



Controlling Costs with Lower Crop Revenues: Direct Costs

[Gary Schnitkey](#)

Department of Agricultural and Consumer Economics
University of Illinois

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This is the third of a five part series dealing with controlling costs on grain farms.

Per acre direct costs related to corn and soybean production have increased over 100% from 2006 to 2012. Except for fertilizer, components of direct costs are not expected to decrease without altering input decisions. Input changes may be warranted given lower commodity prices. Even given possible direct cost reductions, further reduction in costs likely are needed, most likely coming from machinery costs and cash rents.

Direct Costs Over Time

Direct costs are directly attributable to a crop and include fertilizer, pesticides, seed, drying, storage, and crop insurance. Historical time series from 2006 to 2012 of direct costs are shown in Table 1 for corn and soybeans grown on high-productivity farmland in central Illinois. These costs are summarized from farms enrolled in Illinois Farm Business Farm Management. Viewing these series allows evaluations of trends in direct costs.

Direct costs represent a sizable portion of total non-land costs. For corn in 2012, direct costs accounted for 70% of the \$581 per acre of non-land costs. Direct costs for soybeans represents a lower proportion of non-land costs than for corn. In 2012, the \$353 per acre direct costs for soybeans accounted for 56% of the \$353 per acre of non-land costs.

From 2006 to 2012, direct costs increased substantially. Direct costs for corn increased from \$197 per acre in 2006 to \$405 per acre in 2012, an increase of \$208 per acre. Soybean costs increased from \$97 per acre in 2006 to \$108 per acre in 2012, an increase of \$101 per acre. During the 2006-2012 time period, direct costs for both corn and soybeans increased over 100%. For both corn and soybeans, fertilizer and seed were the categories with the largest increases.

Fertilizer costs for corn increased from \$82 per acre in 2006 up to \$200 per acre in 2012. More detail on this \$118 per acre increase is provided in last week's *farmdoc Daily* article entitled "[Controlling Costs with Lower](#)

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Crop Revenues: Fertilizer Costs". As documented there, a possibility of fertilizer price decreases exists, leading to fertilizer cost decreases. In 2014, fertilizer costs for corn in the \$140 to \$150 per acre range are possible, compared to \$200 per acre in 2012.

Seed costs for corn increased from \$45 per acre in 2006 to \$108 per acre in 2012, an increase of \$63 per acre. Soybean seed costs increased from \$32 per acre in 2006 up to \$69 per acre in 2012, an increase of \$37 per acre. From 2006 to 2012, corn seed costs increased by 140% while soybean seed costs increased by 116%. Seed companies may slow the rate of increase in seed prices and farmer may purchase less costly hybrids and varieties. While increases may slow, large decreases in seed costs are not expected.

Table 1. Direct Costs of Corn and Soybeans Production, High-Productivity Farmland in Central Illinois, 2006 to 2012.

	Year						
	2006	2007	2008	2009	2010	2011	2012
Panel A. Corn							
Fertilizer	82	90	124	185	122	159	200
Pesticides	40	40	46	52	44	50	49
Seed	45	55	67	90	95	96	108
Drying	11	9	19	38	22	19	16
Storage	8	8	11	14	13	8	7
Crop insurance	11	20	27	25	18	30	25
Total direct costs	\$197	\$222	\$294	\$404	\$314	\$362	\$405
Panel B. Soybeans							
Fertilizer	26	27	42	62	42	55	68
Pesticides	25	25	28	31	27	31	39
Seed	32	37	43	58	61	62	69
Drying	2	1	1	1	1	1	1
Storage	4	4	5	7	6	4	4
Crop insurance	8	8	18	16	12	20	17
Total direct costs	\$97	\$102	\$137	\$175	\$149	\$173	\$198

Source: Summarized from Illinois Farm Business Farm Management data. Full summaries are provided in the publication entitled *Revenue and Costs for Corn, Soybeans, Wheat, and Double-Crop Soybeans, Actual for 2007 through 2012, Projected for 2013 and 2014*. This publication is available in the management section of *farmdoc*.

Discernible trends relative to pesticides are less apparent than for fertilizer and seed. Pesticide costs for corn increased from \$40 per acre in 2006 up to \$52 in 2009. Since 2009, pesticide costs were \$44 per acre in 2010, \$50 in 2011, and \$49 in 2012. Pesticide costs for soybeans increased from \$25 per acre in 2006 to \$31 in 2009. In 2012, pesticide costs for soybeans were \$49 per acre. Levels of pesticide costs depend on the particular pest problems associated with a year, with weed, insect, and fungal pressures impacting

costs. What level of pest pressures will exist in the future is difficult to predict. However, emergence of weeds resistant to glyphosate likely will increase pesticide costs.

Drying costs for corn a high of \$38 per acre in 2009. Moisture levels of corn were particularly high in 2009, leading to large fuel use in 2009. Drying costs were lower in 2011 and 2012: \$19 per acre in 2011 and \$16 per acre in 2012. Significant drops in drying from the 2012 level are not expected, as yields will likely be higher in future years compared to 2012 yields.

Storage costs have been relatively stable. In 2012, storage costs were \$7 per acre for corn and \$4 per acre for soybeans. Storage cost changes are not likely.

For corn, crop insurance costs grew from \$11 per acre in 2006 to \$25 per acre in 2012. Soybean crop insurance costs grew from \$8 per acre in 2009 to \$17 per acre in 2012. Large decreases in crop insurance costs are not expected in future years.

Input Evaluation

Except for fertilizer, price decreases for inputs will not likely lead to decreases in direct costs. Farmers may need to evaluate input decisions. The value of higher cost seed hybrids and varieties will have to be questioned. Fertilizer rates will come under scrutiny. Each insecticide and fungicide application will have to be evaluated.

In each of these examinations, the lower commodity price environment will place pressure on moving to lower cost inputs, lowering rates, or eliminating applications. This occurs because lowering commodity prices increases the bushel response needed to break-even. As an example, take an input that has a \$20 per acre cost. This input could be a fungicide application, the increased cost for a particular hybrid, or an increase in a fertilizer rate. If corn prices are expected to be \$6.50 per bushel, an increase in yield of 3.07 bushels per acre are needed to justify the input ($\$20 \text{ cost} / \$6.50 \text{ per bushel corn price}$). At a \$4.50 corn price, 4.4 bushels of additional yield are needed to justify the input.

Summary

Some direct cost decreases are possible through fertilizer and other input price reductions, as well as through changes in inputs. Even given these reductions, further reductions in costs likely will be needed. Further reductions likely will come from cost reductions related to machinery and to reductions in cash rents. The fourth and fifth posts will respectively cover these possibilities.

References

Schnitkey, G. "[Controlling Costs with Lower Crop Revenues: Fertilizer Costs.](#)" *farmdoc daily* (4):14, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, January 28, 2014.