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Ag Decision Maker

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Lower costs bring cautious optimism in 2017

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

The total cost of corn and soybean production in Iowa is expected to fall this year, according to the annual report "Estimated Costs of Crop Production in Iowa - 2017" published by Iowa State University Extension and Outreach. The report shows the cost of corn production dipping by 12 percent and soybean production falling by nine percent this year.

Total cost per bushel for the mid-range yield category is projected at \$4.08 for corn following corn and \$3.51 for corn following soybeans. The total cost per bushel of soybeans is projected at \$9.66 for the herbicide tolerant variety and \$9.60 for non-herbicide-tolerant beans. 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. These annual estimates are to be used as guidelines to help you compare and figure your own costs for your farming operation.

A substantial decline in fertilizer and lime prices, machinery costs, and land rents are expected to more than offset increases in crop protection costs, especially herbicides. Despite higher projected diesel and gas prices in 2017, machinery costs are projected lower than in 2016 due to adjustments in the estimation process to reflect higher operating efficiency, as reported on a recent update of *AgDM File A3-24*, Estimating the Field Capacity of Farm Machines. Labor requirements per acre were reduced approximately two percent to reflect the associated time savings in operating machinery. Cash rents are projected at \$230 per acre in 2017, in line with the average rate reported in *AgDM File C2-10*, Cash Rental Rates for Iowa 2016 Survey, and \$5 per acre below the state average reported in the 2016 USDA/NASS Cash Rent Survey. This implies a strong decline from the \$266 per acre projected cash rent used to estimate costs of production in January 2016, and is an attempt to correct a cumulative error introduced in January 2014 when land prices were projected to increase for a fifth consecutive year to \$287 per acre but the state average cash rent declined to \$260 per acre.

The accumulated declines in total costs of corn and soybean production since 2013 amount to 19 percent and 12 percent, respectively. However,

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Handbook updates

For those of you subscribing to the handbook, the following updates are included.

Estimated Costs of Crop Production in Iowa - 2017 – A1-20 (13 pages)

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

Historic Hog and Lamb Prices – B2-10 (5 pages)

Historic Cattle Prices – B2-12 (6 pages)

Lean Hog Basis – B2-41 (1 page)

Live Cattle Basis – B2-42 (1 page)

Feeder Cattle Basis – B2-43 (2 pages)

Evaluating Farm Accounting Software – C6-32 (2 pages)

Please add these files to your handbook and remove the out-of-date material.

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Inside . . .

IOWA STATE UNIVERSITY
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Lower costs bring cautious optimism in 2017, continued from page 1

these cost reductions are dwarfed by the 44 percent and 31 percent reduction in corn and soybean prices, respectively, between 2012 and 2016.

When you use 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 those 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 budgets 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 2017

Lower costs of production along with a well-prepared marketing plan will likely result in small but positive profit margins in 2017 if current price expectations are realized later in the year. Using futures market prices as of January 12, ISU Extension and Outreach economist Chad Hart projected the average prices for corn and soybeans in marketing year 2017/18 at $3.86 and $9.98 per bushel.

At those prices, a rented acre of corn following soybeans with a yield of 180 bushels would generate a positive gross margin of $64, or 35 cents per bushel; and a rented acre of soybeans following corn with a yield of 50 bushels would generate a positive gross margin of $16, or 32 cents per bushel. A rented acre of corn following corn with a yield of 165 bushels would still generate negative margins for a fifth consecutive year, in the amount of -$37 per acre, or -22 cents per bushel.

Of course, the margin of error in these projections is directly proportional to the margins of error on projected yields and prices. If actual yields or prices are higher (or lower) than expected, then the gross margin per bushel will be higher (or lower) than projected. Corn and soybean yields in Iowa in 2015 and 2016 were the highest on record. As a result, the average actual cost per bushel in those years should be smaller than projected, and revenue from crop sales should be higher than projected.

Even after adjusting for (higher) actual yields, the gross margin from the 2016 corn crop is projected to remain negative at -$46 per rented acre. The 2016 soybean crop, on the contrary, is expected to generate gross profits of $41 per rented acre.

Although crop futures prices are currently consistent with a slow and gradual recovery in profitability, market sentiments can change rapidly, especially in a year with the added uncertainties associated with new administration in Washington, D.C. and potential revision of trade agreements that might affect ag exports. The long term price projections prepared by USDA in February 2016 indicate corn and soybean farm prices would average $3.30 and $9.35, respectively, in marketing year 2017/18. If those prices prevail, then profit margins would be negative at trend yields. In order to gauge the impact of prices on profit margins, the following table shows the breakeven yields for the 2017 crop under different price scenarios in 2017/18:

Table 1. Yields needed for corn and soybean production to meet breakeven levels

Crop (target yield)	Corn @ $3.86/bu.	Corn @ $3.30/bu.
Corn following Corn (165 bu./acre)	174.5 bu./acre	204.1 bu./acre
Corn following Soybeans (180 bu./acre)	163.6 bu./acre	191.3 bu./acre
	Soybeans @ $9.98/bu	**Soybeans @ $9.35/bu.**
Soybeans following Corn (50 bu./acre)	48.5 bu./acre	51.7 bu./acre

Given the price uncertainty, it is highly recommended that farmers 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 the farm business in 2017.

