Financial Benchmarking to Assess a Farm's Financial Position in a Struggling Agricultural Economy

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Managing the financial side of the farm business is critical to its success, especially in today's environment of market volatility. Evaluating the growth and progress of the farm business over time, as indicated by financial ratios, can give insight to the strengths and weaknesses of the operation. Benchmarking against similar farms can also help the manager assess their current financial position and shape goals for the future.

A tool developed by the K-State Agricultural Economics Department with assistance from the 2017/2018 CoBank Research Fellow program offers farmers and ranchers, bankers, consultants, and others in the ag. industry an opportunity to benchmark their financial ratios with cohorts of the Kansas Farm Management Association (KFMA) farms. This can be found at http://www.agmanager.info/decision-tools and is titled "KSU-Farm Financial Benchmarking Tool". The user must "Enable Macros" or "Enable Content" for this tool to function properly. This tool will be updated in early summer each year as KFMA summaries are available for the past year.

Both a 10-Year Average and Current Year (most recent year KFMA summary data is available) benchmark are given for each financial ratio so comparisons can be made in a "current" and "long-run" setting. Another unique aspect of this benchmarking tool is that these values are shown as distributions, not just averages. Figure 1 gives an example of the Net Farm Income (NFI) Ratio as a normal distribution:
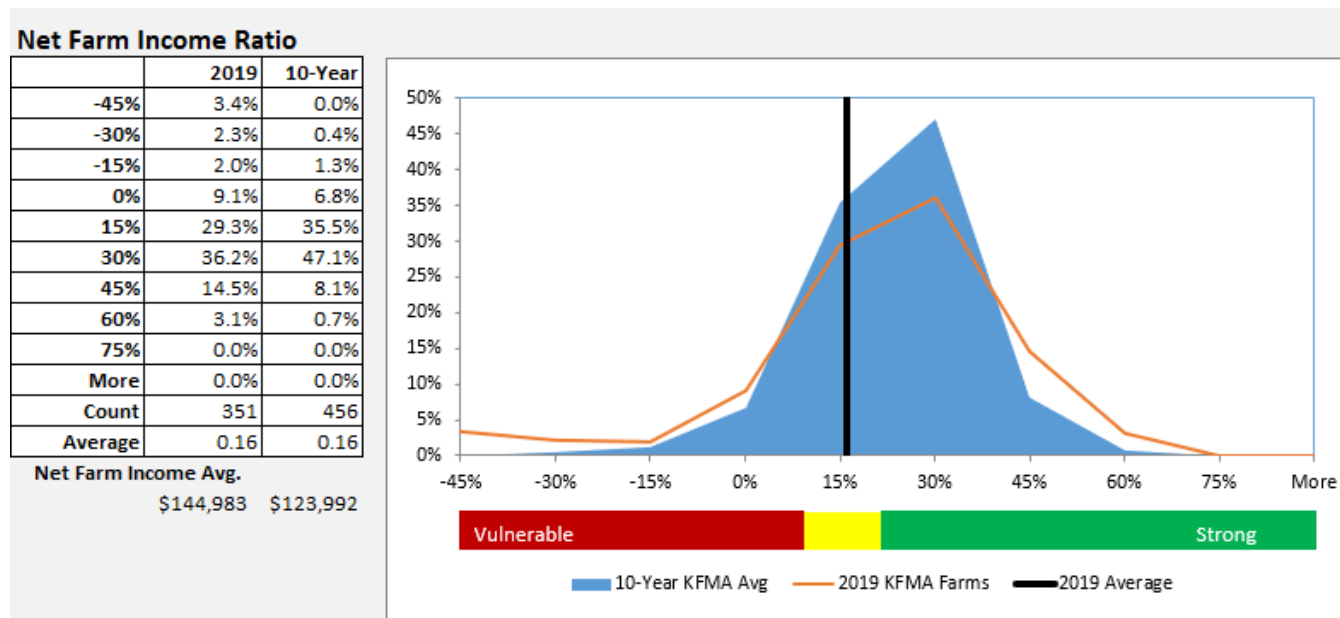

Net Farm Income Ratio

	2019	10-Year
-45%	3.4%	0.0%
-30%	2.3%	0.4%
-15%	2.0%	1.3%
0%	9.1%	6.8%
15%	29.3%	35.5%
30%	36.2%	47.1%
45%	14.5%	8.1%
60%	3.1%	0.7%
75%	0.0%	0.0%
More	0.0%	0.0%
Count	351	456
Average	0.16	0.16

Net Farm Income Avg.
$144,983 $123,992

Figure 1. A Benchmarking Example of the Net Farm Income Ratio in "Normal Distribution" form

Figure 1 displays a normal distribution of the Net Farm Income Ratio (Net Farm Income/Accrual Gross Farm Revenue) for all KFMA farms with operators between the age of 40 and 60 years. The 10-year average of this measure is shown in blue, indicating 47% of farms have a NFI ratio near 30%, which means 30% of Gross Farm Revenue is left after paying operating expenses, interest, and depreciation. The orange line shows the NFI ratio in 2019, where the distribution has flattened some to 36% of farms having a NFI ratio near 30% with a larger variation of farms above and below that amount. Below the table, the average of NFI (in dollars) in 2019 is $144,983 for these farms for unpaid labor, management and reinvestment in the farm business. This is a slight increase over the past 10-year average.

