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Weekly Farm Economics: Projected Yield and Revenue Changes from 2018 to 2019 for Corn and Soybeans in the Midwest States

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Crop revenue changes from 2018 to 2019 will vary across Midwest states for both corn and soybeans. States in the eastern corn-belt — Illinois, Indiana, and Ohio — likely will have revenue declines because of yield decreases. Western corn-belt states are not projected to have large yield declines. Possibly, price increases could offset yield decreases in the western corn-belt, resulting in higher revenues in western corn-belt states in 2019.

Yields across Midwest States

Table 1 shows corn and soybean yields in 2018 and 2019 for the Midwest states. These state-level yields come from the National Agricultural Statistical Service (NASS), an agency of the U.S. Department of Agriculture. Yields for 2019 still are projections, with the potential for modifications in the future.

Illinois had a 210 bushel per acre yield for corn in 2018. Projections are for a 179 yield in 2019, a decline of 31 bushels per acre from the 2019 yield (see Table 1). For Illinois, soybean yields in 2019 are projected to be 12.5 bushels lower than in 2019, declining from 63.5 bushels per acre in 2018 to 51.0 bushels per acre in 2019.

Large yield declines are projected for the eastern corn-belt states of Illinois, Indiana, and Ohio. Corn yields are projected 31 bushels per acre lower for Illinois, and 27 bushels per acre lower for Indiana and Ohio (see Table 1). Soybean yields are projected to be 12.5 bushels per acre lower for Illinois, 9.5 bushels per acre lower for Indiana, and 8.0 bushel per acre lower for Ohio.

Western corn-belt states are projected to have 2019 yields closer to 2018 yields. From 2018 to 2019, corn yields are projected to be 9 bushels lower for Minnesota, 7 bushels lower for North Dakota, 6 bushels per acre lower for South Dakota, and 4 bushels lower for Iowa. Missouri is projected to have 15 bushel higher corn yields in 2019. Soybean yields are projected 5 bushels per acre lower for Nebraska, 3 bushels lower for Iowa, 2 bushels lower for Nebraska, and 2 bushels lower for South Dakota. North Dakota is projected to have the same soybean yield in 2019 as in 2018. Missouri is projected to have 1.5 bushel higher yields in 2019.

Table 1. Yield and Revenue Changes from 2018 to 2019 for Corn and Soybeans in Midwest States

	Corn				Soybeans			
	Yield[1]		Yield	Revenue	Yield[1]		Yield	Revenue
	2018	2019P	Change[2]	Change[3]	2018	2019P	Change[2]	Change[4]
	bu/acre	bu/acre	bu/acre	$/acre	bu/acre	bu/acre	bu/acre	$/acre
Illinois	**210**	**179**	**-31**	**-$78**	**63.5**	**51.0**	**-12.5**	**-79**
Indiana	189	162	-27	-$67	57.5	48.0	-9.5	-56
Iowa	196	192	-4	$22	56.0	53.0	-3.0	2
Kansas	129	136	7	$51	43.0	43.0	0.0	22
Kentucky	175	178	3	$45	51.0	49.0	-2.0	9
Michigan	153	155	2	$37	47.5	44.0	-3.5	-7
Minnesota	182	173	-9	$0	49.0	44.0	-5.0	-20
Missouri	140	155	15	$84	44.5	46.0	1.5	37
Nebraska	192	186	-6	$14	58.0	56.0	-2.0	12
North Dakota	153	146	-7	$2	35.0	35.0	0.0	18
Ohio	187	160	-27	-$67	56.0	48.0	-8.0	-43
South Dakota	160	154	-6	$8	45.0	43.0	-2.0	5
Wisconsin	172	163	-9	-$2	48.0	46.0	-2.0	7

[1] State yields from National Agricultural Statistical Service. Yields for 2019 are projections.

[2] The 2019 yield minus the 2018 yield.

[3] Revenue change equals $3.80 MYA price for 2019 x 2019 yield - $3.61 MYA pried x 2018 yield.

[4] Revenue change equals $9.00 MYA price for 2019 x 2019 yield - $8.48 MYA price x 2018 yield.

