

Lecture VIII: Comparing Cash and Accrual Income

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1 Overview of Accounting

The Setup

- In order to highlight the differences between **cash** and **accrual based accounting**, consider a wheat farm in the Texas Panhandle. Wheat in the Texas Panhandle is largely hard red winter wheat.
- It is planted in August or September for harvest in late June or early July in the following year. Assume that from August to December in 2009, the wheat farmer plants his crop, purchasing \$ 7,055 of seed, \$ 22,145 of fertilizer, and expending \$ 12,755 on diesel.
- The firm would have an inventory account with \$ 41,955 of growing crop as of December 31, 2009 (all values carried at the price of purchase).
- Next, assume that the farmer hires his wheat harvested in 2010 (paying \$14.50 per acre).
- Assume that his wheat yields 36 bushels per acre.

- He pays $1/4$ of this yield to his land for 320 acres that he rents from his grandfather.
- This leaves him with 43,200 bushels of wheat that he sells for \$5.25 per bushel.
- The farmer then pays \$ 36,920 on the operating loan (paying back the amount borrowed and an interest rate of 10 percent), \$ 25,495 on machinery notes (which is an interest rate of 7.5 percent for a loan with a ten year life – the interest paid is \$ 13,125), and real estate payments of \$ 68,472 (of which \$ 35,577 is interest).
- Next, we assume that the farmer sows the next year's crop, spending \$ 7,622 on seed, \$ 19,530 on fertilizer, and \$ 14,736 on fuel.

Texas Wheat Farm Balance Sheet, December 2009

- Table 1 presents the income statements computed under accrual and cash accounting.

Assets			Ownership	
Item	Value	Net Value	Item	Value
Cash		15,000	Operating Debt	33,564
Growing Crop		41,955	Machinery Debt	175,000
Equipment	1,028,510		Real Estate	409,645
Depreciation	501,913		Total Debt	618,209
		526,597		
Land		665,600	Equity	630,943
Total Assets		1,249,152	Total Ownership	1,249,152

Accrual Versus Cash Income for Texas Wheat Farm in 2010

Item	Accrual	Cash
Sales	226,800	226,800
Cost of Goods Sold		
Planting Cost	41,955	41,888
Harvest Expense	18,560	18,560
Gross Margin	167,965	168,032
Depreciation	105,319	105,319
Interest	52,058	52,058
Net Income	8,907	8,974

- The difference is that the accrual accounting column uses the cost of production from inventory (of \$ 41,955 from expenses incurred in 2009).
- Net income from cash accounting uses the cash expenses of \$ 41,888 (from the cropping expenditures in 2010).
 - If the cash expenditures are similar between years (as in this example) the figures are similar.
 - However, accrual accounting is correct in that it is consistent with the principles of matching and revenue recognition.