

Corn Market Supply Questions for Late Winter-Spring 2010

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January 27, 2010

The United States Department of Agriculture (USDA), in its January 12, 2010 set of reports, projected that the size of the 2009 U.S. corn crop was 13.151 billion bushels. This crop size projection was up from its previous estimate of 12.921 billion bushels in November-December 2009 USDA reports. This increase was based on a small increase in its projection of harvested acres (from 79.3 to 79.6 million acres) and a marked increase in average yields (from 162.9 to 165.2 bushels per acre). This 23 million bushel increase in projected U.S. 2009 corn production ran counter to the general consensus of pre-report expectations from the grain trade, which was anticipating a decline of approximately 100 million bushels from the earlier 12.921 billion bushel estimate. The grain trade anticipated that difficult harvest conditions and late maturity for U.S. corn in the fall of 2009 would cause the USDA to at least take initial steps to diminish 2009 corn production estimates.

Crop progress reports released in late December indicated that a significant portion of the 2009 U.S. corn crop had not yet been harvested. In its December 20, 2009 Crop Progress report, the USDA reported that 5% of the U.S. corn crop in the 18 primary corn producing states were unharvested as of that date. A state-by-state breakdown of corn harvest progress as of December 20th is given in Table 1. States with the largest proportion of unharvested corn acres on that date were North Dakota (32%), South Dakota and Wisconsin (12%), Nebraska, Minnesota and Pennsylvania (7%), Michigan (6%), and Illinois (5%). Other important corn producing states such as Iowa, Indiana, Kansas, Missouri, and Colorado were reported to have 2% of their corn crops remaining to be harvested on December 20th.

To calculate quantities of corn yet to be harvested as of December 20th, state-by-state estimates of unharvested corn acres can be multiplied by projected 2009 corn yields. In these calculations, state-level corn yields as reported in November 2009 are increased by the same proportion (i.e., +1.141%) that U.S. average yields in January 2010 were increased from the November-December 2009 yield estimates (i.e., from 162.9 to 165.2 bushels per acre). Multiplying state-level unharvested corn acres by adjusted corn yields provides estimates of the amount of corn left unharvested in each state as of December 20, 2009.

The seven states with the largest projections of unharvested 2009 corn production are as follows.

1) Nebraska	112.5 million bushels (mb.)
2) Illinois	104.7 mb.
3) Minnesota	86.7 mb.
4) South Dakota	84.0 mb.
5) North Dakota	68.7 mb.
6) Wisconsin	51.5 mb.
7) Iowa	49.6 mb.

Total unharvested corn production for the top 18 states is projected to be 630.4 million bushels, equaling 4.8% of USDA's 2009 U.S. corn production projection of 13.151 billion bushels on January 12, 2010. If it is assumed that the 5% unharvested acreage figure applies to all the other states in the U.S. in addition to the top 18 corn producing states identified in Table 1, then the total projection of unharvested 2009 corn production in the U.S. on December 20, 2009 would increase to 665.3 million bushel.

Table 1. Unharvested Corn Production Estimates in the United States - 2010

State	2009 Corn Harvested Acres USDA NASS	% Corn Acres Unharvested Dec. 20, 2009 USDA NASS	Unharvested Corn Acres Dec. 20, 2009 KSU Estimate	Est. Corn Yields (Adjusted) ¹ Jan. 12, 2010 USDA WASDE	Proj. 2009 Unharvested Corn Prod. KSU Estimate
Colorado	950,000	2%	19,000	147.0	2,793,898
Illinois	11,800,000	5%	590,000	177.5	104,707,796
Indiana	5,440,000	2%	108,800	168.3	18,315,802
Iowa	13,350,000	2%	267,000	185.6	49,550,873
Kansas	3,870,000	2%	77,400	147.0	11,381,459
Kentucky	1,130,000	0%	0	162.3	0
Michigan	1,990,000	6%	119,400	144.0	17,194,186
Minnesota	7,100,000	7%	497,000	174.4	86,690,956
Missouri	2,900,000	2%	58,000	153.1	8,881,655
Nebraska	8,900,000	7%	623,000	180.5	112,459,723
North Carolina	800,000	0%	0	116.6	0
North Dakota	1,750,000	32%	560,000	122.7	68,716,710
Ohio	3,120,000	1%	31,200	168.3	5,252,326
Pennsylvania	880,000	7%	61,600	146.0	8,995,642
South Dakota	4,600,000	12%	552,000	152.1	83,969,061
Tennessee	590,000	0%	0	141.0	0
Texas	2,100,000	0%	0	131.8	0
Wisconsin	2,900,000	12%	348,000	148.1	51,525,363
18 States	74,170,000	5%	3,912,000	167.3	630,435,449
Other States	5,124,000	5%	256,200	136.1	34,858,214
United States	79,294,000	5%	4,128,200	165.2	665,293,663

