**2014 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 50 questions over 'Financial Statements, Records Analysis, as well as Marketing and Risk Management'.

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

1. A graph of a demand curve has values for which of the following noted on the vertical axis?
   a. demand
   b. quantity
   c. price
   d. supply

2. Marginal cost is:
   a. the cost of a marginally profitable activity
   b. the additional cost per additional unit of output
   c. a fixed cost
   d. typically declining as output is increasing

3. The amount of property tax paid by a property owner depends on:
   a. the property tax rate
   b. the taxable value of the property
   c. the income level of the property owner
   d. a and b

4. A firm's net worth is most readily seen on:
   a. a cash flow statement
   b. a balance sheet
   c. an income statement
   d. an enterprise budget

5. Which of the following is the correct formula (r = interest rate, n = years) for determining a compound value interest factor?
   a. $(1+r)^n$
   b. $(1+n)^r$
   c. $r^n$
   d. $1/(1+r)^n$

6. An opportunity cost is what you:
   a. pay for an opportunity
   b. spend on fixed inputs
   c. spend to produce one more unit of output
   d. give up (its value) in order to do something

7. Which of the following is most likely not a variable input for a corn producer?
   a. fertilizer
   b. seed corn
   c. buildings
   d. labor

8. A negative cash flow means:
   a. cash income < cash expenses
   b. profit < 0
   c. net worth declined
   d. all of the above

9. An entrepreneur in business is:
   a. a hedger
   b. a risk taker
   c. a risk avoider
   d. a profit maker

10. A balance sheet shows the financial condition of a business:
   a. for the firm's current fiscal year
   b. for the most recent calendar year
   c. at a noted point in time
   d. over several past years

11. Assets that will be used or sold during the next accounting period are typically said to be of this type:
   a. expendable
   b. current
   c. intermediate
   d. fixed

12. Principal payments paid:
   a. are listed as income on an income statement
   b. are listed as expenses on an income statement
   c. do not show up at all on income statement
   d. are current liabilities on a balance sheet

13. Based on the law of diminishing returns, an added pound of fertilizer in corn production will eventually reduce:
    a. total corn production
    b. the additional corn produced per additional unit of fertilizer
    c. average bushels per acre produced
    d. average costs per bushel

14. Accrued interest is:
    a. a current liability
    b. a current asset
    c. a noncurrent liability
    d. an expense paid

15. Which of the following would most likely increase the premium paid for crop insurance by a farmer per acre?
    a. increase in the number of acres planted
    b. bad weather after planting
    c. increase in the yield level of coverage
    d. increase in the interest rate

16. If a dairy farmer doubles the number of cows in his/her milking hed, which of the following will likely change the most?
    a. total fixed cost
    b. average fixed cost per pound of milk
    c. the price of milk received
    d. average variable cost per pound of milk

17. If the price per bushel of soybeans was $6 and now is $8, what was the percent change in the price?
    a. +2
    b. +25
    c. +33
    d. +14

18. Liquidity is a financial term that relates to how easy it is for a firm to:
    a. terminate all business operations
    b. refinance existing loans
    c. borrow additional money
    d. convert assets into cash

19. A production function shows how the following two things relate to each other:
    a. quantity of output, quantity of an input
    b. quantity of product, time
    c. income, expenses
    d. quantity of product, market price

20. Cocoa bean prices have been increasing significantly over the past year or two. Which of the following most likely explains this regarding cocoa beans?
    a. increase in supply
    b. decrease in demand
    c. a and b
    d. decrease in supply and increase in demand

21. Which of the following is <u>not</u> tax deductible:
    a. loan principal payments
    b. hired labor costs
    c. depreciation expense
    d. machinery rental fees

22. Cost per unit of output is a measure of firm:
    a. profitability
    b. efficiency
    c. liquidity
    d. solvency

23. The lower the price of a product, the more people will buy. In economics this is known as:
    a. utility maximization
    b. the law of demand
    c. the law of comparative advantage
    d. market equilibrium

24. Keeping track of expenses is important for:
    a. management purposes
    b. tax purposes
    c. a and b
    d. none of the above

25. Depreciation does this:
    a. increases a firm's taxes
    b. prorates the cost of a capital asset over the useful life of that asset
    c. increases a firm's cash outflow
    d. all of the above

**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 #26-35**.

26. What was this farm's working capital on January 1, 2014?
    a. 2.74
    b. $86,030
    c. $500,821
    d. $2,664,578