To assess the same ratio and information in a different form, the user can click on "Cumulative Distribution". This makes it simple to compare what percent of farms in the cohort are above and below the farm to be assessed. Figure 2 shows an example of this:
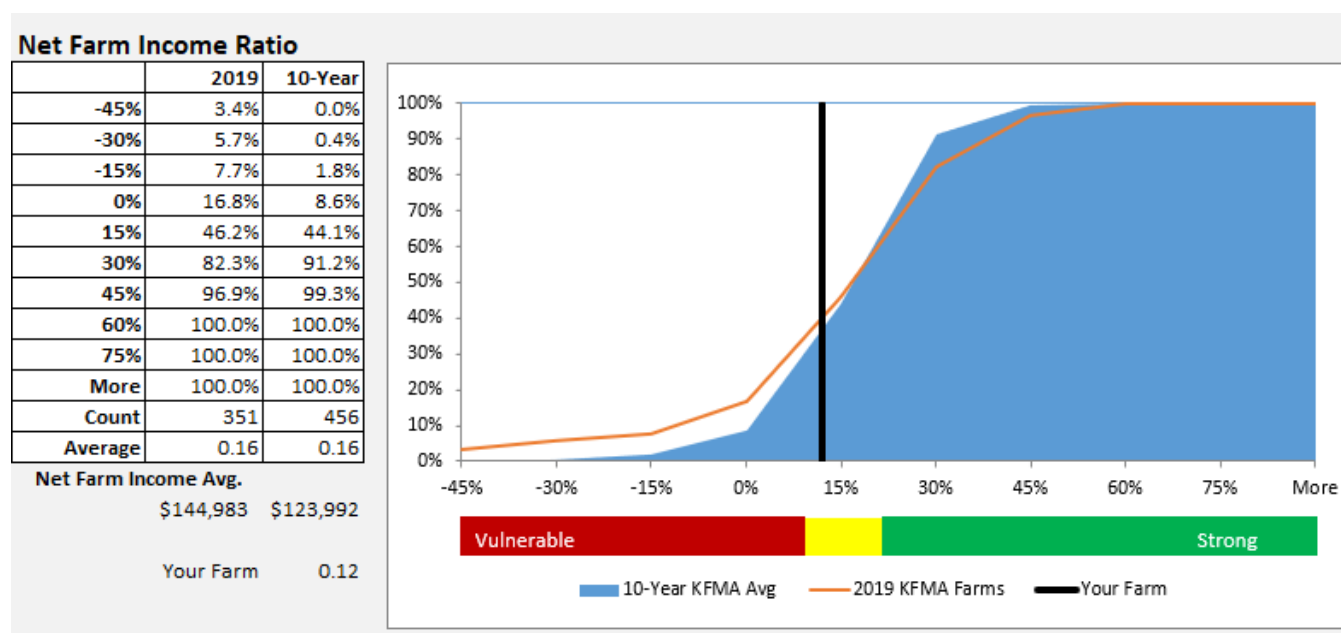
Net Farm Income Ratio

	2019	10-Year
-45%	3.4%	0.0%
-30%	5.7%	0.4%
-15%	7.7%	1.8%
0%	16.8%	8.6%
15%	46.2%	44.1%
30%	82.3%	91.2%
45%	96.9%	99.3%
60%	100.0%	100.0%
75%	100.0%	100.0%
More	100.0%	100.0%
Count	351	456
Average	0.16	0.16

Net Farm Income Avg.
$144,983 $123,992

Your Farm   0.12

Figure 2. A Benchmarking Example of the Net Farm Income Ratio in "Cumulative Distribution" form

In Figure 2 the farm to be benchmarked is shown as the black line. Where this line intersects the blue distribution the vertical axis will show what percentage of farms have an NFI ratio below this farm (around 35%). This means the example farm had a NFI ratio that only outperformed 35% of its peers in the 10-year average. Where the orange line intersects near 40% so the example farm outperformed 40% of its peers when comparing the current farm financial environment (2019 in this case).

Distributions, like the ones shown in Figures 1 & 2 above, are available for 11 different financial ratios; Current Ratio, Working Capital Ratio, Debt-to-Asset Ratio, Operating Profit Margin Ratio, Rate of Return on Farm Assets, Rate of Return on Farm Equity, Asset Turnover Rate, Operating Expense Ratio, Depreciation Expense Ratio, Interest Expense Ratio and Net Farm Income Ratio. Ratios for repayment

capacity measures were not available due to the fact that information on the current portion of intermediate and long-term debt is not consistently available in the KFMA data.

