



Weekly Farm Economics: More Corn in 2013?

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In the next several months, planting decisions will be finalized, with one of the central question being how much corn will be planted. Herein, the corn versus soybean planting decision for 2013 is examined for high-productivity farmland. If more corn acres are to be planted in 2013, more corn likely needs to be planted on high-productivity farmland. In most cases, switching to more corn on high productivity farmland means a reduction in 2013 soybean acres. While planting corn is projected more profitable in 2013, a longer run perspective indicates that planting more corn in 2013 may reduce profits in future years.

Single Year Budgets

Budgets for central Illinois farmland with high-productivity are shown in Table 1. These budgets are for the following crop–previous crop combinations having the following yields: corn-after-soybeans with yield of 198 bushels per acre, corn-after-corn with 188 bushels per acre, continuous corn with 180 bushels per acre, soybeans-after-corn with 57 bushels per acre, and soybeans-after-two-years of corn with 59 bushels per acre. Commodity prices represent current bids for fall 2013 delivery: \$5.70 per bushel for corn and \$12.80 per bushel for soybeans. Non-land costs total \$510 per acre for corn-after-soybeans, \$525 per acre for corn-after-corn and continuous corn, and \$308 per acre for soybeans-after-corn, and soybeans-after-two-years-corn.

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Table 1. 2013 Crop Budgets, Central Illinois -- High Productivity Farmland

	Corn- after- Soybeans	Corn- after- Corn	Continuous Corn	Soybeans- after- Corn	Soybeans- after-Two Years-Corn
Yield per acre	198	188	180	57	59
Price per bu	\$5.70	\$5.70	\$5.70	\$12.80	\$12.80
Crop revenue	\$1,129	\$1,072	\$1,026	\$730	\$755
ACRE revenue	0	0	0	0	0
Other gov't payments	24	24	24	24	24
Crop insurance proceeds	0	0	0	0	0
Gross revenue	\$1,153	\$1,096	\$1,050	\$754	\$779
Fertilizers	\$155	\$165	\$165	\$53	\$53
Pesticides	52	58	58	33	33
Seed	100	100	100	65	65
Drying	19	18	18	1	1
Storage	8	8	8	5	5
Crop insurance	28	28	28	20	20
Total direct costs	\$362	\$377	\$377	\$177	\$177
Machine hire/lease	\$8	\$8	\$8	\$8	\$8
Utilities	4	4	4	4	4
Machine repair	18	18	18	17	17
Fuel and oil	17	17	17	11	11
Light vehicle	2	2	2	1	1
Mach. depreciation	43	43	43	42	42
Total power costs	\$92	\$92	\$92	\$83	\$83
Hired labor	\$13	\$13	\$13	\$12	\$12
Building repair and rent	5	5	\$5	4	4
Building depreciation	6	6	\$6	3	3
Insurance	10	10	\$10	10	10
Misc	8	8	\$8	7	7
Interest (non-land)	14	14	\$14	12	12
Total overhead costs	\$56	\$56	\$56	\$48	\$48
Total non-land costs	\$510	\$525	\$525	\$308	\$308
Operator and land return	\$643	\$571	\$525	\$446	\$471

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Note that corn is more profitable than soybeans in all cases shown in Table 1. Operator and farmland returns are \$643 per acre for corn-after-soybeans, \$571 for corn-after-corn, and \$525 for continuous corn while returns for soybeans are \$446 for soybeans-after-corn and \$471 for corn-after-two-years-corn (see Table 1). The lowest corn return – \$525 for continuous corn – is \$54 per acre higher than the highest soybean return – \$471 for soybeans-after-two-years-corn. Evaluating corn versus soybeans in a one year context suggests planting corn.

Crop in Rotations

Evaluating cropping decisions in a single year context does not consider the impacts of current planting decisions on returns in future years. If, for example, all farmland in 2013 is planted to corn, there will be no possibility of planting corn-after-soybeans in 2014 as there were no soybeans in 2013. Planting soybeans in 2013 allows for a 2014 planting of the most profitable corn crop, corn-following-soybeans.

These sorts of decisions can be evaluated by calculating the profitability of rotations. Profits are calculated for three rotations:

1. Corn-soybeans rotation. Half the acres are corn and half are in soybeans. Corn follows soybeans and soybeans follow corn.
2. Corn-corn-soybeans rotation. Two-thirds of the acres are in corn and one-third is in soybeans. Corn follows soybeans on half the corn acre and corn follows corn on the other half of corn acres. Soybeans follow corn.
3. Continuous corn.

In calculating rotation returns, I assume that a constant rotation has been obtained. This means that all continuous corn acres are in continuous corn and continuous corn returns will be used in calculating continuous corn rotation return. It is possible to have higher returns for all corn if a switch is being made away from soybeans in the previous year (moving from a corn-soybeans rotation to continuous corn).

Rotations returns are:

\$545 per acre for corn-soybeans rotation (average of \$643 return for corn-after-soybeans and \$446 return for soybeans-after-corn).

\$562 per acre for corn-corn-soybeans (average of \$643 return for corn, \$571 for corn-after-corn, and \$471 for corn-after-two-years-corn).

\$525 per acre for continuous corn.

These rotation returns suggest that the corn-corn-soybeans rotation is the most profitable rotation.

For the corn-corn-soybeans rotation to be more profitable than corn-soybeans rotation, corn-after-corn yields cannot be too far below corn-after-soybeans yields. The above budgets assume that the 188 bushel corn-after-corn yield is 10 bushels less than the 198 bushel corn-after-soybeans yield. The corn-soybeans rotation has higher returns than the corn-corn-soybeans rotation if the corn-after-corn yield is below 180 bushels per acre. This implies that the corn-soybeans rotation is more profitable if there is an 18 bushel yield drag for corn-after-corn (198 bushel corn-after-soybean yield minus 180 break-even corn-after-corn yield). In this case, this works out to be a 10 percent yield drag.

Continuous corn is not as profitable as corn-corn-soybeans. For continuous corn to have the same profitability as the corn-corn-soybeans rotation, the continuous corn yield has to be 186.5 bushels. This 186.5 bushel yield compares to the budgeted yield of 188 bushels for corn-after-soybeans. Essentially, continuous corn cannot have a yield drag compared to corn-after-corn given the prices, yields, and costs shown in Table 1.

The Choice in 2013

Planting corn in 2013 is projected to be more profitable than soybeans. For example, the corn-after-corn return of \$571 per acre is \$125 per acre higher than soybeans-after-corn. This \$125 difference is large compared to historical differences in returns. Between 2006 through 2011, corn has average \$58 per acre more profitable than soybeans on central Illinois high-productivity farmland.

While planting my corn in 2013 may be more profitable, it may require giving up returns in future years, as fewer acres of corn-after-soybeans can be planted in 2014. Which way farmers will go is an open question. In recent years, many farmers have had much worse yield drags for corn-after-corn than those implied by budgets in Table 1. Reports of corn-after-corn having more than 40 bushels lower than corn-after-soybeans are not uncommon. These poorer corn-after-corn yields may cause some farmer to planting more soybeans.

Summary

Corn is projected more profitable than soybeans in 2013. Planting more corn in 2013 can result in lower returns in 2014 because fewer acres of corn-after-soybeans can be planted.

Rotation projections in this article are based on budgets in Table 1. Results are sensitive to yield drags for corn-after-corn and continuous corn. Also, farmland of lower productivity generally has less of an advantage in planting more corn. Historically, corn yields are higher relative to soybean yields on higher

productivity farmland. Hence, planting more soybeans on lower productivity farmland than suggested herein may be warranted.