



Weekly Farm Economics: 2019 Northern Illinois Crop and Prevent Plant Budgets in July

Gary Schnitkey, Krista Swanson, Jonathan Coppess, and Ryan Batts

Department of Agricultural and Consumer Economics
University of Illinois

Carl Zulauf

Department of Agricultural, Environmental and Development Economics
Ohio State University

July 2, 2019

farmdoc daily (9): 122

Recommended citation format: Schnitkey, G., K. Swanson, C. Zulauf, J. Coppess, and R. Batts. "2019 Northern Illinois Crop and Prevent Plant Budgets in July." *farmdoc daily* (9): 122, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, July 2, 2019.

Permalink: <https://farmdocdaily.illinois.edu/2019/07/2019-northern-illinois-crop-and-prevent-plant-budgets-in-july.html>

Overall, projections suggest low returns for corn, soybeans, and prevent plant acres in Northern Illinois, an area that has been hard hit with wet weather, delayed planting, and prevent planting. Corn and soybean returns are projected to be lower than any year going back to 2000, even after including significant Market Facilitation Program (MFP) payments and estimates of crop insurance payments at an 85% coverage level. Corn prevent planting returns are higher than corn returns given current estimates of harvest-time prices, although both results in a loss on average cash rented land. Soybean returns are expected to be better than soybean prevent plant returns, which are very low. As with corn, both soybean scenarios result in a loss on average cash rented land.

Northern Illinois Budgets

Parts of northern Illinois are among the hardest hit regions of the nation with heavy rainfall, and therefore large amounts of prevent plant acres. In DeKalb County, for example, visual impactions on June 27th suggest many fields still are unplanted and much of the planted corn at V2, a very early vegetative stage of growth. Progress in LaSalle County is even worse. As a result, northern Illinois budgets are depicted in this article (see Table 1).

We request all readers, electronic media and others follow our citation guidelines when re-posting articles from farmdoc daily. Guidelines are available [here](#). The farmdoc daily website falls under University of Illinois copyright and intellectual property rights. For a detailed statement, please see the University of Illinois Copyright Information and Policies [here](#).

Table 1. 2019 Crop Budgets, Northern Illinois¹

	Corn	Soybean	Prevent Planting	
			Corn	Soybeans
Yield per acre	165	50		
Harvest Price	\$4.50	\$9.20		
basis	\$0.30	\$0.40		
Cash price per bushel	\$4.20	\$8.80		
Crop revenue	\$693	\$440	0	0
MFP	\$50	\$50	30	30
ARC/PLC	10	10	10	10
Crop Insurance proceeds	18	18	0	0
Prevent planting payment	0	0	383	277
Gross revenue	\$771	\$518	\$423	\$317
Fertilizers	120	33	0	0
Pesticides	60	36	15	15
Seed	114	73	18	18
Drying	50	0	0	0
Storage	10	4	0	0
Crop insurance	24	16	24	16
Total direct costs	\$378	\$162	\$57	\$49
Machine hire/lease	24	21	5	5
Utilities	6	5	4	4
Machine repair	27	23	5	5
Fuel and oil	21	17	5	5
Light vehicle	2	1	2	2
Mach. depreciation	65	56	45	45
Total power costs	\$145	\$123	\$66	\$66
Hired labor	23	20	10	10
Building repair and rent	6	3	4	4
Building depreciation	16	8	10	10
Insurance	10	10	10	10
Misc	10	10	10	10
Interest (non-land)	23	22	18	18
Total overhead costs	\$88	\$73	\$62	\$62
Total non-land costs	\$611	\$358	\$185	\$177
Operator and land return	\$160	\$160	\$238	\$140
Land costs	253	253	253	253
Farmer return	-\$93	-\$93	-\$15	-\$113

¹ Adapted from Illinois Crop Budgets

Revenue in Budgets

Budgets shown in Table 1 are based on purchasing Revenue Protection (RP) crop insurance at an 85% coverage level. As shown later in this article, lower coverage levels will result in lower revenue estimates, particularly for prevent planting acres. A Trend-Adjusted Actual Production History (TA-APH) yield of 205 bushels per acre is used for corn and a 62 TA-APH is used for soybeans. [Crop Progress Reports](#) from the National Agricultural Statistical Service suggest that over half of the corn in Illinois was planted in June, and half the soybeans were planted after June 9th. As a result, we assume that some of the planting occurred after the final planting dates (June 5 for corn and June 15 for soybeans), resulting in reductions in crop insurance guarantees from their original levels. We assume an average planting date of June 8 for corn and June 20 for soybeans, resulting in a 3% reduction in the corn crop insurance guarantee and a 5% reduction in the soybean crop insurance guarantee.