Source: Yields are from National Agricultural Statistical Service, USDA.

Overall, eastern corn-belt states were much harder hit with wet weather and delayed planting than western corn-belt states.

Revenue Changes From 2018 to 2019

Crop revenue change will be impacted by yield declines as well as price changes. Market Year Average (MYA) prices for 2018 and projected 2019 prices are used to estimate revenue changes. These MYA prices are published by the USDA and are national prices. Local prices will vary from national levels, but changes in local prices tend to be correlated with changes in national prices. As a result, revenue changes in a region tend to follow national price changes.

For corn, the 2018 MYA price as published by NASS is $3.61 per bushel. Currently, the Office of Chief Economist is projecting a $3.80 price for 2019 (WASDE, October 2019). The $.19 per bushel higher price in 2019 will counter yield declines when calculating revenue changes.

For soybeans, the 2018 MYA price is $8.48 per bushel. Currently, the Office of Chief Economist is projecting a $9.00 price for 2019 (WASDE, October 2019). Similar to corn, the $.52 per bushel higher price in 2019 will counter yield declines when calculating revenue changes.

Actual 2019 prices could vary considerably from the current projections. As a result, actual revenue can vary from those shown in this article.

For each state, a revenue change for each crop is calculated. For example, the per acre revenue change for corn In Illinois is projected to decline by $78 per acre from 2018 to 2019 in Illinois (see Table 1). This revenue decline is found by multiplying the 179 yield for 2019 by the $3.80 projected MYA price, and then subtracting the 210 yield for 2019 by the 2018 MYA price of $3.61 per bushel.

States in the eastern corn-belt are projected to have large revenue declines. For corn, the 2019 crop revenue is projected to be lower than the 2018 revenue by $78 per acre for Illinois, $67 for Indiana, and

$67 for Ohio. For soybeans, 2019 crop revenue is projected to be lower than 2018 revenue by $79 per acre for Illinois, $56 for Indiana, and $43 for Ohio.

On the other hand, states in the western corn-belt are projected to have crop revenue increases. Corn crop revenue is projected $84 per acre higher in Missouri, $22 higher in Iowa, $14 higher in Nebraska, $8 higher in South Dakota, $2 higher in North Dakota. Corn crop revenue is projected the same for Minnesota. Soybean crop revenue is projected $37 higher in Missouri, $18 higher for North Dakota, $12 higher for Nebraska, $5 higher in South Dakota, $2 higher for Iowa. Minnesota is projected to have $20 lower crop revenue for soybeans in 2019 as compared to 2018.

Commentary

Revenue changes from 2018 to 2019 will be mixed. Farms in the eastern corn-belt will tend to have lower revenues while farms in the western corn-belt will tend to have higher revenue.

Farms in the eastern corn-belt could have much lower incomes. While Market Facilitation Program (MFP) payments will be about $10 to $20 per acre higher in 2019 than in 2018 (see *farmdoc daily*, July 30, 2019), yield declines will cause lower revenues across most farms in the eastern corn-belt.

Farms in the western corn-belt could have higher incomes in 2019 compared to 2018. Crop revenue changes could be positive and increases in MFP payments could contribute to higher incomes.

Recent soybean price increases have considerably brightened the income outlook. To illustrate, the Office of Chief Economist of USDA was projecting a 2019 MYA price of $8.10 per bushel in May, increasing to $8.50 in September, and $9.00 in October. Using an $8.50 soybean would result in a -$104 per acre revenue change in Illinois, rather than the -$79 per acre value shown in Table 1 for a 2019 MYA price of $9.00 per bushel.

As is always the case at this time of year, there is a great deal of uncertainty concerning MYA prices for the year. The 2019 marketing year for corn and soybeans has just beginning, and market prices could change considerably from the projections shown in this paper.

Finally, revenue changes will vary considerably across states. In Illinois, for example, yield declines likely will be much larger in parts of northern and southern Illinois compared to central Illinois. Farms with prevented planting could have differing revenue from those that did. As a result, revenue and incomes could vary considerably across farms within states. Even across local areas, yield across farms will vary, leading to income variability.

References

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