**2018 Iowa Farm Business Management Career Development Event**

**INDIVIDUAL EXAM (150 pts.)**

Select the best answer to each of the 75 questions to follow (2 pts. ea.). Code your answers on the answer sheet provided. Be sure to erase completely any answers that you change. You have 120 minutes (maximum) to complete this exam. Section A contains 25 questions over 'Principles of Economics and Management'. Section B contains 30 questions over 'Financial Statements and Records Analysis: Section C contains 20 questions over 'Marketing and Risk Management'.

## Section A. Principles of Economics and Management (Questions #1-#25)

1. The most common form of organization for a farm or ranch is:
   a. sole proprietorship
   b. corporation
   c. LLC = limited liability company
   d. partnership

2. Which of the following is often considered to be an advantage of the sole proprietorship form of business?
   a. limited liability
   b. tax savings
   c. simplicity
   d. business life continuity

3. The profit-maximizing quantity of output is where:
   a. demand = supply
   b. marginal revenue = marginal cost
   c. average total cost is at a minimum
   d. price = average variable cost

4. This is the principal on a loan taken out by Farmer Smith.
   a. the dollar amount of borrowed money
   b. the present value of the loan
   c. the amount of the loan plus interest that still needs to be paid
   d. the lender

5. Assume Alexis is repaying a loan obtained to buy a used tractor with six equal annual loan payments. Which of the following is most likely true regarding those payments?
   a. the total value of each payment is tax deductible
   b. a greater proportion of the $6^{th}$ payment will be interest than for the $1^{st}$ payment
   c. each payment will contain an equal total dollar interest charge
   d. none of the above

6. What is the economic concept that notes a given dollar monetary payment is worth more the sooner the payment is made?
   a. marginal analysis
   b. monetary illusion
   c. compounding
   d. time value of money

7. Generally, the cost of improvements to farm property:
   a. are NOT tax deductible
   b. can be deducted totally in the year the expense is incurred
   c. must be spread out and deducted over several years
   d. are deductible by an amount equal to how much they increase the property's value

8. The maximum price buyers are willing to pay for different quantities of a given product is shown graphically by:
   a. a demand curve
   b. a total product curve
   c. a supply curve
   d. an indifference curve

9. If total revenue = total cost for Valley View Farms, the business is:
   a. maximizing profit
   b. losing money
   c. going out of business
   d. breaking even

10. If the owner of Corny Acres has decided to plant more acres to corn this year, which of the following costs would likely change the most?
   a. fixed costs per acre
   b. rent per acre
   c. crop insurance per acre
   d. chemical and seed costs per acre

11. A whole farm financial statement that shows all expected revenues and costs is also commonly called a:
   a. budget
   b. balance sheet
   c. partial budget
   d. net worth statement

12. Costs that do NOT change in the short run regardless of output level for a firm are called:
   a. opportunity costs
   b. fixed costs
   c. variable costs
   d. perfectly elastic costs

13. The accounting method that records cash receipts when they are received and cash expenses when they are paid is known as this method:
    a. accrual
    b. cash
    c. real-time
    d. first in, first out

14. The law of diminishing returns (or diminishing marginal product) states which of the following will eventually decrease if a corn farmer keeps putting more fertilizer on a given acre of corn ground?
    a. yield
    b. expense
    c. the additional corn yield per additional pound of fertilizer
    d. net cash flow

15. An asset's cost minus the asset's accumulated depreciation = the asset's:
    a. basis
    b. book value
    c. market value
    d. net worth

16. The total debt of Hilly Acres divided by the total assets of Hilly Acres is an example of this type of financial ratio:
    a. current ratio
    b. profitability ratio
    c. liquidity ratio
    d. solvency ratio

17. Assume Don and Dawn Riley will file a federal income tax form for 2018 "married filing jointly". If the couple has taxable income for the year of $59,051, what is their federal income tax obligation? Note with the new U.S. tax law starting 2018, the relevant marginal tax rates for the Riley's are 10% on income to $19,050 and 12% on income $19,051 to $77,400.
    a. $7,086
    b. $5,905
    c. $6,705
    d. $12,991

18. Which of the following values is <u>least</u> likely to appear on a balance sheet?
    a. current assets
    b. net worth
    c. owners' equity
    d. current cash income

19. Assume Hidden Acres is a farm where the owner has paid for all of the land in the business. Which of the following would be the best estimate of the "opportunity cost" of farming the land?
    a. 0
    b. current rental rates for similar land
    c. the current market value of the land
    d. the present value of expected future profits from operating the farm

20. Which of the following statements can be used to determine likely monthly borrowing needs for R U Crazy Inc.?
    a. balance sheet
    b. partial budget
    c. cash flow statement
    d. bank statement

21. Assume the assessed value per acre of land for Fields Forever was $8,000 in 2016 and $7200 in 2017. What was the percentage change in the land value from 2016 to 2017?
    a. -11
    b. -800
    c. -90
    d. -10

22. The "Law of Demand" in Economics states the quantity of an item buyers will buy moves or changes in an opposite direction with:
    a. the price of that item
    b. consumer incomes
    c. income tax rates
    d. all of the above

23. If Skippy produces 1 million pounds of peanuts at a cost per pound of $0.15 and sells them at a price of $0.20 per pound, which of the following is true?
    a. the marginal cost of another pound of peanuts is $0.15
    b. total cost is $15,000
    c. total revenue is $200,000
    d. all of the above are true

24. Assume you have been promised a $1,000 payment at some time in the future. Which of the following would <u>increase</u> the present value of this payment, all other factors held constant?
    a. ↑r (r = interest rate)
    b. ↓n (n = # years you have to wait to receive payment)
    c. increase in inflation
    d. all of the above

25. A tax-deductible expense:
    a. reduces taxable income
    b. increases taxable income
    c. impacts expenses but not taxable income
    d. increases taxes owed

**Section B. Financial Statements and Records Analysis**. **(Questions #26-#55)**

**Use the attached <u>net worth statement</u> (balance sheet) and <u>net farm income statement</u> to answer questions #26-28**.

