

2022 Cost of Production Increases, Expected Profit and Navigating a Riskier Financial Environment

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Input prices for the 2022 crop year are poised to be substantially higher than recently experienced. The increases in input prices will undoubtedly increase production costs, however, the actual financial effect on your farm is not entirely clear. The lack of clarity can negatively influence input use decision-making in this period of high input prices. To clear up the picture, you must run the numbers through production budgets. Developing cost of production budgets can help keep your planning organized and focused and assist with key information in making management decisions on your cropping practices, input usage, and risk management as you go forward. We also link the current input cost level with fall 2022 commodity prices, allowing us to inspect profit potential. In this article we will discuss the 2022 cropping year by examining increases in input prices, expected profit and risk management.

Our discussion motivates a framework on how to conceptualize increases in production costs. Cost of production budgets act as a filter to give a clear picture of the actual financial implications. For example, suppose an input increases from \$20 to \$50, a substantial increase of 150%, and therefore something that will require a discussion. Also suppose that in the production budget we use 0.01 per acre of this input. Under the new input price, the cost per acre is now \$0.50, up \$0.30 per acre from \$0.20. The resulting cost increase per acre, identified through the budgets, is now clear.

2022 Input Prices

While we don't know for sure where 2022 input prices will end up between now and the time purchases are made, we can plug current estimates into our budget calculators to identify how cost of production changes.

To provide insight on how the jump in fertilizer and fuel price projections affects the cost of production, we'll look at two of the University of Nebraska 2021 corn budgets: one dryland corn budget #23 (Table 1), and an irrigated corn budget #36 (Table 2), with a series of input cost updates. Fertilizer and fuel are two primary expenses in producing corn that have recently experienced price increases. After inspecting the cost of production impacts due to changes in fertilizer and fuel, next the cost of production impacts of pesticides, seed and increases in equipment prices were added in.

Table 1. 2022 Dryland Corn Estimated Cost of Production Budget, UNL Budget #23, 145-bushel yield goal and No-till after Soybeans.

	2021 budget (baseline)	2022 Fertilizer cost increase*	2022 Fertilizer and Fuel cost increase**	2022 Fertilizer, Fuel, Pesticide, Seed cost and machinery cost increases ***
Total cash cost per acre	\$330.12	\$374.94	\$378.34	\$415.33
Cash cost per bushel	\$2.28	\$2.59	\$2.61	\$2.86
Total economic cost per acre	\$462.47	\$507.29	\$510.69	\$599.86
Total economic cost per bushel	\$3.19	\$3.50	\$3.52	\$4.14

Notes: * Estimated fertilizer cost increases = + \$.37/lb N on 32-0-0 and + \$2.00 per gallon on 10-34-0

** Diesel fuel increase estimated from \$1.50 /gallon (2021 budgets) to \$2.82 /gallon (2022 budget projections)

*** In addition to estimated fertilizer and fuel increases, 20% added to pesticide costs, 10% to seed costs, and machinery list prices adjusted from 5 to 15% higher.

Table 2. 2022 Irrigated Corn Estimated Cost of Production Budget, UNL Budget #36, 245-bushel yield goal and conventional tillage after soybeans)

	2021 budget (baseline)	2022 Fertilizer cost increase*	2022 Fertilizer and Fuel cost increase**	2022 Fertilizer, Fuel, Pesticide, Seed cost and machinery cost increases ***
Total cash cost per acre	\$528.06	\$606.93	\$649.84	\$690.66
Cash cost per bushel	\$2.16	\$2.48	\$2.65	\$2.82
Total economic cost per acre	\$778.36	\$857.23	\$900.14	\$1,006.52
Total economic cost per bushel	\$3.18	\$3.50	\$3.67	\$4.11

Notes: * Estimated fertilizer cost increases = + \$.37/lb N on 32-0-0 and + \$2.00 per gallon on 10-34-0

** Diesel fuel increase estimated from \$1.50 /gallon (2021 budgets) to \$2.82 /gallon (2022 budget projections)

*** In addition to estimated fertilizer and fuel increases, 20% added to pesticide costs, 10% to seed costs, and machinery list prices adjusted from 5 to 15% higher.

