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FAPRI Beginning Farmer and Rancher Development Project

Northeast Feedgrain and Cow/Calf Representative Farm

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Providing objective analysis for over 25 years

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FAPRI Beginning Farmer and Rancher Development Project – Northeast Feedgrain and Cow/Calf Representative Farm

Intro to Project:

This 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 (baseline) farm would perform financially over the next five years, and identify 2-3 alternative scenarios that are simulated and compared to the baseline. This report is a summary of the first year of one of these four panels. In the second year of the project, the panel members will have the option to model their individual operations, look at how they perform over the next five years, identify 2-3 changes they are contemplating for their operation and see how they compare financially to the baseline. In the third year of the project, financial tools will be distributed via the internet to beginning farmers and ranchers across the U.S.

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 4-8 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 agreed to build a panel of local producers that fits the USDA definition of a beginning farmer or rancher. Primary data is initially developed and continuously validated by Missouri producers via a consensus process. Producers establish farm structure, size, farming practices, costs of production and associated financial requirements for the representative farm based on their individual operations. Business size, structure and management practices are held constant for the simulation period, 2007-2014.

For simulation, actual yield, price, and operating costs data is used for the years 2007-2009. 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), property of the Texas Agricultural Experiment Station, maintained at the Agricultural and Food Policy Center, Texas A&M University. National price estimates, generated by the FAPRI consortium at the University of Missouri and Iowa State University, are utilized for the 2010-2014 simulation.

The financial statements (income statement, cash flow, balance sheet) are used by the panel to make sure the farm is performing financially as it should over the three year historical period. After the panel validates the historical data, projections of financial statements for 2010-2014 are used to see how the farm will perform financially in the future.

Background of Panel:

This panel is facilitated by Karisha Devlin, Agri-business Specialist & CPD – Knox County, in the Northeast region of the state. The panel consists of 6 producers from the counties of Marion, Knox, and Shelby. Panel members have been farming for 1.5 to 9 years with an average of 6.25 years farming. The panel members own between 110-500 acres, cash lease 0-1200 acres, share lease 0-500 acres, and lease 0-300 acres of hay/pasture. Crop mixes vary 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 range from 0-110 cows. Producers background their own calves from 0-120 days, and background purchased calves from 0-120 head for 180 days. 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, raising hogs, and caring for cattle owned by other people.

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 the 170 acres of land: 120 acres of cropland, 30 acres of pasture/hay, and 20 acres of non-productive land. The farm owns 20% 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 are split between corn (42%) and soybeans (58%). The calves are backgrounded for 120 days, steer calves are sold at 750 lbs, and heifer calves are sold at 700 lbs. The farm puts 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.