26. If a farmer buys an asset using a combination of cash and a loan, what can you say about the effect(s) on the balance sheet?
    a. Net Worth would be unchanged
    b. Total Assets will decrease
    c. Total Liabilities would increase
    d. Both A and C are correct

27. Which of the following would be a current asset on the balance sheet?
    a. Improvements
    b. Stored Crops
    c. Equipment
    d. Accounts payable

28. Suppose the market value of your feeder cattle inventory fell 20%, a result would be:
    a. Working capital would decrease
    b. Your equity would increase
    c. Your current ratio would increase
    d. Your total liabilities would decrease

**Use the attached <u>net worth statement</u> (balance sheet) to answer questions #29-32**.

29. What was FFA Farm's current ratio at the end of the year?
    a. 3.79
    b. 0.26
    c. 2.59
    d. 0.39

30. How much did FFA Farm's market value net worth change from a year ago?
    a. -4.1%
    b. 3.9%
    c. -1.7%
    d. 1.7%

31. What proportion of FFA Farm's assets can be converted to cash in the next 12 months (use market values)?
    a. 25.2%
    b. 100.0%
    c. 20.2%
    d. 79.8%

32. Looking at their balance sheet, we can say FFA Farm is
    a. Liquid but not solvent
    b. Both solvent and liquid
    c. Solvent but not liquid
    d. Neither liquid nor solvent

33. How are the income statement and balance sheet related?
    a. Revenues (from the income statement) are equal to assets (from the balance sheet)
    b. Expenses (from the income statement) are equal to liabilities (from the balance sheet)
    c. If cash inflows are greater than cash outflows (from the income statement) net worth will increase (from the balance sheet)
    d. If retained in the business, positive net farm income (from the income statement) increases net worth (from the balance sheet)

34. Tom has $0.80 of equity for every $1 of assets. Jerry has $0.60 of equity for every $1 of assets. Who is more leveraged?
    a. Tom
    b. Jerry
    c. There is no difference
    d. Need more information

**Use the attached <u>net income statement</u> to answer questions #35-36**.

35. What was FFA Farm's accrual net farm income last year?
    a. $32,863
    b. -$18,742
    c. $881,236
    d. $101,743

36. How will FFA Farm's accrual adjustment for crops held affect gross farm revenue this year?
    a. It will increase gross farm revenue
    b. It will decrease gross farm revenue
    c. It will not change gross farm revenue
    d. Need more information

37. Which of the following would not require an accrual adjustment on this year's income statement?
    a. An increase in value of your grain inventory this year
    b. A combine repair bill incurred in the fall and paid in January next year
    c. Buying seed in December for next year's crop
    d. Making a principal payment this year on a 2017 machinery loan

**Use the attached <u>cash flow budget</u> projection to answer questions #38-43.**

38. A farm business's cash balance may be positive for the year but negative in some individual accounting periods. Which of the following is NOT a way to address this issue?
    a. Using short-term credit
    b. Shifting timing of cash expenses
    c. Shifting timing of livestock and crop sales
    d. All of the above can help address this issue

39. In which period does this farm expect to have its largest net cash flow <u>deficit</u>?
    a. March-April
    b. January-February
    c. November-December
    d. July-August

40. When does Cyclone farm expect to pay real estate taxes?
    a. March-April and November-December
    b. March-April and September-October
    c. May-June and November-December
    d. May-June

41. What is Cyclone Farm's projected total cash outflows for all of 2018?
    a. $1,236,274
    b. $270,559
    c. $1,147,000
    d. -$89,274

42. How much operating capital does Cyclone Farm need to borrow in January-February in order to have a cash balance of $2,000 at the end of February?
    a. $33,452
    b. $36,452
    c. $38,452
    d. $35,452

43. In how many bi-monthly periods does FFA farm expect to have a positive net cash flow?
    a. none
    b. two
    c. three
    d. five

44. Which of the following would be included in a cash flow budget?
    a. Depreciation on your combine
    b. Grain inventory changes
    c. Interest payments on a farmland loan
    d. The 5 round bales you receive as payment for cutting your neighbor's hay

45. If a farm business's profits are positive, its cash flows:
    a. are also positive
    b. are negative
    c. may be positive or negative
    d. net to zero

**Use the information below to answer questions 46-48.**

You are considering selling your bales of corn stover. You can get $24 for one acre's worth. With the reduced residue, you'd save $4 per acre on tillage expenses. You will have baling costs of $5 per acre. Removing corn stover would also remove nutrients, lowering yield and reducing your revenue by $31 per acre.

