2016 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. Supply and _____ determine the market price of an item.
   a. consumer income
   b. population
   c. demand
   d. tastes and preferences

2. Determining the equivalent value today of a given number of dollars to be paid or received at some time in the future is known as:
   a. discounting
   b. compounding
   c. annuitizing
   d. refinancing

3. What balances on a balance sheet?
   a. cash inflows and cash outflows
   b. debt capital and equity capital
   c. assets and liabilities
   d. claims on assets and assets

4. UNLIKE an investor-owned corporation, a cooperative corporation:
   a. is controlled on a one share of stock, one vote basis
   b. does not pay any taxes
   c. is owned by its customers
   d. all of the above

5. What is a firm's profit-maximizing output rule? Produce where:
   a. marginal revenue = 0
   b. marginal product = marginal cost
   c. average total cost is at a minimum
   d. marginal revenue = marginal cost

6. A debt obligation that must be paid within one year is known as:
   a. a current liability
   b. a current asset
   c. an intermediate liability
   d. a cash outflow

7. If a farmer keeps adding fertilizer to an acre of corn ground, the additional corn yield per additional pound of fertilizer applied will eventually decline. This is an example of the "Law of _____"?
   a. Supply
   b. Diminishing marginal utility
   c. Diminishing marginal product
   d. Diminishing total output

8. A "1040" tax form is used to calculate _____ taxes that are owed.
   a. sales
   b. property
   c. inheritance
   d. income

9. Limited owner liability means an investor in a corporation has a limited amount of:
   a. money invested that they can lose
   b. control over decisions made by management
   c. earnings potential
   d. shares of stock they can own

10. A "progressive marginal income tax" is one that increases with what?
   a. number of deductions
   b. number of dependents
   c. taxable income brackets
   d. interest rates

11. If the government establishes a price support for cheese that is above the market price for cheese, what is the likely impact?
   a. excess supply
   b. excess demand
   c. the demand curve for cheese will shift to the left
   d. no impact because government policies are typically ignored by buyers and sellers

12. If a wheat producer believes wheat prices are going to increase in the near future, what term best describes that producer's wheat price expectations?
   a. irrational
   b. bullish
   c. bearish
   d. inverted

13. Planning, organizing, and directing are examples of:
    a. functions of management
    b. control in a business
    c. employee motivation
    d. management by objective

14. Mary can buy a house taking out a loan. Her monthly payment would be $800, which includes mortgage interest and property taxes that are tax deductible. After taking taxes into consideration, the cost of the house per month is likely to be:
    a. $800
    b. < $800 by the amount of the mortgage interest and the property taxes
    c. > $800 by the amount of the mortgage interest
    d. < $800 by the amount of the tax savings associated with the mortgage interest and property taxes

15. Which of the following costs is most likely to decrease with increases in output?
    a. Total fixed costs
    b. Average fixed costs
    c. Total variable costs
    d. a and c

16. Ralph expects to be in a lower marginal income tax bracket next year versus this year. Which of the following would likely lower Ralph's combined income taxes paid this year and next year?
    a. postpone reporting some taxable income until next year
    b. postpone reporting some tax deductible expenses until next year
    c. both of the above
    d. none of the above

17. Jeff has decided to NOT sell a crate of fresh strawberries he won at a raffle. Jeff was offered the following dollar amounts for the strawberries by a few of his friends: Sue = $10, Bill = $15, Ann = $17. What is Jeff's opportunity cost of not selling the strawberries, assuming nobody else expressed an interest in buying them?
    a. $0
    b. $42
    c. $17
    d. $10

18. Depreciation is:
    a. the total cost of a tangible asset
    b. a cash cost
    c. a portion of the total cost of a tangible asset that is a tax-deductible expense
    d. the opposite of appreciation

19. A change in inventory will likely be used to calculate:
    a. net farm income
    b. cash outflow
    c. interest expenses
    d. depreciation

20. What are the two basic 'accounting methods' for recording income and expenses?
    a. fixed, variable
    b. cash, accrual
    c. first in first out, last in first out
    d. after tax, before tax

21. What does the term 'marginal' in economics usually mean?
    a. not very good
    b. average
    c. incremental
    d. a and b

22. A point on a production possibilities curve is said to be:
    a. efficient
    b. unattainable
    c. scarce
    d. the same as the point of diminishing returns

23. What type of insurance offers a farmer a guaranteed level of gross income?
    a. revenue protection
    b. life
    c. liability
    d. casualty

24. Dollars of sales (or revenues) divided by dollars of total assets for a firm is usually called this kind of financial ratio:
    a. debt
    b. liquidity
    c. asset turnover
    d. solvency

25. Jackson farms 1,000 acres of corn ground that yields 200 bushels per acre. If Jackson received $4.00 per bushel for his corn, what was his total revenue from producing corn on his farm?
    a. $200,000.00
    b. $800.00
    c. $4,000.00
    d. $800,000.00

Section B. Financial Statements, Records Analysis, Marketing, Risk Management. **(Questions #26-#75)**

Use the attached net worth statement (balance sheet) and net farm income statement to answer questions #26-37.

