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# **FAPRI Beginning Farmer and Rancher Development Project**

## **Northeast Feedgrain and Cow/Calf Representative Farm**

### **Final Report**

FAPRI-MU Report #08-12

*Providing objective analysis for more than 25 years*  
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# **FAPRI Beginning Farmer and Rancher Development Project Northeast Feedgrain and Cow/Calf Representative Farm – Final Report**

## **Intro to Project**

The Northeast feedgrain and cow/calf representative farm was built as part of a three-year project funded through the USDA Beginning Farmer and Rancher Development Program. In the first year of the project, four panels of beginning farmers (farming 10 years or less) were selected to build farms that are representative of beginning farmers in their area, review how the representative farm would perform financially over the next five years under one particular set of assumptions (the baseline), and identify two or three alternative scenarios that are simulated and compared to the baseline. The panels met in years 2 and 3 to discuss how their operations have changed. The results of those changes were then applied to the representative farm. This report is a summary of the financial outlook for the five-year projection period (2012-2016) and a summary of how the farm has evolved.

## **Representative Farm Panel Process**

The representative farm approach treats a farm business unit as a unique system characterized by local features and resources to which the farm manager adapts. Local conditions are internalized in the creation and simulation of each farm.

To build a representative farm, a local facilitator takes the lead in putting together a panel of 4 to 8 producers in the area that are similar in size, structure, and type of farming operation. For this project, a local University of Missouri Extension Specialist from each area agreed to assemble a panel of local producers that fit the USDA definition of a beginning farmer or rancher. Primary data is initially developed and continuously validated by Missouri producers via a consensus process. The panels establish farm structure, size, farming practices, costs of production, and associated financial requirements for the representative farm based on what the panel members know about their individual operations. Business size, structure, and management practices are allowed to change for the historical period (2007-2011) and held constant for the simulation period (2012-2016).

For the simulation, actual yield, price, and operating cost data is used for the years 2007-2011. The historical period provides some perspective of financial performance with known values and sets a footing for simulation over the five-year projection period. Farm financial statements are generated using the Farm Level Income and Policy Simulation Model (FLIPSIM), which is property of the Texas Agricultural Experiment Station, maintained at the Agricultural and Food Policy Center, Texas A&M University. National price estimates, generated by FAPRI at the University of Missouri (FAPRI-MU Report #06-12), are utilized for the 2012-2016 simulation.

The financial statements (income statement, cash flow, balance sheet) are used by the panel to make sure the representative farm is performing financially over the five-year historical period in a manner consistent with the experience of panel members. After the panel validates the historical data, projections of financial statements for 2012-2016 are used to see how the farm will perform financially in the future.

## **Background of Panel**

This location's panel is facilitated by Karisha Devlin, Agri-business Specialist & County Program Director – Knox County, in the Northeast region of the state. The panel, first convened in 2009, consists of 6 producers from the counties of Marion, Knox, and Shelby. At that time, panel members had been farming for 1.5 to 9 years, with an average of 6.25 years farming. The panel members owned between 110 and 500 acres, cash leased 0 to 1200 acres, share leased 0 to 500 acres, and cash leased 0 to 300 acres of hay/pasture. Crop mixes varied across the panel from a 50/50 share of corn and soybeans, 1/3 corn and 2/3 soybeans, and 2/3 corn and 1/3 soybeans. The producers' cattle operations ranged from 0 to 110 cows, and the producers backgrounded their own calves from 0 to 120 days, and backgrounded purchased calves from 0 to 120 head for 180 days. None of the producers worked a full-time job outside of agriculture. However, all of the panel members did some custom work in addition to their own farming operation. This custom work consisted of custom haying, planting, dirt work, raising hogs, and caring for cattle owned by other people.

## **How the Panel Members' Operations Have Changed**

Over the three-year life of this project, the panel members have undergone change in their operations. This farm, like most farms in Missouri, is currently enduring drought conditions in 2012. The members have worked over the last three years to understand the inherent risks in production agriculture while managing their operation for the long run and expanding where and when possible.

