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## Weekly Farm Economics: Profitability Impacts of Trend and High Yields on Corn and Soybean Profitability in Central Illinois

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In recent years, yields over much of Illinois have been above average. A return to trend yields would result in much lower farmland returns, particularly if prices do not increase. History suggest trend yields can occur without price increases. Evaluating budgets with trend yields seem prudent for 2019.

### 2019 Budgets

The *2019 Crop Budgets* published by the University of Illinois use trend yields in 2019 projections (see [Revenue and Costs for Illinois Grain Crops](#)). For high-productivity farmland in central Illinois, trend yields are 210 bushels per acre for corn and 63 bushels per acre for soybeans (see Table 1). Between 2013 and 2018, Illinois yields averaged 20 bushels above trend for corn (*farmdoc daily*, [January 3, 2019](#)) and 6.5 bushels above trend for soybeans (*farmdoc daily*, [December 11, 2018](#)).

Using higher yields in 2019 budgets obviously will increase returns from corn and soybean production. Table 1 shows summary budgets for corn and soybeans production on high-productivity farmland in central Illinois. A trend-yield of 210 bushels of corn results in \$170 per acre of operator and land returns. Increasing yield by 20 bushels per acre to 230 bushels per acre increases return to \$242 per acre, an increase of \$72 per acre. For soybeans, a trend yield of 63 bushels per acre results in an operator and land return of \$173 per acre. Increasing yield by 6 bushels per acre to 69 bushels per acre increases operator and land return by \$51 per acre to \$224 per acre.

### Yields and Price Changes

A return to trend yields in 2019 will result in much lower returns to both corn and soybean production, particularly if prices do not move upwards. History suggest that price increases do not necessarily occur if yields are near trend yields.

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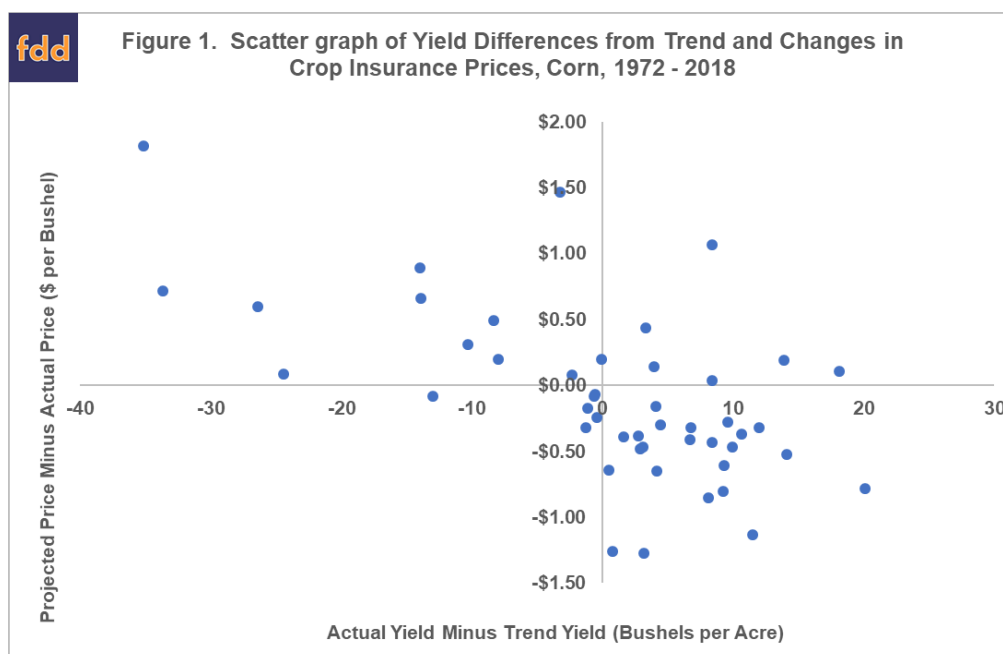
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**Table 1. 2019 Central Illinois Budgets with Trend and High Yields**

|                                 | Corn         |              | Soybeans     |              |
|---------------------------------|--------------|--------------|--------------|--------------|
|                                 | Trend-Yield  | High-Yield   | Trend-Yield  | High-Yield   |
| Yield per acre                  | 210          | 230          | 63           | 69           |
| Price per bushel                | \$3.60       | \$3.60       | \$8.50       | \$8.50       |
|                                 | \$/acre      | \$/acre      | \$/acre      | \$/acre      |
| Crop revenue                    | \$756        | \$828        | \$536        | \$587        |
| ARC/PLC                         | 0            | 0            | 0            | 0            |
| Other                           | 0            | 0            | 0            | 0            |
| <b>Gross revenue</b>            | <b>\$756</b> | <b>\$828</b> | <b>\$536</b> | <b>\$587</b> |
| Non-land costs                  | \$586        | \$586        | \$363        | \$363        |
| <b>Operator and land return</b> | <b>\$170</b> | <b>\$242</b> | <b>\$173</b> | <b>\$224</b> |

Source: Data from "Revenue and Costs for Illinois Grain Crops, September 2018, farmdoc.

Figure 1 illustrates changes in prices given difference from trend yields. Differences are shown for corn. Each dot in the figure represents a year. The value on the horizontal axis gives actual U.S. yield minus U.S. trend yield. If the actual yield is above the trend yield, there would be an additional supply of corn, likely leading to downward pressure on price. The vertical axis gives projected price minus harvest price, with both the projected and harvest prices used in crop insurance products. The projected price is based on the settlement of futures prices during the month of February before any indication of yields for the upcoming year. The harvest price is based on the settlement prices in October after yields are known. A negative projected minus harvest price value indicates that the harvest price is lower than the projected price.



There is a downward slope to the yield-price difference combinations in Figure 1, with above trend yields typically associated with harvest prices being below projected prices. The correlation between the yield-price differences is .60. However, there still is considerable variability in results. Moreover, actual yields being near trend yields still result in price decreases in many years (see Figure 1).

This latter fact suggests that it is possible to have actual yields close to trend yields and not have price increases. In other words, the high yield scenarios with no price increases shown in Table 1 are possible.

### **Summary and Commentary**

A return to trend yields is possible without any price increase. A scenario of this nature would be one that result in serious cash shortfalls in the coming year. Planning to cover cash shortfalls in this scenario seems prudent. As always, much can change in agriculture. Growing conditions in 2019 will have an impact on 2019 incomes.

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