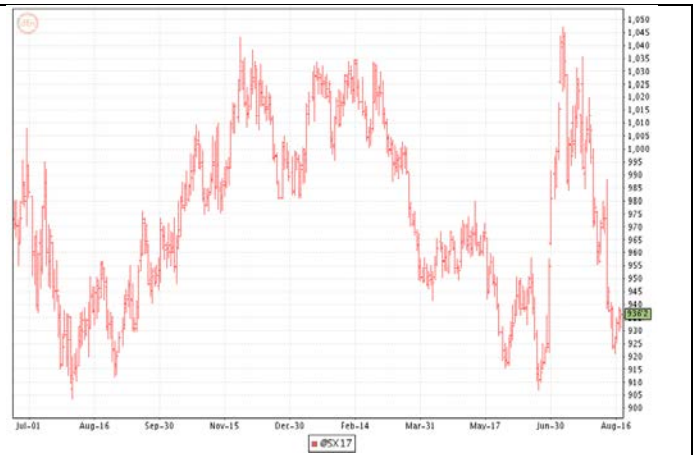


Figure 7. November 2017 Soybean Futures Contract Chart (as of August 21, 2017).

Similarly, the November 2017 contract (Figure 7) has experienced a landslide due to the surprising increase in projected 2017 soybean crop and building 2017 ending stocks. The November 2017 is currently near price levels of August 2016. Support remains at \$9.20 and \$9.10. The chart defines several layers of resistance with the most immediate at \$9.50 - \$9.55 range. August weather will make or hinder the size of the crop. If USDA reduces the soybean yield, stocks have the potential to decline and potentially support higher prices. Timing is critical as USDA may not reduce the size of the 2017 soybean crop until near or after the November 2017 soybean contract expires.

Table 12. 2017 Corn Risk Management Game Plan as of August 18, 2017.

| Expected Corn Production (bushels/acre) | | 175 |
|---|-----------------|----------------|
| Date Priced | Priced Realized | Bushels Priced |
| 2/15/17 | \$4.02 | 17.5 |
| 6/7/17 | \$4.02 | 17.5 |
| 7/10/17 | \$4.15 | 17.5 |
| Revised Objective | \$4.20 | 17.5 |
| Revised Objective | \$4.35 | 17.5 |
| Bushels Priced | | 87.5 |
| Average Price | | \$4.15 |

Note: RP Insurance at the 80% coverage level will be purchased. This assumes an APH yield of 175 bu/acre and a Projected Price of \$3.96/bu. The expected revenue protection is \$554/acre which is \$77/acre greater than the budgeted corn production cost. The RP insurance protection will protect 140 bushels/acre to be forward contracted or contracted with Hedge-to-Arrive contracts (HTA). This is a conservative strategy on the quantity priced. There is some hope involved that the corn market can break higher to these prices.

Plan Updated on: August 18, 2017

Table 12 defines the pricing objectives, bushels priced, and date priced as part of the corn pre-harvest risk plan. The DEC 2017 contract closed at 4.02 ¾ on Feb 15 and June 7, where 10% of expected production was priced at each target level. The plan priced another 10% of expected production at \$4.15 on July 10th. The corn game plan has unrealistic pricing objectives. I am not interested in chasing sales even lower. The current management plan is to store until January (at least) and base sales on basis appreciation and economic storage costs.

Table 13. 2017 Soybean Risk Management Game Plan as of August 18, 2017.

| Expected Soybean Production (bushels/acre) | | 55 |
|--|-----------------|----------------|
| Date Priced | Priced Realized | Bushels Priced |
| 2/1/17 | \$10.12 | 5.5 |
| 2/8/17 | \$10.28 | 5.5 |
| 7/10/17 | \$10.06 | 5.5 |
| Revised Objective | \$10.30 | 5.5 |
| Revised Objective | \$10.50 | 5.5 |
| Bushels Priced | | 27.5 |
| Average Price | | \$10.25 |

Note: RP Insurance at the 75% coverage level will be purchased. This assumes an APH yield of 55 bu/acre and a Projected Price of \$10.19/bu. The expected revenue protection is \$420/acre which is \$109/acre greater than the budgeted soybean production cost. The RP insurance protection will protect 41.25 bushels/acre to be forward contracted or contracted with Hedge-to-Arrive contracts (HTA). This is an aggressive strategy reflecting a belief that the soybean market faces limited upside potential unless there is a strong change in fundamentals.

Plan Updated on: August 18, 2017


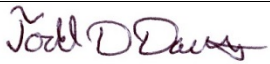

The soybean game plan also has unrealistic pricing objectives given the market environment. The fundamental that could move prices higher would be lower yields and production in either the September or October USDA reports. The November report is near the future's contract expiration date. Soybeans have limited pricing opportunities. Like in corn, the plan is to store and monitor basis appreciation. Sales will likely be in January and February depending on price appreciation after harvest.

Managers are getting down to the short rows for finding opportunities to enact the pre-harvest risk management plan. The next newsletter will focus on the post-harvest risk management game plan for corn and soybeans.

Have a safe and bountiful harvest.

Topic 9. How Do I Get on the Email Distribution List to Receive this Newsletter?

The *Crops Marketing and Management Update* is published monthly usually after the release of the USDA: WASDE report. You can find this issue and past issue on the UK Agricultural Economics Department's website at <http://www.uky.edu/Ag/AgEcon/extcmmu.php>. Email todd.davis@uky.edu to receive the newsletter by email.

| | | |
|---|--|--|
|  <p>College of Agriculture, Food and Environment</p> <p><i>Agricultural Economics</i></p> |  <p>Todd D. Davis Assistant Extension Professor Extension Economist Crop Economics Marketing & Management</p> |  <p>University of Kentucky College of Agriculture, Food and Environment Cooperative Extension Service</p> |
| <p>Educational programs of Kentucky Cooperative Extension serve all people regardless of race, color, age, sex, religion, disability, or national origin. UNIVERSITY OF KENTUCKY, KENTUCKY STATE UNIVERSITY, U.S. DEPARTMENT OF AGRICULTURE, AND KENTUCKY COUNTIES, COOPERATING</p> | | |