The six panel members have spent the last three years working to manage the inherent risk associated with farming while planning for the future through changes to their individual operations. This panel, like many producers trying to manage and grow their operation for the future, realizes that in order to grow you sometimes have to shrink size, change practices, or try a different enterprise. The panel members have seen their operations grow in number of acres and increased machinery complement. They have also expanded existing enterprises, tried new ones, and adopted different livestock production practices. The changes made by the panel members include:

- leasing additional cash rented and share rented acres of cropland,
- purchasing additional machinery,
- expanding seed cleaning business and beginning to treat seed for a large seed company,
- implementing new management practices (antibiotic and hormone free) on pork operation,
- selling a part of their cow herd and focusing on raising replacement heifers through the Show Me Select Heifer program, and
- purchasing additional pasture acres.

Several of the panel members have noted that it is hard to find additional land to rent or purchase. When additional acres are secured, it is at a higher rental price than previously rented land. This is putting a strain on their cash flow position and making risk management even more important.

## **Initial Baseline Representative Farm**

The baseline farm consists of corn and soybeans planted on 600 acres of cropland, 60 cow/calf pairs on 120 acres of pasture, and 90 acres of hay. The farm was started in 2003 with the purchase of 170 acres of

land: 120 acres of cropland, 30 acres of pasture/hay, and 20 acres of non-productive land. The farm owned 20 percent of the 830 total acres. The 480 acres of leased crop acres are primarily cash leased (400 acres) at \$120/acre, with the remaining 80 acres share leased in a 50/50 share lease arrangement. The crop acres were split between corn (42 percent) and soybeans (58 percent). The calves are backgrounded for 120 days, steer calves are sold at 750 lbs, and heifer calves are sold at 700 lbs. The farm put up 90 acres of hay each year. This farm is associated with a larger farming operation, primarily an extension of a multi-family operation, and thus receives benefits of that larger operation. One of those benefits is the use of equipment that is not owned by this operation.

## **Changes to the Baseline Representative Farm**

The initial baseline farm was modified over the three years since its creation based on changes the panel members made to their operations. The representative farm leased more cash rent crop land in 2011, adding 150 acres for a total of 750 crop acres. Two of the three panel members that added rented land added cash rented land and the other one added share rented land. The panel members agreed that the majority of the new rented land in their area was cash rented. The land rent is higher than what the initial baseline farm paid for cash rent. Cash rent for all acres that are cash rented is up by 21 percent (\$145/acre) compared to the initial baseline farm (\$120). The panel members indicated this is the trend in their neighborhoods, and they do not see it changing—if you want to rent additional acres, you will have to pay more to secure the lease.

The second major change for the representative farm is the change in equipment complement. Since this farm is associated with a larger family operation, the farm is able to share equipment with other family members. This has helped the producers get started with a lower capital investment in machinery. The panel members continue to own a share of several major pieces of equipment (combine, corn head, grain head, semi-truck and trailer, and auger) as well as adding new equipment (tractor, 16-row planter, and GPS/guidance/auto steer equipment) that they own in partnership with the larger family operation. The panel members also went back and increased the useful life of several pieces of machinery. As they grow in their farming careers, they realize that by properly maintaining and taking care of equipment it will last longer than they originally thought it would.

The representative farm was also updated using the August 2012 FAPRI Baseline update. The updated baseline reflects the most recent FAPRI estimates of future commodity prices, production costs, interest rates, and land values. The panel members have the ability to override these changes as they see fit. The main change the panel had was in estimating land value. From 2009 to 2011, the panel members noticed that land prices increased at a greater pace in their local area than in the FAPRI baseline. Based on their observations of land values, the representative farm's land value per acre increased 42.8 percent over the 2009 to 2011 period.

## **Financial Results**

The table below includes summary financials for the updated farm over the projection period (2012-2016). The farm has total operator assets, including land, machinery, cash reserves, and cattle, of \$1,304,000. Total operator assets are up significantly compared to the original baseline farm due to the 43 percent increase in land value from 2009 to 2011. The updated farm starts the simulation period (2007) with 80 percent debt on land and 50 percent debt on machinery. The farm averages \$106,100 per year return to family living (\$110.52/acre). This number is the surplus the owner/operator has left over after paying all

cash costs and represents the amount they can pay themselves for their management and labor. A more detailed summary of the financial picture for this updated farm over the 2012-2016 period can be found in Appendix A – Financial summary.

