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North Central Feedgrain and Cow/Calf Representative Farm

Final Report

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FAPRI Beginning Farmer and Rancher Development Project North Central Feedgrain and Cow/Calf Representative Farm – Final Report

Intro to Project

The North Central 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 they 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 Parman Green, Agriculture Business County Program Director—Carroll County & Central Missouri in the North Central region of the state. The panel, first convened in 2009, consists of 7 producers from the counties of Carroll and Saline. At that time, panel members had been farming for 4 months to 7 years, with an average of 3.33 years farming. The panel members owned between 0 and 100 acres, cash leased 0 to 700 acres, share leased 0 to 800 acres, and leased 0 to 150 acres of hay/pasture. All of the panel members were planting a 50/50 crop mix of corn and soybeans. The producers' cattle operations ranged from 0 to 40 cows, and the producers backgrounded their own calves from 0 to 90 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, tillage, taking care of someone else's cattle, spraying, and working for extended families' farms.

How the Panel Members' Operations Have Changed

Over the three-year life of this project, the panel members have made and experienced many changes in their operations. This representative farm has been in a unique situation in that the panel members faced flooding from the Missouri River and drought in 2011 and are currently enduring drought conditions in 2012. The members have endured these weather extremes over the last three years while managing their operation for the long run, expanding where and when possible.

Some of the panel members, farming river-bottom ground, endured losses because of levee breaks that caused fields to flood. None of the panel members is farming solely in the river bottom. They farm some bottom ground along with hill ground that was not affected by the flooding. The flooding also forced many producers to replant some fields that were not a complete failure. This impacted the panel members in several ways. They faced the additional costs of fuel, labor, wear and tear on their equipment, additional seed cost, and the potential for reduced yields due to later planting dates as well as loss of fertility. For those who lost entire fields or farms to the flooding, crop insurance indemnity payments helped offset the loss of a crop.

The seven 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. While many think increasing the size or scope of one's operation is the only way to grow the operation for the future, circumstances sometimes require decreasing the size of an operation in order to move it forward. The panel members have seen their operations grow in number of acres, machinery complement, and additional hired labor, but they have reduced their cow herd in response to losing leased grazing land. The changes made by the panel members include:

- leasing additional cash rented acres of cropland,
- losing rented pasture and selling some cows,
- building new grain bins,
- purchasing additional machinery, and
- starting seed cleaning and treating businesses.

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 500 acres of cropland and 15 cow/calf pairs on 45 acres of pasture. The farm was started in 2006 with the purchase of 85 acres of land: 80 acres of cropland and 5 acres of non-productive land. The farm owns 15 percent of the 545 total acres. The 420 acres of leased crop acres are half cash leased (210 acres), at \$150/acre, with the remaining 210 acres share leased in a 50/50 share lease arrangement. The crop acres are split between corn (50 percent) and soybeans (50 percent). The calves are sold straight off the cow at weaning with steer calves sold at 500 lbs and heifer calves sold at 450 lbs. The farm does not put up any hay but purchases 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 and 2012, adding 50 acres in 2011 and an additional 100 acres in 2012 for a total of 650 crop acres. The land rent is higher than what the initial baseline farm paid for cash rent. Cash rent for all acres cash rented is up by 20 percent (\$175/acre) compared to the initial baseline farm (\$150). 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. Two major changes have occurred. The first is updating or upgrading equipment sooner than they originally had planned. As they have added acres, the panel members realized they needed a bigger tractor and planter so they upgraded those sooner than they had originally planned. They also added a few minor pieces of equipment.

The third and final major change is the addition of 30,000 bushels of grain storage. In 2010 and again in 2011 they added a 15,000 bushel grain bin to their operation. The panel members see this additional grain storage as a tool to help them better market their crops, thus resulting in a risk management tool. By storing their grain on the farm, they are able to spread out their marketings and take advantage of seasonal price movements. Now they do not have to sell their entire crop at harvest or pay for storage in town.

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 values. 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 16.7 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, and cattle, of \$949,000. The updated farm starts the simulation period (2007) with 89 percent debt on land and 50 percent debt on machinery. The farm averages \$131,200 per year return to family living (\$201.85/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.

Financials (2012-2016)		Cash risk score	
		2012-2013	2014-2016
Operator assets	\$949,000		
Total cash receipts	\$479,900	Prob. Of Deficit*	Color Score
Net cash farm income	\$213,600	Under 25	Low
Return to family living	\$131,200	25 to 50	Moderate
		50 to 75	High
		Over 75	Severe
		* Probability of cash flow deficit in any year of the projection period.	

