



Ag Decision Maker

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Lower land and crop input costs barely offset higher fuel and labor costs in 2018

By Alejandro Plastina, extension economist, 515-294-6160, plastina@iastate.edu

The total costs of corn and soybean production in Iowa are expected to fall slightly this year, according to the annual report "Estimated Costs of Crop Production in Iowa - 2018" published by Iowa State University Extension and Outreach. The report shows soybean costs falling by \$10 per acre this year from 2017 levels, or about 2.1 percent. However, the cost of corn production is projected to decline by less than \$5 per acre, or less than one percent. The full report is available online through the Ag Decision Maker website, <https://www.extension.iastate.edu/agdm/crops/pdf/a1-20.pdf>.

The total cost per bushel of soybeans is projected at \$9.46 for the herbicide tolerant variety and \$9.41 for non-herbicide-tolerant beans, according to the report. The total cost per bushel of corn is projected at \$3.48 for corn following soybeans and \$4.07 for corn following corn. These cost estimates are representative of average costs for farms in Iowa.

Very large or small farms may have lower or higher fixed costs per acre. "Our annual estimates are to be used as guidelines to help you compare and figure your own costs for your farming operation. For example, if you own the land and you are interested in calculating your accounting cost of production rather than your economic cost of production (which includes the opportunity cost of not renting out your land), then your land cost will likely be much smaller than the cash rent equivalent included in the report. Alternatively, if you are producing crops in leased acres and your cost structure is similar to the one used for the report but your expected yield is much higher, then your projected cost per bushel will be lower than the published one," says Plastina.

A moderate decline in herbicide, fertilizer, lime, and seed prices, as well as lower cash rents are expected to barely offset increases in machinery, labor, insecticides,

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Handbook updates

For those of you subscribing to the handbook, the following update is included.

Crop Planning Prices –
A1-10 (1 page)

Estimated Costs of Crop Production - 2018 –
A1-20 (13 pages)

Historical Costs of Crop Production –
A1-21 (2 pages)

Livestock Planning Prices –
B1-10 (1 page)

Suggested Closing Inventory Prices for 2017 Records –
C1-40 (2 pages)

Please add this file to your handbook and remove the out-of-date material.

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and crop insurance costs for corn. In particular, machinery costs in corn production are expected to increase by \$13-\$14 per acre due to higher projected diesel and gas prices in 2018. Soybean costs would be less affected by higher fuel prices due to the less intensive nature of machinery use in its production.