27. The farm's cost value net worth changed by $____ from a year ago.
    a. +$53,527
    b. +$131,296
    c. +$810,851
    d. it stayed the same

28. What percent of the farm's total liabilities are due and payable within the next 12 months?
    a. 15%
    b. 29%
    c. 51%
    d. 81%

29. Using 'market' values, the farm's total debt equity ratio is:
    a. 27%
    b. 37%
    c. 45%
    d. 70%

30. Which of the following is the best measure of solvency?
    a. value of total assets
    b. current ratio
    c. debt to asset ratio
    d. change in net worth

31. When farmland values increase, which of the following values on the net worth statement is most affected?
    a. market value of current assets
    b. fixed liabilities
    c. cost value of fixed assets
    d. market value of fixed assets

32. From the Net Farm Income Statement, how much did this farm's gross farm revenue change as a result of increase or decrease in crop inventory revenue?
    a. +$451,770
    b. +$95,880
    c. -$24,790
    d. -$95,880

33. How much did the value of their accounts payable change from the beginning of the year to the end?
    a. $7,049 increase
    b. $7,049 decrease
    c. $13,240 increase
    d. $13,240 decrease

34. How much was FFA Farms net farm income from operations in 2013?
    a. $ 826,717
    b. $184,423
    c. $120,197
    d. $125,197

35. What is the value of farm products produced minus the cost of the resources used to produce them in 2013?
    a. net value of farm production
    b. net farm income (accrual)
    c. net farm income (cash)
    d. net worth

36. Which of the following is not included as an expense on the net farm income statement?
    a. depreciation
    b. interest payments made on loans
    c. principal payments made on loans
    d. the cost of supplies used but not yet paid for

37. FFA Farm's net accrual farm income was what percent of their value of farm production in 2013??
    a. 8 %
    b. 12 %
    c. 18 %
    d. 32 %

**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 buy in January and February?
    a. $13,500
    b. $27,000
    c. $40,500
    d. $81,000

39. For the beginning of which period does this farm project its largest negative cash balance?
    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. $ 41,557
    b. $ 43,557
    c. $ 45,212
    d. $ 47,212

41. The projected cash balance at the end of the September-October period for FFA Farm before any project operating loan borrowing or repayment is:
    a. $2,265
    b. $22,650
    c. $30,554
    d. ($20,384)

42. What is FFA Farm's projected total cash outflows for all of 2014, based on the cash flow budget?
    a. $1,013,701
    b. $1,007,520
    c. $ 212,689
    d. $6,181

43. When does FFA farm expect to purchase some new machinery or equipment?
    a. January-February
    b. March-April
    c. May-June
    d. July-August

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

d. four

45. What expense category is not found on a cash flow budget but is included in a net farm income statement?
    a. cash rent payments
    b. pesticide purchases
    c. hired labor wages
    d. depreciation

**Refer to the attached "Grade A Dairy" budget to answer questions #46-50.**

46. How much income over all costs (profit) for one dairy cow is projected?
    a. $5,310.00
    b. $1,485.79
    c. $539.59
    d. $480.00

47. What is the breakeven selling price of milk to cover variable costs after allowing for income from the sale of cull cows and calves?
    a. $ 23.09 per cwt.
    b. $14.54 per cwt.
    c. $18.56 per cwt.
    d. $21.00 per cwt.

48. What is the projected profit per hundredweight (cwt) of milk sold?
    a. $ 21.00 per cwt
    b. $ 2.35 per cwt
    c. $ 6.46 per cwt
    d. $18.65 per cwt

49. How much is the projected $ milk sales per $ of feed fed in this budget to the nearest cent?
    a. $ 0.44
    b. $ 2.25
    c. $ 2.48
    d. $ 9.31

50. In this budget, what is the minimum gross income needed to justify continuing to produce in the short-run?
    a. $3,842.21
    b. $5,310.00
    c. $1,485.79
    d. $4,770.41

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

51. How much is the expected return over variable costs per acre?
    a. $ 61.46
    b. $ 1040.00
    c. $ 489.26
    d. $ 612.20

52. What selling price for corn grain is needed to just cover total costs after accounting for income received from sale of stover bales?
    a. $ 6.21 per bu.
    b. $ 5.44 per bu.
    c. $5.00 per bu.
    d. $4.66 per bu.