26. Which of the following is an example of a noncurrent liability?
    a. farm machinery
    b. loan on feeder livestock
    c. loan on farm machinery
    d. prepaid expense

27. Another term which has the same meaning as owner's equity is?
    a. net worth
    b. net farm income
    c. total asset value
    d. total liabilities

28. What was this farm's working capital on January 1, 2016?
    a. 3.18
    b. $31,916
    c. $471,481
    d. $1,903,072

29. The farm's market value net worth changed by ____ from a year ago.
    a. $49,021
    b. $55,685
    c. $681,107
    d. $2,535,158

30. How would you characterize FFA Farms' financial condition at the end of the year?
    a. They are insolvent and illiquid
    b. They are solvent but illiquid
    c. They are insolvent but liquid
    d. They are solvent and liquid

31. What percent of the farm's total liabilities are due and payable in the next 12 months?
    a. 20%
    b. 25%
    c. 33%
    d. 75%

32. One purpose of making accrual adjustments to cash income at the end of the year is:
    a. to reduce taxable income
    b. to compare the profitability of the various crop and livestock enterprises
    c. to show net worth based on both cost values and market values
    d. to allocate the value of crops and livestock to the accounting year in which they were produced

33. Which of the following transactions would NOT be included as revenue on the net farm income statement?
    a. receipt of hay from your neighbor in exchange for custom baling
    b. change in inventory of 800 50-pound feeder pigs
    c. receipt of $175,000 operating loan from First U.S. Bank
    d. sold 30,000 bushels of corn at $3.75 to the local

34. How much was FFA Farms' net farm income from operations in 2015?
    a. -$85,406
    b. $46,403
    c. $123,284
    d. $744,794

35. Which of the following measures is NOT a measure of profitability?
    a. Net farm income
    b. Debt to asset ratio
    c. Return to Labor and Management
    d. Rate of Return on Equity

36. How much would FFA Farm's accrual adjustment for investment in growing crops be this year?
    a. -$25,300
    b. -$1,800
    c. +$1,800
    d. +$23,535

37. Most farms in the Midwest use the calendar year for their accounting year because:
    a. The IRS requires it.
    b. Their crops are always sold before December 31
    c. Commercial farm accounting systems are set up that way
    d. Most of the crops are planted in the spring and harvested in the fall

Use the attached <u>cash flow budget</u> projection to answer questions #38-45.

38. How many dollars' worth of seed does FFA Farm plan to purchase in March and April?
    a. $14,800
    b. $29,600
    c. $88,800
    d. $168,376

39. In which period does this farm expect to have its largest ending cash balance deficit?
    a. January - February
    b. March-April
    c. May-June
    d. July-August

40. How much operating capital does FFA Farm need to borrow in January-February in order to have a cash balance of $2,000 at the end of February?
    a. $ 14,441
    b. $ 16,441
    c. $ 18,096
    d. $ 20,096

41. In which period does this farm expect to have its largest cash inflow?
    a. January - February
    b. March-April
    c. May-June
    d. July-August

42. What is FFA Farm's projected total cash outflows for all of 2016?
    a. $30,554
    b. $206,942
    c. $1,080,645
    d. $1,287,587

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

44. In how many periods does FFA farm expect to have a negative net cash flow?
    a. none
    b. two
    c. three
    d. six

45. Which of the following would not appear on a cash flow budget?
    a. feed purchases
    b. depreciation
    c. family living expenses
    d. cost of new tractor

Use the partial budget below to answer questions 46-47.

Switch from Raising Replacement Heifers to Buying Heifers

Added Revenue		**Reduced Revenue**	
		None	
Sell raised heifer calf: 500 lb. @ $1.20	$600		
Reduced Costs		**Added Costs**	
Pasture maintenance	$ 20	Purchase bred heifer:	$1,200
Grain fed	$ 40		
Supplement and mineral	$ 45		
Hay fed	$120		
Health, utilities and other costs	$ 55		
Labor	$ 50		
Subtotal			

46. What is the expected net change from switching to buying heifers?
    a. -$270
    b. $270
    c. -$600
    d. $600

47. What would the purchase price for a bred heifer need to be to just breakeven by switching from raising replacements to buying them?
    a. $ 330
    b. $ 600
    c. $ 930
    d. $1200

48. In the short run, a farmer should go ahead and produce an enterprise as long as the expected revenue exceeds
    a. Total costs
    b. Total fixed costs
    c. Total **v**ariable costs
    d. Gross margin

49. An acre of alfalfa requires $100 of operating capital and 4 hours of labor. A farm has 70 acres of land, 200 hours of labor, and $6,000 of operating capital available. What is the maximum amount of acres that can be produced?
    a. 50 acres
    b. 60 acres
    c. 70 acres
    d. 80 acres

50. An enterprise budget is best suited for answering which of the following questions?
    a. How much net farm income do you expect the entire farm to make this year?
    b. How much operating capital will you need to borrow in the spring to plant your crops?
    c. Should you buy or raise replacement heifers?
    d. How much will you need to sell your milk for this year to at least pay all your variable costs?