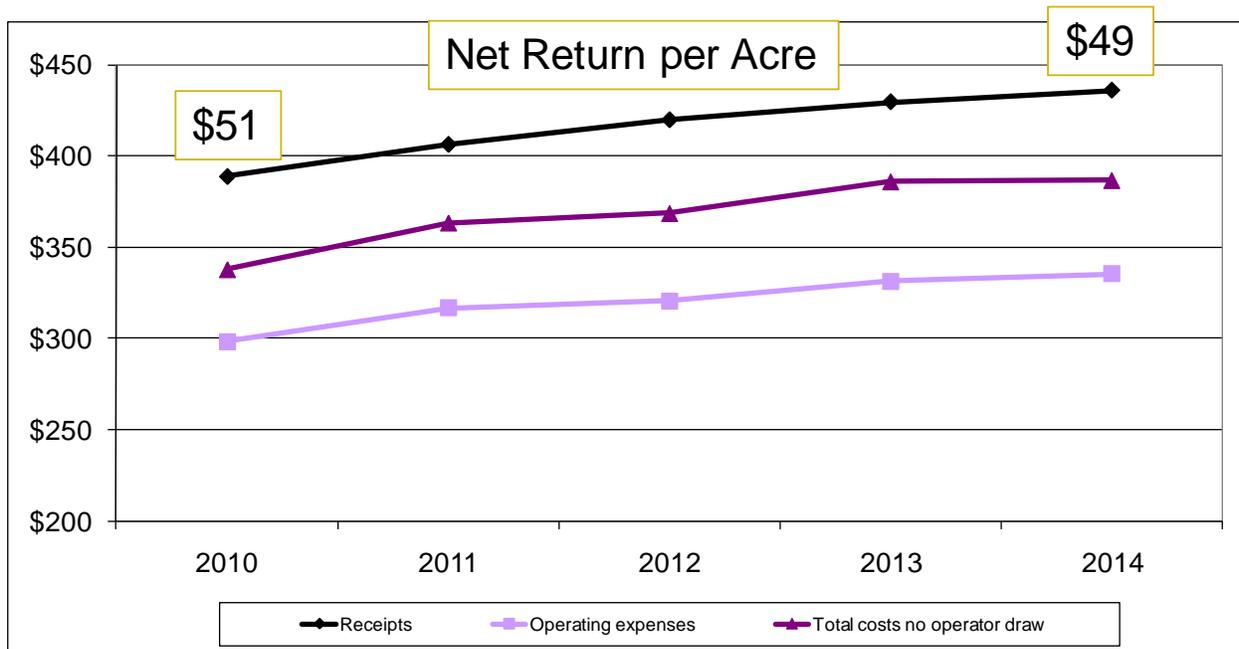
The table below includes summary financials for the baseline farm over the projection period (2010 – 2014). The farm has total operator assets, including land, machinery, and cattle of \$802,000. The baseline farm starts the simulation period (2007) with 80% debt on land and 50% debt on machinery. The farm averages \$38,500 per year return to family living (\$47.47/acre). This number is the surplus the owner/operator has left over after paying all cash costs and uses to pay themselves for their management and labor.

<u>FINANCIALS (2010-14)</u>																		
Operator assets	\$802,000	Cash risk score																
Total cash receipts	\$336,900		<table border="1"> <thead> <tr> <th>Prob. Of Deficit*</th> <th>Color Score</th> <th>Risk Score</th> </tr> </thead> <tbody> <tr> <td>Under 25</td> <td>Green</td> <td>Low</td> </tr> <tr> <td>25 to 50</td> <td>Yellow</td> <td>Moderate</td> </tr> <tr> <td>50 to 75</td> <td>Orange</td> <td>High</td> </tr> <tr> <td>Over 75</td> <td>Red</td> <td>Severe</td> </tr> </tbody> </table>	Prob. Of Deficit*	Color Score	Risk Score	Under 25	Green	Low	25 to 50	Yellow	Moderate	50 to 75	Orange	High	Over 75	Red	Severe
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Under 25	Green	Low																
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Over 75	Red	Severe																
Net cash farm income	\$77,400																	
Return to family living	\$38,500																	

* 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: 2010-2011 and 2012-2014. This farm scores in the orange category (50-75% probability of a cash flow deficit) in both time periods. Therefore, each year the farm has a 50%-75% chance that it will NOT have enough cash to cover all cash costs. This would not be a good situation for an agricultural producer. This farm would be categorized as having high cash risk.

The graph below contains three lines: operating expenses per acre, total costs per acre (not including any payment to the owner/operator for their management and labor), and cash receipts expressed on a per acre basis. The net return per acres is the difference between total receipts per acre and total costs per acre. 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.



Over the projection period, the baseline farm is facing increasing costs and receipts. Net return per acre for the baseline farm ranges from a low of \$42.81/acre in 2011 and a high of \$51.06/acre in 2012.

Alternatives:

The panels, with assistance from the local facilitator, were asked to come up with two to three alternative scenarios that they would like to see simulated and compared back to the baseline. Many of these options are changes that the panel members are considering for their

individual operations or changes that they have seen others in the area implement. The panel was then presented with the results and how they compared to the baseline.

