

1) Use this simplified farm balance sheet to answer the questions below. Show how you calculate your answers for potential partial credit.

BALANCE SHEET	1/1/2019	1/1/2020		1/1/2019	1/1/2020
Current Assets	322,014	300,203	Current Liabilities	246,712	225,917
Non-Current Assets	765,900	786,433	Non-Current Liabilities	349,623	365,405
			Total Liabilities	596,335	591,322
			Equity	491,579	495,314
Total Assets	1,087,914	1,086,636	Total Liabilities & Equity	1,087,914	1,086,636

a) (2 pts.) Based on this Balance Sheet, what is the Current Ratio on 1/1/2020?

$$CR = \text{current assets} / \text{current liabilities} = 300,203 / 225,917 = 1.329$$

b) (2 pts.) Based on this Balance Sheet, what is the Debt to Asset Ratio on 1/1/2020?

$$DtoA = \text{total liabilities} / \text{total assets} = 591,322 / 1,086,636 = 0.544$$

2a) (2 pts.) Suppose you sell grain from your farm for \$300,000, the value on your market basis balance sheet. You then spend \$100,000 to buy a tractor and \$200,000 to pay off a short-term operating loan for the farm. The column **Before** in the balance sheet below gives the financial data for before you made these changes. Write in the **After** column the new value that applies after you complete these transactions.

BALANCE SHEET	Before	After		Before	After
Current Assets	800,000	500,000	Current Liabilities	400,000	200,000
Non-Current Assets	1,000,000	1,100,000	Non-Current Liabilities	900,000	900,000
			Total Liabilities	1,300,000	1,100,000
			Equity	500,000	500,000
Total Assets	1,800,000	1,600,000	Total Liabilities & Equity	1,800,000	1,600,000

2b) (2 pts.) Suppose your land value decreases by \$100,000 For each entry in the **Before** column, write in the **After** column the new value that applies after land values decrease.

BALANCE SHEET	Before	After		Before	After
Current Assets	800,000	800,000	Current Liabilities	400,000	400,000
Non-Current Assets	1,000,000	900,000	Non-Current Liabilities	900,000	900,000
			Total Liabilities	1,300,000	1,300,000
			Equity	500,000	400,000
Total Assets	1,800,000	1,700,000	Total Liabilities & Equity	1,800,000	1,700,000

2c) (5 pts.) Put an “X” in the appropriate column to indicate where each item would appear on a farm balance sheet.

Item	Current Asset	Non-Current Asset	Current Liability	Non-Current Liability
Milk cow pregnant with 2 nd calf		X		
Quarterly income taxes due			X	
New tractor you bought with cash		X		
Grain in bin from last year	X			
Operating loan due after harvest			X	
40-acre apple tree orchard		X		
Milk stored in your farm tank	X			
\$4,000 neighbor owes you “soon”	X			
Bill for filling up farm diesel tanks			X	
Remaining principal on land debt				X

3) Use the farm income statement below and the **balance sheet from question 1** to answer the questions below. Show how you calculate your answers for potential partial credit.

INCOME STATEMENT 1/1/2019 to 1/1/2020	
Crop Sales	274,377
Livestock/Dairy Sales	166,147
Total Revenue	440,524
Operating Costs	333,210
Interest Expenses	38,579
Total Costs	371,789
Net Farm Income from Operations	68,735
Unpaid Labor and Management	65,000
Net Farm Income	3,735

3a) (2 pts.) Fill in the boxes in the income statement for Net Farm Income from Operations and Net Farm Income.

$$NFIFO = \text{Revenue} - \text{OperCosts} - \text{Interest} = 440,524 - 333,210 - 38,579 = \underline{68,735}$$

$$NFI = NFIFO - \text{UnpaidLabrMgmt} - \text{CapGains} = 68,735 - 65,000 = \underline{3,735}$$

3b) (2 pts.) What is this farm’s Return on Assets? What is this farm’s Rate of Return on Assets?

$$ROA = NFIFO + \text{Interest} - \text{UnpaidLabrMangmt} = 68,735 + 38,579 - 65,000 = \underline{42,314}$$

$$ROROA = ROA / \text{Avg Assets} = 42,314 / \frac{1}{2}(1,087,914 + 1,086,636) = \underline{3.9\%}$$

3c) (2 pts.) What is this farm’s Return on Equity? What is this farm’s Rate of Return on Equity?

$$ROE = ROA - \text{Interest} = 42,314 - 38,579 = \underline{3,735}$$

$$ROROE = ROE / \text{Avg Equity} = 3,735 / \frac{1}{2}(491,579 + 495,314) = \underline{0.8\%}$$

3d) (1 pt.) What is this farm's Operating Profit Margin Ratio (i.e. Profit Margin)?

$$\text{Profit margin} = \text{ROA} / \text{Total revenue} = 42,314 / 440,524 = \underline{9.6\%}$$

3e) (2 pts.) Suppose the farmer included an additional \$10,000 of depreciation. What would be the new Net Farm Income from Operations and Net Farm Income?