To be in the 10-year average farms needed at least 6 out of 10 years of data, which totaled 1,039 KFMA farms. Farms included in the 2019 benchmarks totaled 957. Fifty-two different combinations of KFMA farms are available to benchmark against. At the state-level, users can choose farm groups based on "Dairy", "Operator Age", or "Crop Acres" (Figure 3). Depending on the selection, other options appear such as "Category" and "Cattle". One must work in order from top to bottom of the dropdown menus, or may get an N/A message in the distributions. The "Start Over" button will clear all selections and allow the user to start fresh.
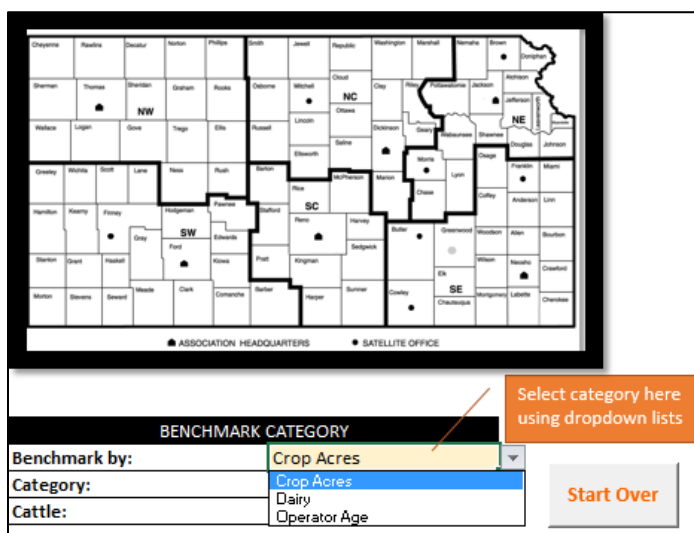

Figure 3. Using dropdown menus to select Benchmarking Group and KFMA map

Each KFMA region also has a tab where the user can select cohort groups by number of crop acres and cowherd. Depending on the number of farms in that association, different options are available. If an N/A displays, the user may have selected a category with not enough farms to make a reliable benchmark.

Each tab gives the user the option to enter "Your Farm Values" (Figure 4). These default to the current year average and are shown by the vertical black line in the distribution graphs (see Figure 1 for an example). By overriding these values with your own in the green boxes, the graph will then show "Your Farm" as the black line (see Figure 2 for an example). To view the calculations for each financial ratio, the user can hover their courser over the green boxes and the mathematical formula for each ratio will pop-up in a yellow box. Simple Balance Sheet and Income statement templates are included as the last two tabs of the spreadsheet to help the user calculate their financial ratios if they need assistance. By clicking "Enter Your Farm Values" the ratios from these statements will be brought into the green boxes. The user can also use the buttons to the right of the green boxes to "Return to 2019 Averages", (overriding any entered values) or "Print Summary" to see a 4-page document of all financial measures in that benchmark.

YOUR FARM VALUES*	
Current Ratio:	1.95
Working Capital Ratio:	41.9%
Debt to Asset Ratio:	29.9%
Operating Profit Margin	11.0%
Rate of Return on Farm Assets	2.9%
Rate of Return on Farm Equity	2.1%
Asset Turnover Rate	26.5%
Operating Expense Ratio	70.7%
Depreciation Expense Ratio	8.3%
Interest Expense Ratio	4.9%
Net Farm Income Ratio:	16.1%

Figure 4. Entering "Your Farm Values" to display against benchmarks

When comparing to benchmark values, caution should be taken to ensure financial ratios are calculated in the same manner. Accrual accounting methods are used for the analysis completed on all KFMA farms. This means that all income and expense items are recognized (accounted for) in the year in which they physically occur, with adjustments being made for accrued income and expenses, and any changes in inventory quantities or values. While cash accounting methods are utilized for tax purposes on most farms (including KFMA member farms), appropriate adjustments should be made to utilize accrual accounting for financial analysis. This will allow an operation's true financial position to be analyzed. Without the accrual adjustments, the financial ratios and measures will be inaccurate and could give misleading results. For example, if grain is carried over into the next calendar year and marketed with next year's crop, the gross revenue in a cash accounting system will be artificially low in the current year and inflated in the following year which will then impact a number of the financial ratios in both years.

While "Value of Farm Production" is used rather than "Gross Farm Revenue" in the financial analysis completed for KFMA member farms, Gross Farm Revenue is utilized more often in this tool. Value of Farm Production is calculated by subtracting the value of purchased feed from Gross Farm Revenue. Making this adjustment allows for the ability to compare different farm types with one another, particularly livestock feeding operations. Hover the courser over the green boxes in the spreadsheet to see which measures are used in each ratio and see exactly how they are calculated.

Benchmarking against similar farms is informative in any setting, but may be of particular value when times are tough. At the current time, many farm managers find themselves in a vulnerable financial position, regardless of how "good" of a manager they may be. The KSU-Farm Financial Benchmarking tool will give farm managers the opportunity to compare their values with KFMA cohorts, and hopefully gain traction with lenders who may be hesitant to give access to credit when a farm's financials are looking bleak.