Yields are estimated at 165 bushels per acre for corn and 50 bushels per acre for soybeans. Both of these yields will result in RP insurance payments at the 85% coverage level. Given late planting assumptions, crop insurance payments will occur when yields are below 169 bushels per acre for corn ($169 = 205 \text{ TA-APH} \times .85 \text{ coverage level} \times (1 - .03 \text{ late planting reduction})$) and 50 bushels per acre for soybeans ($50 = 65 \text{ TA-APH} \times .85 \text{ coverage level} \times (1 - .05 \text{ late planting reduction})$). At these coverage levels, lower yields will have very little impact on return projections, as higher crop insurance payments will offset lower crop revenue.

Harvest prices used to determine crop insurance payments are \$4.50 per bushel for corn and \$9.20 per bushel for soybeans, above the current level of the December 2019 Chicago Mercantile Exchange (CME) corn contract price and the November 2019 CME soybean contract price. Settlement prices of those contracts during October are used to set revenue for crop insurance guarantees. In recent days, both corn and soybean prices have fallen. Using current futures price levels would result in lower returns for corn and soybeans planting.

At this point, the \$4.50 estimated harvest price is above the \$4.00 projected price for 2019. Higher corn harvest prices will result in higher returns because both crop revenue and crop insurance proceeds will increase with higher harvest prices. The soybean harvest price of \$9.20 is below the \$9.54 projected price for 2019. Higher harvest prices will increase crop revenue but the difference will be offset by a reduction in crop insurance proceeds. Total returns for soybeans should not be expected to increase until CME soybean futures prices exceed the projected price of \$9.54.

A \$.30 basis is used for corn and a \$.40 basis is used for soybeans, resulting in cash prices at harvest of \$4.20 for corn ($\$4.50 \text{ harvest price} - .30 \text{ basis}$) and \$8.80 for soybeans ($\$9.20 \text{ harvest price} - .40 \text{ basis}$). Crop revenue will be based on these cash prices, with pricing assumed at harvest. Many farmers priced grain in the spring. Since prices are now higher than in the spring, those farmers who pre-priced grain, often viewed as a sign of "good marketing", could have lower returns this year.

Crop revenue from the market is forecast at \$693 per corn, equaling the \$4.20 cash price times a yield of 165 bushels per acre. Soybean crop revenue from the market is projected at \$440 per acre, equaling a 50 bushel per acre yield times an \$8.80 per bushel cash soybean price.

USDA has not announced payment rates for the Market Facilitation Program (MFP). Hence, MFP payments must be estimated. Market Facilitation Program (MFP) payments are estimated at \$50 per acre for corn and soybeans. The same rate is used per acre for corn and soybeans as USDA announced that all MFP-eligible planted crops will receive the same per acre payment. In recent press reports, USDA has suggested that cover crops must be planted to be eligible for MFP payments on prevent planting farmland (The Hagerstorm Report, [July 1, 2019](#)). In previous reports, USDA said that a minimal-MFP payment would be received if a cover crop that was harvestable (USDA [Press Release, June 10, 2019](#)). A \$30 per acre MFP is used in prevent planting return estimates on this article. This estimate recognizes that USDA wishes to encourage cover crop planting, but there may be limits to the size of the MFP payment on prevent planting farmland. The prevent planting MFP could be of the incorrect size relative to the MFP payments for corn and soybeans.

