National Winter Wheat Production Outlook for 2025

Week #17 (4/29/25)

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April 29, 2025

Week #17 prediction

National winter wheat estimate for April 29, 2025
Estimated yield of 50.8 bu/ac - a 1.7% decrease from last year
Estimated harvest acres of 26.7 million acres - a 2.1% increase from last year.
Estimated production of 1.36 billion bushels - a 0.4% increase from last year.

Introduction[1]

On May 12, 2025, the USDA will release their first estimate of winter wheat harvested acres and total production. Currently, the only estimate of the winter wheat crop production is planted acres. However, the USDA does collect other information that allows for a model of harvested acres and crop yields.

The USDA collects weekly crop conditions throughout the growing season. The crop is rated as either: very poor, poor, fair, good, or excellent. For wheat, these estimates are reported for a few weeks in late fall and then the estimates start again in the spring. As shown by Ibendahl in previous reports on AgManager.info, these crop reports can be used to build a model to predict final crop yields.

The other factor needed to estimate U.S. winter wheat production is an estimate of harvested acres. The crop conditions report can be used in this estimate too by forecasting the ratio of harvested to planted acres.

This paper uses two similar procedures to estimate both yields and harvested winter wheat acres for the 18 winter wheat states that have 30 years of weekly wheat crop condition reports. The models presented here estimate both yield and harvested acres based on the most recent week of crop condition reports. The models provide a confidence interval for acres, yields, and total production.

Estimate of Crop Condition

The weekly Crop Progress and Condition Report issued by the USDA National Agricultural Statistics Service, includes temperature, precipitation, and progress of crop planting, development and harvesting. This report is issued weekly, except during winter months when it is entered monthly. While this report gives the current crop condition, it doesn't make any projections about wheat yields. Predicting yields for wheat can be difficult as the crop often does better than it looks in the field and can quickly improve with timely rains. Predicting harvested acres is just as difficult as some states like Texas and Oklahoma often have high abandonment rates.

There has been some research that has attempted to match the crop condition report back to yields. Bain and Fortenbery (Bain, R. and T. R. Fortenbery. 2013. “Impacts of Crop Conditions Reports on National and Local Wheat Markets.” Proceedings of the NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. St. Louis, MO. [http://www.farmdoc.illinois.edu/nccc134] presented a paper that used an index of the crop condition report to estimate crop yields. Their procedure, described below, is used in this paper to show the relationship between crop conditions and wheat yields.

Procedure

Bain and Fortenbery construct an index of weekly crop conditions:

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CCIndex =
          (% acreage Excellent) * 1    +
          (% acreage Good)      * 0.75 +
          (% acreage Fair)      * 0.50 +
          (% acreage Poor)      * 0.25 +
          (% acreage Very poor) * 0
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Because the crop conditions are mutually exclusive, the sum of the percent of acres across the five categories must total to 100 percent. Thus, possible index values range from 100 (if all the crop acres are excellent) down to 0 (if all the crop acres are very poor). A value of 50 would indicate the average crop condition for the state is in fair condition. The USDA provides data at

the state level but not at the crop reporting district level nor at the county level. This last distinction could be important as in some states like Kansas, there is a wide variation in wheat quality from county to county.

In this analysis, the crop condition report for a specific week is used to construct a CCI index for the last 30 years. The crop conditions from the week of April 29, 2025 are used in the model reported here. These CCIndexes are then used in a regression analysis to estimate the deviation from trend line wheat yield in each state. Each state is estimated individually and the yield per acre confidence interval for each state is also calculated. Because the yield estimate is based on a specific week, the model must be rerun for each week of the growing season. That is, an analysis of the crop growing conditions next week will produce a different set of parameters than the current week as the CCIndex changes from week to week for both the current and historical years.

To estimate wheat production in each state, an estimate is needed of the harvested acres as well. In this analysis, the harvested acres estimate is based on a regression analysis of the harvested to planted acres ratio using the percent of wheat in the very poor category for the given week. The predicted harvested to planted acres ratio is then multiplied by the planted acres to give a predicted harvested acres for each state. Like the yield estimate, because the acre estimate is based on a specific week, the prediction of harvested acres is likely to vary across weeks.

Results

Figure 1 shows the estimated yield per harvested acre prediction along with the confidence intervals for each state as of the crop conditions on April 29, 2025. Wheat can be a difficult crop to forecast yields as wheat yields can often be surprising based on how it looks in the field. In general, soybeans and corn have higher R-squared values (a better fit), at comparable stages of the growing season. Late rains can help with wheat fill in some situations, however, there are counties in Kansas and other states where no amount of rain will add improvement to the yields.

