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## **Production Costs for Corn and Soybeans Projected to Rise in 2001**

Crop production costs in 2001 will be higher than 2000 production costs. Fuel, nitrogen fertilizer, and drying costs contribute to this increase.

Fuel prices have risen dramatically during 2000, increasing by over 50 percent between March and September. The extent to which this price increase raises fuel cost on a farm depends on a farm's tillage practices. For "typical" farms growing corn and soybeans, the fuel price increase translates into a \$4 increase in per acre fuel cost. Many farmers will not feel the full brunt of the cost increase in 2000 because they purchased fuel for spring operations before fuel prices increased. Given that fuel prices do not decrease in 2001, the full impact of the fuel cost increase will be felt in 2001.

Nitrogen fertilizer costs also have risen dramatically. As of late 2000, anhydrous ammonia prices are above \$300 per ton. U.S. Department of Agriculture reports that the anhydrous price was \$211 in April 1999 and \$227 per ton in April 2000. The last time anhydrous prices were above \$300 per ton was in 1997. Given that a farm is applying 150 lbs. of actual nitrogen per acre, nitrogen costs for corn will increase by \$7 per acre.

Drying costs will likely increase in 2001. In 1999 and 2000, moisture levels of grains coming off fields generally have been relatively low, significantly reducing fuel needed to dry grain. A return to more normal moisture levels in 2001 will increase fuel requirements. Increased fuel requirements along with higher fuel prices likely will increase per acre drying costs.

Overall, variable costs (fertilizer and lime, pesticides, seed, drying and storage, fuel, machinery repair, and machinery hire) for corn grown on Central Illinois farmland having an expected yield of about 160 bu. per acre are projected to be \$177 per acre in 2001, \$13 above 2000 costs of \$164 per acre. Costs in 2000 and 2001 are above \$160 per acre, total variable costs in 1999.

Variable costs for soybeans grown on Central Illinois farmland having an expected yield of 50 bu. per acre are projected to be \$104 per acre, \$3 per acre higher than 2000 costs of \$101 per acre. Variable costs in 2000 and 2001 are higher than 1999 costs of \$99 per acre.

### **Cost Increases More Pronounced for Corn**

Variable costs are projected to increase more for corn than for soybeans. Between 2000 and 2001, corn's variable costs are projected to increase by 8 percent while soybean's variable costs are projected to increase by 3 percent. Because of these differences, some observers have suggested that switching acres from corn to soybeans may be warranted.

At loan rate prices, revenue less variable costs is lower for corn than for soybeans. Using an expected corn yield of 159 bu. per acre – the 5-year average yield for high productivity farmland in Central Illinois for which these projections are made – and the \$1.95 corn price gives \$310 of crop revenue for corn. Subtracting \$177 of variable costs gives projected revenue less variable costs for corn of \$133 per acre. Soybean's projected revenue less variable costs is \$169 per acre (50 bu. expected yield x \$5.45 loan rate price - \$104 of variable costs). Corn's revenue less variable costs is \$36 lower than soybeans' revenue less variable costs.

This difference does suggest a switch to soybeans may be warranted. However, the above difference between corn and soybeans' revenue less variable costs is based on prices being near loan rates. Given current market conditions, corn prices have a much higher chance of exceeding loan rates than do soybean prices. Our cost projections suggest that a corn price above \$2.17 per bu. cause corn's revenue less variable costs to be above soybeans' revenue less variable costs, given average yields and loan rate prices for soybeans. Currently, corn can be hedged at prices above \$2.17.

Moreover, increasing soybean acres requires planting soybeans in 2001 on acres where soybeans were grown in 2000. Arguably, soybeans following soybeans can lead to yield declines, reducing the revenue less variable costs difference between corn and soybeans. The \$36 difference between revenue less variable costs at loan rate prices is erased if soybean yields decline by more than 6.6 bu. per acre.