Agricultural Risk Coverage (ARC) commodity title program payments are built in at \$10 per acre. These projections are for the 2019 crop year. As of yet, final details of commodity title choices have not been released by USDA, although sign up for 2019 programs is scheduled to open in September. Estimates in Table 1 are based on choosing ARC at the county level over Price Loss Coverage (PLC). At prices used in forecasts, PLC is not projected to make a payment. Current price and yields estimates suggest that soybeans are likely to have higher ARC payments than corn. ARC payments are the same for all budgets as commodity title payments are made on program acres and not planted acres.

Crop insurance proceeds coincidentally are both \$18 per acre, based on the 85% RP policies more fully described above.

The prevent planting payment for corn is \$383 per acre ($.55 \text{ prevent plant payment factor} \times .85 \text{ coverage level} \times 205 \text{ TA-APH yield} \times \$4.00 \text{ projected price}$). The prevent planting payment for soybeans is \$302 per acre ($.60 \text{ prevent planting payment factor} \times .85 \text{ coverage level} \times 62 \text{ TA-APH} \times \$9.54 \text{ projected price}$).

Non-Land Costs

Non-land costs for corn and soybeans come from 2019 Illinois Crop Budgets for northern Illinois with two modifications. Fertilizer costs are lower under the assumption that farmers reduced nitrogen applications. Drying costs for corn have been increased to \$50 per acre to reflect likely higher drying needed for late harvesting.

Prevent planting costs for both corn and soybeans are calculated given planting of cover crops (\$18 per acre of seed) and one application of pesticides (\$15 per acre). Machine hire, machine repair, and fuel are built into budgets to cover these operations. Machinery depreciation is \$65 per acre for corn and \$56 for soybeans. Machinery depreciation for cover crops is at \$45 per acre, lower than that for soybeans. To a large extent, depreciation is a fixed cost. Simply owning the machinery inventory will result in costs. As a result, there is a significant depreciation charge included for prevent planting farmland.

Land Costs

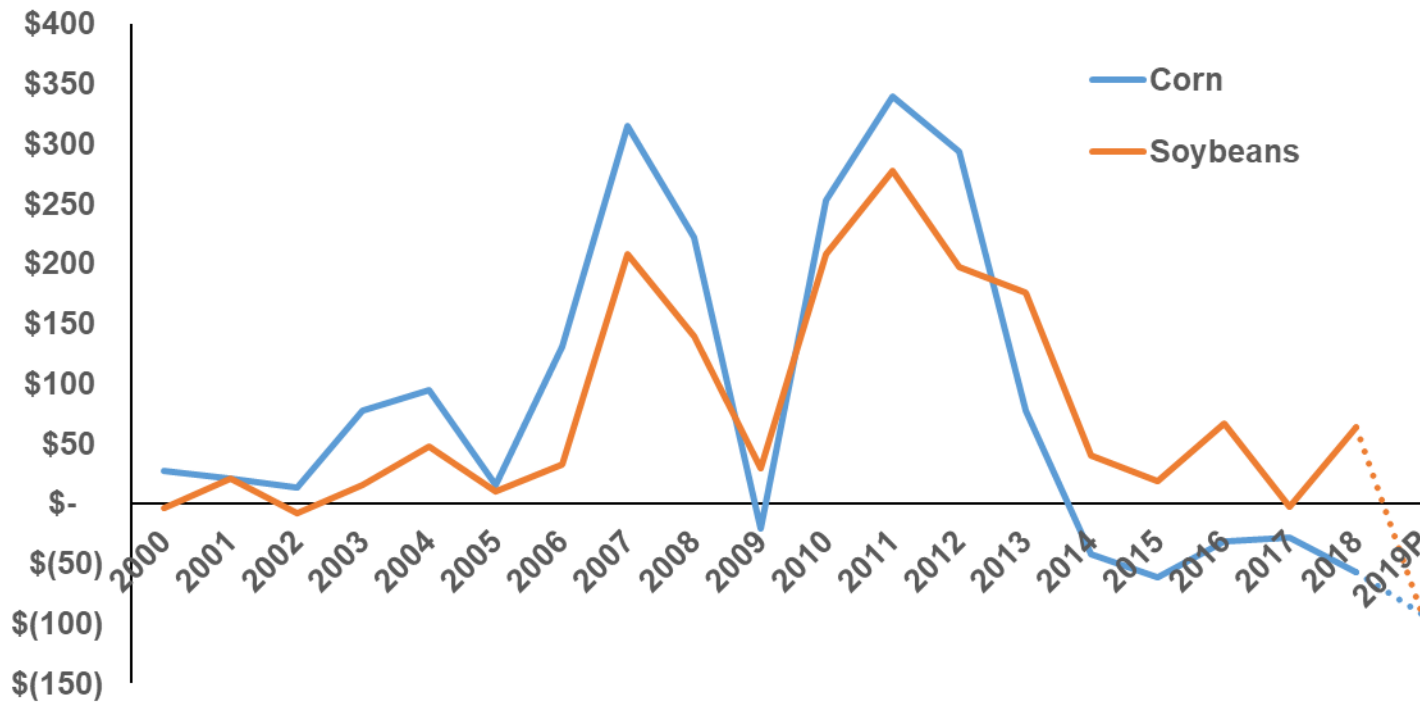
Land costs are included in the budgets at \$253 per acre, the average rent projected for northern Illinois farmland. Land costs will vary depending on ownership structure and rental arrangement. Owned land will have financial costs related to property tax (approximately \$50 per acre) and interest if mortgaged (about \$20 per acre on average). Property tax and interest costs do not include any cash flow requirements related to principal payments on land loans. The cost of share-rent farmland, typically 50% of gross revenue minus 50% of direct cost, will be lower than cash rent in 2019.