46. The net change in profit per acre from selling your bales of corn stover is:
    a. +$8 per acre
    b. -$8 per acre
    c. +$6 per acre
    d. -$6 per acre

47. Should you bale and sell your corn stover?
    a. Yes because the net change in profit is positive
    b. Yes because the net change in profit is negative
    c. No because the net change in profit is positive
    d. No because the net change in profit is negative

48. What is the breakeven price for one acre of corn stover?
    a. $30 per acre
    b. $32 per acre
    c. $36 per acre
    d. $28 per acre

49. All of the following are issues or challenges with partial budgets except?
    a. They don't factor in extreme outcomes and risk
    b. They can only be used to compare two scenarios at a time
    c. They don't identify potential cash flow issues
    d. They don't recognize opportunity costs

50. A key feature of all four budget types—enterprise, whole farm, partial, and cash flow—is that they all:
    a. Analyze an entire farm's profit level
    b. Use anticipated, not actual, costs and revenues
    c. Measure accounting profit, not economic profit
    d. Require use of the cash accounting system

**Use the information below to answer questions 51-54.**

You are a sugar beet farmer, and your total cost of growing an acre of sugar beets is $815, your fixed costs are $190, and your variable costs are $625. Each acre produces 26 tons of sugar beets. Assume you are selling your sugar beets for $48 per ton.

51. Referring to the above scenario, what is your per ton shutdown price?
    a. $24.04
    b. $7.31
    c. $31.35
    d. $13.02

52. Referring to the above scenario, what is your per ton breakeven price?
    a. $24.04
    b. $7.31
    c. $31.35
    d. $16.98

53. What is the budgeting unit for this enterprise budget?
    a. Bushel
    b. Farm
    c. Acre
    d. Year

54. Referring to the above scenario, what is your expected profit per acre?
    a. $623
    b. $1,058
    c. $433
    d. -$382

55. Cedar Bend Farms bought a new tractor for $240,000 in 2015. They will be able to sell it for $90,000 in 10 years. Using the straight-line depreciation method, what is their depreciation expense for this year?
    a. $24,000
    b. $15,000
    c. $36,000
    d. $90,000

**Section C. Marketing and Risk Management. (Questions #56-#75)**

56. A corn farmer would be attempting to establish a price floor on the corn they sell in the future by:
    a. selling a put option
    b. selling a call option
    c. buying a put option
    d. buying a call option

57. If Porky is raising market hogs to sell in 2-3 months and is planning to sell the hogs at the going market price at that time, Porky is:
    a. forward contracting
    b. hedging
    c. taking on market risk
    d. avoiding price risk

58. A "premium" is an economic term associated with the price paid for:
    a. an insurance policy
    b. an option
    c. a margin call
    d. a and b

59. A "$1,000 deductible" provision on Joe's car insurance policy means if Joe files a damage claim of $10,000:
    a. the insurance premium is $1,000
    b. Joe will have to pay $9,000 for damage repair
    c. Joe will have to pay $1,000 for damage repair
    d. Joe will receive a check for $1,000 from the insurance company

60. Everything else the same, an increase in an options strike price will:
    a. increase the premium on a call option
    b. increase the premium on a put option
    c. have no impact on a call option premium
    d. increase the commission fee for trading an option

61. This past year, Cal received a $6,000 cash patronage refund and a $24,000 non-cash patronage refund from the Friendly Co-op. How much of the refund will Cal have reported as taxable income assuming the co-op claims all $30,000 of the refund as a deductible expense?
    a. $0
    b. $6,000
    c. $24,000
    d. $30,000

62. If Piggly Wiggly has a "short" futures position in the live hog market, they have:
    a. bought hog futures
    b. sold hog futures
    c. bought more hog futures than they have sold
    d. a and b

63. If China imposes a tariff on grain imports from the U.S., this will likely:
    a. increase the price of U.S. corn
    b. increase U.S. corn exports to China
    c. decrease U.S. corn exports to China
    d. a and c

64. A speculator will make money on an investment if they:
    a. buy at a low price and sell at a high price
    b. sell at a low price and buy at a high price
    c. sell a larger quantity than they buy
    d. buy a larger quantity than they sell

65. The difference currently between a local market soybean cash price and a soybean futures contract price is commonly referred to as:
    a. the market premium
    b. a futures spread
    c. the basics
    d. the expected change in the cash price

66. Big Time Farms will likely spread and reduce their financial risks by:
    a. expanding an existing enterprise
    b. deleting an existing enterprise
    c. adding a new enterprise
    d. reducing coverage limits on existing insurance policies

67. Angus Farms has hedged with futures contracts some future cattle sales. The price Angus Farms expects to receive would be most impacted by which of the following?
    a. a bigger than expected decline in cash cattle prices
    b. a bigger than expected decline in cattle futures prices
    c. a bigger than expected increase in the price of corn
    d. a bigger than expected basis

68. Assume Smarty Iam had projected a breakeven selling price on their corn of $4.00 per bushel with a projected yield of 180 bu./acre. If Smarty's yield ends up at 200 bu./acre, which of the following is most likely?
    a. Smarty's projected breakeven quantity has decreased
    b. Smarty will make more profit than originally projected
    c. Smarty's breakeven price has NOT changed
    d. Smarty's breakeven price has decreased

69. If Soy Nuts Inc. produces 80 bushels of soybeans per acre on 1000 acres, how much will they need to increase the per-bushel price of soybeans they get paid to increase their total income by $16,000?
    a. $0.50
    b. $0.10
    c. $0.05
    d. $0.20

70. Ignoring commission fees *(and assuming basis is calculated as: futures price – cash price)*, if Alexis has hedged some of her future soybean sales having sold Nov soybean futures at $10.30 per bushel, what net price will she receive?
    a. $10.30 regardless of the basis in Nov.
    b. $9.90 if the Nov. basis = $0.40
    c. $10.70 if the Nov. basis = $0.40
    d. it will depend on the cash price of soybeans in Nov.