## **Reduction in Nitrogen Application Rates**

A more likely response than shifting acres is to cut back on nitrogen application rates. Higher nitrogen prices mean that more corn bushels are needed to cover nitrogen costs. At a \$220 per ton anhydrous ammonia price and a \$2.00 per bu corn price, each ten pounds of anhydrous applied per acre requires an additional .55 bu. per acre to cover the costs of anhydrous ammonia (.55 = (( $\$220$  anhydrous price / 2000 lbs. per ton) x 10 lbs.) /  $\$2.00$  corn price). Breakeven bushels increase to .75 bu. at a \$300 per ton anhydrous price and to .88 bu. at a \$350 per ton anhydrous price.

At first glance, these breakeven levels do not seem to increase much: .55 bu. at a \$220 per ton anhydrous price versus .88 at a \$350 per ton price. Like most costs, however, they do tend to “add up” when totaled over the entire acres farmed. Price increases of inputs usually suggest a reduction in application rates.

## **Overall Impacts**

Projected cost increases obviously will have an adverse impact on net incomes for 2001. Combining these cost increase with continuing low commodity prices suggests the need for careful cash flow planning for the upcoming year. As it currently stands, 2001 appears to be another year of waiting for commodity prices to increase.

## **References**

A table listing actual and projected costs for Illinois grain farms is available [here](#).

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**Actual and Projected Revenue Less Variable Costs, Central Illinois Farms  
with High Productivity Farmland, 1996 through 2001<sup>1</sup>.**

	Year					
	1996	1997	1998	1999	2000F	2001F
<b>Panel A. Corn.</b>						
Average yields (per acre)	161	148	152	166	168	159
Price received (per bu.) <sup>2</sup>	\$3.33	\$2.80	\$2.48	\$1.95	\$1.95	\$1.95
Revenue per acre	\$536	\$414	\$377	\$324	\$328	\$310
Variable costs per acre						
Fertilizer and lime	\$61	\$62	\$62	\$53	\$56	\$63
Pesticides	33	34	33	31	31	32
Seed	28	31	33	34	34	34
Drying and storage	15	14	14	15	14	18
Machinery repair, fuel, and hire	<u>28</u>	<u>29</u>	<u>27</u>	<u>27</u>	<u>29</u>	<u>32</u>
Total variable costs	\$165	\$170	\$169	\$160	\$164	\$179
<b>Revenue less variable costs</b>	<b>\$371</b>	<b>\$244</b>	<b>\$208</b>	<b>\$164</b>	<b>\$164</b>	<b>\$131</b>
<b>Panel B. Soybeans.</b>						
Average yields (per acre)	48	49	49	52	50	50
Price received (per bu.) <sup>2</sup>	7.16	7.63	6.57	5.45	5.45	5.45
Revenue per acre	\$344	\$374	\$322	\$283	\$273	\$273
Variable costs per acre						
Fertilizer and lime	\$21	\$22	\$22	\$19	\$20	\$20
Pesticides	34	35	34	32	32	32
Seed	16	18	19	19	20	20
Drying and storage	5	6	5	5	4	6
Machinery repair, fuel, and hire	<u>24</u>	<u>25</u>	<u>23</u>	<u>24</u>	<u>25</u>	<u>26</u>
Total variable costs	\$100	\$106	\$103	\$99	\$101	\$104
<b>Revenue less variable costs</b>	<b>\$244</b>	<b>\$268</b>	<b>\$219</b>	<b>\$184</b>	<b>\$172</b>	<b>\$169</b>
Difference (corn minus soybeans)	\$127	-\$24	-\$11	-\$20	-\$8	-\$38

<sup>1</sup> Data for 1996 through 1999 are from Illinois Farm Business Farm Management (FBFM). Revenue and costs are given for Central Illinois farms with high productivity farmland. Years 2000 and 2001 are projections. Revenue from AMTA, MLA, and soybean payments are not included.

<sup>2</sup> Prices for 1998 through 2001 are loan rate prices.