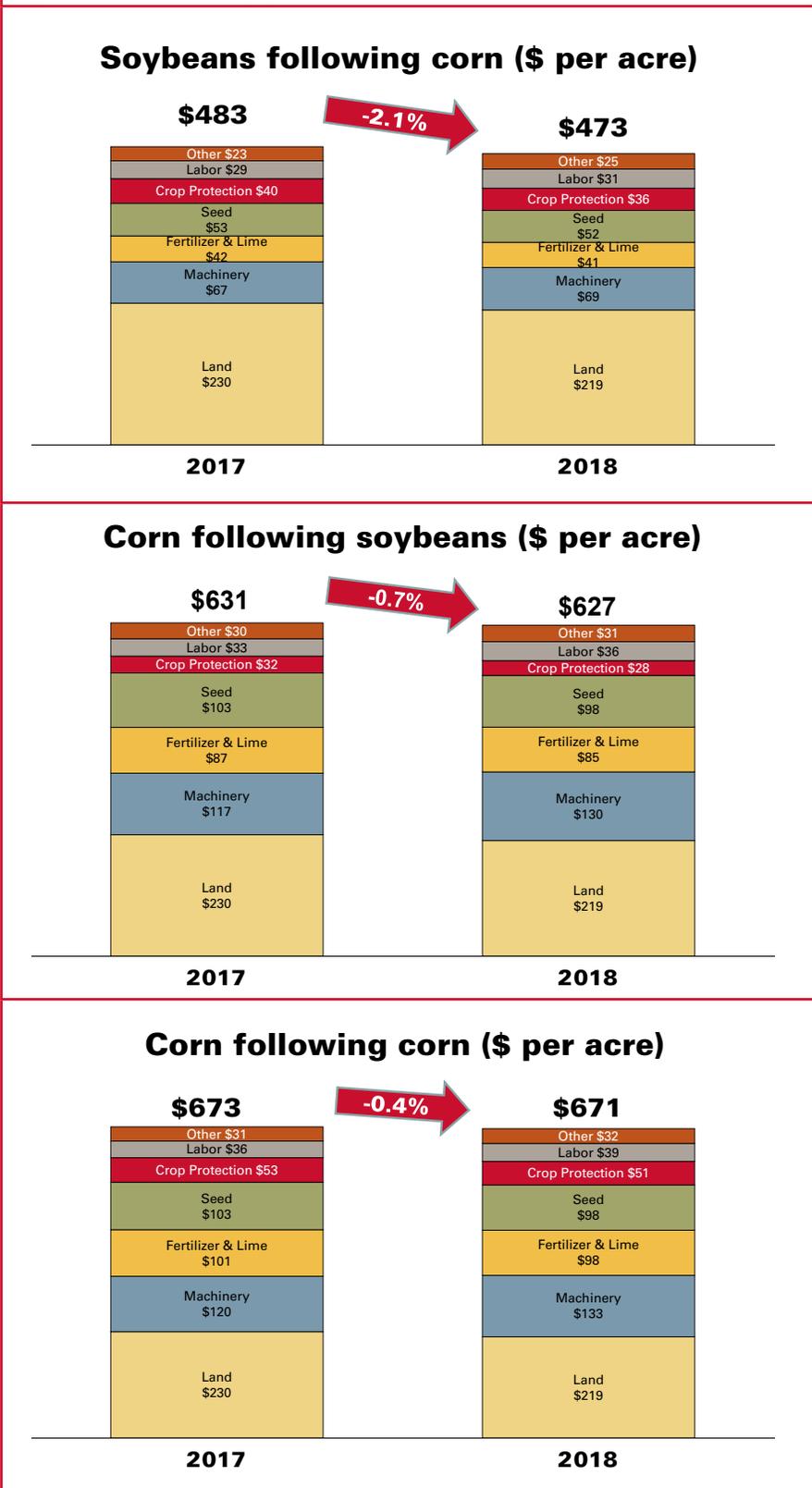
The accumulated declines in total costs of corn and soybean production between 2012 and 2018 amount to nineteen percent and fourteen percent, respectively. However, these cost reductions are dwarfed by the fifty-three percent and thirty-five percent reduction in corn and soybean prices, respectively, between 2012 and 2017.

When using the ISU cost of production estimates for 2017, keep several things in mind. First, fertilizer and lime costs include volume and early purchase discounts. Second, farmers paying land rents higher than the ones projected in the report might face higher costs of production. Third, in order to be able to compare budgets through time, ISU calculations are based on a fixed rate of input use. If a farmer switches to seeds with fewer traits, or skips a field pass, then the ISU report will be overestimating the true cost for that farmer. Finally, crop budgets are calculated under the assumption that farmers target the same yield year after year.

Breaking even in 2018

Lower costs of production along with a well-planned marketing plan have the potential to result in small but positive profit margins in 2018. Using USDA price projections for 2018/19, a rented acre of corn

Figure 1. Cost of crop production in Iowa



Source: Estimated Costs of Crop Production, Iowa State University Extension and Outreach

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following soybeans would need to produce 190 bushels of corn to break even, and a rented acre of genetically modified soybeans would need to produce 50.31 bushels of soybeans to break even. However, a rented acre of corn following corn would need to produce 203.3 bushels of corn to break even.

Of course, the margin of error in these projections is directly proportional to the margins of error on projected yields, costs, and prices. Given such uncertainties, it is highly recommended that producers visit with trusted agronomists on how to cut costs without hurting revenue potential. Knowing the operation's cost per acre is critical for creating solid marketing plans and making the necessary arrangements (such as securing operating loans, restructuring machinery or real estate loans, adding non-farm income) to cash flow an operation in 2018.

Your cost of production?

ISU cost estimates represent typical costs and are only intended to be guidelines. The publication Estimated Costs of Crop Production in Iowa—2018 has information to help calculate costs for your farm. It's available at www.extension.iastate.edu/agdm as File A1-20. Actual costs will vary considerably from farm to farm and can be entered in the column for 'Your Estimates.' Electronic spreadsheets for developing crop production budgets are also available on the Ag Decision Maker website.



How well does your farm business perform?

By Charles Brown, extension farm management specialist, (641) 673-5841, crbrown@iastate.edu

In the late 1990s the swine industry took a tremendous hit. The market was in the tank. At that time, the Iowa Pork Producers Association implemented an educational program to teach pork producers how to analyze and manage their business. The principles learned were fairly simple and not only fit pork operations, but all farm businesses. How efficiently do you convert gross revenues to profits and how are the profits spent?