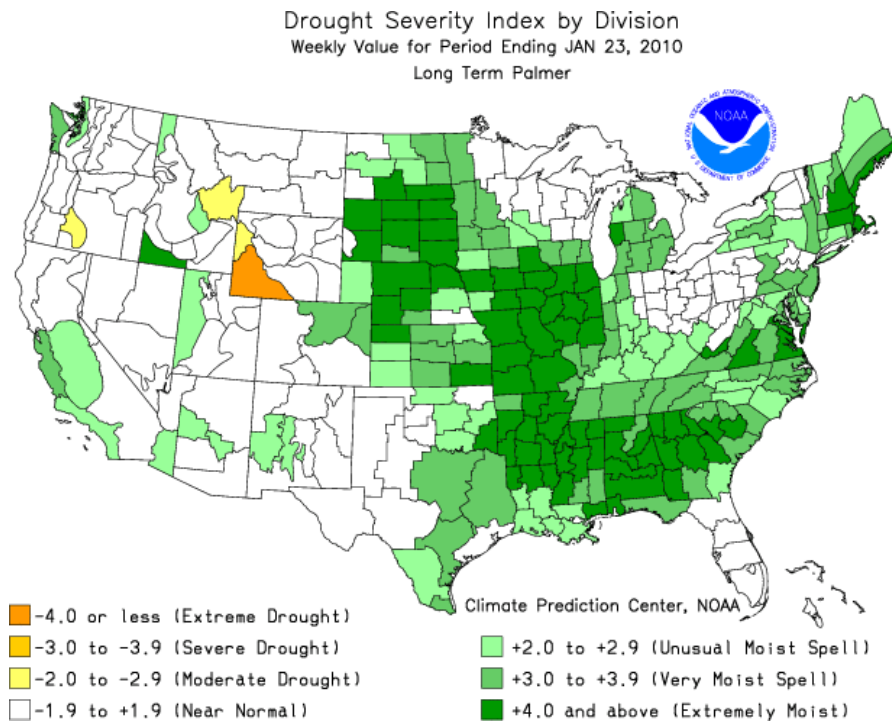
¹ Yields adjusted by multiplying each state yield by the proportional difference between U.S. average corn yield projections on January 12, 2010 (165.2 bu. per acre) and November 10, 2009 (162.9 bu. per acre), i.e., multiplying state corn yield estimates by 101.41%.

In summary, it appears that the USDA January 12th corn production projections did not account for the portion of the 2009 corn crop that had not been harvested as of December 20, 2009. Any reductions in projected 2009 U.S. corn crop size that may occur as a result of delayed harvest problems will necessarily need to be accounted for and reported in future USDA reports.

Field Conditions in the U.S. Corn Belt Since Late December 2009

Since the December 20th Crop Progress report, soil moisture conditions in the U.S. Corn Belt have continued to be “extremely moist”, with winter storms on January 24-25, 2010 adding additional snow-moisture in major portions of Iowa and other parts of the Corn Belt. The Palmer Drought Severity Index dated January 23, 2010 (calculated by the National Weather Service) indicates that substantial parts of the U.S. Corn Belt are classified as being at least in an “unusually moist spell” (Figure 1).

Figure 1. Palmer Drought Severity Index for January 23, 2010



Source: National Weather Service

http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/palmer.gif

Most of the area covered by the top seven (7) states identified above as having the most unharvested 2009 corn production shows signs of at least “unusually moist conditions”.

- 1) Nebraska – All parts of the state are at least “unusually moist” except for the southeast crop reporting district (CRD)
- 2) Illinois – All parts of the state are rated at least “unusually moist”
- 3) Minnesota – All of the key corn production areas in the southern and western parts of the state are rated to be at least “unusually moist”
- 4) South Dakota – All the crop production regions of the state are rated as being at least “very moist”
- 5) North Dakota – All of the eastern 2/3 of the state is rated to be at least “unusually moist”
- 6) Wisconsin – The southern and western crop production areas are rated to be at least “unusually moist”
- 7) Iowa – The entire state is rated to be at least “unusually moist”

According to Robert Wisner, former Extension Grain Marketing Specialist for Iowa State University (retired), many of the unharvested fields still have a heavy covering of snow as of late January in the western and northern parts of the Corn Belt. This is a highly unusual situation not experienced in recent years, so the amount of field losses on corn harvested in December and that part of the crop still unharvested are unknown. USDA hopes to clarify this situation with an updated farmer survey of corn production in six Midwestern states and also for soybeans in four southern states where harvest was delayed by excessive rains. If there are changes in production numbers, USDA will release updated production numbers on March 10. It is not known

when the updated survey has been or will be made, but it is likely that a significant amount of corn still will not have been harvested at that time.

