



Schedule F Net Farm Profit and Accrual Net Farm Income

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Introduction

It is widely accepted that accrual accounting provides a more accurate estimate of annual farm profitability than cash accounting or Schedule F net farm profit (Farm Financial Standards Council, 2017; Kay, Edwards, and Duffy, 2012). Though there are numerous adjustments needed to convert cash net farm income to accrual net farm income, two of the major adjustments include prepaid expenses and crop inventories. This article compares cash and accrual net farm income for a case farm in west central Indiana given alternative scenarios pertaining to prepaid expenses and crop inventories.

Case Farm Example

The case farm is located in west central Indiana, has 3000 acres, and utilizes a corn/soybean rotation. The case farm owns 750 acres and cash rents the remaining acres. The case farm participates in the ARC-CO program and purchases 80 percent revenue protection coverage.

The first column of Table 1 contains Schedule F net farm profit, the change in crop inventories, the change in prepaid expenses, and the change in accrued interest for the base scenario. The base scenario assumes that one-half of the corn and soybean crops are sold in the year of production and the remaining one-half is sold in the subsequent year. In other words, the farm's marketing plan does not change from year to year. It further assumes that approximately ten percent of seed and fertilizer for the next crop year is purchased in the prior year. Of course, for some farms these percentages would be substantially higher. Beginning and ending prepaid expenses for the base scenario were \$52,910 and \$53,733, respectively. Under the base scenario, crop inventories were \$897,147 at the beginning of the year and \$904,814 at the end of the year. Using these inventories, the change in prepaid expenses and crop inventories were \$823 and \$7,666, respectively.

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Table 1. Relationship Between Schedule F Net Farm Profit and Accrual Net Farm Income

		Base	Reduce Prepays	Sell Less at Harvest
Net Farm Profit	(1)	67,911	121,644	-113,052
Change in Crop Inventories	(2)	7,666	7,667	188,629
Change in Prepaid Expenses	(3)	823	-52,910	823
Change in Accrued Interest	(4)	-1,973	-1,973	-1,973
Accrual Net Farm Income (1+2+3+4)	(5)	74,427	74,428	74,427

The difference between Schedule F net farm profit and accrual net farm income is \$6,516 for the base scenario. This small difference is primarily due to the consistent prepaid expense purchases and marketing plans for corn and soybeans from year to year.

Sensitivity of Estimates to Changes in Prepaid Expenses

Due to changes in taxable income and liquidity, farms do not necessarily purchase the same amount of seed, fertilizer, and other inputs prior to the start of the year. These changes in prepaid expenses impact the difference between cash and accrual net farm income. The second column in table 1 assumes that prepaid expenses at the end of the year were zero. The crop marketing plan remained the same as that of the base scenario. Specifically, one half of the corn and soybean production was sold in the production year. Accrued interest also did not change between the two scenarios.

For the reduction in prepaid expense (i.e., reduction in supply inventories) scenario, the change in prepaid expenses was -\$52,910. For this scenario, net farm profit was \$121,644 or \$53,733 higher than that for the base scenario. Essentially the prepaid expenses purchased in the second half of the year under the base scenario were used to reduce net farm profit. Accrual net farm income was the same under the base and reduction in prepaid expense scenarios. The difference in net farm profit and accrual net farm income was a \$47,216.

Sensitivity of Estimates to Changes in Crop Inventories

For numerous reasons, including changes in marketing plans, liquidity considerations, changes in crops produced and yields from one year to the next, and changes in crop prices; crop inventories at the end of the year vary over time. These changes in crop inventories have a large impact on the difference between cash and accrual net farm income. The third column of table 1 assumes that the case farm sold only 40 percent the corn and soybean production before the first of the year. The change in prepaid expenses and change in accrued interest for this scenario was assumed to be the same as that for the base scenario.

For the sell less at harvest scenario, the change in crop inventories was \$188,629. For this scenario, net farm profit was -\$113,052 and accrual net farm income was \$74,427. Note that the accrual net farm income was the same for the base scenario and the sell less at harvest scenario. When computing accrual net farm income, it does not matter whether the crop is sold at harvest or contained in ending inventory. The difference in net farm profit and accrual net farm income was \$187,479, which is substantially larger than the difference between the two measures for the base scenario.

Obviously, the example in column 3 of table 1 is extreme. A farm would not likely reduce taxable income this much. Rather, the farm would probably sell a higher portion of the crop at harvest to raise taxable income to something closer to zero. In column 3 the farm was assumed to sell less at harvest. A farm that sold relatively more at harvest would likely purchase assets and use section 179 deductions or bonus

depreciation to reduce taxable income. The point is that changes in the proportions of crops sold before and after the first of the year impact net farm profit.

Concluding Comments

Accrual accounting provides a more accurate assessment of annual farm profit than cash accounting. To compute accrual net farm income, a farm needs Schedule F information and accurate beginning and ending balance sheets. It is also important that the farm's balance sheet is created at the same time (e.g., early January) each year.

This article examined the impact of changes in prepaid expenses and crop inventories on accrual and cash net farm income. Changes in prepaid expenses and crop inventories have a large impact on net farm profit. Farms that change their prepaid input purchase decisions and their crop marketing plans from one year to the next will increase the difference between their net farm profit and accrual net farm income. In these instances, net farm profit becomes a very inadequate measure of farm profitability.

In summary, it is important for farms to compute both net farm profit and accrual net farm income. Net farm profit is used to compute tax obligations. Accrual net farm income is used to compute key financial ratios; such as the total expense ratio, operating profit margin ratio, return on assets, return on equity, and repayment measures; and to benchmark financial performance.

References

Farm Financial Standards Council. "Financial Guidelines for Agriculture", January 2017.
<https://ffsc.org/index.php/2017/01/01/2017-financial-guidelines-available/>

Kay, R.D., W.M. Edwards, and P.A. Duffy. *Farm Management, Seventh Edition*. New York: McGraw-Hill, 2012.