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West Central Feedgrain Representative Farm

Final Report

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Intro to Project

The West Central feedgrain 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 Whitney Wiegel, Agriculture Business Specialist – Lafayette County in the West Central region. The panel, first convened in 2009, consists of 4 producers from Lafayette County. At that time, panel members had been farming for 1 to 9 years, with an average of 5.5 years farming. The panel members owned between 0 and 240 acres, cash leased 250 to 600 acres, share leased 0 to 100 acres, and cash leased 0 to 150 acres of hay/pasture. Primary crop mix is 50/50 corn and soybeans with a very small amount of wheat and double crop soybean acres. The producers are 50 percent to 80 percent no-till. None of the producers work a full-time job outside of agriculture. However, all of the panel members do some custom work in addition to their own farming operation. This custom work consists of custom haying, planting, dirt work, spraying, combining, crop insurance selling, and adjusting.

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 has endured the wrath of Mother Nature in the last two years. In 2011, two wind events caused severe damage to much of the area's corn crop and one of the worst droughts in recent memory has occurred 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 four 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, has utilized the resources they already have as well as new resources acquired to be successful. The panel members have seen their operations grow in number of acres, established new business structures, and increased their machinery complement. The changes made by the panel members include:

- purchasing crop acres,
- purchasing additional machinery,
- utilizing new equipment to clear additional land that resulted in additional cropped area on existing acreage,
- working with the family operation to create a new limited liability corporation and transitioning the entire farming operation from one generation to the next, and
- utilizing grid sampling and variable rate fertilizer application to decrease input costs and increase production.

The panel members, like other beginning farmer panel members throughout the state, have noted 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, soybeans, wheat, and double crop soybeans planted on 400 acres of cropland. The farm was started in 2003 with the purchase of the 88 acres of land: 80 acres of cropland and

8 acres of non-productive land. The farm owned 21.6 percent of the 408 total acres. The 320 acres of leased crop acres are all cash leased at \$145/acre. The crop acres are split between corn (50 percent), soybeans (45 percent), and wheat/double crop soybeans (5 percent). 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 that the farm owns a share of several pieces of equipment with the larger family 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 main change is in the size of the representative farm. In 2011, that farm purchased an additional 80 acres of owned crop land and rented an additional 120 acres of cash-rented crop land. Therefore, the farm increased its crop acres by 50 percent in 2011, growing from 400 to 600 total crop acres. This large increase is due to the fact that one of the panel members is taking over the overall family operation, transitioning the farm from one generation to the next. The panel members noted that in order to secure additional rental agreements, they have to pay higher cash rent per acre than in the past. The result is a 21 percent increase in cash rent across all rented land. The farm also adds an additional 200 cash-rented acres in 2012. These additional acres mean the representative farm has doubled in size during the three year life of this project.

The second major change for the representative farm is a 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, planter, sprayer, grain cart, and backhoe/trencher). With the additional acres, the farm has replaced its main tractor, thus increasing the horse power. Additionally, the farm has invested in the latest GPS technology, allowing the farm to more efficiently plant, spray, and apply fertilizer.

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 19 percent over the 2009 to 2011 period.

Financial Results

The table below includes summary financials for the baseline farm over the projection period (2012-2016). The farm has total operator assets, including land, machinery, cash reserves, and cattle of \$1,319,000. Total operator assets are up significantly compared to the original baseline farm due to the 19 percent increase in land value from 2009 to 2011 and the purchase of 80 acres of cropland in 2011. The baseline farm starts the simulation period (2007) with 67 percent debt on land and 20 percent debt on machinery. The farm averages \$103,500 per year return to family living (\$129.38/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.