71. If a cattle feeder wants to hedge against future corn input prices, they can use options contracts instead of futures contracts. Which of the following would most likely be an advantage of using options?
    a. lower costs to use options
    b. options put an upper limit on corn prices paid, but the cattle feeder could still benefit some if corn prices go down
    c. there are no advantages with options
    d. futures contracts are not as readily available or not always offered

72. Established in 1933, this government-owned, government-operated agency stabilizes, supports, and protects farm income and farm prices:
    a. RDA = the Rural Development Agency
    b. FCA = the Farm Credit Administration
    c. NRCS = the National Resource Conservation Service
    d. CCC = the Commodity Credit Corporation

73. What average price (costs per pound) did Jiffy receive for their peanuts sold this past year if they sold 50% of their production at $0.20, 30% of their production at $0.25, and 20% of their production at $0.24?
    a. 23.0
    b. 24.5
    c. 22.3
    d. 21.5

74. Compare the before-tax net earnings impact of a $1,000 increase in total revenue versus a $1,000 decrease in total costs for Rolling Acres.
    a. the revenue increase will have a greater impact
    b. the decrease in costs will have a greater impact
    c. both will have no impact because they offset each other
    d. each will have the same +$1,000 impact

75. If a soybean producer sells another bushel of soybeans for $10 per bushel, which of the following is NOT necessarily true??
    a. price = $10
    b. marginal revenue $10
    c. marginal cost = $10
    d. a and b

# INDIVIDUAL EXAM KEY

## Section A. Principles of Economics and Management

1. A
2. C
3. B
4. A
5. D
6. D
7. C
8. A
9. D
10. A
11. A
12. B
13. B
14. C
15. B
16. D
17. B = (.10)(19,050)+(.12)(40,000)
18. D
19. B
20. C
21. D = [(-800)/8000] x 100
22. A
23. C = TR = PQ = (0.20)(1 mil)
24. B discount factor = $1/(1+r)^n$
25. A

## Section B. Financial Statements and Records Analysis

26. D — The new asset will be added to the balance sheet, but its value will be offset by the combination of cash (current asset) and loan (liability) used to buy it. So net worth will not change and liabilities will increase.

27. B — The current asset would be stored crops. Improvements and Equipment are non-current assets, while accounts payable is a current liability.

28. A — If the value of your feeder cattle, a current asset, fell and nothing else changed, your working capital would decrease (Working Capital = Current Assets – Current Liabilities).

29. C Current Ratio = Current Assets/Current Liabilities: $679,573 / $261,988 = 2.59

30. C Change in Market value net worth = (Market value net worth this year – Market value net worth last year)/Market value net worth last year: (($2,481,966 - $2,524,580) / $2,524,580) x 100 = -1.7 %

31. C Current Assets / Total Assets = $679,573 / 3,372148 =20.2%

32. B FFA farms is both solvent (positive net worth or Debt/Asset ratio < 1) and liquid (positive working capital or current ratio >1).

33. D

34. B Leveraged refers to the degree to which assets are purchased with debt vs. equity. Since Assets – Liabilities = Equity, Tom must have $0.20 of debt for each dollar or assets and Jerry must have $0.40 of debt for each dollar of assets, so Jerry is more leveraged.

35. A The accrual net farm income is Gross Farm I- Gross Farm Expenses = $773,077 - $740,214 = $32,863

36. B The adjustment would add ending values and subtract beginning values for crops held for sale or feed. Since the ending balance < the beginning balance, Gross Farm Revenue will decrease.

37. D This is a cash expense for 2017 so no adjustment is needed.

38. D These are all examples of ways to address short term negative cash flows

39. A -$136,756 during the March-April period.

40. B $8000 in real estate taxes are due in March-April and again in Sept-Oct.

41. A The projected cash outflows for 2018 = $1,236,174 for the year.

42. D Net operating loans needed in January-February = (negative net cash flow Jan. and Feb.) – (beg. Cash balance) – (ending cash balance)
$36,452 - $3,000 + $2,000 = $35,452.

43. C There is a projected negative net cash flow in Jan-Feb, Mar-Apr and Nov-Dec.

44. C Interest payments are a cash outflow. The others are non-cash revenue or expenses.

45. C A farm may have positive or negative cash flows when it has positive profits. For example,negative cash flows might arise from large loan principal payments or

family living withdrawals. Neither of these appear on the income statement so don't affect profitability.

46. B The net change is Increased Revenue + Reduced Costs – (Reduced revenue + Increased Costs = $24 + 4 – (31+5) = -$8

47. D Since the net change is negative, your partial budget analysis is telling you that you would be better off NOT making the change.

.

48. B Breakeven is found by solving: Increased Revenue + Reduced Costs – (Reduced revenue + Increased Costs = $x + 4 – (31+5) = $32.

