

1) (10 pts. total) Below is a simplified farm Balance Sheet.

a) (2 pts.) Use the information given and your knowledge of the relationships among Balance Sheet entries to fill in the **four** missing cells and then answer the questions below.

BALANCE SHEET	1/1/2019	1/1/2018		1/1/2019	1/1/2018
Current Assets	600,000	500,000	Current Liabilities	700,000	400,000
Non-Current Assets	4,000,000	4,100,000	Non-Current Liabilities	2,100,000	2,200,000
			Total Liabilities	2,800,000	2,600,000
			Equity	1,800,000	2,000,000
Total Assets	4,600,000	4,600,000	Total Liabilities & Equity	4,600,000	4,600,000

b) (2 pts.) Based on this Balance Sheet, what is the Current Ratio on 1/1/2019?

$$CR = \text{current assets} / \text{current liabilities} = 600,000 / 700,000 = 0.857$$

c) (2 pts.) Based on this Balance Sheet, what is the Debt to Asset Ratio on 1/1/2019?

$$DtoA = \text{total liabilities} / \text{total assets} = 2,800,000 / 4,600,000 = 0.609$$

d) (4 pts.) Suppose you sell grain from your farm for \$500,000, the value you had on your market basis balance sheet. You then spend \$400,000 to buy some land and \$100,000 to pay off short-term debt for the farm. The column **Before** in the balance sheet below gives the financial data for before you made these changes. For each entry in the **Before** column, write in the **After** column the new value that applies after you complete these changes.

BALANCE SHEET	Before	After		Before	After
Current Assets	800,000	300,000	Current Liabilities	300,000	200,000
Non-Current Assets	1,500,000	1,900,000	Non-Current Liabilities	1,200,000	1,200,000
			Total Liabilities	1,500,000	1,400,000
			Equity	800,000	800,000
Total Assets	2,300,000	2,200,000	Total Liabilities & Equity	2,300,000	2,200,000

2) (15 pts. total) Below is a simplified farm Income Statement.

a) (3 pts.) Use the given information to fill in the **three** missing cells.

INCOME STATEMENT		1/1/2018 to 1/1/2019
Crop Sales		500,000
Livestock/Dairy Sales		600,000
	Total Revenue	1,100,000
Operating Costs		900,000
Interest Expenses		300,000
	Total Costs	1,200,000
	Net Farm Income from Operations	-100,000
Unpaid Labor and Management		100,000
	Net Farm Income	-200,000

Use the Income Statement above and the **FIRST** Balance Sheet in Question 1 to answer the questions below. Show how you calculate your answers for potential partial credit.

b) (3 pts.) What is this farm's Return on Assets? What is this farm's Rate of Return on Assets?

$$ROA = NFIFO + Interest - UnpaidLabrMangmt = -100,000 + 300,000 - 100,000 = 100,000$$

$$RORO = ROA / Avg Assets = 100,000 / \frac{1}{2}(4,600,000 + 4,600,000) = 100,000 / 4,600,000 = 2.2\%$$

c) (3 pts.) What is this farm's Return on Equity? What is this farm's Rate of Return on Equity?

$$ROE = ROA - Interest = 100,000 - 300,000 = -200,000$$

$$ROROE = ROE / Avg Equity = -200,000 / \frac{1}{2}(1,800,000 + 2,000,000) = -10.53\%$$

d) (3 pts.) What is this farm's Operating Profit Margin Ratio (i.e. Profit Margin)?

$$Profit\ margin = ROA / Total\ revenue = 100,000 / 1,100,000 = 9.09\%$$

e) (3 pts) The income statement above shows a net farm income loss of \$200,000, which includes paying \$100,000 to the owner/manager for unpaid labor & management. Briefly explain how the farm can lose money and the farmer still pay himself/herself \$100,000. Where does this \$100,000 come from in terms of the farm balance sheet?

*Other changes can occur, but in the end, equity has to be reduced by \$100,000*

**3) (17 pts. total)** Briefly and concisely answer each question below.

**a) (1 pts.)** Do most US farms use cash or accrual accounting for filing taxes?

*Cash accounting*

**b) (2 pts.)** Suppose you planted and harvested soybeans in 2018, but sold them in 2019. If you wanted to do accrual accounting, when would you claim this income, in 2018 or 2019?

*In 2018*

**c) (2 pts.)** Suppose you buy fuel in October 2018 and use it to plant crops in May 2019. If you deduct the cost of the fuel on your 2018 taxes, is this cash accounting or accrual accounting?

*Cash accounting*

**d)** Suppose you have been a sole proprietor for several years. A potential investor wants to evaluate your business skills before investing a lot of money to expand your farm as a partner. She wants to see your balance sheets and income statements from the last few years.