<b><u>Financials (2012-2016)</u></b>		2012-2013		2014-2016	
		Cash risk score			
Operator assets	\$1,304,000	[Yellow]		[Yellow]	
Total cash receipts	\$568,400	Prob. Of Deficit*	Color Score	Risk Score	
Net cash farm income	\$194,200	Under 25	[Green]	Low	
Return to family living	\$106,100	25 to 50	[Yellow]	Moderate	
		50 to 75	[Orange]	High	
		Over 75	[Red]	Severe	
		* Probability of cash flow deficit in any year of the projection period.			

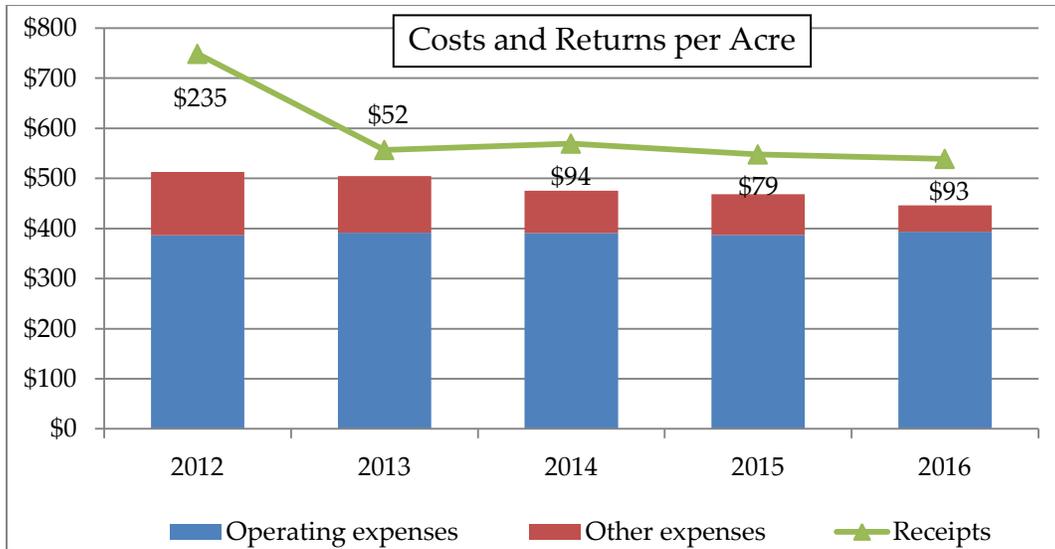
Another measure of the overall performance of the operation is the probability or likelihood that the farm will face a cash flow deficit. A farm faces a cash flow deficit when there is not enough cash available to cover all cash costs incurred by the operation throughout the year. Costs include variable production expenses, fixed costs, principal and interest payments, taxes, and family living.

The table above shows the baseline farms cash risk score for two different time periods: near term (2012-2013) and intermediate term (2014-2016). This farm scores in the yellow category (25 to 50 percent probability of a cash flow deficit) in the near term, a result of a large investment in additional equipment. Also, in the intermediate term, the farm’s cash flow pressure remains in the yellow category. By increasing acres farmed, the farm is able to be more efficient but still has a marginal risk rating, primarily due to the high cost of new and updated equipment. While the farm has a marginal risk rating in the near and intermediate term, in only two of the five years is the probability of a cash flow deficit above 25 percent.

Note that this analysis does not assume any information about 2012 growing conditions. Drought is likely to reduce 2012 yields in this region and around the Midwest. The representative farm can be simulated with lower 2012 yields to estimate the impacts on crop receipts, crop insurance benefits, and financial performance measures.

The graph below contains operating expenses per acre, other expenses per acre, and cash receipts expressed on a per acre basis. The net return per acre is the difference between total receipts per acre and total costs per acre (operating expenses plus other expenses). This is the amount of cash per acre that is available for the owner/operator to pay themselves for their labor and management of the operation.

On the expense side, operating expenses are relatively flat while total cost peaks in 2012 because of machinery purchases. Receipts, while rising sharply in 2012, are relatively flat over the remainder of the period. Net return per acre for the baseline farm ranges from a low of \$52.02/acre in 2013 to a high of \$235.10/acre in 2012.



## Summary

In summary, the Northeast Missouri feedgrain and cow/calf representative farm panel has grown and changed over the last three years to reflect the changes that have occurred in the panel members' individual operations. The table below summarizes how the representative farm has changed from the initial farm to the updated farm.

