Estimates of Corn Production and Yields Based on 9/15/24 Crop Conditions

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Abstract[1]

This reports estimates corn yields for the 18 leading corn states and then calculates total corn production and average national corn yield using the September NASS crop acre estimates. Based on the 9/15/24 crop condition report, total corn production is estimated to be 15.3 billion bushels with a range from 15.0 billion to 15.6 billion bushels. The national corn yield is estimated to be 183.8 bu/ac with a range from 180.2 to 187.4 bu/ac. This is a decrease of 0.1 bu/ac from last week. Given that harvest is well underway, this will be the last yield prediction report based on crop conditions.

Introduction

This estimate is based on the USDA estimate of crop conditions for 9/15/24 (week #37). For a full description of this procedure and model, readers are encouraged to read "Estimates of Corn Production and Yields Based on 6/30/24 Crop Conditions".

Since Ibendahl's 9/10/24 estimate, USDA/NASS has released the September Crop Production Report. USDA kept corn acres at the August estimate and increased the national yield slightly. For comparison, USDA/NASS is currently estimating a 183.6 bu/ac national corn yield. .

Results

Figure 1 is a Likert graph of the corn crop conditions for the last 20 years in the U.S. The Likert graph is centered on the fair category to make comparisons among years easier. The number along the left-hand-side of the figure is the total of the very poor and poor categories while the number along the right-hand-side is the total of the good and excellent categories.

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Figures 2, 3, and 4 show the estimated yield per harvested acre, the estimated harvested acres, and the total production for each of the 18 leading corn states. The harvested acre estimate comes directly from the USDA-NASS estimate from the September 12, 2024 Acreage Report.

Figure 5 projects a national yield per acre for each week with a crop condition report. Because the yield per acre from the individual states can't be summed together, the shown yield per acre is calculated from the total production divided by the total harvested acres. Total U.S. corn production is calculated by adjusting the production from the 18 leading corn states upward based on the historic relationship between U.S. production and the production from the 18 leading corn states. As calculated, total U.S. corn production is estimated to be 15.28 billion bushels with a range from 14.98 billion to 15.58 billion bushels. The national corn yield is estimated to be 183.8 bu/ac with a range from 180.2 to 187.4 bu/ac.

While this is the last estimate for 2024 based on the current model, Ibendahl will report on alternative models for estimating national corn yields using variations to the crop conditions model factors and also alternatives to a trendline yield.

References

Ibendahl, G. "Estimates of Corn Production and Yields Based on 6/30/2024 Crop Conditions." *farmdoc daily* (14):125, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, July 8, 2024.
https://farmdocdaily.illinois.edu/2024/07/estimates-of-corn-production-and-yields-based-on-6-30-2024-crop-conditions.html