49. D Partial Budgets do recognize opportunity costs since you are comparing your current situation with your 'next best' alternative.

50. B Budgets involve estimating costs and revenues for the future.

51. A The shutdown price is the point where price = average variable costs. AVC = Variable costs / quantity. In this case, $625 / 26 tons = $24.04

52. C (Total cost) / expected yield
= $815/26 bu. = $31.35

53. C The budgeting unit is one acre.

54. C Expected Profit = Expected Revenue – Total Costs = 26 x $48 – $815 = $433

55. B Straight line Depreciation = (Cost – Salvage Value)/(years of useful life)
($240,000 - $90,000)/10 = $15,000

56. C
57. C
58. D
59. C
60. B
61. D Patronage refunds (cash and noncash) are subject to income tax once by either the member or the co-op. If the co-op is deducting the refunds, they are passing the tax obligation on to the member for the entire refund.
62. B
63. C
64. A
65. C
66. C
67. D
68. D BE price = TC/Q which will ↓ if Q↑
69. D (80 bu/acre)(1000 acres)(P↑) = 16,000
=> P↑ = 16,000/80,000 = 0.20
70. B net hedge P = (futures P sold at) – (ending basis)

71. B
72. D
73. C Avg P = (.50)(.20) + (.30)(0.25) + (.20)(0.24) = 22.3
74. D
75. C

**2018 Team Participation Event – "INDIVIDUAL" Portion**

**2018 Iowa Vo-Ag/FFA**
**Farm Business Management Career Development Event**
**(5 questions @ 1 pt each; maximum points = 5 individual and 15 per team)**

1. Which of the following is likely the main economic reason a corn or soybean producer would consider planting a cover crop prior to planting their main cash crop?
   a. Government regulations currently require it.
   b. To reduce soil erosion on their crop ground.
   c. To significantly boost cash crop yields.
   d. Because their neighbors are doing it.

2. Which of the following is a larger %:
   a. The % of corn and soybean acres in IA planted to cover crops.
   b. The % of all IA producers who report planting at least some acres to cover crops.
   c. The % of all IA producers who have tried cover crops and stopped using them.
   d. The % of corn and soybean acres in IA that must be planted to cover crops based on a new law just recently passed.

3. This financial statement will show the incremental impacts for a farmer of planting cover crops:
   a. Partial budget
   b. Balance sheet
   c. Cash flow statement
   d. Whole farm budget

4. The following is likely to be a 'societal' benefit of planting cover crops that farmers who plant cover crops would NOT reap the dollar benefits from directly?
   a. Reduced agricultural runoff resulting in improved water quality in rivers, lakes, and municipal water treatment plants.
   b. Sales of cover crops for feed or stover.
   c. Cheaper food prices.
   d. Higher quality food production.

5. The use of cover crops is most likely to do this to the soil?
   a. Increase the soil's pH level.
   b. Increase the soil's erodibility levels.
   c. Increase the soil's organic matter.
   d. Decrease the soil's water-holding capacity.

**2018 Team Participation Event – "INDIVIDUAL" Portion KEY**

**2018 Iowa Vo-Ag/FFA**
**Farm Business Management Career Development Event**
**(5 questions @ 1 pt each; maximum points = 5 individual and 15 per team)**

1. B

2. B
   Studies show about 23-24% of IA's corn producers plant at least some acres to cover crops. The % of all IA crop acres planted to cover crops (i.e. 'A') is only about 2-3%. No evidence that 'C' and 'D' are true.

3. A

4. A

5. C
   'D' is false. No evidence that 'A' and 'B' are true either.

**2018 Team Participation Event – "TEAM" Portion**

**2018 Iowa Vo-Ag/FFA**
**Farm Business Management Career Development Event**
**(7 questions @ 5 pts each; 35 total points maximum)**

As a group/team, you are to collectively select the BEST answer to each question. Code your answers on the answer sheet provided (one answer sheet per team). Be sure to erase completely any answer(s) that your team changes.

This activity is designed to test your ability as a group to 1) apply your knowledge of economic and business concepts to actual firm decisions and 2) generalize and summarize the basic content of information available as well as determine the likely implications or consequences.

The applications of this year's "TEAM" contest focus on *the use of cover crops by corn and soybean producers.*

1. An increasing number of Iowa corn and soybean producers are using or considering using cover crops. A recent study (2018) released by the consulting firm Datu Research revealed that 23% of Iowa grain farmers are using cover crops (e.g. cereal rye, oats, etc.), Meanwhile, another study (2016) by Practical Farmers of Iowa reported only 2.6% of Iowa's nearly 23 million acres of corn and soybeans had cover crops planted to them. Which of the following would be a most likely conclusion from these two studies assuming their reported findings are accurate?
   a. The only farmers who use cover crops are relatively small producers.
   b. About 1/4$^{th}$ of Iowa's grain producers are likely experimenting with cover crops on a small-scale trial basis before committing to adoption on a larger scale.
   c. The use of cover crops by Iowa farmers increased by more than 900% from 2016 to 2018.
   d. There are few, if any, benefits of using cover crops.