Refer to the attached budget for oats to answer questions 51-55.

51. If the price of oats is $4.00 and the price of straw is $30 per ton, how much is the expected gross margin (i.e. return over variable costs per acre)?
    a. $ -59.54
    b. $ 116.10
    c. $ 174.36
    d. $ 409.54

52. What selling price for oats is needed to just cover total costs assuming no revenue from straw?
    a. $ 5.12 per bu.
    b. $ 2.93 per bu.
    c. $ 2.20 per bu.
    d. $11.25 per bu.

53. What would total costs be if the farmer decided to produce 20 acres of oats assuming total costs per acre do not change?
    a. $409.54
    b. $4,095.40
    c. $4,678.00
    d. $8,190.80

54. In an enterprise budget, the annual cost for land that is owned by the farmer can be estimated by:
    a. The opportunity cost, or market rent, the farmer could have obtained renting it to someone else
    b. The principle and interest payments that are owed each year on a loan used to purchase it
    c. The sum of property taxes and maintenance costs
    d. The current potential selling price for the land

55. If output decreases with no change in total cost, breakeven selling price will:
    a. increase
    b. decrease
    c. remain constant
    d. initially decrease and then begin to increase

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

56. Which of the following provides protection against property damage?
    a. chattel
    b. mortgage
    c. insurance
    d. hedging

57. Who has the right to buy the underlying futures contract?
    a. a call option buyer
    b. a put option buyer
    c. a put option seller
    d. a call option seller

58. A good description of a hedger is:
    a. a risk avoider
    b. a risk taker
    c. one who is risk neutral
    d. a speculator

59. Grain basis is typically the widest
    a. just prior to harvest
    b. right after harvest
    c. in the spring
    d. at a futures contract delivery location

60. Everything else the same, an increase in the strike price will:
    a. increase the premium on a call option
    b. increase the commission fee to trade an option
    c. increase the premium on a put option
    d. all of the above

61. One member one vote is a form of ownership control most commonly associated with this type of corporation:
    a. investor-owned
    b. partnership
    c. subchapter S
    d. cooperative

62. If a soybean farmer can gain 20 cents per bushel by doing a better job of marketing, how much will they add to their gross income per acre if they produce an average of 70 bushels of soybeans per acre on 2,000 acres?
    a. $2,800.00
    b. $400.00
    c. $1.40
    d. $14.00

63. A market with large, erratic price movements is described as:
    a. highly stable
    b. highly volatile
    c. highly profitable
    d. bullish

64. Which of the following is most often associated with a cooperative but not other businesses?
    a. patronage refunds
    b. stock dividends
    c. no liabilities
    d. no taxes

65. What is typically specified or fixed in a forward cash contract?
    a. the quantity
    b. the price
    c. the delivery locator
    d. all of the above

66. Assume the demand curve for orange juice has shifted to the left and the price of orange juice has also increased. What is the most logical economic explanation of this?
    a. the Law of Demand
    b. the supply curve for oranges has shifted to the right
    c. the supply curve for oranges has shifted to the left
    d. there are fewer substitute products for orange juice than before

67. A hog farmer who hedges using futures has these types of market 'positions':
    a. long cash, short futures
    b. long futures, short cash
    c. long futures, long cash
    d. short futures, short cash

68. Which of the following would make selling corn today more appealing versus storing the corn and selling it one year from now?
    a. greater storage costs or losses
    b. greater interest rates
    c. expected decline in cash corn prices over the next year
    d. all of the above

69. Assume a corn producer's total costs per acre = $750.00 and yield = 150 bu./acre. The producer's:
    a. breakeven yield = 50 bu./acre
    b. breakeven price = $5.00/bu.
    c. profits are maximized at 50 bu./acre
    d. average variable costs per bu. = $5.00

70. A wheat farmer sold a wheat futures contract at $7.00 per bushel and paid a commission fee of $0.02 per bushel. If the expected basis is $0.40 when the farmer lifts the hedge and sells the wheat, what is the most likely net price per bushel this farmer will receive for their wheat?
    a. $6.58
    b. $6.98
    c. $7.00
    d. $7.42

71. Market equilibrium is where:
    a. profit is maximized
    b. supply = demand
    c. imports = exports
    d. price = average variable cost

72. Adding a new enterprise to a farming operation would most likely?
    a. reduce overall profit
    b. have the same impact as just expanding the size of an existing enterprise
    c. spread and reduce profit risk
    d. all of the above