In the first input cost update shown in Table 1 and Table 2, 32% nitrogen fertilizer cost more than doubled, increasing from \$0.35/lb N to \$0.72/lb N and 10-34-0 price increased from \$2.00/gallon in 2021 to \$4.00/gallon based on current industry price estimates. The next input cost change shown in the cost of production calculations for both corn budgets includes an increase in diesel fuel costs from \$1.50/gallon to \$2.82/gallon.

Based on the combined fertilizer and fuel cost increases, cash costs increased \$0.58 per bushel (from \$2.28/bushel to \$2.86/bushel) for the dryland corn budget using a 145-bushel yield and \$0.66 per bushel, increasing from \$2.16/bushel to \$2.82/bushel for the irrigated corn budget with a 245-bushel yield.

The final cost updates made to the corn budget examples shown in Table 1 and 2, include a 20% increase in pesticide prices, 10% increase in seed cost, and a 5% to 15% increase in machinery and equipment list prices depending on the item, along with the fertilizer and fuel cost increases. When considering all of the above cost increases, total economic costs per bushel increases by \$0.95 per bushel (from \$3.19 to \$4.14 /bushel) for the dryland corn budget and increases \$0.93 per bushel in the irrigated corn budget (from \$3.18/bushel to \$4.11 /bushel).

There are additional input cost changes that could also be considered. Additional expenses such as repairs, labor, interest, insurance, custom services, electrical, drying, trucking, and land costs could also be changing (likely upward). Including all inputs and their costs for your specific operation will give a precise picture of 2022 cost of production. To create your own budgets, go to: cap.unl.edu/abc

Profits and Risk Protection Resources

In order to identify if we can expect to make money raising corn in 2022 under the higher production cost structure, we need to investigate the December 2022 corn futures and compare to the per bushel production cost just identified. As of this writing, December 2022 corn futures were trading around \$5.30 per bushel. Total economic costs were identified to be around \$4.14/bu for dryland and \$4.11/bu under irrigation. Assuming a harvest cash basis of -\$0.30, there then exists an expected profit of \$0.86 to \$0.89 per bushel. An expected profit lower than this time last year where futures were trading around \$4.05/bu. From the lens of expected profit, levels are approximately the same this time last year. However, expected profit is not the only parameter to consider.

Walking further up the production cost ladder means it hurts more if we fall off. We can fall off the ladder if yields/and or prices sharply decline. Falling off the ladder without strategic decision making *before bad events take place* can put the farm in financial jeopardy. While there are a number of ways to protect a farm's financial standing from production costs increases, we are going to highlight two. First is crop insurance. Higher commodity prices imply crop insurance will also increase its protection and the associated premium. There is a delicate balance between accepting a higher premium (from higher December 2022 futures prices) while protecting revenue with higher production costs. We have to wait until the end of February (projected price discovery) to understand the usefulness of crop insurance in protecting farm revenue for 2022. We do not want to see a decline in December 2022 futures prices between now and February. Second is forward contracting. While forward contracting last year might have left a bad taste in your mouth, not forward contracting a percent of expected production in this production cost environment has the potential to leave a worse taste in your mouth. Remember, the goal of forward contracting is to keep from falling off the ladder through developing a solid farm average price above production costs.

At this point, 2022 production costs will be substantially higher than recently experienced. However, 2022 grain prices are also higher. To identify profitability from higher production costs, one must use a budget. We recommend you check out our new online budget tool at cap.unl.edu/abc to get an accurate picture of your farm's increase in production costs. Using the values from above, 2022 profitability appears to be similar in size as last year. Except now we have higher production costs leading to higher financial risk exposure. 2022 financial risk exposure must be dealt with accordingly as falling off the ladder without adequate protection has the potential to financially hurt worse than in years past.

Prices used here are estimates and only a guide in understanding how material and input price changes can affect cost of production for the next season. Ag managers and producers should prepare their own enterprise budgets and monitor their material costs closely. Climbing the ladder of profitability equates to

using crop inputs most efficiently, projecting cost of production, making use of profitable crop marketing opportunities when available along with risk management resources such as crop insurance.

Keep an eye out for future articles discussing additional details on managing 2022 production costs.

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