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Measuring Farm Profitability

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Farm profitability can be measuring using earnings before interest, taxes, and amortization (EBITA), net farm income, operating profit margin ratio, rate of return on farm assets, and rate of return on farm equity. EBITA, as the name implies, is used to cover interest, taxes, and amortization, which includes depreciation on machinery and buildings. Net farm income is used for family living, to repay debt, and to purchase new and used assets. Though these two measures are extremely important to monitor over time on a particular farm, due to the fact that these measures depend on farm size, it seldom makes sense to compare EBITA and net farm income with other farms. Because they take into account farm size, the profitability measures other than EBITA and net farm income are more useful when making comparisons among farms. The rates of return on assets and equity are extremely useful when comparing farm investments with other investments. However, these two measures are sensitive to how farms asset are valued on the balance sheet. For this reason, the operating profit margin is more conducive for benchmarking profitability among farms. In this article, a case farm in west central Indiana is used to examine operating profit margin benchmarks.

The operating profit margin ratio is computed by adding interest expense and subtracting operator and family labor from net farm income, and dividing the result by value of farm production. Net farm income, interest expense, and value of farm production can be obtained from the farm's income statement. A discussion of an accrual income statement can be found (here). Operator and family labor can be estimated using family living expenditures. At first glance, it seems odd to add interest expense and subtract operator and family labor from net farm income. There are important reasons for making these two adjustments. Including interest expense in the computation of the operating profit margin ratio makes it easier to compare farms with very little debt to farms with high debt to asset ratios. Net farm income plus interest expense can be thought of as a return to equity and debt used in the business. Including operator and family labor in the computation enables us to compare farms that rely solely on operator and family labor to those for which hired labor is a major proportion of the labor used on the farm. Unlike operator and family labor, hired labor is an expense reported on an income statement. Subtracting operator and family labor from net farm income in the computation of the operating profit margin ratio ensures that both hired labor and operator and family labor are incorporated into our benchmarks.

Table 1 presents the computation of the operating profit margin ratio for a west central Indiana case farm. The case farm has 3000 acres of corn and soybeans. Of the 3000 acres operated by the farm, 2250 acres are cash rented from several landlords and 750 acres are owned. The columns in table 1 compare the 2015

and projected 2016 ratio with the five-year average ratio for the 2010 to 2014 period. Using stoplight terminology, the "green" region for the operating profit margin ratio is 20 percent and above. This benchmark applies to long-run performance, not individual years. Notice that this case farm was in the "green" region during the 2010 to 2014 period. Wet conditions hampered corn yields in 2015. The wet conditions and relatively low crop prices resulted in a negative net farm income and a negative operating profit margin ratio. Trend yields and projected prices were used to develop 2016 revenue projections. Fertilizer costs and cash rent were projected to be lower in 2016. The 2016 profit margin for the case farm is expected to be relatively higher than that achieved in 2015. Unfortunately, expected performance in 2016 is still well below that achieved from 2010 to 2014.

Table 1. Operating Profit Margin Ratio for a West Central Indiana Case Farm

	2010-2014 Average	2015	Projected 2016
Net Farm Income	560,523	-50,010	99,134
Interest Expense	86,872	77,921	76,370
Operator and Family Labor	83,389	90,000	91,000
Value of Farm Production	2,302,608	1,743,106	1,833,907
Operating Profit Margin Ratio	0.2449	-0.0356	0.0461

To further evaluate the performance of the case farm, we can compare the farm's profit margin from 2010 to 2014 to data obtained from the Illinois Farm Business and Farm Management (FBFM) Association. The Illinois FBFM reports do not present information on the operating profit margin ratio. However, this ratio can be obtained using return on farm assets and the asset turnover ratio. Using this information, the median operating profit margin for grain farms from 2010 to 2014 was 20.1 percent. The profit margin for the case farm compares favorably to this benchmark.

This article discussed the measurement of farm profitability. Using a case farm, the computation of the operating profit margin ratio was illustrated and discussed. The historical profit margin for the case farm compared favorably to benchmarks. The 2016 profit margin is expected to be relatively higher than that experienced in 2015. However, profitability in 2016 is expected to be well below that experienced from 2010 to 2014.

References

Langemeier, M. "Components of an Accrual Farm Income Statement." Center for Commercial Agriculture, Purdue University, August 2015.
https://ag.purdue.edu/commercialag/Pages/Resources/Finance/Financial-Statements/Farm-Income-Statement.aspx