73. Evaluating alternative buying and selling strategies is part of this economic subject matter area?
    a. leasing
    b. financing
    c. speculating
    d. marketing

74. If the demand curve for lettuce has shifted to the right, which of the following has most likely caused this to happen?
    a. increased population
    b. decrease in the price of lettuce
    c. increase in the supply of lettuce
    d. all of the above

75. What is the economic definition of marginal revenue?
    a. price x quantity
    b. change in total revenue ÷ change in quantity of output
    c. enough revenue to barely cover costs
    d. total revenue ÷ quantity of output

2016 Iowa Farm Business Management Career Development Event

INDIVIDUAL EXAM KEY

Section A. Principles of Economics and Management

1. C
2. A
3. D
4. C
5. D
6. A
7. C
8. D
9. A
10. C
11. A
12. B
13. A
14. D
15. B
16. A
17. C
18. C
19. A
20. B
21. C
22. A
23. A
24. C
25. D

Section B. Financial Statements, Records Analysis

26. C The term on farm machinery loans would be longer than one year.

27. A Net worth is another term for owner's equity.

28. C Working capital = (current assets - current liabilities)
= $687,843 - $216,362 = $471,481

29. A Change in market value net worth = (Market Value Farm Net Worth this year – Market Value Farm Net Worth Last Year) = ($2,584,179 - $2,535,158) = $49,021

30. D They are solvent (Total Assets>Total Liabilities) and liquid (Current Assets>Current Liabilities)

31. B Current Liabilities / Total Liabilities = $216,362 / $872,289 =25%

32. D

33. C Receipt of loan funds is not considered revenue (does not result from production or services provided)

34. B Net farm income from operations = Gross farm revenue – gross farm expenses $744,794 - $698,391 = $46,403

35. B Debt/Asset ratio measures solvency.

36. B The adjustment would subtract ending values and add beginning values for investment in growing crops: ($21,735 - $23,535) = -$1,800

37. D

38. A See 14,800 under March and April outflows.

39. A -$14,441 during the January-February period.

40. B Net operating loans needed in January-February = (negative net cash flow Jan. and Feb.) – (beg. Cash balance) – (ending cash balance)
$18,096 - $3,655 + $2,000 = $16,441

41. B The projected cash inflows are largest at $312,110 for March-April.

42. C Total cash inflows for the whole year = $1,080,645.

43. A $8,000 in March-April and $8,000 in September-October.

44. B There is a projected negative net cash flow in Jan-Feb and July-August.

45. B Depreciation would be a non-cash expense.

46. A Net Change = Added Revenue + Reduced Costs – Reduced Revenue – Added Costs = $600 + $330 – 0 – $1,200 = -$270

47. C Needed purchase price = Added Revenue + Reduced Costs = 600 + 330 = $930
.

48. C

49. A Labor is the limiting resources. 200 hours/4 hours per acres = 50 acres.

50. D

51. C Gross margin = gross revenue – variable costs = ($4.00 x 80 bu + $30) - $175.64 = $174.36.

52. A (Total cost) / bushels to sell
= $409.54/ 80 bu. = $5.12 per bu.

53. D Total costs x 20 acres = $409.54 x 20 = $8,190.8

54. A

55. A

Section C. Marketing, Risk Management

56. C
57. A
58. A
59. B
60. C
61. D
62. D
63. B
64. A
65. B
66. C
67. A
68. D
69. B
70. A
71. B
72. C
73. D
74. A
75. B

Team Participation Event = "Individual" Portion (5 Questions @ 1 pt ea)

2016 Iowa Vo-Ag/FFA
Farm Business Management Career Development Event
(Maximum possible pts = 5 per individual and 15 per team)

Instructions: The questions below are related to the problems you just worked on as a team. Select the best answer (1 pt. each). Code your answers on the answer sheet provided. Be sure to erase completely any answers that you change.

1. The "DIRTI 5" in farm management refers to:
    a. The five main factors that determine a farmer's profit
    b. Five different accounting methods used to record cash flows
    c. Examples of variable costs
    d. Examples of fixed costs

2. Economics suggests that if the price of corn goes down, everything else the same, the profit-maximizing quantity of corn to produce per acre will:
    a. Increase (to make up for the lower revenue per bushel)
    b. Stay the same
    c. Decrease
    d. Equal maximum bu.

3. Total fixed costs typically:
    a. Do NOT change with changes in output
    b. Have no impact on breakeven output
    c. Both of the above
    d. None of the above

4. If a corn farmer's yield (i.e. bu./acre) = 180, total variable costs per acre = $400.00 and total fixed costs per acre = $140.00, what is the breakeven selling price?
    a. $2.22
    b. $0.33
    c. $3.00
    d. There is no breakeven selling price for this farmer

5. If a corn producer is able to do a better job of buying his/her inputs so they lower total variable costs by $40 per acre, everything else the same this will:
    a. Lower the breakeven selling price
    b. Lower the breakeven yield
    c. Increase profit per acre (or reduce loss per acre)
    d. All of the above

Team Participation Event – "TEAM" Portion (7 questions @ 5 pts. ea.)

