Crop rotation and corn and soybean yield
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The 2012 field season was the ninth year of an experiment at the NWIARDC comparing corn and soybean yields among continuous corn, corn-soybean, and corn-corn-soybean rotations. The objective of this study was to see whether the corn-corn-soybean rotation is a good alternative to growing continuous corn on one-third of a farm’s acreage and the corn-soybean rotation on two-thirds; both of these crop mixes would have two-thirds corn and one-third soybeans each year.

Corn. Despite the dry weather in 2012, corn yields for each of the four rotations at Monmouth exceeded 200 bushels per acre, and followed closely the trends we have found over the past 9 years (Figure 1). The highest yields were in corn grown in a corn-soybean rotation and first year corn (C) after soybean (S) in a CCS rotation. Yields were significantly lower when corn was grown either continuously or in the second year of corn in a CCS rotation. Though we have noticed a tendency for second-year corn to yield more than continuous corn at some Illinois sites and at Monmouth in some years, we did not see this when data were averaged over the 9 years at Monmouth.

Figure 1. The effect of crop rotation on corn yield at the NWIARDC in Monmouth in 2004 through 2012; yields of those treatments with different letters are significantly different from one another.
**Soybean.** In 2012, soybean in the corn-soybean rotation yielded 74.4 bushels per acre and soybean in the CCS rotation yielded 79.1 bushels per acre, similar to the results over all 9 years of this study at Monmouth (Figure 2). While it has been generally acknowledged that soybeans following a number of years of continuous corn in a field yield more than soybeans following only a single year of corn, it is a little surprising that the difference is as large as 5 bushels per acre, and that it is as consistent as it has been at Monmouth.

![Monmouth 2004-2012](image)

**Figure 2.** The effect of crop rotation on soybean yields at the NWIARDC in Monmouth, 2004 through 2012; different letters on the two bars indicate that yields were statistically different.

With second-year corn yields not much higher than yields of continuous corn, the corn-corn-soybean rotation provides little advantage to corn yields. Soybean yields, however, were higher in the corn-corn soybean rotation, and this alone would make the corn-corn-soybean rotation more profitable than a mix of continuous corn and corn-soybean (2-year) rotations.

These results and the Corn-Soybean Rotation farm management FAST (Farm Analysis Solutions Tool) tool developed by University of Illinois’ Agricultural Economists on the [farmdoc website](http://farmdoc) may be of use in making rotation decisions for your operation.

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