Farmer Return

The farmer return is the amount remaining after paying all financial costs and land costs. Estimates in Table 1 are for cash rent farmland at the average cash rent.

The farmer return for corn is -\$93 per acre. This net return is the lowest for corn going back to 2000 (see Figure 1). The next lowest return occurred in 2015, when farmer return was -\$61 per acre. Corn has had negative farmer returns in 2009 (-\$21 per acre), 2014 (-\$43 per acre), 2015 (-\$52 per acre), 2016 (-\$31 per acre), 2017 (-\$61 per acre) and 2018 (-\$57 per acre). Thus, negative returns in 2018 will be the sixth year of negative returns to corn.

Figure 1. Farmer Return in Northern Illinois, 2000 to 2018, with 2019 Projections



The farmer returns for soybeans is -\$93 per acre. Similar to the corn, the soybean net return is the lowest net return of any year going back to 2000. The next lowest return is -\$8 per acre in 2002. The negative returns projected for 2019 would be only the third time since 2000 that soybeans have a negative return.

If 2019 projections hold, both corn and soybeans will have negative farmer returns in 2019. This will be the first year in the nineteen-year period that both corn and soybeans have negative returns in the same year (see Figure 1). Furthermore, note that returns estimates include \$50 of MFP payments. Without these payments, farmer losses would be over \$100 per acre. Increases in MFP payments are possible, but MFP payments would have to exceed \$143 per acre before farmer returns for planting crops are positive.

The farmer return to prevent plant corn is -\$15 per acre. This prevent plant return is higher than the -\$93 return for corn, but still is negative. This example assumed cover crops are planted, making it eligible for a MFP payment, the corn prevent plant return includes an estimated MFP payment of \$30 per acre. A higher payment would increase returns, and a lower return would decrease returns

The net return for prevent plant soybeans is -\$113 per acre. This is a disastrously low level.

Overall, net return projections point to negative net incomes for Northern Illinois farms in 2019. As covered in the following sections, there is some hope for higher returns in both corn and soybeans.

Difference in Corn Returns from Projections

In Table 1, farmer returns for corn are projected at -\$93 per acre. Differences in yields and prices will cause farmers returns to vary from that projection. In Table 2, the -\$93 per acre projection for a \$4.50 harvest price and a 165 bushel per acre yield is highlighted and in a box. At a 165 bushel per acre yield, positive farmer returns result if the harvest price is over \$5.25 per bushel. Given a \$.30 basis, the \$5.25 harvest price results in a cash price at \$4.95. Even at lower yields, a \$5.25 harvest price results in positive returns as crop insurance covers the lower yields.

Table 2. Farmer Returns for Corn at Different Prices and Yields¹.