2016 Iowa Vo-Ag/FFA
Farm Business Management Career Development Event
(Maximum possible pts = 35 per team)

As a group (or team), you are to collectively select the best answer to each question below (5 pts. each). Code your answers on the answer sheet provided (one answer sheet per team). Be sure to erase completely any answers 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 and implications of economic articles and reports. The applications will focus on information summarized in selected publications previously cited as reference materials for this event.

In particular, this activity this year focuses on sub topics related to ANALYSIS OF PROFIT AND BREAKEVEN in farm management.

1. Based on the attached corn enterprise budget, what is the breakeven selling price needed to cover total costs?
    a. $3.55
    b. $2.03
    c. $2.65
    d. $4.88

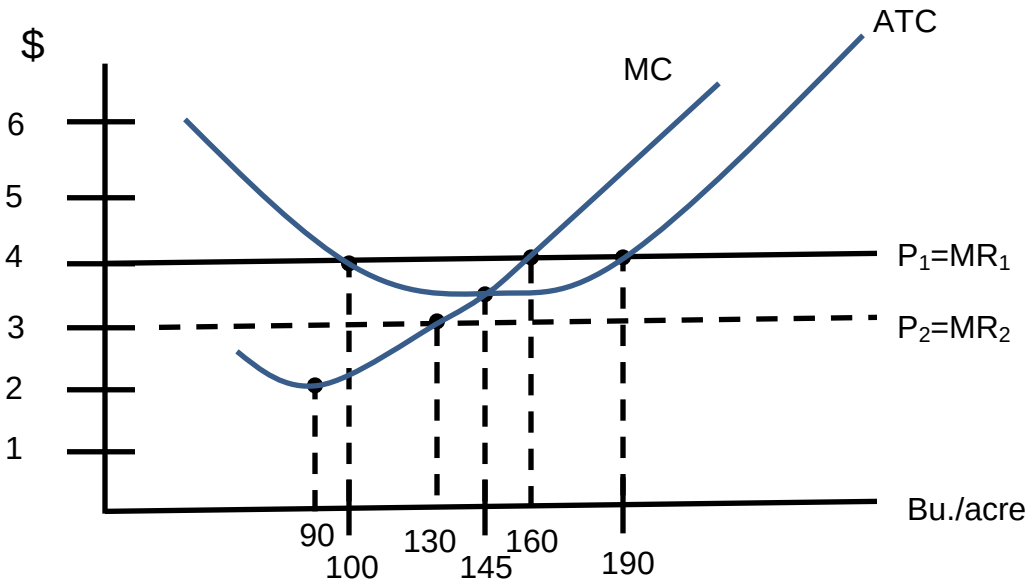
2. Based on the attached corn budget, what is the breakeven yield (i.e. bu. per acre) needed to cover total costs if the selling price were $4.25/bu.?
    a. 165
    b. 190
    c. 201
    d. 79

3. Based on the attached corn budget, what is the breakeven selling price needed to cover total costs if a) the yield is 185 bu./acre and b) the subtotal of spring machinery and supplies costs = $400.00?
    a. $4.88
    b. $2.16
    c. $4.56
    d. $5.11

4. Which of the following increases the breakeven yield for a corn producer?
    a. ↑ total fixed costs
    b. ↑ total variable costs
    c. ↓ P of corn
    d. All of the above

5. If a corn farmer is producing 165 bu./acre and selling the corn at $3.55 per bushel with total fixed costs per acre = $350.00, this farmer would be breaking even if total variable costs <u>per acre</u> are:
    a. $235.75
    b. $585.75
    c. $1.43
    d. $935.75

Assume in the graph below MC = marginal cost, ATC = average total cost, and P = price = MR = marginal revenue. Use the graph to answer questions #6-7.



6. At an initial P = $4.00, what is the <u>minimum</u> breakeven yield (i.e. bu./acre)?
    a. 100
    b. 145
    c. 160
    d. 190

7. If the price drops to P = $3.00:
    a. The profit-maximizing yield is 130
    b. There is no possible breakeven yield
    c. The producer will lose about $65 per acre
    d. All of the above

Crop Enterprise Budget (1 acre)

A. Crop Corn following Corn, conventional tillage

B. Gross Revenue

				$ per acre
Yield	165	Price	3.55	$585.75

C. Machinery Operating Costs - spring (fuel, oil, repairs)

	Estimated Cost/acre	
Chisel	$3.70	$3.70
NH3 applicator (N)	$5.00	$5.00
Tandem Disk	$2.60	$2.60
Field Cultivator	$2.40	$2.40
Planter	$4.90	$4.90
Sprayer	$1.90	$1.90