Alternative 1: Plant cover crop on 30 acres of crop ground and increase the cow herd to 76 cows over 4 years

This alternative starts out with the baseline farm. Beginning in 2007, the farm retains 5 additional heifer calves each of the next 4 years with four of them entering the herd in the next year. This results in a cow herd of 76 cows by 2011, compared with the 50 cow herd in the baseline. By planting 20 acres of a cover crop on crop acres, the farm is able to add the cows and not add acres. The goal is to capture 45 days of grazing on this cover crop each year, thus extending the available forage on the existing forage acres. To do this, the farm will incur a cost of \$20/acre for the cost of seeding and planting the cover crop in each year. The only other additional cost is for electric fencing and posts (\$200) in 2007. It is assumed that water is readily available on the acres that will be planted to the cover crop.

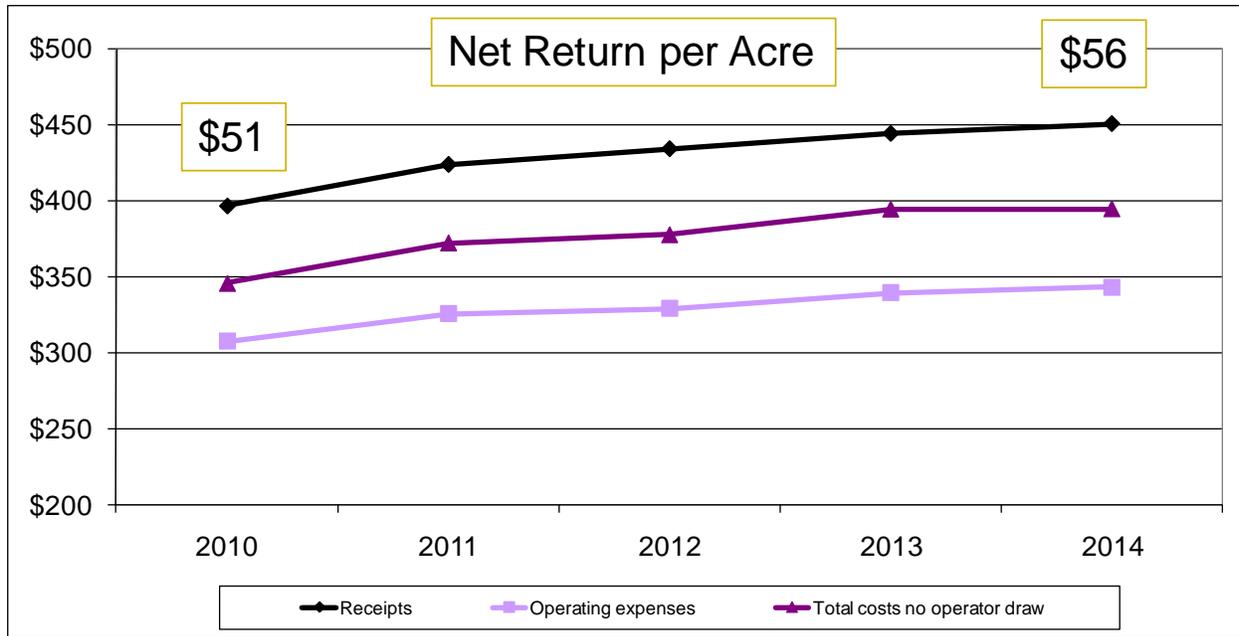
The table below includes summary financials for Alternative 1 over the projection period (2010-2014). Total assets rose relative to the baseline farm (\$802,000) to an average of \$824,000. Alternative 1 started the simulation period with the same 80% debt on land and 50% debt on machinery as the baseline. Under Alternative 1 return to family living increases to an average of \$43,000/year (\$53.09/acre), an increase of \$4,500/year. The cash risk rating also improves under Alternative 1 when compared to the baseline. Alternative 1 reduces the cash flow risk. The alternative is ranked as having moderate cash flow risk compared to the high risk rating of the baseline.