Figure 2 shows the estimated harvested acres for each state where the main model factor is the percent of the wheat in the very poor category. This acreage forecast is likely less accurate based on the lower R-squared values and the larger confidence intervals

Figure 3 shows the estimated winter wheat production for the 18 winter wheat states with long term crop condition data. This estimate is produced by multiplying Figure 1 and Figure 2 together.

While total wheat production is forecast to be slightly higher than last year, readers should take note of the confidence intervals. For the 18 leading winter wheat states, production is forecast at 1.2 billion bushels. However, for these 18 states, production could be as high as 1.3 billion bushels or as low as 1.1 billion bushels.

Wheat Yields per Acre by State - 4/29/2025

Bushels per harvested acre

State	Last year	2025 prediction			
		Lower CI	Predicted	Upper CI	R squared
Arkansas	56.0	53.8	55.6	57.3	0.23
California	78.0	71.7	77.0	82.3	−0.03
Colorado	35.0	34.6	36.8	39.0	0.34
Idaho	89.0	84.7	87.6	90.5	−0.02
Illinois	86.0	77.5	79.4	81.3	0.30
Indiana	89.0	80.9	82.9	85.0	0.46
Kansas	43.0	43.7	45.8	47.9	0.48
Michigan	87.0	83.4	85.5	87.5	0.17
Missouri	75.0	68.4	70.9	73.5	0.31
Montana	50.0	46.6	48.8	50.9	0.30
Nebraska	52.0	39.1	41.8	44.5	0.45
North_Carolina	57.0	61.0	63.0	65.0	0.49
Ohio	85.0	75.2	77.5	79.8	0.44
Oklahoma	38.0	33.1	34.7	36.3	0.58
Oregon	70.0	57.0	59.8	62.5	0.42
South_Dakota	63.0	44.6	48.4	52.3	0.27
Texas	31.0	31.7	32.7	33.8	0.32
Washington	70.0	62.8	65.2	67.5	0.41

Figure 1. Estimated Yield per Harvested Acre for 18 Winter Wheat States as of 4/29/25

Wheat Harvested Acres by State - 4/29/2025

1,000 acres

	State	Last year	Planted acres	2025 harvest estimate			R squared
				Lower CI	Predicted	Upper CI	
	Arkansas	85	120	88	94	101	−0.03
	California	75	290	126	148	169	−0.03
	Colorado	1,840	2,100	1,822	1,859	1,897	0.65
	Idaho	700	790	733	740	747	0.02
	Illinois	700	780	723	732	741	0.75
	Indiana	240	320	278	285	293	0.03
	Kansas	7,150	7,300	6,802	6,912	7,022	0.72
	Michigan	375	540	510	517	524	0.38
	Missouri	480	640	519	542	564	−0.02
	Montana	1,830	2,300	2,096	2,157	2,217	0.50
	Nebraska	920	970	772	798	825	0.66
	North_Carolina	330	360	289	299	309	0.01
	Ohio	465	570	525	533	541	0.32
	Oklahoma	2,850	4,150	2,750	2,861	2,972	0.32
	Oregon	725	750	718	725	731	0.31
	South_Dakota	760	800	508	554	599	0.59
	Texas	2,600	5,500	2,689	2,858	3,027	0.60
	Washington	1,750	1,850	1,738	1,767	1,796	0.09
sum	—	23,875	30,130	23,687	24,381	25,074	—

Figure 2: Estimated Harvest Acres for 18 Winter Wheat States as of 4/29/25

Total Wheat Production by State - 4/29/2025

1,000,000 bushels

	State	Last year	2025 prediction		
			Lower CI	Predicted	Upper CI
	Arkansas	5	5	5	6
	California	6	9	11	14
	Colorado	64	63	68	74
	Idaho	62	62	65	68
	Illinois	60	56	58	60
	Indiana	21	23	24	25
	Kansas	307	297	316	336
	Michigan	33	43	44	46
	Missouri	36	36	38	41
	Montana	92	98	105	113
	Nebraska	48	30	33	37
	North_Carolina	19	18	19	20
	Ohio	40	39	41	43
	Oklahoma	108	91	99	108
	Oregon	51	41	43	46
	South_Dakota	48	23	27	31
	Texas	81	85	94	102
	Washington	122	109	115	121
sum	—	1,203	1,127	1,208	1,292

Figure 3. Estimated Winter Wheat Production for 18 Winter Wheat States as of 4/29/25

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