D. Supplies

	Quantity	Units	Price	Units		
Seed	30,000	kernals/acre	$3.71	per 1000 kernals	$111.30	
Nitrogen (Anhyd. Ammon)	186	lbs/acre	$0.50	per lb.	$93.00	
Phosphate	62	lbs/acre	$0.48	per lb.	$29.76	
Potash	50	lbs/acre	$0.38	per lb.	$19.00	
Lime	0.5	ton /acre	$18.00	per ton	$9.00	
Herbicide	6	pints/acre	$53.00	per gallon	$39.75	* 8 pints in a gallon
Insecticde	3	oz / acre	$6.00	per ounce	$18.00	
Crop Insurance					$12.20	
Miscellaneous					$10.00	

Subtotal of spring machinery and supplies costs: $362.51

E. Interest on spring machinery and supplies costs:

362.51 X 5.2% X 0.67 (interest for 8 months) $12.57

F. Machinery Operating- Harvest (fuel, oil, repairs) see crop budget info tab

Combine					$9.10
Grain cart					$2.70
Haul		165	bu. @	$0.07	$11.55
Drying	(1 gal of LP for 8 bushels)	20.625	gal. @	$1.75	$36.09

G. Labor:

2.85 (hours) X $ 13.00 (wage value) = $37.05

H. Machinery Ownership Costs (fixed) $68.19

I. Land: Land Rent (fixed) $266.00

J. Total Costs:

Fixed (H & I)		Variable (C through G)		Total
$334.19	+	$471.57	=	$805.76

K. Gross Margin Per Acre (Gross revenue - Variable Costs) $114.18

Team Participation Event = "<u>Individual" Portion</u> (35 pts) - <u>KEY</u>

2016 Iowa Vo-Ag/FFA
Farm Business Management Career Development Event
(Maximum possible pts = 5 per individual and 15 per team = sum of team's top 3 individual scores)

1. D DIRTI = depreciation, interest, rent and repairs, taxes, and insurance = fixed costs

2. C See graph on team portion of this test (for example). When P↓ from 4 to 3, profit-max Q (where MR = MC) ↓ from 160 to 130.

3. A

4. C = TC/Q = $540/180 = $3.00

5. D

Team Participation Event = "TEAM" Portion (35 pts.) – KEY

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1. D P = TC/Q => $805.76/165 = 4.88

2. B (P)(Q) = TC => 4.25Q = 805.76
   => Q = 805.76/4.25 = 190

3. C (P)(Q) = TC => P (185) = 843.25
   => P = 843.25/185 = 4.56 (note TC would be $37.49 higher than in original budget).

4. D BEQ = $\frac{TFC+TVC}{P}$ so ↑TFC, ↑TVC, and ↓P all ↑BEQ.

5. A BE => TR = TFC + TVC => TR – TFC = TVC
   => (3.55)(165) – 350 = TVC
   => 585.75 – 350 = TVC = 235.75

6. A Min BEQ is where P_1 = 4.00 = ATC which is at Q = 100.

7. D Profit-max Q is where MR = MC (at Q = 130)
   P_2 < ATC for all Q, so is no BEQ
   At profit-max Q=130, P = 3.00, ATC = 3.50
   => loss per bu. = $0.50
   => loss per acre = ($0.50)(130 bu.) = $65.00

VIII. 2016 Event Resources

Theme: Analysis of Profit and Breakeven in Farm Management Decision Making

Suggested Resources:

1) Breakeven Selling Price, April, 2007
https://www.extension.iastate.edu/agdm/wholefarm/pdf/c5-202.pdf

2) Breakeven Sales Volume, April, 2007
https://www.extension.iastate.edu/agdm/wholefarm/pdf/c5-201.pdf

3) Ag Decision Maker Newsletter (pages 5-7): Iowa crop farming profitability in the 21st century, December, 2015
https://www.extension.iastate.edu/agdm/newsletters/nl2015/dec15.pdf

4) Break-Even Method of Investment Analysis, March, 2012
http://extension.colostate.edu/docs/pubs/farmmgt/03759.pdf

5) Cost and Revenue Considerations In Farm Management Decision Making, 1991
https://www.arec.umd.edu/sites/default/files/_docs/Cost%20and%20Revenue%20Considerations_0.pdf