2. Which of the following financial statements would/should a farmer use to show or estimate the economic impact of going from their current farming operation with NO cover crops to one WITH cover crops?
   a. Cash flow statement
   b. Income statement
   c. Net worth statement
   d. Partial budget

3. Which of the following best describes the general public's interest in having more corn and soybean acres in Iowa planted to cover crops? The general public:
   a. Does NOT have any interest (or business) in matters related to what crops Iowa farmers plant.
   b. Would like crop producers to consider alternative production practices that might reduce agricultural runoff and thus improve water quality in rivers, lakes, and municipal water facilities.
   c. Is concerned about food prices going higher if more farmers use cover crops.
   d. Wants to stop the trend towards more biotech-related agricultural crops.

4. Assume Table 1 below contains data similar to that reported by Iowa State University recently (2018) on the incremental costs and incremental returns associated with using cover crops before corn.

Table 1.

| Item | $ per acre |
|---|---|
| Cover crop seed | 17.70 |
| Cover crop planting | 14.82 |
| Cover crop cost share (Gov't pymt) | 22.41 |
| Cover crop termination (herbicides, labor) | 8.07 |
| Savings due to cover crops (fertilizer, other) | 1.49 |

   Based on the information in Table 1 and ignoring any other aspects of cover crops, what is the net incremental impact per acre of planting cover crops?
   a. -$16.69
   b. -$39.10
   c. -$40.59
   d. +$26.71

5. Assume the net incremental impact per acre of planting cover crops (before corn) with government subsidy included is estimated to be -$20.76 before taking into consideration any change in corn yield (but based on other factors in Table 1). If the price of corn is $4.00 per bushel, how much of a change in corn yield (bushels per acre) would be needed for a producer to break even planting cover crops before corn?
   a. -5.19
   b. need to know current corn yield to be able to answer
   c. +5.19
   d. +24.76

6. Which of the following factors NOT considered in Table 1 would likely make planting cover crops MORE economical for a producer if they are/were taken into consideration?
    a. Any revenues from selling the cover crop as feed or stover
    b. Any land value benefits of reduced erosion
    c. Any water quality improvement benefits for the general public
    d. a and b

7. The use of cover crops is most likely to do which of the following:
    a. Add or build organic matter to the soil
    b. Increase leaching of fertilizer nutrients
    c. Decrease overall production costs per acre
    d. All of the above

**2018 Team Participation Event – "TEAM" Portion KEY**

**2018 Iowa Vo-Ag/FFA**
**Farm Business Management Career Development Event**
**(7 questions @ 5 pts each; 35 total points maximum)**

1. B
   If 'A' is generally true, it could be a possible explanation of the observations, but common sense should suggest, or it would be highly unlikely, that the ONLY farmers planting cover crops would just be small producers. No info is provided to determine if 'C' is correct. There are benefits of cover crops so 'D' is not correct.

2. D

3. B
   Some of the other answers may or may not be consistent with the general public's interest, but even if they are, they are not correlated with cover crops.

4. A
   Net incremental benefits
   = Incremental benefits – incremental costs
   = (gov't pymt + savings) – (cc seed + cc planting + cc termination)
   = (22.41 + 1.49) – (17.70 – 14.82 – 8.07)
   = 23.90 – 40.59 = -16.69

5. C
   Extra corn yield (+CY) needed to offset extra cc costs
   = ($4 per bu corn P)(+CY) = $20.76
   => +CY = $20.76/4 = +5.19 bushels

6. D
   Note water quality improvement in this case 'C', in economics, is called a 'positive externality'. Farmers will not be able to charge the general public for the improved water quality so the general public could enjoy the associated benefits without having to pay for them.

7. A
   Cover crops actually decrease fertilizer leaching and increase overall production costs per acre when planted.

## VIII. 2018 Event Resources

2018 Farm Business Management Team Topic:
Cover Crops

SUGGESTED REFERENCES:

The Economic Value of Cover Crops
Iowa Learning Farms
October 2015
https://www.iowalearningfarms.org/files/page/files/Cover_Crops_economics_4pp_0.pdf

Value of Soil Erosion to the Land Owner
Ag Decision Maker, File A1-75
August 2012
https://www.extension.iastate.edu/agdm/crops/pdf/a1-75.pdf

Rotating Crops, Turning Profits
Union of Concerned Scientists
MAY 2017
https://www.ucsusa.org/sites/default/files/attach/2017/05/rotating-crops-report-ucs-2017.pdf

Cover crops economics tools from NRCS:
https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/il/soils/health/?cid=stelprdb1269028