Efficiently converting gross revenues to profits is key in generating cash flow to provide funds for interest payments, living expenses, debt payments, and growth in the business. Funding these four areas is the key use of profits.

Our calculation for Operating Profit is the same as EBITDA (earnings before interest, income taxes, depreciation and amortization). If you think of your Schedule F, it would be the *Net Profit* on line 34 plus interest and depreciation. Depreciation is a noncash expense and interest is analyzed as a separate line item.

Total Revenue or Gross Profit (Value of Farm Production) – *whichever is less*
Minus all expenses except interest, depreciation, and amortization
Equals Operating Profit

To calculate the efficiency of the operation we divide the Operating Profit by the Gross Farm Revenues or VFP (value of farm production), whichever is less. VFP is Gross Farm Revenues minus feed costs, or think of your Schedule F and it would be line 9 minus your feed costs if you have a livestock operation.

Operating Profit
Divided by Total Revenues or Gross Profits (VFP) - *whichever is less*
Equals Operating Efficiency Percentage

The higher the percentage, the better the efficiency.

How well does your farm business perform?, continued from page 3

- Again, think of your Schedule F

- Take your Net Profit (addback; interest, depreciation and feed cost if livestock operation)/ Gross Revenues (minus feed costs if livestock operation)

There can also be other adjustments to income and expenses. If breeding livestock is sold this income needs to be added to the Gross Farm Income. If the farm operation is paying the spouse rent or wages and deducting the health insurance as a business expense, these expenses should be subtracted from the farm expenses. The goal is to evaluate the farm as pure of a farm operation as possible.

An example grain farm operation with \$750,000 of Gross Revenues and \$487,500 of expenses before interest and depreciation would have an efficiency factor of .35 ($\$750,000 - \$487,500 / \$750,000$). For each \$1 of Gross Revenue they are converting \$.35 to profits. The higher the efficiency the better the operation. Those that are below .25 will struggle to grow the operation and in a depressed farm economy will find it hard to maintain the operation. To properly evaluate the farm business the efficiency should be looked at over a 3- to 5-year period. As with most ratios it is best to look at the trends and not just one year.

Once the Operating Profit (EBITDA) is calculated, the next step is to determine how the profits were used. Keep in mind, there are only have four uses of the profits; interest, living expenses, debt payments and growth. What percentage of the profits were used to service these four areas? A rule of thumb is that no more than 60 percent of the Operating Profits should be used to service interest and living expenses. This leaves 40 percent to service debt and grow the business.

The example above has \$262,500 ($\$750,000 - \$487,500$) of Operating Profit. Sixty percent of \$262,500 is \$157,500. This would be the maximum amount that the farm should spend for interest and living expense. If the farm is contributing \$80,000 towards living expenses, this leaves \$77,500 that could be spent for interest. This also leaves \$105,000 ($\$262,500 - \$157,500$) or 40 percent of \$262,500 for debt payments and/or growth. If you start exceeding the 60 percent rule, you have less to service debt and

growth. In low profit years, growth may have to be sacrificed in order to service debt. Keeping below 60 percent for interest and living expenses allows more for debt service and growth.

Once you know the efficiency of your business and the percentages spent for interest, living, debt payments, and growth, you can start to manage your business and make adjustments. If efficiency is low, you might need to dig deeper into your operation and evaluate enterprises separately to identify problems.

Also, you can work backwards once you know your numbers. For example, if the farm is contributing \$70,000 towards living expenses and your efficiency factor is 25 percent, how much Gross Revenue does the operation need? If you want the living expenses to be no more than 30 percent of profits, then you need \$233,333 ($\$70,000 / .30$) of Operating Profit. If you are 25 percent efficient then you need \$933,333 ($\$233,333 / .25$) of Gross Revenue. If generating this amount of Gross Revenue is not possible, then is there a way to increase the efficiency? At 34 percent efficiency you would only need \$686,273 ($\$233,333 / .34$) of Gross Revenue. As you can see, the efficiency of the operation can have a tremendous effect on the funds available not only for living expenses, but also interest, debt payments, and growth.

A new Decision Tool has been developed to assist with these calculations. The **Farm Financial Performance Analysis Decision Tool**, www.extension.iastate.edu/agdm/wholefarm/xls/c3-55financialperformanceanalysis.xlsx, allows you to enter information from a Schedule F for up to five years and calculate multiple financial ratios to determine the financial health of a farm operation.