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—2017 has information to help you figure your cost for your farm. Actual costs will vary considerably from farm to farm and can be entered in the column for 'Your Estimates', or electronic Decision Tool spreadsheets for developing crop production budgets are also available on the Ag Decision Maker website.

Why have farm family living expenses been identified as a problem?

By Tim Eggers, field ag economist, 712-542-5171, teggers@iastate.edu

Family living expenses is a common term for non-business Owner Withdrawals from the farm business, but they are not the same. Personal taxes, purchases of personal assets, and other non-business expenditures are not included in family living expenses. As you read this article, consider your use of the term. When you think of family living expenses are you including all non-business expenditures?

A tension exists in farm businesses between minimizing or eliminating federal income tax obligations and maximizing after tax equity growth. Purchases made to take advantage of expense method depreciation have resulted in debt that must be serviced through after tax profits. When profits are slim or losses are incurred, Owner Withdrawals compete for their share of the profits against the principal portion of debt service and add to the need to consume working capital or trigger a need to refinance. 2015 reports from Farm Business Management Associations showed an inability of average farming operations to cover family living expenses.

> Average farm and non-farm incomes in 2015 were below family living requirements, thus enabling net worth decreases.
>
> - Summary of Illinois Farm Business Records for 2015, Illinois Farm Business Management Association

Even without debt to service, the level of profit from the farm or off-farm income required for family living can be a challenge. Families may struggle to get their family living costs under control. With accurate measurement and benchmarks for comparison, farm families can determine whether their costs are already well managed or they have room for improvement.

Are farm families the same or different from non-farm families?

Farm families are like non-farm families when it comes to the basics of food and shelter. A perception of farmers being closer to the sources of food means that some farm family living budgets include "home raised" meats, vegetables, and fruits. Fewer operations raise chicken, pigs, sheep, dairy, and/or beef cattle, so access to farm-raised meat is not universal. Likewise, large vegetable gardens and orchards are established and maintained based on personal preference more than subsistence needs. Expenditures for food eaten at home may not differ between farm and non-farm families.

> *Family Living Expenses.* A term not recommended for use. See owner withdrawals.
>
> *Owner Withdrawals.* The payments made to the owners of a business from the accumulated earnings of that business. The distributions to owners are given different names depending on the organizational structure of the business.
>
> - Financial Guidelines for Agriculture, Farm Financial Standards Council

When it comes to shelter, there is a range of farm family living arrangements from a relatively new home to an older farm house. Like other homeowners, the purchase of a home tends to be an infrequently made decision with a long-term commitment. Unlike other homeowners, the farm family's home may be on an active farmstead. As a result, the sale of the home and purchase of a different home could be disruptive to farm business activities.

Farm families are quite similar to non-farm families when it comes to luxury consumption. Second homes, recreational vehicles, and international vacations are easy to identify as being unnecessary to the sustenance of life. A more difficult area of distinction between wants and needs, or luxury and normal consumption, is a set of smart phones requiring data plans for the entire family, satellite TV, and consumption of food away from home.

Health care is an area of expense that continues to grow. Health insurance expenses increase over time and health care expenses increase with age. Off-farm employment provides farm families with cash income. After cash income, a deciding benefit is often access to lower cost group health insurance. The cash and non-cash costs off off-farm employment are the focus of a future article in this newsletter. Some operations couldn't exist without the off-farm income of one or more members of the family while others have no off-farm income.

Family living cost data from the Bureau of Labor Statistics can be found to establish a benchmark. The average annual expenditures for a Midwest Consumer according to Table 1800 is $53,425. The Farm Business Associations of many neighboring states have members who record their family living expenses. When looking at these sources, be sure to compare the Owner Withdrawals numbers to include purchases of personal assets, and other non-business expenditures. Note that the Bureau of Labor Statistics does not include personal taxes in their expenditures.

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Why have farm family living expenses been identified as a problem?, continued from page 3

Differences between farm and non-farm families lie in the investment required and risks managed to create farm income. Cash grain operations sell the crops produced, and the likelihood of those sales being in even intervals and at the same levels is quite low.

From year to year and crop to crop, production levels vary. The marketing year average prices for 2014, 15, and so far in 2016 have been below economic costs of production. Differences in costs of production occur with the remaining profit being irregular. Some livestock enterprises result in a more steady income stream while others, like cattle feeding, can quickly swing from large profits to large losses.