It is also possible that frozen soil conditions in the remaining winter months (January – February) will allow farmers to harvest some portion of these acres before spring where snow is not an impediment. At least to date there have not been market reports of this happening on a large scale in the Corn Belt region.

In summary, high soil moisture levels currently exist on cropland throughout the vast majority of U.S. Corn Belt region. The addition of heavy snowfall during the January 24-25 period in parts of the central and western Corn Belt will only exacerbate potential soil moisture problems. Given what is known at this time, the likelihood of an extended period of extremely wet field conditions during the late February through April period is growing more likely. With those prospects comes the associated possibility that farmers will have a difficult time harvesting much of the 2009 crop corn that remains in the field prior to March-April 2010.

With time the U.S. corn market is likely to grow increasingly aware of and sensitive to potential late harvest problems with the 2009 corn crop. Limited additional moisture and adequate weather conditions for drying during the late January-February-early March period will be needed for farmers to be able to enter fields by spring to harvest the remaining 2009 corn crop.

Impact on Supply-Demand Balances of Lost or Abandoned 2009 Crop Corn

To the degree that significant amounts of 2009 corn production is eventually either lost due to ears dropping, stalk breakage, or abandonment in the field, there will some impact on the complex of 2009/10 marketing year corn production, supplies and ending stocks. Corn usage would also likely be affected if U.S. corn prices were to rise appreciably in response to decreasing 2009 crop corn production.

Table 2 shows the likely impact on the 2009/10 U.S. corn supply-demand balance sheet from decreases in the size of the 2009 U.S. corn crop. The impact of declines of 200 million, 400 million, and 600 million bushels upon projected USDA corn supply-demand balances as of January 12, 2010 are given. This analysis of the U.S. corn supply-demand balance sheet assumes that demand factors such as a) ethanol and non ethanol food-seed-industrial use, b) exports and c) feed and residual use would each be essentially unchanged over these supply-reduction scenarios.

Under these assumptions, a decrease of 200 million bushels in the size of the 2009 corn crop would result in a requisite decrease in 2009/10 corn ending stocks from 1.764 billion down to 1.564 billion bushels. Ending stocks-to-use for U.S. corn would decline from 13.5% to 11.7%. Corn production declines of 400 million and 600 million bushels would result in ending stocks to use estimates of 10.2% and 8.7%, respectively.

Declines in 2009/10 U.S. corn ending stocks-to-use from the current estimate of 13.5% down to the 9% to 10% would reduce corn supplies enough to likely affect the perceptions of market risk during 2010, and probably lead to an appreciable increase in corn prices. Assuming a \$0.07⁵ per bushel positive price response for each 100 million bushel decrease in U.S. corn supplies, a 200 million decrease in 2009 corn production and consequently in 2009/10 corn supplies and ending stocks would result in an estimated increase of \$0.15 per bushel in corn prices, from a range of \$3.40-\$4.00 per bushel to \$3.55-\$4.15 per bushel. Similarly, decreases of 400 million and 600 million bushels in 2009 corn production would lead to estimated increases in the U.S. 2009/10 marketing year corn prices of \$0.30 and \$0.45 per bushel, respectively.

Table 2. Impact of Reduced Final 2009 U.S. Corn Production on % Ending Stocks-to-Use

Item	2009/10 U.S. Corn Supply-Demand USDA WASDE Report Jan. 12, 2010	Scenario A: Less 200 mln. bu. 2009 Corn Production	Scenario B: Less 400 mln. bu. 2009 Corn Production	Scenario C: Less 600 mln. bu. 2009 Corn Production
Planted acres (million acres)	86.5	86.5	86.5	86.5
Harvested acres (million acres)	79.6	78.4	77.2	76.0
Yield (bushels per acre)	165.2	165.2	165.2	165.2
	Million Bushels			
Beginning Stocks	1,673	1,673	1,673	1,673
Production	13,151	12,951	12,751	12,551
Imports	10	10	10	10
Total Supply	14,834	14,634	14,734	14,534
Ethanol Use	4,200	4,200	4,200	4,200
Non-Ethanol FSI	1,270	1,270	1,270	1,270
Exports	2,050	2,050	2,050	2,050
Feed & Residual	5,550	5,550	5,550	5,550
Total Use	13,070	13,070	13,070	13,070
Ending Stocks	1,764	1,534	1,334	1,134
% Ending Stocks-to-Use	13.5%	11.7%	10.2%	8.7%
U.S. Avg. Farm Price \$/bu.	\$3.40 - \$4.00	\$3.55 - \$4.15	\$3.70 - \$4.30	\$3.85 - \$4.45