If you feel your farm operation is not operating efficiently, the ISU Extension and Outreach Farm Financial Associates are available for one-on-one financial counseling. See the Farm Financial Planning Program website, www.extension.iastate.edu/farmanalysis/, for more information on the Farm Financial Planning Program or connect with your Farm Management Specialist, www.extension.iastate.edu/ag/farm-management.

Iowa State develops new crush margin app for cattle and hog producers

For additional information on the livestock crush margin app contact Lee Schulz, lschulz@iastate.edu, 515-294-3356, or Russ Euken, reuken@iastate.edu 641-923-2856, @iowabeefcenter

Livestock producers who purchase feeder cattle or weaned pigs plus the feed, and then sell finished animals at a specific point in time, take on a significant amount of both input and output price risk. Feeder cattle, weaned pig, and feed prices account for a significant share of the total input cost and along with market livestock prices are volatile, adding to a producer's risk.

The crush margin, a term borrowed from the soybean processing industry, describes the margin that can be hedged using futures contract prices for soybeans, soybean meal and soybean oil. A crush margin can also be calculated for cattle and hogs and can be used as a risk management tool. For fed cattle, the margin is live cattle value minus feeder cattle value and estimated corn fed value. For market hogs, the margin is lean hog value minus weaned pig value and estimated corn and soybean meal fed value.

For several years, Iowa State University Livestock Extension Economist Lee Schulz has been tracking the crush margins for cattle and hogs and posting them online. The margin is calculated every Wednesday using the futures close on that date. The web page will continue and have historical margins in addition to comparing placement month margins.

This new ISU Livestock Crush Margin App is in addition to the ISU Livestock Crush Margin website and allows users to select cattle or hogs and pick their placement date for feeder cattle or weaned pigs. It will use the appropriate futures contract close price from the previous day to calculate the margin without any additional inputs. Historical basis information Schulz has compiled is programmed to be used in the app. Users also can enter their own prices or basis for the inputs if they wish to override the defaults.

ISU Extension livestock specialist Russ Euken said the app was designed to minimize inputs, yet still provide some flexibility for users.

"The app is a web-based app and internet access is needed to use the app to access CME futures price," he said. "The app will run in a browser on your computer or the app can be saved on a smart phone for access by selecting the icon from the screen."

The app was developed as part of a North Central Region Risk Management Education grant for livestock price risk management education. Schulz said evaluating margins and taking advantages of profitable opportunities can be a valuable asset to producers in managing risk.

"Using futures prices to evaluate and manage the crush margin between revenue and the major input costs, which change with market conditions, is a good price risk management strategy," he said.

The assumptions used in calculating the margins and basis information are available as links on the crush margin app web page. You can find the new app on the websites of the Iowa Beef Center, Iowa Pork Industry Center, and Iowa State University Extension Economic crush margin as listed.

Iowa Beef Center

www.iowabeefcenter.org/economics.html Look under current markets
www.iowabeefcenter.org/apps.html

Iowa Pork Industry Center

www.ipic.iastate.edu/economics.html
www.ipic.iastate.edu/software.html

ISU Livestock Crush Margins

www2.econ.iastate.edu/margins/

For additional information on the livestock crush margin app contact Lee Schulz, lschulz@iastate.edu or 515-294-3356, or Russ Euken, reuken@iastate.edu 641-923-2856.

The Iowa Beef Center at Iowa State University was established in 1996 with the goal of supporting the growth and vitality of the state's beef cattle industry. It comprises faculty and staff from Iowa State University Extension and Outreach, College of Agriculture and Life Sciences and College of Veterinary Medicine, and works to develop and deliver the latest research-based information regarding the beef cattle industry. For more information about IBC, visit www.iowabeefcenter.org.

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Internet Updates

The following Decision Tools have been updated on www.extension.iastate.edu/agdm.

Estimated Costs of Crop Production in Iowa – A1-20 (16 Decision Tools)

Farm Financial Performance Analysis – C3-55 (Decision Tool)

Current Profitability

The following tools have been updated on www.extension.iastate.edu/agdm/info/outlook.html.

Corn Profitability – A1-85

Soybean Profitability – A1-86

Iowa Cash Corn and Soybean Prices – A2-11

Season Average Price Calculator – A2-15

Ethanol Profitability – D1-10

Biodiesel Profitability – D1-15

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