53. How much are their total costs for fertilizer and lime?
    a. $76.20 per acre
    b. $149.42 per acre
    c. $159.09 per acre
    d. $ 323.64per acre

54. How much cash rent per acre could they afford to pay and still break even?
    a. $311.46
    b. $ 188.54
    c. $ 250.00
    d. $ 978.54

55. If the farm hires no outside labor how much would the net return per hour of their own labor be?
    a. $14.00
    b. $23.64
    c. $36.40
    d. $37.64

**Questions #56-75 deal mainly with marketing and risk management**.

56. Crop insurance protects the producer against:
    a. a possible crop loss
    b. creditors
    c. declining crop prices
    d. a and c

57. Increasing diversification by a farmer:
    a. increases overall risk
    b. spreads and reduces overall risk
    c. has no impact on risk
    d. means they are getting larger (i.e. more acres)

58. A futures price minus a cash price for the same product is:
    a. a marketing margin
    b. a price premium
    c. the amount by which the cash price is expected to change by delivery time
    d. the basis

59. Charting futures prices and trying to predict price changes based on observed price patterns is known as:
    a. speculation
    b. supply and demand analysis
    c. technical price analysis
    d. arbitration

60. A cash forward contract locks this in for a farmer:
    a. the cash price of the product
    b. the basis
    c. the futures price of that product
    d. profit

61. A volatile market is one with:
    a. steady returns
    b. many irate consumers
    c. much governmental intervention
    d. highly variable prices

62. To protect against the price of wheat declining before it is sold, a wheat farmer could:
    a. sell a wheat call option
    b. sell wheat futures
    c. buy wheat put options
    d. b and c

63. The price paid for the purchase of soybean put option is:
    a. the strike price
    b. the premium
    c. the basis
    d. the commission fee

64. A true hedger should close out their futures position:
    a. at the same time they close their cash position
    b. before they close their cash position
    c. after they close their cash position
    d. as soon as prices increase

65. An expected hedged price to be received by a corn farmer would best be calculated by subtracting the expected ending basis from:
    a. the ending cash price
    b. the ending futures price
    c. the initial futures price
    d. the initial basis

66. If a firm's total cost (= TC) as a function of quantity produced (= Q) is given as TC = 10,000 + 4Q:
    a. total fixed costs = 4Q
    b. average fixed costs = 10,000/Q
    c. marginal cost = $10,000
    d. total variable costs are constant

67. Costs that change with changes in the quantity of a commodity produced by a farmer are known as:
    a. variable costs
    b. opportunity costs
    c. sunk costs
    d. implicit costs

68. The amount of a patronage refund received by a farmer from a cooperative depends on the:
    a. farmers business volume in total
    b. farmer's business volume with the co-op
    c. number of co-op shares of stock owned by the farmer
    d. farmer's level of accounts payable to the co-op

69. If a cattle producer can gain $1.00/cwt by doing a better job of marketing 500 head of cattle each weighing 1100 pounds (i.e. 11 cwt), how much have they added to their total revenue?
    a. $500
    b. $1100
    c. $550
    d. $5500

70. One advantage of hedging future livestock sales with put options versus regular futures contracts is:
    a. lower costs
    b. one can take better advantage of subsequent price increases
    c. the selling price is fixed
    d. gains are not taxable

71. For a barley producer, (the price of barley) (their barley yield per acre) – (total barley production costs per acre) =
    a. breakeven output per acre
    b. profit per acre
    c. breakeven price
    d. marginal revenue

72. A short hedger will most likely receive a margin call if:
    a. the basis widens
    b. interest rates rise
    c. the price of the hedged product increases
    d. their expected production level decreases

73. If U.S. production of coffee is less than U.S. consumption of coffee, this most likely means:
    a. the U.S. imports coffee
    b. the U.S. exports coffee
    c. U.S. consumers can't buy all the coffee they desire
    d. the government is supporting the price of coffee

74. For most traders of futures contracts, when a contract's closing price is below an up trend line, this is a signal that the contract's price:
    a. has bottomed out
    b. will decline in the near future
    c. will increase in the near future
    d. a and c

75. A cash forward contract usually specifies:
    a. delivery quantity
    b. delivery price
    c. delivery time
    d. all of the above

# INDIVIDUAL EXAM KEY

## Section A. Principles of Economics and Management

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

## Section B. Financial Statements, Records Analysis, Marketing, Risk Management

26. C Working capital = current farm assets - current farm liabilities
= $789,058 - $288,237 = $500,821

27. A cost value net worth change = (cost value net worth this year – cost value net worth last year)
= $1,853,727 - $1,800,470 = $53,257

28. B (Total current liabilities / total liabilities)
= $288,237 / $991,265 = 29%

29. B Debt-to-equity ratio = total farm liabilities divided by total farm equity (or net worth)( market value)
= $991,265 / $2,664,578= 37%

30. C The debt- to-asset ratio = total farm liabilities / total farm assets and measures solvency – if all assets were sold and all liabilities repaid, how much would be left?