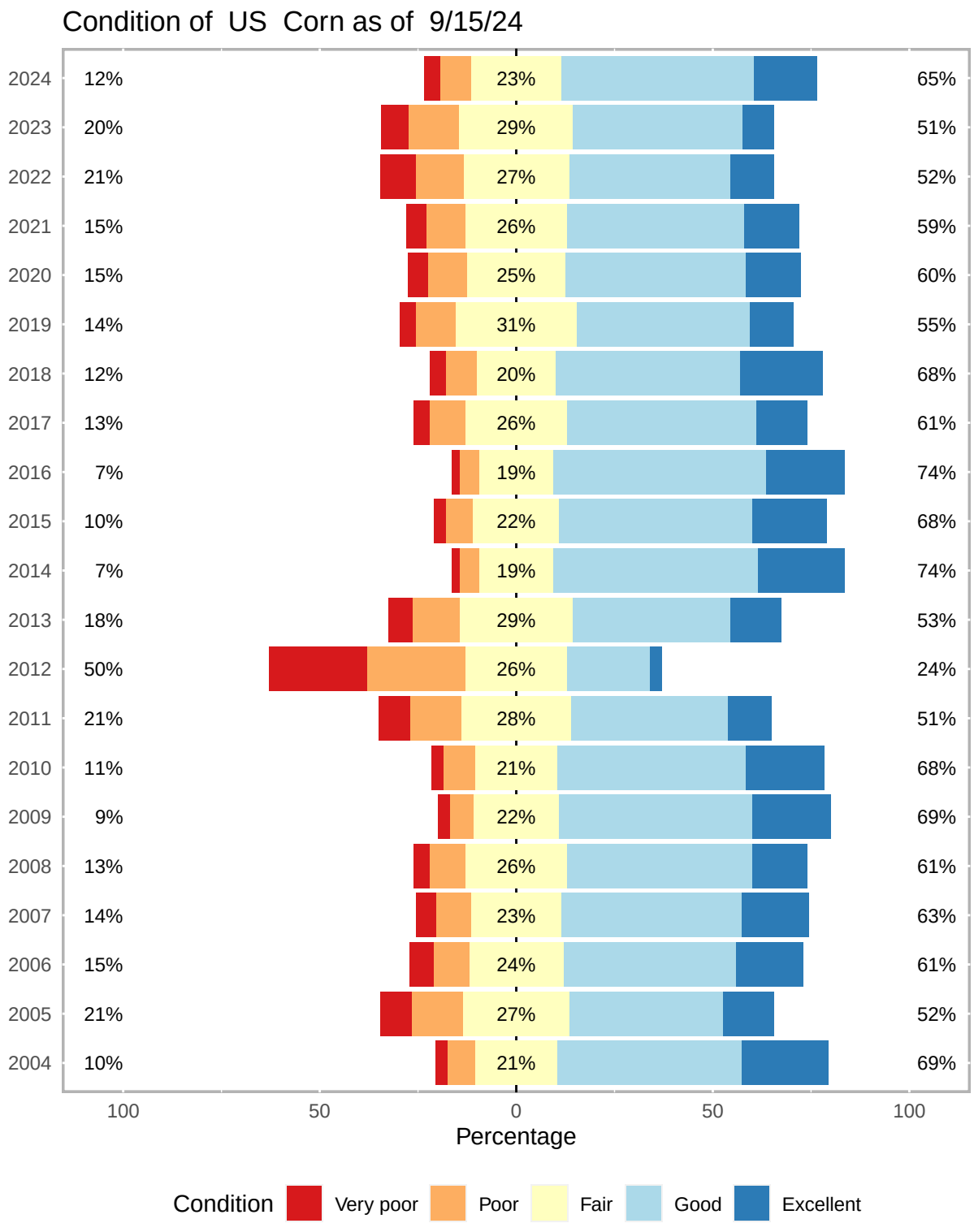

Figure 1: Likert Graph of Corn Crop Condition

Corn Yields per Acre by State - 9/15/24

Bushels per harvested acre

State	Last year	2024 prediction			
		Lower CI	Predicted	Upper CI	R squared
Colorado	122.0	120.4	126.5	132.6	0.00
Illinois	206.0	217.1	221.6	226.1	0.75
Indiana	203.0	197.4	200.7	204.1	0.77
Iowa	201.0	208.9	212.8	216.7	0.57
Kansas	119.0	117.0	120.5	124.0	0.67
Kentucky	187.0	179.2	181.6	184.0	0.90
Michigan	168.0	177.6	180.0	182.3	0.74
Minnesota	185.0	190.0	193.2	196.4	0.40
Missouri	153.0	184.7	189.3	193.9	0.87
Nebraska	182.0	193.1	195.4	197.7	0.73
North_Carolina	147.0	73.5	82.5	91.5	0.81
North_Dakota	143.0	139.3	143.6	147.8	0.36
Ohio	198.0	171.3	174.0	176.8	0.89
Pennsylvania	157.0	160.5	163.6	166.7	0.78
South_Dakota	152.0	157.3	161.0	164.8	0.51
Tennessee	173.0	151.1	155.0	158.8	0.85
Texas	122.0	117.0	121.5	126.0	0.45
Wisconsin	176.0	176.5	179.2	181.9	0.55

Figure 2: Estimated Yields per Acre for 18 Leading Corn States

Corn Harvested Acres by State - 9/15/24

1,000 acres

	State	Last year	Planted acres	2024 harvest estimate NASS est
	Colorado	1,015	1,460	1,175
	Illinois	11,050	10,800	10,650
	Indiana	5,310	5,200	5,060
	Iowa	12,550	12,900	12,350
	Kansas	5,150	6,300	5,800
	Kentucky	1,500	1,370	1,280
	Michigan	2,060	2,250	1,900
	Minnesota	8,180	8,200	7,650
	Missouri	3,670	3,450	3,260
	Nebraska	9,500	10,100	9,700
	North_Carolina	900	890	840
	North_Dakota	3,800	3,950	3,640
	Ohio	3,400	3,400	3,170
	Pennsylvania	680	990	675
	South_Dakota	5,620	5,900	5,260
	Tennessee	890	700	660
	Texas	2,100	2,200	1,780
	Wisconsin	3,140	3,750	2,940
sum	—	80,515	83,810	77,790