<u>FINANCIALS (2010-14)</u>		
Operator assets	\$824,000	Cash risk score
Total cash receipts	\$348,000	
Net cash farm income	\$81,800	
Return to family living	\$43,000	

Prob. Of Deficit*	Color Score	Risk Score
Under 25	Green	Low
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.

The graph below shows operating expenses, total costs with no operator withdrawal for management and labor, and receipts on a per acre basis. Alternative 1 increases net returns per acre when compared to the baseline. Net returns per acre range from \$51.12/acre in 2010 to \$56.63/acre in 2012. Alternative 1 averages \$5.62/acre more in net returns per acre over the 2010-2014 period when compared to the baseline.



Alternative 2: Add 400 acres of cash rented crop acres

This alternative starts with the baseline farm. Beginning in 2010, the farm leases an additional 400 acres of cash rented crop land. The acres are planted to corn (165 acres) and soybeans (235 acres). Crop production costs, yields and prices from the baseline farm will be used on the additional acres. Changes to fixed costs are as follows:

- Labor: Increase by \$9,000/year to a total of \$10,000/year
- Repairs, Maintenance & Supplies: Increase by \$5,000/year to a total of \$30,000/year
- Insurance: Increase by \$200/year to a total of \$2,200/year
- Fuel: Increase by \$10/acre on 400 acres for a total increase of \$4,000/year to a total of \$14,000/year

Changes to equipment as follows:

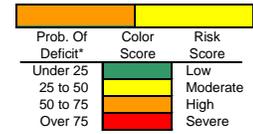
- Upgrade planter in 2010 from a 6 row to a 12 row, split row planter; \$35,000 cost, 5 year life
- Add a 115hp tractor in 2011; \$30,000 cost, 10 year life
- Add a 400 bu. Grain cart in 2010; \$10,000 cost, 10 year life
- Update grain truck in 2012 to a tandem; \$22,000 cost, 10 year life
- Update combine in 2013 to a larger machine; \$23,000 additional cost, 4 year life

The table below includes summary financials for Alternative 2 over the projection period (2010-2014). Total assets rose relative to the baseline farm (\$802,000) to an average of \$933,000. Alternative 2 started the simulation period with the same 80% debt on land and 50% debt on machinery as the baseline. Under Alternative 2 return to family living increases to an average of \$51,700/year (\$42.73/acre), an increase of \$13,200/year. The cash risk rating is the same as the baseline in the near term (2010-2011) and improves in the intermediate term (2012-2014). Alternative 2 reduces the cash flow risk over time. The alternative is ranked as having high and moderate cash flow risk compared to the high risk rating of the baseline.

FINANCIALS (2010-14)