How do you measure family living expenses, to see whether they are under control or not?

If a recordkeeping system isn't in place, the first step could be to calculate Owner Withdrawals and allocate those expenditures to the simple categories of family living expenses, personal taxes, purchase of personal assets, and other non-business items. Choosing categories for family living expenditures and assigning cash spent to those categories could be difficult without a recordkeeping system. Moving forward, a simple recordkeeping system like the 2017 Money Management Calendar provides a paper based way to record family living expenditures. There are many personal finance software solutions. Like any recordkeeping activity, the real work comes in the data entry and use of the results.

Iowa Farm Business Association

Iowa State University Extension and Outreach reported summarized Iowa Farm Business Association data on Family Living Expenses prior to 2009 in *AgDM File C1-10,* Farm Costs and Returns. In 2009, "Table 4. Summary of Cash Income and Expenses by Size of Farm" changed to Table 3 adding many categories and removing a few. One of the categories removed was family living expenses.

Illinois Farm Business Management Association (IFBMA)

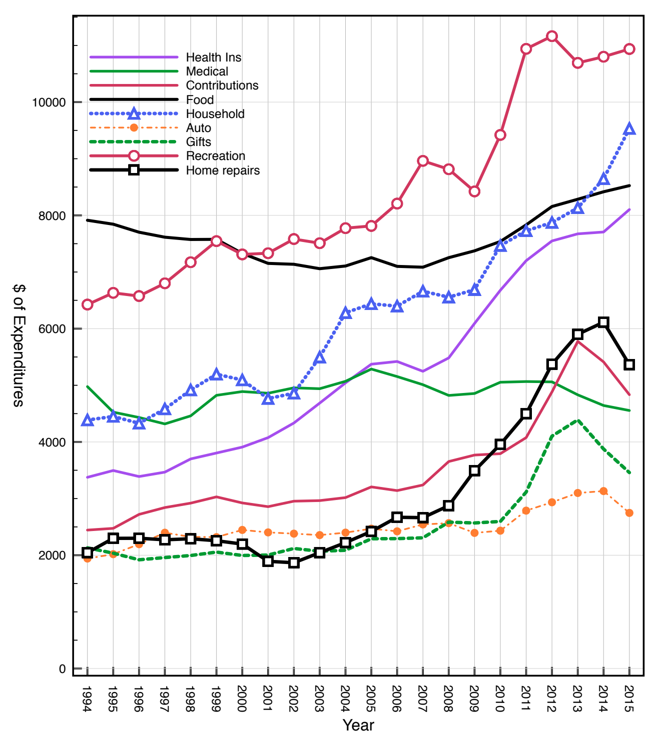
The IFBMA uses the Owner Withdrawal approach. FarmDocDaily's How Will Family Living Affect My 2017 Budgets included a summary separating family living expendables, capital purchases for family living, and income and social security tax payments. The 2015 averages were $78,538 for expendables, $6,241 for capital items "such as the personal share of the family automobile, furniture, and household equipment," and $32,438 for income and social security taxes. The totals are useful, but the single category of Expendables does not provide categories of spending.

Farm and Family Living Income and Expenditures, 2012 through 2015 reports high and low third costs of living for a family of 3-5 on the final page. Expendables is expanded to four categories. The categories are Contributions, Medical, Insurance (life and disability), and Expendables. Summing the noncapital and capital living expenses, the low third had a total cost of living of $58,150 and the high third was more than twice as much at $135,650 before income and social security taxes. In this report, three categories are added. The same categories are used in the full report. Twenty-four percent of the 5,668 IFBMA members provide the information necessary to report Owner Withdrawals with the additional detail.

Kansas Farm Management Association (KFMA)

The KFMA provides An Analysis of Family Living Expense Categories. Thirty-four percent of the 1,159 KFMA members reported family living expenditures in 17 categories. Figure 1 below gives the family living expense categories from that report and provides a visual realization of the changes in expenditure for the nine largest categories. A farm family looking at the graph may be able to think about changes in their own expenditures, and areas where costs could be cut. Home repairs, contributions, recreation, and household all increased dramatically beginning in 2006. Of those four categories, only household has continued upward through 2014 and 2015.

Figure 1. Family living expense categories



Source: An Analysis of Family Living Expense Categories, KSU-AgEcon-GI-2016.1, Greg Ibbendahl

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Why have farm family living expenses been identified as a problem?, continued from page 4

In An Analysis of Family Living of Kansas Farm Families the correlation between net farm income and family living expenses is explored. Greg Ibbendahl writes, "Family living is correlated to net farm income (correlation 0.62) but it appears to have a lag as the jump in family living expenses happened after the jump in net farm income. In publication GI-2016.7, we hypothesized family living was based on a four-year average of net farm income. Also, while net farm income in 2015 declined to near zero, family living is only starting to show a decline. Although total family living expenses declined slightly... some expense categories showed steeper declines...home repairs, contributions, medical, gifts and auto all showed declines in 2015."