Figure 3: Estimated NASS Harvested Acres for 18 Leading Corn States

Total Corn Production by State - 9/15/24

1,000,000 bushels

	State	Last year	2024 prediction		
			Lower CI	Predicted	Upper CI
	Colorado	124	141	149	156
	Illinois	2,276	2,312	2,360	2,408
	Indiana	1,078	999	1,016	1,033
	Iowa	2,523	2,580	2,628	2,676
	Kansas	613	679	699	719
	Kentucky	280	229	232	236
	Michigan	346	337	342	346
	Minnesota	1,513	1,453	1,478	1,502
	Missouri	562	602	617	632
	Nebraska	1,729	1,873	1,895	1,918
	North_Carolina	132	62	69	77
	North_Dakota	543	507	523	538
	Ohio	673	543	552	560
	Pennsylvania	107	108	110	113
	South_Dakota	854	827	847	867
	Tennessee	154	100	102	105
	Texas	256	208	216	224
	Wisconsin	553	519	527	535
sum	—	14,317	14,080	14,362	14,644

Figure 4: Estimated Corn Production for 18 Leading Corn States

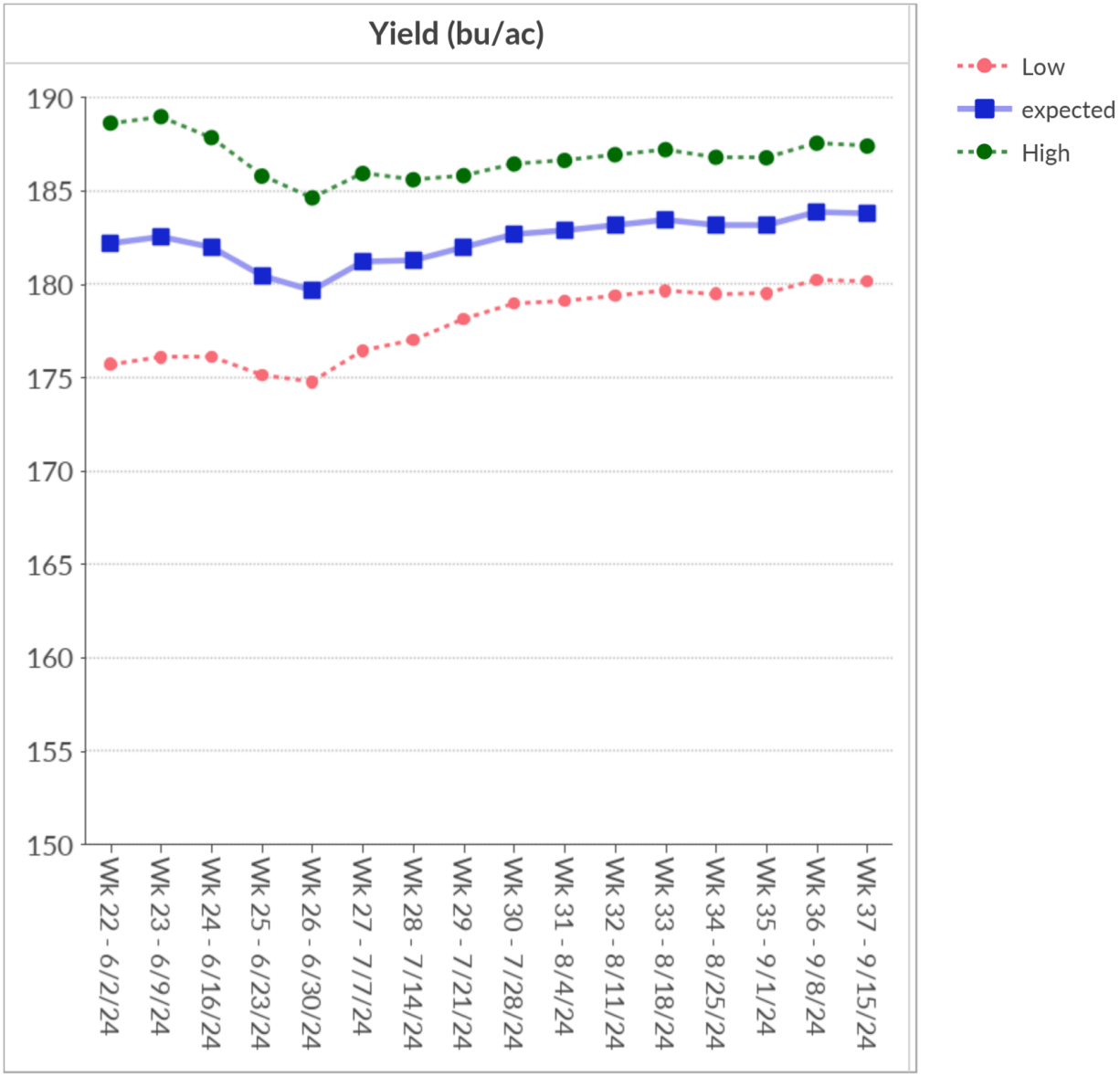

Figure 5: Estimated National Corn Yield per Acre