31. D Farmland value changes are reflected in the market value of farmland, a fixed asset.

32. D Change in crop inventory revenue = ending crop value – beginning crop value
= $451,770 - $547,650= -$95,880

33. B Ending account payable minus beginning accounts payable
$29,540 - $36,589 = $7,049 decrease

34. C Net farm income from operations = Gross farm revenue – gross farm expenses
$826,717 - $706,520 = $120,197

35. A By definition.

36. C Principal payments on loans are not treated as an expense (but they are a cash outflow).

37. C Net accrual farm income divided by value of farm production x 100
($125,197 / $684,107 ) x 100 = 18%

38. B $27,000 in seed purchases in the January-February period.

39. C -$44,777 at the beginning of the May-June period.

40. B Net operating loans needed in January-February = (negative net cash flow Jan. and Feb.) – (beg. Cash balance) + (desired ending cash balance)
$45,212 - $3,655 + $2,000 = $43,557

41. A The projected cash balance is $2,265 at the end of the September-October period.

42. B Total cash outflows for the whole year = $1,007,520.

43. C $45,000 in purchases of capital assets in the May-June period..

44. C There is a projected negative net cash flow in the following THREE Jan-Feb, Mar-April and July-Aug time periods.

45. D Depreciation is a non-cash expenses and does not appear on the cash flow budget.

46. C Total income – total all costs
$5,310.00 - $4,770.41 = $539.59

47. B Breakeven price = (variable costs-other income) / cwt. milk sold
($3,824.21 - $480.00) / 230 cwt. = $14.54 per cwt.

48. B (Total income – total costs)/230 cwt = 539.59 / 230 = 2.35

49. B $ milk sold / total feed costs
= $4,830 / $2,142.96 = $2.25

50. A Income to just cover variable costs, $3,824.21

51. C Total revenue minus total variable costs = return over total variable costs
= $1,040 - $550.74 = $489.26

52. D (Total cost – stover income) / 180 bu. = $978.54 - $140.00 / 180 bu. = $4.66

53. C Nitrogen cost + Phospate cost + Potash cost + Lime cost = $76.20 + $43.52 + $29.70 + $9.67 = $159.09.

54. A (Gross income per acre) - (All costs except cash rent) = $1,040 – (978.54 – $250)
= $311.46

55. D = (Gross income – all costs except labor) / 2.6 hrs
= ($1,040 – 942.14) / 2.6
= $37.64

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

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

**2015 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 internal rate of return is the discount rate that makes which of the following have a value of 0?
   a. present value
   b. net present value
   c. net cash flow
   d. payback period

2. Which of the following would increase the number of future value (FV) dollars that are equivalent to a given number of present value (PV) dollars, holding all other factors constant?
   a. ↑ r
   b. ↓ n
   c. ↓ PV
   d. a and b

3. According to the most recent ISU Iowa Land Value Survey, the 2014 average value per acre of Iowa farmland:
   a. did not change much (i.e. less than 1%) from 2013
   b. went down by the largest % in a single year ever
   c. went up for the $5^{th}$ year in a row
   d. went down but NOT by the largest % in a single year ever

4. What is a graphic representation of the timing of current and future cash flows called?
   a. a cash flow statement
   b. a net present value chart
   c. a time line
   d. a supply and demand diagram

5. If Farmer Jones buys 100 acres of land today at $8,000 per acre, the payback period (NOT discounted payback period) is what if the farmer expects to have a net cash flow per acre of $200 (ignore resale value)?
   a. 4 years
   b. 2.5%
   c. need to know interest rate in order to calculate
   d. 40 years

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

**2015 Iowa Vo-Ag/FFA**
**Farm Business Management Career Development Event**
**(Maximum possible pts = 35 pts 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 CAPITAL BUDGETING and Iowa farmland values.