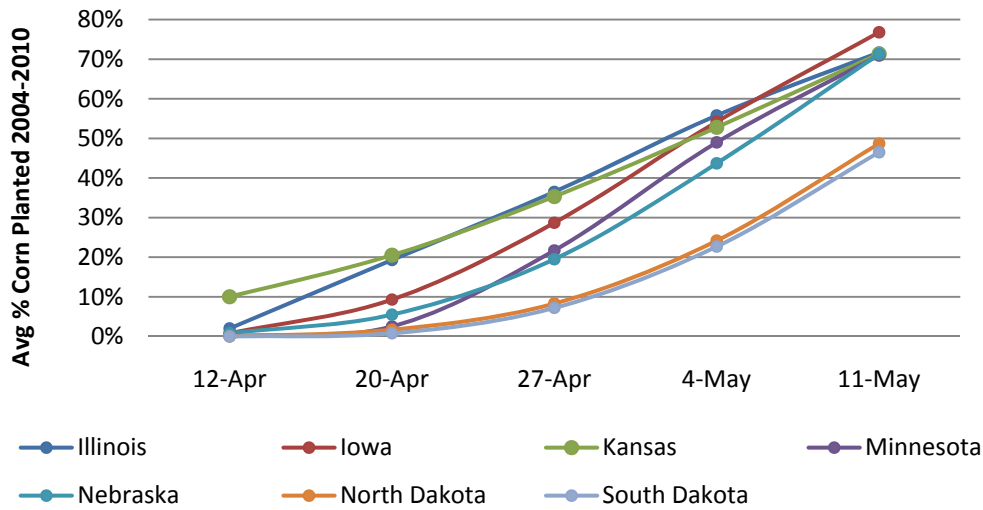
Potential Impact of Wet Fields on Spring Planting of Corn in 2010

It is premature under typical field conditions in most winter seasons for the corn market to focus too much attention on the possibility of wet fields causing spring planting delays for corn at this time. However, with current saturated soil conditions there is a greater possibility than normal that some Corn Belt farmers will be attempting to harvest what remains of the 2009 corn crop during the same March-April time period during which they will try to prepare for planting their 2010 corn acres.

Chart 1 shows the average corn planting progress during the six (6) year 2004-2009 period for the corn producing states of Illinois, Iowa, Kansas, Minnesota, Nebraska, North Dakota and South Dakota. The National Agricultural Statistics Service (NASS) branch of USDA typically represents 5 year average historic planting progress information in its spring Crop Progress reports. In this example, using weekly planting dates from spring 2009, a weighted average of corn planting progress in 2009, and an average of 2004-2008 were used to derive an average of 2004-2009 corn planting progress by state.

These results indicate that average corn planting progress reached 9%-10% completion by April 20th in Iowa, Illinois, and Kansas; and by approximately April 23rd in Nebraska and Minnesota. Ten percent corn planting progress was reached by approximately April 29th in North Dakota and South Dakota. Given the saturated soil conditions throughout the central, northern, and western U.S. Corn Belt, market analysts will be closely monitoring weather and fieldwork conditions to determine whether planting delays may develop for corn in spring 2010.

Chart 1. U.S. Corn Planting Progress by State
 USDA NASS Weekly Report - 6 Year Average: 2004-2009



Other U.S. Corn Market Factors and Developments

According to Robert Wisner, former Iowa State University Extension Grain Marketing Economist (retired), the late harvest and the abnormally wet corn crop also have increased the risk of corn deteriorating in quality while in storage. In Iowa there are scattered reports of large piles of corn deteriorating badly as well as reports of some corn spoiling in storage bins. It is likely that the amount of lost corn from these problems will be small, but when combined with modest field losses on unharvested corn, such losses will lead to further tightening of the U.S. corn supply-demand balance. The greatest risk of spoilage losses on stored corn will be when the weather warms up in the spring.

Wisner also indicated that there are widespread reports of lower than average corn test weights in Iowa and elsewhere in the Corn Belt. To the degree this problem is common in the Corn Belt for the 2009 corn crop, feed conversion efficiency in livestock and poultry operations will be reduced, as would corn to ethanol conversion efficiencies for bioenergy plants. The total effect of widespread low corn test weights would be to increase corn usage at least for ethanol and livestock feeding in the United States for the 2009/10 corn marketing year, and to diminish 2009/10 marketing year ending stocks.

The USDA March 31st and June 30th grain stocks reports will provide the next available reading on the rate of corn usage – including the potential effects of low corn test weights on U.S. corn usage. The corn market may have to wait until the June 30th grain stocks report to gain a more accurate, comprehensive assessment on the impact of the late harvest of the 2009 corn crop. Since the USDA grain stocks survey is taken at the end of February, the March 31st report may be too soon to get a good reading on final 2009 corn crop numbers.