Harvest Price ²	Cash Price ³	Yield per acre				
		125	145	165	185	205
		\$ per acre				
3.50	3.20	-165	-171	-177	-183	-148
3.75	3.45	-165	-171	-177	-166	-97
4.00	3.70	-165	-171	-177	-120	-46
4.25	3.95	-123	-129	-135	-73	6
4.50	4.20	-81	-87	-93	-27	57
4.75	4.45	-39	-45	-51	19	108
5.00	4.70	4	-2	-8	66	160
5.25	4.95	46	40	34	112	211
5.50	5.20	88	82	76	158	262

¹ Farmer returns calculated from the budget in Table 1 by replacing price and yields and calculating different returns.

² Harvest price for crop insurance purpose.

³ Cash price for grain sales in determining revenue.

Higher yields could also result in positive farmer returns. For example, positive returns result at a 185 bushel per acre yield if harvest price is above \$4.75. At the 205 TA-APH yield, harvest prices need to be at \$4.25 per bushel for positive returns.

The following two points summarize the yield and price relationships:

1. Harvest prices above \$5.25 per bushel likely will result in positive farmer returns if RP is purchased at 85% coverage
2. If yields are close to the TA-APH yield, marketing the crop at prices above \$4.00 per bushel will result in positive returns

The above relationships are based on an estimated \$50 per acre MFP payment. A lower MFP payment will cause break-even prices and yields to increase, and vice versa.

Difference in Soybean Returns from Projections

In Table 1, farmer return for soybeans is projected at -\$93 per acre. Positive returns for soybeans could result if harvest prices are above \$10.40 per bushel (see Table 3). Given a \$.40 basis, a \$10.40 harvest price would result in cash prices above \$10 per bushel. As yields approach the TA-APH (62 bushels per acre) harvest price has to exceed a lower threshold of \$10.20 per bushel (\$9.80 cash price).

Table 3. Farmer Returns for Soybeans at Different Prices and Yields¹.

Harvest Price ²	Cash Price ³	Yield per acre				
		40	45	50	55	60
		\$ per acre				
8.40	8.00	-89	-91	-93	-95	-71
8.60	8.20	-89	-91	-93	-95	-97
8.80	8.40	-89	-91	-93	-95	-97
9.00	8.60	-89	-91	-93	-95	-97
9.20	8.80	-89	-91	-93	-95	-97
9.40	9.00	-89	-91	-93	-95	-97
9.60	9.20	-89	-91	-93	-95	-97
9.80	9.40	-89	-91	-93	-95	-71
10.00	9.60	-89	-91	-93	-67	-23
10.20	9.80	-56	-58	-60	-12	37
10.40	10.00	4	2	0	54	109
10.60	10.20	74	72	70	131	193
10.80	10.40	154	152	150	219	289

¹ Farmer returns calculated from the budget in Table 1 by replacing price and yields and calculating different returns.
² Harvest price for crop insurance purpose.
³ Cash price for grain sales in determining revenue.

Higher yields will not increase soybean returns at an 85% RP coverage level without price increases. The projected price for soybeans is \$9.54. As long as the projected harvest price is below \$9.54, increases in prices will increase crop revenue but reduce crop insurance payments, resulting in no change to overall farmer returns.

Similar to corn, the above soybean profitability relationships are based on a \$50 per acre MFP payment. Lower MFP payments will result in higher break-even prices, and vice versa.

Difference in Prevent Planting Payments from Projections

Net returns from prevent planting are projected at -\$15 per acre for corn and -\$113 per acre for soybeans. Changes in prices and yields will not influence the prevent planting returns. Three items on the revenue side could change projections shown in Table 1.

First, the MFP payment could differ from the \$30 per acre values shown in Table 1. Again, USDA has not announced these rates, so the values in Table 1 are estimates.

Second, payments related to recently passed ad hoc disaster assistance could increase prevent planting returns. The legislation indicates that payments can be 1) based on the higher of the projected and harvest prices and 2) compensate farmers up to 90% of losses. There is considerable discretion in how USDA implements this legislation and appropriation limits total disaster assistance payments to \$3 billion. Not all of the appropriations will be targeted at prevent planting acres. The legislation also covers losses in 2018 and 2019. All of this suggests low per acre payments.