Operating costs increase by 10,000, so both NFIFO and NFI decrease by 10,000

$$\text{NFIFO} = 68,735 - 10,000 = \underline{58,735}$$

$$\text{NFI} = 3,735 - 10,000 = \underline{-6,265}$$

3f) (2 pts.) Ignore question 3e. Instead suppose the farmer sold a small parcel of land for a gain of \$20,000. What would be the new Net Farm Income from Operations and Net Farm Income?

This would be a Capital Gain, and so only increases NFI by 20,000m, NFIFO remains unchanged

$$\text{NFIFO} = \underline{68,735}$$

$$\text{NFI} = 3,735 + 20,000 = \underline{23,735}$$

3g) (2 pts.) The income statement above shows a payment of \$65,000 to the farmer for unpaid labor & management. Suppose the farmer decided to pay themselves \$200,000, which would lead to a negative farm income. Where does the extra money come from if a farmer pays themselves more income than the farm earns?

In the end, paying yourself more than the business earns requires decreasing equity.

4) Briefly and concisely answer each question below.

a) (1 pt.) Suppose you buy fuel in November 2019 and use it to plant crops in May 2020. If you deduct the cost of the fuel on your 2019 taxes, is this cash accounting or accrual accounting?

Cash Accounting, the year it was bought

b) (1 pt.) Suppose you planted and harvested corn in 2019, but sold it in 2020. If you wanted to do accrual accounting, would you claim this income in 2019 or in 2020?

2019, the year it was grown

c) (2 pts.) Suppose your commercial grain farm has a current ratio of 4.15 (415%) in mid-December after harvest. Explain why this is or is not a problem.

Seems higher than average, but it is right after harvest when you have a lot of grain that you have not yet sold. Expect it to decrease as you sell the grain and pay off operating loans or buy non-current assets.

d) (2 pts.) Suppose your dairy farm has a debt to asset ratio of 1.10 (110%). Explain why this is or is not a problem.

This is a problem as you are insolvent with debts that exceed the value of your assets. You are likely in foreclosure.

5) (4 pts. total) You buy a tractor for \$120,000 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	25,000	95,000
2	25,000	70,000
3	25,000	45,000
4	25,000	20,000

$$\begin{aligned} \text{Depreciation} &= (120,000 - 20,000)/4 = \\ &= 25,000 \text{ each year} \\ \$120,000 - \$25,000 &= \$95,000 \\ \$95,000 - \$25,000 &= \$70,000 \\ \$70,000 - \$25,000 &= \$45,000 \\ \$45,000 - \$25,000 &= \$20,000 \end{aligned}$$

b) (2 pts.) Fill in the table below using 200% 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	60,000	60,000
2	30,000	30,000
3	xxxx	xxxx
4	xxxx	xxxx

$$\begin{aligned} \text{Depreciation Rate} &= 200\% \times \frac{1}{4} = 50\% \\ \$120,000 \times 50\% &= \$60,000 \\ \$120,000 - \$60,000 &= \$60,000 \\ \$60,000 \times 50\% &= \$30,000 \\ \$60,000 - \$30,000 &= \$30,000 \end{aligned}$$

6) Suppose that in March of 2018 you paid \$10,000 for a used plow and have been and will be depreciating it for tax purposes using the tax table below.

a) (2 pts.) Enter the depreciation claimed each year in the table.

Year	Calendar Year	Depreciation Rate	Depreciation Claimed
1	2018	35.00%	$10,000 \times 35.0\% = 3,500$
2	2019	26.00%	$10,000 \times 26.0\% = 2,600$
3	2020	15.60%	$10,000 \times 15.6\% = 1,560$
4	2021	11.01%	$10,000 \times 11.01\% = 1,101$
5	2022	11.01%	$10,000 \times 11.01\% = 1,101$
6	2023	1.38%	$10,000 \times 1.38\% = 138$

b) (2 pts.) What will be your tax basis for the plow at the end of 2020?

$$10,000 - 3,500 - 2,600 - 1,560 = 2,340$$

c) (2 pts.) If you sold the plow on January 1, 2021 for \$4,000, how much gain or loss would you report on your tax return?

$$\text{Gain} = \text{Sale Price} - \text{Basis} = 4,000 - 2,340 = 1,660$$

7) 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) (3 pts.) Fill in the table below to indicate how much this reduced your 2016 taxable income (not tax) subject to ordinary income, self-employment, and capital gain taxes.

Type of Tax	\$ Reduction in Taxable Income
Ordinary Income	150,000
Self-Employment Income	150,000
Capital Gains	0

b) (1 pt.) What was your income tax basis in the tractor at the end of 2016?

$$\text{Basis} = \text{Purchase Price} - \text{Depreciation} = 150,000 - 150,000 = \underline{0}$$

c) (2 pts.) If you sold the tractor in November of 2020 for \$50,000, how much gain or loss would you report on your 2020 tax return?

$$\text{Gain} = \text{Sales Price} - \text{Basis} = 50,000 - 0 = \underline{50,000}$$

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

Ordinary Income Tax (it is depreciation recapture)

8) Use the information provided to give short answers to the following questions. Joe and Karen own a farm, with all assets owned as marital property under Wisconsin's marital property law. Among their assets is hay worth \$100,000 with a \$0 income tax basis because they raised it and already deducted all their production costs.

a) (2 pts.) If Joe and Karen sold the hay for \$100,000 to Heidi, how much gain would they have to report as a result of the sale?

$$\text{Gain} = \text{Sales Price} - \text{Basis} = 100,000 - 0 = \underline{100,000}$$

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

Ordinary Income Tax and Self-Employment Tax

c) (2 pts.) If instead Joe and Karen gave the hay to Heidi, and assuming this is their first major gift, based on current tax laws, would Joe and Karen have to pay gift taxes?