	Initial Farm 2010-2014	Updated Farm 2012-2016	% Change
Size			
Number of Acres	810	960	18.5%
Assets	\$802,000	\$1,304,000	62.6%
Receipts	\$336,900	\$569,000	68.9%
Net Cash Farm Income	\$77,400	\$194,800	151.7%
Return to Family Living	\$38,500	\$106,100	175.6%
Return per Acre	\$47.53	\$110.52	132.5%

There are a number of things that drive the changes to this farm. First, the farm has grown in size, as defined by the number of crop acres, by 18.5 percent. This is based on the growth in number of acres farmed that was experienced by the panel members over the last three years. This change in size is also a part of the reason the farm has increased its asset base, receipts, net cash farm income, and returns (return to family living and return per acre). Higher land values, cash reserves, and changes in machinery complement also contribute to the increase in assets. The increase in receipts, net cash farm income, and returns are all tied to the increase in acres farmed and higher projected prices in the updated baseline.

In working with this panel of producers over the last three years, it has been observed that they have expanded their operation and are working to manage and reduce their risk.

The representative farm can be used to examine the farm-level impacts of changes in management practices, market conditions, or farm policies. For example, the representative farm can be used to estimate how a new farm bill will affect farm finances and help producers make choices they may face about enrollment in various programs.

## Reference Notes

The summary financial tables always refer to the annual average of the variable for the five projection years, 2012-2016.

**Cash receipts** is total gross revenue from all sources, including cash sales in the market, insurance indemnities, and government payments, for crops that may not be planted. This figure also includes income from custom farming activity.

**Cash risk rating** is scored based on the probability of cash flow deficit over two time periods. 'Near term' includes the calendar years 2012 and 2013. 'Intermediate term' refers to the period of 2014-2016. 'Low risk' indicates less than a 25 percent chance of cash flow deficit in *any* year of the time period; 'moderate risk' is 25 to 49 percent, 'high risk' is 50 to 74 percent, and 'severe risk' indicates greater than a 75 percent probability of a cash flow deficit.

**Net cash farm income** is total cash receipts less all farm *operating* expenses including interest payments on all outstanding debt. Cash costs not included are principal payments on liabilities, cash down payment for capital replacement, income taxes, and owner withdrawal.

**Return to family living** is the farm's after-tax bottom line for the given year. It is the residual after all other cash expenses are deducted from current year receipts. This calculation includes carryover debt, but not carryover cash from prior years.

**Probability of cash flow deficit** is the chance that total receipts will be less than total cash expenses as a result of price and production risk.

## Appendix – Financial Summary

The table below shows in more detail the financial outlook for the updated farm over the five-year projection period (2012-2016).

	2012	2013	2014	2015	2016	Average
<b>Income (\$1,000)</b>						
Crop	668.2	479.7	490.9	473.4	465.2	515.5
Livestock	48.1	52.7	55.4	51.2	50.2	51.5
Other	2.0	2.0	2.0	2.0	2.0	2.0
<b>Total</b>	<b>718.3</b>	<b>534.4</b>	<b>548.3</b>	<b>526.6</b>	<b>517.4</b>	<b>569.0</b>
<b>Expenses (\$1,000)</b>						
<b>Variable</b>						
Crop	188.6	194.1	194.7	196.5	200.2	194.8
Livestock	14.7	15.2	15.0	11.0	15.1	14.2
<b>Total</b>	<b>203.3</b>	<b>209.3</b>	<b>209.7</b>	<b>207.5</b>	<b>215.4</b>	<b>209.0</b>
<b>Fixed</b>	<b>143.7</b>	<b>145.1</b>	<b>146.1</b>	<b>147.2</b>	<b>148.8</b>	<b>146.2</b>
Interest	23.9	21.3	19.3	16.8	13.7	19.0
<b>Total</b>	<b>370.8</b>	<b>375.7</b>	<b>375.1</b>	<b>371.5</b>	<b>377.8</b>	<b>374.2</b>
<b>Net Cash Farm Income (\$1,000)</b>	<b>347.5</b>	<b>158.7</b>	<b>173.2</b>	<b>155.1</b>	<b>139.6</b>	<b>194.8</b>