Third, a farmer could sell forages from prevent planting acres. The Risk Management Agency (RMA) relaxed foraging stipulations on prevent plant acres for this year only (see *farmdoc daily*, [June 25, 2019](#)). After September 1, cover crops can be grazed, hayed, or made into baleage and silage, a needed relaxation for requirements given the challenges that dairy and livestock producers will face this year in meeting forage needs. However, only a very small number of grain producers in predominately grain areas like Illinois will be able to sell forages to dairy and livestock producers. There simply are not livestock producers close enough for most grain farmers to have an economical market for forages produced from cover crops.

Given current estimates, taking prevent planting payments will be a losing financial proposition, particularly for soybeans. On most farms, prevent planting was taken because it was simply impossible to plant crops, or because the prospect of planting results in much lower returns than taking the prevent planting payment.

Impacts of Lower RP Coverage Levels

Many farmers take RP at an 85% coverage level and the returns presented above use RP 85% coverage levels. In 2018, 55% of the corn acres insured in LaSalle County, Illinois were at an RP 85% coverage level (see 2019 Crop Insurance Decision Tool, available for [download in the farmdoc website](#)). Still, many farmers have lower coverage levels.

Table 4 shows the impacts of lower coverage levels on farmer returns. For corn, farmer returns decline from -\$93 per acre at an 85% coverage level to -\$106 per acre at an 80% coverage level. No crop insurance payments occur at 80% and lower coverage levels given the yield and price estimates shown in Table 1 and used in this analysis. Return increases as coverage levels are reduced from 80% (-\$106 per acre) to no insurance (-\$87 per acre). These returns increase, though still significantly negative, because the insurance premium is declining. Farmer returns for soybeans show the same relationship as crop insurance payments are not occurring at 80% and lower coverage levels.

Table 4. Farmer Returns for Differing Revenue Protection (RP) Coverage Levels¹

Revenue Protection Coverage Level	Corn	Soybeans	Prevent Planting	
			Corn	Soybeans
	\$/acre	\$/acre	\$/acre	\$/acre
No insurance	-87	-95	NA	NA
55%	-89	-96	-128	-196
60%	-93	-97	-109	-181
65%	-96	-99	-90	-167
70%	-101	-101	-72	-152
75%	-103	-103	-52	-138
80%	-106	-106	-32	-125
85%	-93	-93	-15	-113

¹ Estimated using Table 1. See text for more information.

Coverage level has a more pronounced effect on prevent planting net returns. For corn, the prevent planting net return is reduced from -\$15 per acre at an 85% coverage level to a -\$128 per acre at a 55% coverage level. Lowering the coverage level reduces the prevent planting payments, thereby resulting in the lower returns.

Summary

Current projections of prices and yields result in negative returns for Northern Illinois, an area that has experienced a large amount of wet weather that has caused delayed and prevented planting. These negative returns are based on a significant-sized MFP payment. There could be some upside, most likely for farmers who have planted. Higher returns than those presented in this paper could result if corn and soybean prices increase significantly from current levels. Still, all of these projections suggest negative incomes for farmers in water-logged areas.

References

Schnitkey, G., K. Swanson, C. Zulauf, J. Coppess and R. Batts. "[Cover Crops and Prevent Planting in 2019](#)." *farmdoc daily* (9):117, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, June 25, 2019.

The Hagstrom Report. "Northey: Prevented Planting Could Hit More than 10 Million Acres." *The Fence Post*, July 1, 2019. <https://www.thefencepost.com/news/northey-prevented-planting-could-hit-more-than-10-million-acres>

USDA Press Release. "Secretary Perdue Statement on Disaster and Trade-Related Assistance." Release No. 0087.19, June 10, 2019. <https://www.usda.gov/media/press-releases/2019/06/10/secretary-perdue-statement-disaster-and-trade-related-assistance>

USDA, National Agricultural Statistics Service. *Crop Progress* (Release weekly). <https://usda.library.cornell.edu/concern/publications/8336h188j?locale=en>