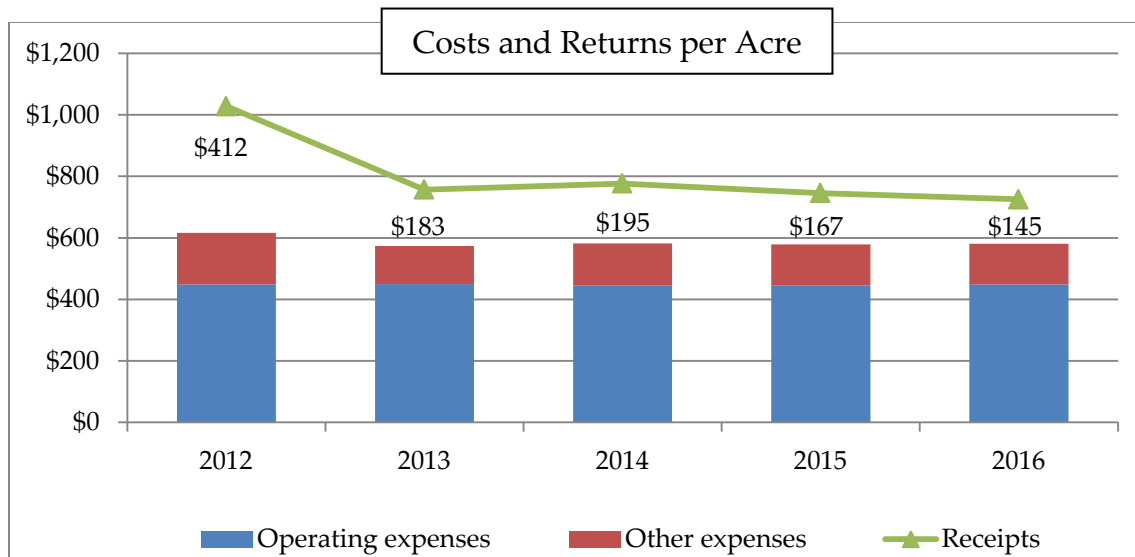
Another measure of the overall performance of the operation is the probability or likelihood that the farm will face a cash flow deficit. A farm faces a cash flow deficit when there is not enough cash available to cover all cash costs incurred by the operation throughout the year. Costs include variable 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 green category (less than 25 percent probability of a cash flow deficit) in the near term as the farm realizes the benefits of increased acreage and high prices in 2012. In the intermediate term, the farm scores in the yellow category (25 to 50 percent probability of a cash flow deficit). After the farm increased acreage, the producers realized they needed more and bigger equipment to farm the additional acreage efficiently. The resulting purchases increase farm assets, but they also increase the risk and likelihood of cash flow deficits. The farm's cash flow deteriorates over time, given the projected reductions in corn and soybean prices in 2013. Producers that are aware of this risk and take steps to manage it can continue to be successful. This farm would be categorized as having low cash risk in the near term and moderate cash risk in the intermediate term.

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 management and labor of the operation.

After the price-induced spike in receipts in 2012, the updated farm faces relatively flat costs and receipts in later years. Net returns per acre for the baseline farm decline from \$412 in 2012 to a low of \$145/acre in 2016.



Summary

In summary, the North Central 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	500	650	30.0%
Assets	\$587,000	\$949,000	61.7%
Receipts	\$256,900	\$479,900	86.8%
Net Cash Farm Income	\$81,500	\$213,600	162.1%
Return to Family Living	\$57,800	\$131,200	127.0%
Return per Acre	\$115.60	\$201.85	74.6%

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 30 percent. This is based on the growth in number of acres farmed 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, changes in machinery complement, and the addition of new grain storage 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
Income (\$1,000)						
Crop	581.1	419.1	430.3	412.4	400.8	448.7
Livestock	10.7	11.2	11.8	11.3	10.8	11.2
Other	20.0	20.0	20.0	20.0	20.0	20.0
Total	611.7	450.3	462.1	443.6	431.6	479.9
Expenses (\$1,000)						
Variable						
Crop	122.1	125.5	125.9	127.1	129.6	126.0
Livestock	8.4	6.2	5.0	5.0	5.2	5.9
Total	130.5	131.7	130.8	132.0	134.8	132.0
Fixed	108.2	109.0	109.5	110.1	111.0	109.6
Interest	28.1	26.6	25.0	22.8	21.4	24.8
Total	266.8	267.3	265.4	265.0	267.1	266.3
Net Cash Farm Income (\$1,000)	344.9	183.1	196.8	178.7	164.5	213.6