## Ending Net Worth Statement

**Ag Decision Maker -- Iowa State University Extension and Outreach**

### Ending Net Worth Statement

**Name** FFA Farm **Date** 01/01/18

| Farm Assets | Cost Value | Market Value | Farm Liabilities | Market Value |
|---|---|---|---|---|
| ***Current Assets*** | | | ***Current Liabilities*** | |
| Checking, savings accounts (Sch. A) | $28,162 | $28,162 | Accounts payable (Sched. O) | $17,535 |
| Crops held for sale/feed (Sched. B) | $347,850 | $347,850 | Farm taxes due (Sched. P) | $4,849 |
| Investment in growing crops (Sch. C) | $23,757 | $23,757 | Current notes and credit lines (Sched. Q) | $84,293 |
| Commercial feed on hand (Sch. D) | $14,625 | $14,625 | | |
| Prepaid expenses (Sched. E) | $21,750 | $21,750 | Accrued interest - short (Sched. Q) | $6,716 |
| Market livestock (Sched. F) | $243,430 | $243,430 | - fixed (Sched. R) | $76,112 |
| Supplies on hand (Sched. G) | $0 | $0 | Due in 12 months - fixed (Sched. R) | $72,483 |
| Accounts receivable (Sched. H) | $0 | $0 | Deferred tax liabilities | |
| Other current assets | | $0 | Other current liabilities | |
| **A) Total Current Assets** | **$679,573** | **$679,573** | **C) Total Current Liabilities** | **$261,988** |
| ***Fixed Assets*** | | | ***Fixed Liabilities*** | |
| Unpaid coop. distributions (Sch. I) | $14,025 | $14,025 | Notes and contracts remainder (Sched. R) | $628,194 |
| Breeding livestock (Sched. J) | $59,750 | $59,750 | Deferred tax liabilities | |
| Machinery & equipment (Sched. K) | $318,195 | $418,000 | Other fixed liabilities | |
| Buildings/improvements (Sched. L) | $308,750 | $431,200 | Total Fixed Liabilities | **$628,194** |
| Farmland (Sched. M) | $1,160,000 | $1,769,600 | | |
| Farm securities, certificates (Sch. N) | $0 | $0 | | |
| Other fixed assets | | $0 | | |
| Total Fixed Assets | **$1,860,720** | **$2,692,575** | | |
| **B) Total Farm Assets** | **$2,540,293** | **$3,372,148** | **D) Total Farm Liabilities** | **$890,182** |
| **E) Farm Net Worth** | **$1,650,111** | **$2,481,966** | | |
| | | | | |
| **F) Farm Net Worth Last Year** | $1,585,630 | $2,524,580 | **Working Capital** | |
| **G) Change in Farm Net Worth** | | | **Current Asset-to-Debt Ratio** | |
| **Percent Change in Net Worth** | | | **Total Debt-to-Asset Ratio** | |

# Net Farm Income Statement

**Ag Decision Maker -- Iowa State University Extension and Outreach**

| Name | FFA Farm | Year | 2017 |
|---|---|---|---|

## Income

| *Cash Income (can come from IRS Schedule F)* | | *Income Adjustments* | Beginning | Ending |
|---|---|---|---|---|
| Sales of livestock bought for resale | $250,000 | Crops held for sale or feed (Sched. B) | $446,000 | $347,850 |
| Sales of market livestock, grain, etc. | $579,751 | Market livestock (Sched. F) | $253,539 | $243,430 |
| Cooperative distributions paid | $500 | Accounts receivable (Sched. H) | $0 | $0 |
| Agricultural program payments | $0 | Other current assets | $0 | $0 |
| Crop insurance proceeds | $0 | Unpaid cooperative distributions (Sched. I) | $12,025 | $14,025 |
| Custom hire income | $0 | Breeding livestock (Sched. J) | $61,650 | $59,750 |
| Other cash income | $15,300 | Subtotal of adjustments | $773,214 | $665,055 |
| Sales of breeding livestock | $35,685 | (b) Net adjustment | $108,159 | |
| (a) Total Cash Income | $881,236 | **(c) Gross Farm Revenue** | **$773,077** | |

## Expenses

| *Cash Expenses (can come from IRS Schedule F)* | | *Expense Adjustments (paid in advance)* | Beginning | Ending |
|---|---|---|---|---|
| Car and truck expenses | $1,894 | Investment in growing crops (Sched. C) | $24,000 | $23,757 |
| Chemicals | $30,760 | Commercial feed on hand (Sched. D) | $10,325 | $14,625 |
| Conservation expenses | $0 | Prepaid expenses (Sched. E) | $0 | $21,750 |
| Custom hire | $0 | Supplies on hand (Sched. G) | $0 | $0 |
| Employee benefits | $2,400 | Subtotals | $34,325 | $60,132 |
| Feed purchased | $137,210 | (e) Net adjustment (beginning - ending) | ($25,300) | |
| Fertilizer and lime | $105,500 | ***Expense Adjustments (due)*** | **Beginning** | **Ending** |
| Freight, trucking | $12,290 | Accounts payable (Sched. O) | $25,705 | $17,535 |
| Gasoline, fuel, oil | $23,650 | Farm taxes due (Sched. P) | $4,849 | $4,849 |
| Insurance | $7,000 | Accrued interest (Sched. Q, R) | $139,736 | $82,828 |
| Interest paid | $139,736 | Subtotals | $66,372 | $54,215 |
| Labor hired | $36,000 | (f) Net adjustment | ($12,157) | |
| Pension and profit-share plans | $6,000 | | | |
| Rent or lease payments | $132,000 | (g) Depreciation (Sched. K, L) | $51,605 | |
| Repairs, maintenance | $12,333 | **(h) Gross Farm Expenses** | $740,214 | |
| Seeds, plants | $64,925 | | | |
| Storage, warehousing | $0 | **(j) Net Farm Income from Operations** | | |
| Supplies purchased | $3,675 | | | |
| Taxes (farm) | $8,980 | (j) Sales of farmland (Sched. M) | $0 | |
| Utilities | $17,358 | (k) Cost value of farmland sold (Sched. M) | $0 | |
| Vet. fees, medicine, breeding | $11,623 | (l) Capital gains or losses (j - k) | $0 | |
| Other cash expenses | $4,560 | | | |
| Livestock purchased | $21,600 | **Net Farm Income (accrual)** | | |
| (d) Total Cash Expenses | $779,494 | | | |

| | | | |
|---|---|---|---|
| | | **Value of Farm Production** | |
| **Net Farm Income (cash)** | **$101,743** | **(NFI - purchases of feed & livestock)** | **$585,984** |