Southwest Minnesota Farm Business Association, Missouri Farm Business Management Association, and Nebraska Farm Business Incorporated

The Minnesota, Missouri, and Nebraska associations use the same family living expense categories. Page 18 of the Southwestern Minnesota Farm Business Management Association Annual Report and page 15 of the Missouri Farm Business Management Analysis Record Summary show the allocation of Owner Withdrawals. Ten percent of the 132 Missouri FBMA members reported family living expenditures in detail. Thirty-one percent of the Southwest 103 Minnesota FBMA members and 36 percent of the 118 Nebraska FBI members reported family living expenditures in detail. The Nebraska Farm Business, Inc. report is available for purchase.

The 28 categories used by the Minnesota, Missouri, and Nebraska associations may be a sweet spot between the 17 categories used by the Kansas Farm Management Association, and the 103 categories used by the Bureau of Labor Statistics. If the Kansas Farm Management Association categories are used, be sure to add personal taxes, purchases of personal assets, and other non-business expenditures to get to the total Owner Withdrawals.

Table 1. Comparison of family living expenditure categories

Bureau of Labor Statistics Summary Categories from the Consumer Expenditure Survey (82 additional subcategories)	Southwest Minnesota Farm Business Management Association, Missouri Farm Business Management Association, and Nebraska Farm Business, Inc	Kansas Farm Management Association
Average Annual Expenditures Food Food at home Food away from home Housing Shelter Utilities Household furnishings and equipment Apparel and services Transportation Vehicle purchases Gasoline and motor oil Healthcare Health insurance Entertainment Education Cash contributions Personal insurance and pension Life and other personal insurance Pensions and Social Security	Family Living Expenses Food and meals expense Medical care Health insurance Cash donations Household supplies Clothing Personal care Child/dependent care Alimony and child support Gifts Education Recreation Utilities (household share) Personal vehicle operating exp Household real estate taxes Dwelling rent Household repairs Personal interest Disability / Long term care ins Life insurance payments Personal property insurance Miscellaneous Other Nonfarm Expenditures Income taxes Furnishing and appliance purchases Nonfarm vehicle purchases Nonfarm real estate purchases Other nonfarm capital purchases Nonfarm savings and investments	Family Living Expenses Food purchased Household operation House upkeep & repairs Furniture – equipment Personal – recreation Education Child care Clothing Gifts Contributions Doctor – other medial Health insurance Life insurance Auto expense Utilities – telephone Bank interest Miscellaneous expense

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Why have farm family living expenses been identified as a problem?, continued from page 5

What can be done?

A distinctive difference between farm and non-farm families is the expectation of a decrease in family living expenses when profits are small or non-existent. That may or may not be possible. Calculation of the Owner Withdrawal would be the first step. How much of the accumulated earnings have been used by the owner? Identification of luxury consumption could help to find easy expenditures to stop. The next step would be examining existing family living records to see how past expenses compare to Bureau of Labor Statistics or Farm Business Management Association benchmarks.

If you feel that your family living costs are not under control, the Farm & Family Connections: Taking Control of Farm-Family Living Expenses document from Purdue includes simple worksheets for estimating family living costs. You could compare the estimates you generate to your Owner Withdrawals. Then you could use the 2017 Money Management Calendars or a personal finance software package to record and monitor family living expenditures against the budgets you've set.

If family living expenses are not a problem, the farm business may have problems that need to be addressed through *AgDM File C3-53*, Financial Troubleshooting. A thorough review of the efficiency, scale, and debt of the farm business may show that family living expenses were not the problem, but something that points to the problem.

Updates, continued from page 1

Internet Updates

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

Estimated Costs of Crop Production in Iowa – A1-20 (12 Decision Tools)

ARC-CO Payment Calculator for 2016/17 – A1-32 (Decision Tool)

Price Loss Coverage (PLC) Payment Calculator – A1-32 (Decision Tool)

ARC/PLC Payments by Crop and County – A1-33 (Decision Tool)

Feeder Steer-Heifer Price Spread – B2-45 (1 page)

Understanding Farm Mediation – (Voiced Media)

Tips for Managing Margins – (Voiced Media)

Co-op 101: Historic Foundations – (Voiced Media)

Co-op 101: Ownership and Governance – (Voiced Media)

Co-op 101: How Cooperatives Differ – (Voiced Media)

Co-op 101: Economic Benefits – (Voiced Media)

Co-op 101: Benefits to Employees – (Voiced Media)

Understanding Ag Cooperatives' Equity and Patronage – (Voiced Media)

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