1. Based on Table 1 (attached), the average Iowa farmland value per acre in 2014 was what?
    a. $8716
    b. Not known
    c. $7943
    d. -$773

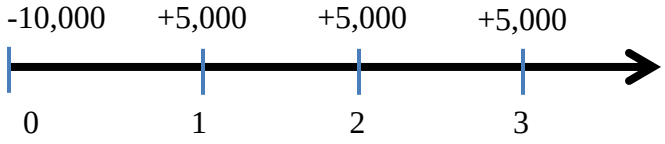
2. Based on Table 1, what was the % change in the average Iowa farmland per acre from 2013 to 2014?
    a. -9.7
    b. -8.9
    c. +5.1
    d. Not known

3. Based on Table 1, during what year did the average Iowa farmland value per acre decrease the most from the previous year?
    a. 1985
    b. 2014
    c. it depends on the definition of most (i.e. % or $)
    d. 1984

4. Based on Table 1, what annual net cash flow per acre would have produced a 30-year payback period for land purchased in 2010 at a price equal to the statewide average value per acre (ignore resale value)?
    a. $168.80
    b. need to know the discount rate in order to calculate
    c. $23.00
    d. $264.77

5. Based on Table 1, if a farmer purchased 1,000 acres of land in 2012 at a price equal to the statewide average value per acre and was required to put down 50% cash on the purchase, how many cash dollars did the farmer need to have to make the purchase?
   a. $4,148
   b. $8,296,000
   c. $4,148,000
   d. none of the above

6. Which of the following would <u>decrease</u> the number of future value (FV) dollars that are equivalent to a given number of present value (PV) dollars, holding all other factors constant?
   a. ↑ r
   b. ↑ PV
   c. ↓ n
   d. all of the above

7. 


   Assume the time line above represents net cash flows associated with an investment. If r = 7%, what is the net present value (NPV) of this investment?
   a. $5{,}000/(1.07) + 5{,}000/(1.07)^2 + 5{,}000/(1.07)^3 - 10{,}000$
   b. +5,000
   c. $5000/(1.07) + 5{,}000/(1.07)^2 + 5{,}000/(1.07)^3$
   d. (-10,000)(.07) + (15,000) (.07) = 350

## VII. 2015 Event Resources

Theme: "Capital budgeting topics such as payback periods and time value of money with some applications to land values."

1. Understanding the Time Value of Money
   http://www.extension.iastate.edu/agdm/wholefarm/html/c5-96.html
   http://www.extension.iastate.edu/agdm/wholefarm/pdf/c5-96.pdf

2. Time Value of Money and Capital Budgeting Terms
   http://www.extension.iastate.edu/agdm/wholefarm/pdf/c5-243.pdf

3. Capital Budgeting Basics
   http://www.extension.iastate.edu/agdm/wholefarm/html/c5-240.html
   http://www.extension.iastate.edu/agdm/wholefarm/pdf/c5-240.pdf

4. 2014 Farmland Value Survey Iowa State University
http://www.extension.iastate.edu/agdm/wholefarm/html/c2-70.html

**Table 1. Recent changes in Iowa farmland values.**

| Year | Value per acre | Dollar change | Percentage change |
|---|---|---|---|
| 1981 | $ 2147 | $ 81 | 3.9 |
| 1982 | 1801 | -346 | -16.1 |
| 1983 | 1691 | -110 | - 6.1 |
| 1984 | 1357 | -334 | -19.8 |
| 1985 | 948 | -409 | -30.1 |
| 1986 | 787 | -161 | -17.0 |
| 1987 | 875 | 88 | 11.2 |
| 1988 | 1054 | 179 | 20.5 |
| 1989 | 1139 | 85 | 8.1 |
| 1990 | 1214 | 75 | 6.6 |
| 1991 | 1219 | 5 | .4 |
| 1992 | 1249 | 30 | 2.5 |
| 1993 | 1275 | 26 | 2.1 |
| 1994 | 1356 | 81 | 6.4 |
| 1995 | 1455 | 99 | 7.3 |
| 1996 | 1682 | 227 | 15.6 |
| 1997 | 1837 | 155 | 9.2 |
| 1998 | 1801 | -36 | -2.0 |
| 1999 | 1781 | -20 | -1.1 |
| 2000 | 1857 | 76 | 4.3 |
| 2001 | 1926 | 69 | 3.7 |
| 2002 | 2083 | 157 | 8.2 |
| 2003 | 2275 | 192 | 9.2 |
| 2004 | 2629 | 354 | 15.6 |
| 2005 | 2914 | 285 | 10.8 |
| 2006 | 3204 | 290 | 10.0 |
| 2007 | 3908 | 704 | 22.0 |
| 2008 | 4468 | 560 | 14.3 |
| 2009 | 4371 | -97 | -2.2 |
| 2010 | 5064 | 693 | 15.9 |
| 2011 | 6708 | 1644 | 32.5 |
| 2012 | 8296 | 1588 | 23.7 |
| 2013 | 8716 | 420 | 5.1 |
| 2014 | | -773 | |

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

2015 Iowa Vo-Ag/FFA

Farm Business Management Career Development Event

(Max. possible: 5 pts per individual, 15 pts. per team = sum of team's top 3 individual scores.)