2016 Iowa Farm Business Mgt CDE

ATTACHMENTS

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Ending Net Worth Statement

Name FFA Farm Date 01/01/16

Farm Assets	Cost Value	Market Value	Farm Liabilities	Market Value
Current Assets			***Current Liabilities***	
Checking, savings accounts (Sch. A)	$23,468	$23,468	Accounts payable (Sched. O)	$18,654
Crops held for sale/feed (Sched. B)	$331,490	$331,490	Farm taxes due (Sched. P)	$4,490
Investment in growing crops (Sch. C)	$23,535	$23,535	Current notes and credit lines (Sched. Q)	$88,088
Commercial feed on hand (Sch. D)	$12,000	$12,000		
Prepaid expenses (Sched. E)	$20,250	$20,250	Accrued interest - short (Sched. Q)	$668
Market livestock (Sched. F)	$277,100	$277,100	- fixed (Sched. R)	$30,403
Supplies on hand (Sched. G)	$0	$0	Due in 12 months - fixed (Sched. R)	$74,059
Accounts receivable (Sched. H)	$0	$0	Deferred tax liabilities	
Other current assets		$0	Other current liabilities	
A) Total Current Assets	**$687,843**	**$687,843**	**C) Total Current Liabilities**	**$216,362**
Fixed Assets			***Fixed Liabilities***	
Unpaid coop. distributions (Sch. I)	$16,275	$16,275	Notes and contracts remainder (Sched. R)	$655,927
Breeding livestock (Sched. J)	$59,750	$59,750	Deferred tax liabilities	
Machinery & equipment (Sched. K)	$335,895	$455,600	Other fixed liabilities	
Buildings/improvements (Sched. L)	$515,597	$617,000	Total Fixed Liabilities	**$655,927**
Farmland (Sched. M)	$1,160,000	$1,620,000		
Farm securities, certificates (Sch. N)	$0	$0		
Other fixed assets		$0		
Total Fixed Assets	**$2,087,518**	**$2,768,625**		
B) Total Farm Assets	**$2,775,361**	**$3,456,468**	**D) Total Farm Liabilities**	**$872,289**
E) Farm Net Worth (B - D)	**$1,903,072**	**$2,584,179**		
F) Farm Net Worth Last Year	$1,847,387	$2,535,158	**Working Capital (A - C)**	
G) Change in Farm Net Worth (E - F)			**Current Asset-to-Debt Ratio (A / C)**	
Percent Change in Net Worth (G / F)			**Total Debt-to-Asset Ratio (D / B)**	

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Name	FFA Farm			Year	2015
Income					
Cash Income (can come from IRS Schedule F)		***Income Adjustments***		**Beginning**	**Ending**
Sales of livestock bought for resale		Crops held for sale or feed (Sched. B)		$453,800	$331,490
Sales of market livestock, grain, etc.	$724,689	Market livestock (Sched. F)		$204,610	$277,100
Cooperative distributions paid	$460	Accounts receivable (Sched. H)		$0	$0
Agricultural program payments	$18,540	Other current assets		$0	$0
Crop insurance proceeds		Unpaid cooperative distributions (Sched. I)		$14,435	$16,275
Custom hire income		Breeding livestock (Sched. J)		$61,650	$59,750
Other cash income	$15,300	Subtotal of adjustments		$734,495	$684,615
Sales of breeding livestock	$35,685	(b) Net adjustment (beginning - ending)		$49,880	
(a) Total Cash Income	$794,674	**(c) Gross Farm Revenue**		**$744,794**	
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)		$21,735	$23,535
Chemicals	$30,760	Commercial feed on hand (Sched. D)		$8,750	$12,000
Conservation expenses		Prepaid expenses (Sched. E)		$0	$20,250
Custom hire		Supplies on hand (Sched. G)		$0	$0
Employee benefits	$2,400	Subtotals		$30,485	$55,785
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)		$24,250	$18,654
Gasoline, fuel, oil	$23,650	Farm taxes due (Sched. P)		$4,490	$4,490
Insurance	$7,000	Accrued interest (Sched. Q, R)		$37,632	$31,071
Interest paid	$37,632	Subtotals		$66,372	$54,215
Labor hired	$36,000	(f) Net adjustment (ending - beginning)		($12,157)	
Pension and profit-share plans					
Rent or lease payments	$132,000	(g) Depreciation (Sched. K, L)		$64,458	
Repairs, maintenance	$12,333	**(h) Gross Farm Expenses**		$698,391	
Seeds, plants	$64,925				
Storage, warehousing		**(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	$671,390				
		Value of Farm Production			
Net Farm Income (cash)	**$123,284**	**(NFI - purchases of feed & livestock)**		**$585,984**	

Cash Flow Budget

Name: FFA FARM

Year: 2016

CASH INFLOWS Operating	Total for Year	January February	March April	May June	July August	September October	November December
Livestock income	854,000	142,333	142,333	142,333	142,333	142,333	142,333
Sales of crops	351,187	29,249	168,376	43,086	0	0	110,476
Other crop income	0	0	0	0	0	0	0
USDA payments	18,000	9,000	0	0	0	9,000	0
Custom hire income	0	0	0	0	0	0	0
Farm rents, interest	0	0	0	0	0	0	0
Other	6,000	1,000	1,000	1,000	1,000	1,000	1,000
Sales of Capital Assets	20,000	0	0	0	0	20,000	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	18,400	400	400	8,400	400	400	8,400
Total Cash Inflows	**1,287,587**	**181,982**	**312,110**	**214,819**	**143,733**	**172,733**	**262,210**