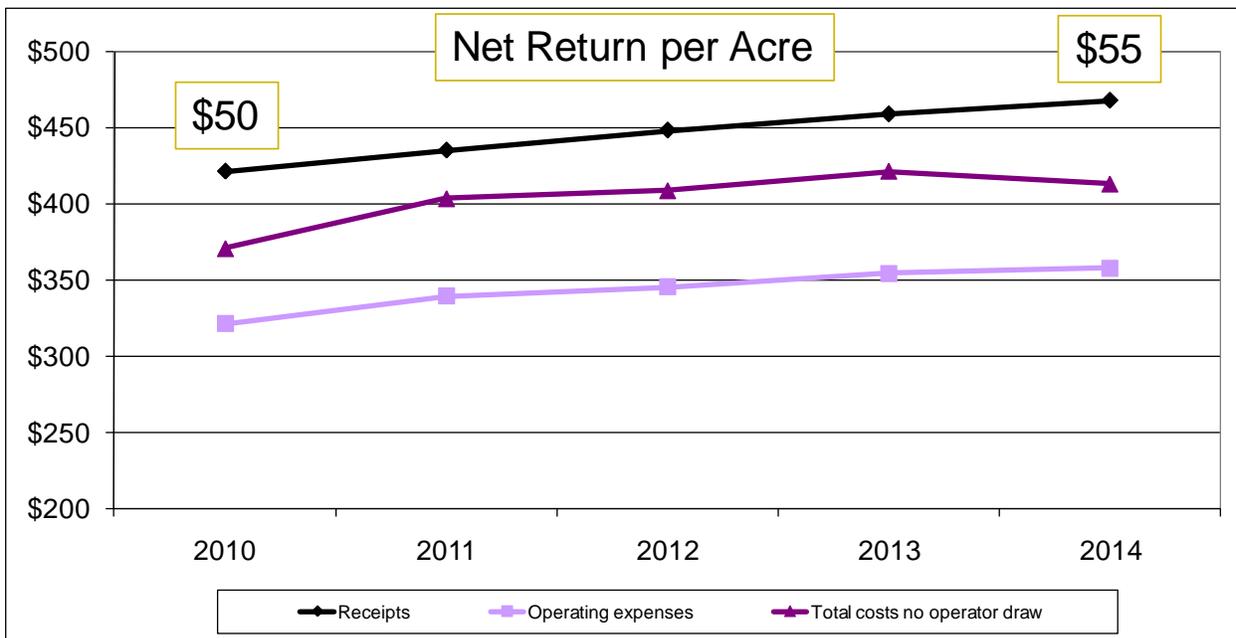
Operator assets	\$933,000
Total cash receipts	\$540,000
Net cash farm income	\$124,000
Return to family living	\$51,700

Cash risk score



* Probability of cash flow deficit in any year of the projection period.

The graph below shows operating expenses, total costs with no operator withdrawal for management and labor, and receipts on a per acre basis. Alternative 2 has lower net returns per acre on average when compared to the baseline. Net returns per acre range from \$31.64/acre in 2011 to \$54.68/acre in 2014. Alternative 2 averages \$4.74/acre less in net returns per acre over the 2010-2014 period when compared to the baseline.



Summary:

The table below summarizes assets, receipts, net cash farm income, and return to family living for the baseline, Alternative 1, and Alternative 2. Assets, receipts, expenses, and return to family living increase for the two alternatives when compared to the baseline. The alternatives increase number of cows (Alternatives 1) and cash leased crop acres (Alternative 2) which result in the increases.

Overall, this beginning farmer representative farm struggles to meet all cash obligations under baseline conditions resulting in a high risk rating (see table below) over the next five years. The panel of beginning farmers identified two alternative scenarios that improve the financial outlook over the next five years.

In both alternatives, the panel increased receipts by either increasing the cow herd (Alternative 1) or increasing cash rented acres (Alternative 2). The increase in receipts results in a decrease in cash flow pressure and an increase in net returns. While the alternatives improve the financial outlook, the farms still struggle to meet all cash costs. Alternative 1 decreases the probability of a cash flow deficit an average of 5% over the baseline, and Alternative 2 decreases it by 8% over the baseline. While these are improvements, the alternatives still have over a 40% chance of having a cash flow deficit in each of the next five years.

	Baseline	Alternative 1	Alternative 2
Operator Assets	\$802,000	\$824,000	\$933,000
Total Cash Receipts	\$336,900	\$348,000	\$540,000
Net Cash Farm Income	\$77,400	\$81,800	\$124,000
Return to Family Living	\$38,500	\$43,000	\$51,700

Risk Ratings

	2010-2011	2012-2014
Baseline		
Alternative 1		
Alternative 2		

Prob. Of Deficit*	Color Score	Risk Score
Under 25		Low
25 to 50		Moderate
50 to 75		High
Over 75		Severe

* Probability of cash flow deficit in any year of the projection period.

Reference Notes

The summary financial tables always refer to the annual average of the variable for the five projection years 2010–2014.

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 are the calendar years 2010 and 2011. Intermediate term is the period 2012-2014. Low risk is 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 is 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. Alternatively, it is the chance that returns to family living will be less than the minimum owner withdrawal.