**i) (3 pts.)** Would you use a cost or market basis balance sheet, or both? Briefly explain why.

- *Cost basis balance sheet would show your skill as a manager, since equity would only increase via retained earnings.*
- *Market basis balance sheet gains would be a mix of your skills as manager (gains via retained earnings) and land value changes (gains as an investor)*
- *Your potential partner would likely be interested in both your managerial skill (your capacity to continue to generate retained earnings) and investment gains on the land over the years.*

**ii) (3 pts.)** Would you use cash or accrual accounting, or both? Briefly explain why.

- *Accrual accounting would be the most accurate measure of your managerial ability to generate income each year.*
- *You potentially could show cash accounting results to show your skill in using cash accounting to manage your taxable income to reduce your taxes.*

**f) (3 pts.)** Suppose your commercial grain farm has a current ratio of 1.01 (101%) in early October. Explain why this is or is not a problem.

*Seems too low, meaning they could have cash flow problems, but may be because they are just about to harvest grain and have a lot of current assets to put on balance sheet. However, balance sheet may already have grain crops in the field as current assets valued at cost invested to produce them (what accounting says to do, but rarely done in practice), not their actual value as grain.*

**g) (3 pts.)** Suppose your commercial grain farm has a debt to asset ratio of 0.90 (90%). Explain why this is or is not a problem.

*This would be a problem, as they owe 90% of the farm to creditors, suggesting very little equity. They are in serious financial risk, as a small change in the value of assets could lead to insolvency. This business is already likely in financial trouble with its creditors.*

**4) (4 pts. total)** You buy a tractor for \$80,000 with a useful life of 4 years.

**a) (2 pts.)** Fill in the table below using Straight Line Depreciation for this truck assuming a \$20,000 salvage value. Show your work.

Year	Depreciation During Year	Value at Year End
1	15,000	65,000
2	15,000	50,000
3	15,000	35,000
4	15,000	20,000

$$\begin{aligned} \text{Depreciation} &= (80,000 - 20,000)/4 = 15,000 \text{ each year} \\ \$80,000 - \$15,000 &= \$65,000 \\ \$65,000 - \$15,000 &= \$50,000 \\ \$50,000 - \$15,000 &= \$35,000 \\ \$35,000 - \$15,000 &= \$20,000 \end{aligned}$$

**b) (2 pts.)** Fill in the table below using 150% Declining Balance Depreciation for this tractor for **years 1 and 2 only**. IGNORE SALVAGE VALUE. Show your work.

Year	Depreciation During Year	Value at Year End
1	30,000	50,000
2	18,750	31,250
3	xxxx	xxxx
4	xxxx	xxxx

$$\begin{aligned} \text{Depreciation Rate} &= 150\% \times \frac{1}{4} = 37.5\% \\ \$80,000 \times 37.5\% &= \$30,000 \\ \$80,000 - \$30,000 &= \$50,000 \\ \$50,000 \times 37.5\% &= \$18,750 \\ \$50,000 - \$18,750 &= \$31,250 \end{aligned}$$

**5) (8 pts.)** Suppose that in October of 2018 you paid \$8,000 for an awesome milk cow and have been and will be depreciating her for tax purposes using the tax table below.

**a) (2 pts.)** Enter the depreciation claimed in 2018 and that will be claimed for 2019 in the table.

Year	Calendar Year	Depreciation Rate	Depreciation Claimed
1	2018	15.00%	$\$8,000 \times 15\% = \$1,200$
2	2019	25.50%	$\$8,000 \times 25.5\% = \$2,040$
3	2020	17.85%	
4	2021	16.66%	
5	2022	16.66%	
6	2023	8.33%	

**b) (2 pts.)** What will be your tax basis in the awesome cow at the end of 2019?

$$8,000 - 1,200 - 2,040 = \$4,760$$

**c) (2 pts.)** If you sold the awesome cow in December of 2019 for \$4,000, how much gain would you report on your tax return?

$$\text{Gain} = \text{Sale Price} - \text{Basis} = 4,000 - 4,760 = -760 \text{ (a loss)}$$

**d) (2 pts.)** For tax purposes, cows are breeding livestock. Consider ordinary income tax, self-employment tax, and capital gains tax, which one or ones is this gain subject to?

*Gains from sale of breeding livestock is subject to Capital Gains taxes, so here a loss*

**6) (11 pts.)** Suppose in December of 2016 you expected \$150,000 in taxable income and so you bought a tractor for \$150,000 and chose the Section 179 election for depreciation of the tractor.

**a) (2 pts.)** Briefly explain how this affected your 2016 ordinary income and self-employment taxes.

*Fully depreciating the tractor allows you to reduce your taxable income by \$150,000, so to \$0 in this case, so you pay no ordinary income taxes and no self-employment taxes.*

**b) (2 pts.)** What was your income tax basis in the tractor at the end of 2016?

*Because it was fully depreciated, your basis is \$0 (i.e.,  $100,000 - 100,000 = 0$ )*

**c) (2 pts.)** If you sold the tractor in November of 2019 for \$50,000, how much gain or loss would you report on your 2019 tax return?

*Gain = Sale Price – Basis =  $50,000 - 0 = 50,000$*

**d) (2 pts.)** Considering ordinary income tax, self-employment tax, and capital gains tax, which one or ones is this gain subject to?