1. B
2. A FV = PV $(1 + r)^n$. An ↑r will ↑ FV
3. D See team activity reference (2014 Farmland Value Survey ISU, Table 1)
4. C See team activity reference (Understanding Time Value of Money, p. 1)
5. D Payback period = initial cost/annual net cash flow = $8,000/$200 = 40 years

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

**2015 Iowa Vo-Ag/FFA**
**Farm Business Management Career Development Event**

1. C = 2013 value – 773 = 8716 – 773 = 7943

2. B = (-773/8716)(100) = -8.9

3. C -30.1% = largest % ↓ in 1985; -$773 = largest $ ↓ in 2014

4. A payback period = cost/avg annual net cash flow => 30 = 5064/x => x = 5064/30 = 168.80

5. C = (8296) (1000) (.5) = 4,148,000

6. C $FV = PV (1+r)^n$ => ↓n would ↓ FV

7. A NPV = PV of future net cash flows – initial cost
$= [5000/1.07 + 5{,}000/(1.07)^2 + 5000/(1.07)^3] – 10{,}000$

# 2014 Iowa Farm Business Mgt CDE

# ATTACHMENTS

# Ending Net Worth Statement

Name FFA FARM Date 01/01/14

| Farm Assets | Cost Value | Market Value | Farm Liabilities | Market Value |
|---|---|---|---|---|
| ***Current Assets*** | | | ***Current Liabilities*** | |
| Checking and savings accounts | $31,963 | $31,963 | Accounts payable (Sched. N) | $29,540 |
| Crops held for sale/feed (Sched. A) | $451,770 | $451,770 | Farm taxes due (Sched. O) | $4,490 |
| Investment in growing crops(Sch. B) | | | Current notes and credit lines (Sched. P) | $146,425 |
| Commercial feed on hand (Sch. C) | $9,475 | $9,475 | | |
| Prepaid expenses (Sched. D) | $18,750 | $18,750 | Accrued interest - short (Sched. P) | $1,464 |
| Market livestock (Sched. E) | $277,100 | $277,100 | - fixed (Sched. Q) | $32,259 |
| Supplies on hand (Sched. F) | | | Due in 12 months - fixed (Sched. Q) | $74,059 |
| Accounts receivable (Sched. G) | | | | |
| Other current assets | | | Other current liabilities | |
| **A) Total Current Assets** | **$789,058** | **$789,058** | **C) Total Current Liabilities** | **$288,237** |
| ***Fixed Assets*** | | | ***Fixed Liabilities*** | |
| Unpaid coop. distributions (Sch. H) | $14,435 | $14,435 | Notes and contracts remainder (Sched. Q) | $703,028 |
| Breeding livestock (Sched. I) | $59,750 | $59,750 | Other fixed liabilities | |
| Machinery & equipment (Sched. J) | $331,932 | $455,600 | Total Fixed Liabilities | **$703,028** |
| Buildings/improvements (Sched. K) | $489,817 | $617,000 | | |
| Farmland (Sched. L) | $1,160,000 | $1,720,000 | | |
| Farm securities, certificates (Sch.M) | | | | |
| Other fixed assets | | | | |
| Total Fixed Assets | **$2,055,934** | **$2,866,785** | | |
| **B) Total Farm Assets** | **$2,844,992** | **$3,655,843** | **D) Total Farm Liabilities** | **$991,265** |
| **E) Farm Net Worth (B - D)** | **$1,853,727** | **$2,664,578** | | |
| **F) Farm Net Worth Last Year** | $1,800,470 | $2,533,282 | **Working Capital (A - C)** | |
| **G) Change in Farm Net Worth (E - F)** | **$53,257** | **$131,296** | **Current Asset-to-Debt Ratio (A / C)** | |
| **Percent Change in Net Worth (G / F)** | | | **Total Debt-to-Asset Ratio (D / B)** | |