CASH OUTFLOWS Operating	Total for Year	January February	March April	May June	July August	September October	November December
Seed	88,800	29,600	14,800	0	0	0	44,400
Fertilizer and lime	105,000	35,000	35,000	0	0	0	35,000
Pesticides	23,520	0	23,520	0	0	0	0
Crop insurance	11,940	0	0	0	0	11,940	0
Drying fuel	17,640	0	0	0	0	17,640	0
Custom hire or machine rental	0	0	0	0	0	0	0
Other cash costs per acre	10,200	1,700	1,700	1,700	1,700	1,700	1,700
Purchased crops	0	0	0	0	0	0	0
Purchased livestock	37,500	6,250	6,250	6,250	6,250	6,250	6,250
Purchased feed	150,000	25,000	25,000	25,000	25,000	25,000	25,000
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	160,000	0	80,000	0	0	0	80,000
Hired labor	40,000	6,667	6,667	6,667	6,667	6,667	6,667
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	45,000	0	0	45,000	0	0	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	153,505	20,015	42,387	1,300	87,203	1,300	1,300
Non-farm Expenditures							
Family living expenses	65,000	10,833	10,833	10,833	10,833	10,833	10,833
Non-farm investments	33,000	2,000	13,000	12,000	2,000	2,000	2,000
Total Cash Outflows	**1,080,645**	**200,078**	**279,185**	**120,778**	**149,180**	**104,802**	**226,622**

SUMMARY	Total for Year	January February	March April	May June	July August	September October	November December
Net Cash Flow	**206,942**	**(18,096)**	**32,925**	**94,041**	**(5,447)**	**67,931**	**35,587**
Beginning cash balance	3,655	3,655	(14,441)	18,484	112,525	107,078	175,010
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	210,597	(14,441)	18,484	112,525	107,078	175,010	210,597
Operating Loan Balance							
Beginning Balance	30,554	30,554	30,554	30,554	30,554	30,554	30,554
Ending Balance	30,554	30,554	30,554	30,554	30,554	30,554	30,554

Production Costs for Oat Crop or other Small Grain

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Estimated Costs of Pasture and Hay Production has information on using small grains as a companion crop for hay production. This worksheet calculates the annual costs for small grain production.

Place the cursor over cells with red triangles to read comments.

Enter your input values in shaded cells.

Crop			
Oats	Acres	10	
Field Name	Expected Grain Yield	80	bu. / acre
Example	Straw Production Level	1	tons / acre

		Cost per Acre			Total Cost
Preharvest Machinery		Fixed	Variable	**Total**	**All Acres**
Spray herbicide		$0.00	$0.00	$0.00	$0
Tandem disk (2 times)		7.60	5.20	$12.80	$128
Spread fertilizer		1.90	1.40	$3.30	$33
Harrow		2.00	1.30	$3.30	$33
Seed (drill)		4.40	3.70	$8.10	$81
Other		0.00	0.00	$0.00	$0
Total per acre		$15.90	$11.60	**$27.50**	**$275**
Total all acres		$159	$116	**$275**	----
Seed, fertilizer, etc.					
Seed			21.54	$21.54	$215
price per bushel	*$10.77*				
bushels per acre	*2*				
Other			0.00	$0.00	$0
price per pound	*$1.50*				
pounds per acre	*0*				
Total Seed Cost			**$21.54**	**$21.54**	**$215**
Nitrogen			24.00	$24.00	$240
price per pound	*$0.40*				
pounds per acre	*60*				
Phosphorus			$20.25	$20.25	$203
price per pound	*$0.45*				
pounds per acre	*45*				
Potash			$45.50	$45.50	$455
price per pound	*$0.35*				
pounds per acre	*130*				
Total Fertilizer Costs			**$89.75**	**$89.75**	**$898**
Herbicide			$0.00	$0.00	$0
Lime (total cost for hay lifetime)			$31.00	$31.00	$0
Insurance			$3.50	$3.50	$35
Labor (seeding and harvesting)		$52.00	----	$52.00	$520
Hours per acre	*4*				
Rate per hour	*$13.00*				
Land					
Cash rent equivalent, before seeding		$134.00	----	$134.00	$1,340
Harvesting Costs					
Combine		$11.70	$4.30	$16.00	$160
Haul grain		3.43	2.38	$5.81	$58
fixed cost per bushel	*0.04*				
variable cost per bushel	*0.03*				
Rake		3.50	2.10	$5.60	$56
Bale		11.50	7.00	$18.50	$185
Haul Straw		1.87	2.47	$4.34	$43
fixed cost per ton	*1.87*				
variable cost per ton	*2.47*				
Total Grain/Straw Harvest		**$32.00**	**$18.25**	**$50.25**	**$502**

Costs and Returns

	Cost per Acre			Total Cost
Total Costs	**Fixed**	**Variable**	**Total**	**All Acres**
Per acre	$233.90	$175.64	$409.54	$4,095