*This gain is depreciation recapture and is subject to Ordinary Income tax*

**7) (22 pts. total)** Use the information provided to give short answers to the following questions. Bob and Ann own a farm, with all assets owned as marital property under Wisconsin's marital property law. Among their assets is corn worth \$500,000 with a \$0 income tax basis because they raised it and already deducted all of their production costs.

**a) (2 pts.)** If Bob and Ann sold the corn for \$500,000 to Judy, how much gain would they have to report as a result of the sale?

*Gain = Sale Price – Basis =  $500,000 - 0 = \underline{500,000}$*

**b) (2 pts.)** Considering ordinary income tax, self-employment tax, and capital gains tax, which one or ones is this gain subject to?

*This gain would be subject to both Ordinary Income tax and Self-Employment tax*

- c) (2 pts.) If instead Bob and Ann gave the corn to Judy. Assuming this is their first major gift to Judy, based on current tax laws, would Bob and Ann have to pay gift taxes?

*No. Both Bob and Ann could give \$15,000 each with no gift tax for their annual exemption, and then they could each use part of their \$5,600,000 life-time exemptions*

- d) (2 pts.) If Judy sold the corn for \$500,000 after they gave it to her, how much gain would she have to report?

*Basis transfers with the gift, so her basis is \$0. So Gain = Sale Price – Basis = 500,000*

- e) (2 pts.) Suppose instead Bob and Ann contribute the corn to an S corporation in exchange for an ownership interest in the corporation. If the corporation sells the corn for \$500,000, how much gain or loss would the corporation realize?

*Basis transfers and so still a \$0 basis, so Gain = Sale Price – Basis = 500,000*

- i) (2 pts.) Would the S corporation pay income tax on this gain?

*No, S corporations are “pass through” entities and only the shareholders would pay taxes*

- ii) (2 pts.) Suppose instead of selling the corn, the S corporation gives it back to Bob and Ann. Would the corporation and/or Bob and Ann pay income tax due to this transfer?

*Transfer back out of S corporation would trigger recognition of gain. Thus Bob and Ann would pay taxes but not the S corporation (it’s a pass through entity)*

- f) (2 pts.) If instead Bob and Ann contribute the corn to an LLC in exchange for an ownership interest in the LLC and then the LLC sells the corn for \$500,000, how much gain would the LLC realize?

*Basis transfers and so still a \$0 basis, so Gain = Sale Price – Basis = 500,000*

- i) (2 pts.) Would the LLC pay income tax on this gain or loss?

*No, LLCs are “pass through” entities and only the shareholders would pay taxes*

- ii) (2 pts.) Suppose instead of selling the corn, the LLC returns it back to Bob and Ann. Would the LLC and/or Bob and Ann have to pay income tax as a result of this transfer?

*Transfer back out of LLC would not trigger recognition of gain. Thus No One would pay taxes due to this transfer.*

- g) (2 pts.) Sadly, before they do any of these options, Ann dies. Her will gives her interest in the corn to Bob. How much gain would Bob have to report if he sold the corn for \$500,000?

*The basis gets updated to the fair market value at the date of death. Because it’s jointly owned as marital property (Wisconsin is a common property state), that means the basis for all the corn becomes \$500,000. Thus, Gain = Sale Price – Basis =  $500,000 - 500,000 = \underline{0}$*

8) (9 pts. total) Provide short answers to each question below.

- a) (3 pts.) Which business entities discussed in class must file or register with the state to be legally established as a business?

*Corporations (both C and S corporations) and LLCs*

*Technically, in many states limited liability partnerships do as well, but that is not a required answer here, but is acceptable*

- b) (3 pts.) Which business entities discussed in class do not pay taxes on their income, but pass the income through to the owners who pay taxes?

*Pass through entities include Sole Proprietors, Partnerships (both general and limited), S Corporations and LLC. Only C corporations are not pass through entities.*

- c) (3 pts.) If your farm is organized as a general partnership and your partner (not spouse) buys a tractor for the farm on credit, could the lender seize your personal assets to pay off this debt? Briefly explain why/why not.

*Yes, all partners in a general partnership are personally liable for the partnership debts.*

9) (7 pts.) True or False? Mark your answer based on material discussed in class.

- a) T X F \_\_\_      Inventory adjustments in farm accounting are a type of non-cash revenue.
- b) T \_\_\_ F X      The new 2018 tax law lets US farms use cash accounting for the first time.
- c) T \_\_\_ F X      As discussed in class, rotating milking parlors like in the Kinnard Farms video are now fairly common, even for small and mid-sized dairies.
- d) T \_\_\_ F X      The PBS News video we discussed in class explained how smaller dairy farms are better sources for milk because the cows are healthier.
- e) T X F \_\_\_      As discussed in class, ag supply and food demand are relatively inelastic, generating large price swings for small supply/demand changes.
- f) T X F \_\_\_      Based on the USDA data discussed in class, most small farms actually have another job they consider their primary job or they are retired.
- g) T X F \_\_\_      Shareholders (owners) of farms organized as C or S corporations can also serve on the farm's board of directors and be the chief executive officer.