# Net Farm Income Statement

**Name** FFA FARM **Year** 2013

## Income

| *Cash Income* | | *Income Adjustments* | Ending | Beginning |
|---|---|---|---|---|
| Sales of livestock bought for resale | | Crops held for sale or feed (Sched. A) | $451,770 | $547,650 |
| Sales of market livestock, grain, etc. | $802,865 | Market livestock (Sched. E) | $277,100 | $204,110 |
| Cooperative distributions paid | | Accounts receivable (Sched. G) | | |
| Agricultural program payments | $18,790 | Other current assets | | |
| Crop insurance proceeds | | Unpaid cooperative distributions (Sched. H) | $14,435 | $14,435 |
| Custom hire income | | Breeding livestock (Sched. I) | $59,750 | $61,650 |
| Other cash income | $5,672 | Subtotal of adjustments | $803,055 | $827,845 |
| Sales of breeding livestock | $24,180 | (b) Net adjustment (ending - beginning) | ($24,790) | |
| (a) Total Cash Income | $851,507 | (c) Value of home used production | | |
| | | **(d) Gross Farm Revenue** (a + b + c) | **$826,717** | |

## Expenses

| *Cash Expenses* | | *Expense Adjustments* | Ending | Beginning |
|---|---|---|---|---|
| Car and truck expenses | $1,894 | Investment in growing crops (Sched. B) | | $9,490 |
| Chemicals | $30,760 | Commercial feed on hand (Sched. C) | $9,475 | $8,750 |
| Conservation expenses | | Prepaid expenses (Sched. D) | $18,750 | |
| Custom hire | | Supplies on hand (Sched. F) | | |
| Employee benefits | $1,780 | (f) Net adjustment (beginning - ending) | ($9,985) | |
| Feed purchased | $124,310 | | **Ending** | **Beginning** |
| Fertilizer and lime | $105,500 | Accounts payable (Sched. N) | $29,540 | $36,589 |
| Freight, trucking | $12,290 | Farm taxes due (Sched. O) | $4,490 | $4,490 |
| Gasoline, fuel, oil | $23,650 | Accrued interest (Sched. P, Q) | $33,723 | $39,914 |
| Insurance | $6,500 | (g) Net adjustment (ending - beginning) | ($13,240) | |
| Interest paid | $85,511 | (h) Depreciation (Sched. J, K) | | $62,661 |
| Labor hired | $28,000 | **(i) Gross Farm Expenses** | | $706,520 |
| Pension and profit-share plans | | | | |
| Rent or lease payments | $112,800 | **(j) Net Farm Income from Operations** | | |
| Repairs, maintenance | $12,333 | | | |
| Seeds, plants | $58,560 | (k) Sales of farm capital assets | | $5,000 |
| Storage, warehousing | | (l) Cost value of items sold (Sched. J, K, L) | | |
| Supplies purchased | $2,375 | (m) Capital gains or losses (k - l) | | $5,000 |
| Taxes (farm) | $8,980 | | | |
| Utilities | $17,358 | **Net Farm Income (accrual)** (j + m) | | **$125,197** |
| Vet. fees, medicine, breeding | $11,623 | | | |
| Other cash expenses | $4,560 | | | |
| Livestock purchased | $18,300 | Net Farm Income (cash) | | $184,423 |
| (e) Total Cash Expenses | $667,084 | Value of Farm Production | | $684,107 |

# Cash Flow Budget

**Name:** FFA FARM

**Year:** 2014

| CASH INFLOWS | Total for Year | January February | March April | May June | July August | September October | November December |
|---|---|---|---|---|---|---|---|
| **Operating** | | | | | | | |
| Livestock income | 561,792 | 93,632 | 93,632 | 93,632 | 93,632 | 93,632 | 93,632 |
| Sales of crops | 380,509 | 43,200 | 170,400 | 44,182 | 0 | 0 | 122,727 |
| 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** | 7,400 | 400 | 400 | 2,900 | 400 | 400 | 2,900 |
| **Total Cash Inflows** | **1,013,701** | **147,232** | **265,432** | **161,714** | **95,032** | **124,032** | **220,259** |