## Cash Flow Budget

Name: CYCLONE FARM

Year: 2018

| CASH INFLOWS<br>Operating | Total for Year | January February | March April | May June | July August | September October | November December |
|---|---|---|---|---|---|---|---|
| Livestock income | 883,300 | 147,217 | 147,217 | 147,217 | 147,217 | 147,217 | 147,217 |
| Sales of crops | 213,300 | 20,700 | 21,000 | 9,900 | 0 | 55,200 | 106,500 |
| Other crop income | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| USDA payments | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Custom hire income | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Farm rents, interest | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other | 8,000 | 1,333 | 1,333 | 1,333 | 1,333 | 1,333 | 1,333 |
| **Sales of Capital Assets** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Financing** | | | | | | | |
| Total new short-term loans to receive | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| New term loans to receive | 20,000 | 0 | 0 | 20,000 | 0 | 0 | 0 |
| **Non-farm Income** | 22,400 | 3,733 | 3,733 | 3,733 | 3,733 | 3,733 | 3,733 |
| **Total Cash Inflows** | **1,147,000** | **172,983** | **173,283** | **182,183** | **152,283** | **207,483** | **258,783** |

| CASH OUTFLOWS<br>Operating | Total for Year | January February | March April | May June | July August | September October | November December |
|---|---|---|---|---|---|---|---|
| Seed | 86,930 | 14,488 | 14,488 | 0 | 0 | 0 | 57,953 |
| Fertilizer and lime | 77,190 | 25,730 | 25,730 | 0 | 0 | 0 | 25,730 |
| Pesticides | 41,800 | 0 | 41,800 | 0 | 0 | 0 | 0 |
| Crop insurance | 8,910 | 0 | 0 | 0 | 0 | 8,910 | 0 |
| Drying fuel | 13,450 | 0 | 0 | 0 | 0 | 13,450 | 0 |
| Custom hire or machine rental | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other cash costs per acre | 10,600 | 1,767 | 1,767 | 1,767 | 1,767 | 1,767 | 1,767 |
| Purchased crops | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Purchased livestock | 35,000 | 5,833 | 5,833 | 5,833 | 5,833 | 5,833 | 5,833 |
| Purchased feed | 308,720 | 51,453 | 51,453 | 51,453 | 51,453 | 51,453 | 51,453 |
| Health and veterinary | 12,500 | 2,083 | 2,083 | 2,083 | 2,083 | 2,083 | 2,083 |
| Marketing | 15,000 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 |
| Other cash costs per head | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Real estate taxes | 16,000 | 0 | 8,000 | 0 | 0 | 8,000 | 0 |
| Cash rent | 179,200 | 0 | 89,600 | 0 | 0 | 0 | 89,600 |
| Hired labor | 45,000 | 7,500 | 7,500 | 7,500 | 7,500 | 7,500 | 7,500 |
| Repairs and upkeep | 13,000 | 2,889 | 1,444 | 1,444 | 1,444 | 2,889 | 2,889 |
| Fuel and lubrication | 25,000 | 2,500 | 5,000 | 5,000 | 2,500 | 5,000 | 5,000 |
| Other fixed expenses | 6,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |
| Equipment lease payments | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Purchases of Capital Assets** | 65,000 | 0 | 0 | 45,000 | 0 | 20,000 | 0 |
| **Financing** | | | | | | | |
| Accounts payable | 29,540 | 29,540 | 0 | 0 | 0 | 0 | 0 |
| Short term notes due | 22,500 | 22,500 | 0 | 0 | 0 | 0 | 0 |
| Term loan payments | 96,934 | 23,484 | 24,673 | 1,083 | 45,526 | 1,083 | 1,083 |
| **Non-farm Expenditures** | | | | | | | |
| Family living expenses | 85,000 | 14,167 | 14,167 | 14,167 | 14,167 | 14,167 | 14,167 |
| Non-farm investments | 43,000 | 2,000 | 13,000 | 22,000 | 2,000 | 2,000 | 2,000 |
| **Total Cash Outflows** | **1,236,274** | **209,435** | **310,039** | **160,831** | **137,774** | **147,636** | **270,559** |

| SUMMARY | Total for Year | January February | March April | May June | July August | September October | November December |
|---|---|---|---|---|---|---|---|
| **Net Cash Flow** | **(89,274)** | **(36,452)** | **(136,756)** | **21,352** | **14,509** | **59,848** | **(11,776)** |
| Beginning cash balance | 3,000 | 3,000 | (33,452) | (170,208) | (148,855) | (134,346) | (74,498) |
| New operating loan received | 0 | | | | | | |
| Repayment of operating loan | 0 | | | | | | |
| Interest paid on oper. loan balance | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ending cash balance | (86,274) | (33,452) | (170,208) | (148,855) | (134,346) | (74,498) | (86,274) |
| **Operating Loan Balance** | | | | | | | |
| Beginning Balance | 35,750 | 35,750 | 35,750 | 35,750 | 35,750 | 35,750 | 35,750 |
| Ending Balance | 35,750 | 35,750 | 35,750 | 35,750 | 35,750 | 35,750 | 35,750 |