No. Both Joe and Karen could give \$15,000 each with no gift tax for their annual exemption, and then they could each use part of their \$11,580,000 life-time exclusions

d) (2 pts.) If Heidi sold the hay for \$100,000 after they gave it to her, how much gain would she have to report?

$$\text{Basis transfers with the gift, so her basis is } \$0. \text{ So Gain} = \text{Sale Price} - \text{Basis} = \underline{100,000}$$

- e) (2 pts.) Suppose instead Joe and Karen create a C corporation and contribute the hay to it in exchange for an ownership interest in the corporation. If the C corporation sells the hay for \$100,000, how much gain would the C corporation realize?

Basis transfers to C corporation and so still a \$0 basis and $\text{Gain} = \text{Sale Price} - \text{Basis} = \underline{100,000}$

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

Yes, C corporations pay corporate income taxes, a flat rate of 21%

- ii) (2 pts.) If the corporation distributed this gain to Joe and Karen as owners of the corporation, would Joe and Karen pay income tax on this gain?

Yes, dividends to owners of C corporations are subject to ordinary income taxes

- iii) (2 pts.) Suppose instead of selling the hay, the C corporation gives it back to Joe and Karen. Would the corporation and/or Joe and Karen pay income tax due to this transfer?

Transferring assets out of a C corporation triggers recognition of gain for both the C corporation and for Joe and Karen, so both would pay income taxes.

- f) (2 pts.) If instead Joe and Karen create an LLC and contribute the hay to it in exchange for an ownership interest in the LLC and then the LLC sells the hay for \$100,000, how much gain would the LLC realize?

Basis transfers to LLC and so still a \$0 basis and $\text{Gain} = \text{Sale Price} - \text{Basis} = \underline{100,000}$

- i) (2 pts.) Would the LLC and/or Joe and Karen have to pay income tax on this gain?

LLC would not, it is a “pass through entity”, so only Joe and Karen would pay taxes

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

Transferring assets out of an LLC does not trigger recognition of gain, so neither would pay income taxes.

- g) (2 pts.) Sadly, before they do any of these options, Joe dies. His will gives his interest in the hay to Karen. How much gain would Karen have to report if she sold the hay for \$100,000?

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). This means the basis for all the hay becomes \$100,000, and so $\text{Gain} = \text{Sale Price} - \text{Basis} = 100,000 - 100,000 = \underline{0}$ (no gain)

- 9) Use the information provided to give short answers to the following questions.

- a) (2 pts.) Mary buys farm land for \$100,000. Can she depreciate the cost of this land purchase to reduce her taxable income?

No, land is not depreciated for tax purposes or for standard farm accounting.

- b) (2 pts.) Suppose Mary sells the land a few years later for \$250,000. How much gain would she report on her taxes assuming she has taken no depreciation?

$$\text{Gain} = \text{Sale Price} - \text{Basis} = 250,000 - 100,000 = 150,000$$

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

Gains from the sale of land in the US are subject to capital gains taxes

- 10) 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.) Besides sole proprietors, which business entities discussed in class do not pay taxes on their income, but pass the income through to the owners who pay taxes?

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

- c) (2 pts.) If your farm is organized as a general partnership and your partner (who is not your spouse) buys a tractor for the farm on credit. Later, the lender forecloses on the loan because the partnership has missed several payments. Could the lender seize your personal assets (house, bank accounts) to pay off this debt?

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

- d) (2 pts.) Would your answer change if you were a limited (silent) partner?

Yes the answer would change, because limited (silent) partners are not personally liable for the partnership debts.

11) (10 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 X F ___ Depreciation in farm accounting is a type of non-cash cost.
- c) T X F ___ Accrual adjusted cash accounting moves prepaid expenses to the crop year the inputs are used and sales to the year the crop is harvested.
- d) 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.
- e) 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.
- f) T X F ___ As discussed in class, ag supply and food demand are relatively inelastic, generating large price swings for small supply/demand changes.
- g) T ___ F X A shareholder (owner) of a farm organized as an S corporation cannot also be on the farm's board of directors or be the chief executive officer.
- h) T X F ___ A farm organized as an LLC can have a member (owner) also be manager.
- i) T X F ___ The Farm Financial Standards Committee recommends that a cost basis balance sheet use the market value of raised grain for asset valuation.
- j) T X F ___ The Farm Financial Standards Committee recommends that a market basis balance sheet use the cost of prepaid inputs for asset valuation.