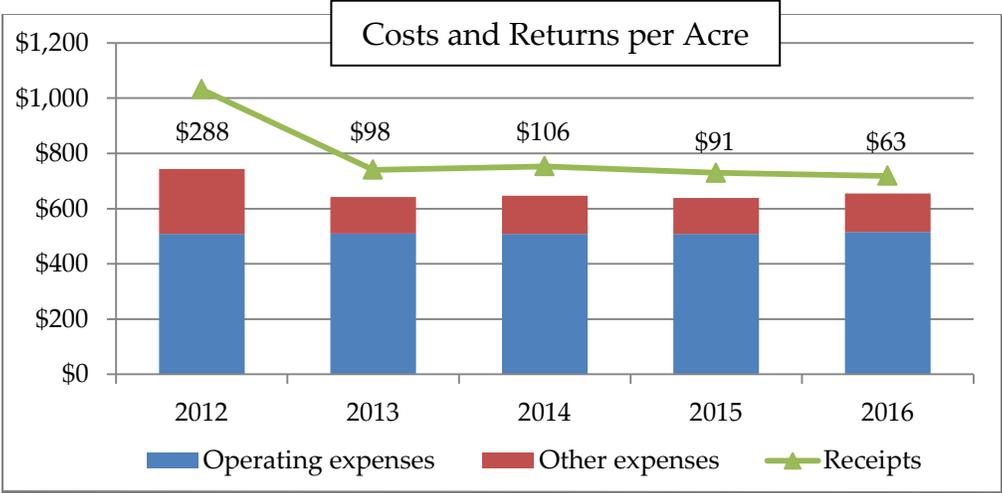
Financials (2012-2016)		Cash risk score		
		2012-2013	2014-2016	
Operator assets	\$1,319,000			
Total cash receipts	\$635,500	Prob. Of Deficit*	Color Score	Risk Score
Net cash farm income	\$227,300	Under 25		Low
Return to family living	\$103,500	25 to 50		Moderate
		50 to 75		High
		Over 75		Severe
		* 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 farm’s 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 both the near term and intermediate term. Therefore, in at least one year in each term, the farm has a 25 to 50 percent chance that it will NOT have enough cash to cover all cash costs. This farm has acquired additional debt by purchasing more land as well as purchasing additional equipment needed to farm more acres. This farm would be categorized as having moderate cash risk in the near and intermediate terms. While this is not the best nor the worst situation to be in, it is worrisome since the farm’s probability of cash flow deficit is increasing during the intermediate term.

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.

On the expense side, operating expenses are relatively flat and below receipts. However, total expense is running rather high and close to the receipts line due to the additional principal payments the farm is making on the purchased land and additional equipment. Net return per acre for the baseline farm ranges from a low of \$63/acre in 2016 to a high of \$288/acre in 2012.



Summary

In summary, the West Central Missouri feedgrain 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	400	800	100.0%
Assets	\$759,000	\$1,319,000	73.8%
Receipts	\$237,400	\$635,500	167.7%
Net Cash Farm Income	\$49,800	\$227,300	356.4%
Return to Family Living	\$14,700	\$103,500	604.1%
Return per Acre	\$36.75	\$129.38	252.0%

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 100 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, and net cash farm income. Higher land values, cash reserves, and changes in machinery complement also contribute to the increase in assets. The increases in receipts and net cash farm income are tied to the increase in acres farmed and higher projected prices in the updated baseline than in earlier estimates. However, crop prices are projected to decline relative to the peak values of 2012/13, and the addition of 80 acres of purchased land in 2011 also contributes to projected reductions in net returns per acre in 2013 and later years. The additional principal and interest payments on this new debt leave less money for the owner/operator to cover his management and labor.

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	810.3	577.2	587.4	568.6	559.7	620.6
Livestock	0.0	0.0	0.0	0.0	0.0	0.0
Other	14.9	14.9	14.9	14.9	14.9	14.9
Total	825.2	592.1	602.3	583.5	574.6	635.5
Expenses (\$1,000)						
Variable						
Crop	205.1	210.6	211.2	213.0	217.0	211.4
Livestock	0.0	0.0	0.0	0.0	0.0	0.0
Total	205.1	210.6	211.2	213.0	217.0	211.4
Fixed						
Interest	28.6	23.1	20.1	17.7	17.5	21.4
Total	406.9	408.1	406.6	407.2	412.4	408.2
Net Cash Farm Income (\$1,000)	418.4	184.1	195.7	176.4	162.2	227.3