| CASH OUTFLOWS | Total for Year | January February | March April | May June | July August | September October | November December |
|---|---|---|---|---|---|---|---|
| **Operating** | | | | | | | |
| Seed | 81,000 | 27,000 | 13,500 | 0 | 0 | 0 | 40,500 |
| Fertilizer and lime | 107,300 | 35,767 | 35,767 | 0 | 0 | 0 | 35,767 |
| Pesticides | 24,320 | 0 | 24,320 | 0 | 0 | 0 | 0 |
| Crop insurance | 12,360 | 0 | 0 | 0 | 0 | 12,360 | 0 |
| Drying fuel | 19,600 | 0 | 0 | 0 | 0 | 19,600 | 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 | 22,000 | 3,667 | 3,667 | 3,667 | 3,667 | 3,667 | 3,667 |
| Purchased feed | 154,000 | 25,667 | 25,667 | 25,667 | 25,667 | 25,667 | 25,667 |
| Health and veterinary | 11,000 | 1,833 | 1,833 | 1,833 | 1,833 | 1,833 | 1,833 |
| Marketing | 13,200 | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 |
| 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 | 150,000 | 0 | 75,000 | 0 | 0 | 0 | 75,000 |
| Hired labor | 30,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 |
| 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 | 127,500 | 20,015 | 42,387 | 1,300 | 61,198 | 1,300 | 1,300 |
| **Non-farm Expenditures** | | | | | | | |
| Family living expenses | 55,000 | 9,167 | 9,167 | 9,167 | 9,167 | 9,167 | 9,167 |
| Non-farm investments | 33,000 | 2,000 | 13,000 | 12,000 | 2,000 | 2,000 | 2,000 |
| **Total Cash Outflows** | **1,007,520** | **192,444** | **268,651** | **114,978** | **117,376** | **101,382** | **212,689** |

| SUMMARY | Total for Year | January February | March April | May June | July August | September October | November December |
|---|---|---|---|---|---|---|---|
| **Net Cash Flow** | **6,181** | **(45,212)** | **(3,219)** | **46,736** | **(22,344)** | **22,650** | **7,570** |
| Beginning cash balance | 3,655 | 3,655 | (41,557) | (44,777) | 1,959 | (20,384) | 2,265 |
| 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 | 9,836 | (41,557) | (44,777) | 1,959 | (20,384) | 2,265 | 9,836 |
| **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 |

## Grade A Dairy - One Cow Unit

| | | Price | Unit | | Quantity | Unit | | Total |
|---|---|---|---|---|---|---|---|---|
| **Income** | | | | | | | | |
| Milk sales* | | $21.00 | per cwt | x | 230 | cwt | = | $4,830.00 |
| Cull cow | 0.4 head x | $0.60 | per lb | x | 1350 | lbs | = | $324.00 |
| Dairy calf | | $300.00 | per head | x | 0.52 | head | = | $156.00 |
| **Gross Income** | | | | | | | | $5,310.00 |
| **Variable Costs** | | **Price** | **Unit** | | **Quantity** | **Unit** | | **Total** |
| **Feed Costs** | | | | | | | | |
| Corn equivalents | | $4.50 | per bu | x | 113 | bu | = | $508.50 |
| Corn Silage | | $40.00 | per ton | x | 8 | tons | = | 320.00 |
| Hay equivalents | | $120.00 | per ton | x | 6 | tons | = | 720.00 |
| Salts and minerals | | $0.13 | per lb | x | 323 | lbs | = | 41.99 |
| Protein supplement | | $0.18 | per lb | x | 1855 | lbs | = | 333.90 |
| Cottonseed | | $0.07 | per lb | x | 1361 | lbs | = | 95.27 |
| Fat | | $0.30 | per lb | x | 111 | lbs | = | 33.30 |
| Milk replacer, calf starter | | | | | | | | 90.00 |
| Other | | | | | | | | 0.00 |
| **Total Feed Costs** | | | | | | | | $2,142.96 |
| Veterinary and health | | | | | | | | $118.00 |
| Fuel, utilities and repairs | | | | | | | | 160.00 |
| DHIA & accounting | | | | | | | | 30.00 |
| Breeding fees | | | | | | | | 50.00 |
| Bedding, supplies and miscellaneous | | | | | | | | 170.00 |
| Hauling | | $0.30 | per cwt | | | | | 69.00 |
| Interest on variable costs | | 5% | | | 3 | month | | 34.25 |
| Labor | | $15.00 | per hour | | 70 | hours | | 1,050.00 |
| **Total Variable Costs** | | | | | | | | $3,824.21 |
| **Income over Variable Costs** | | | | | | | | $1,485.79 |
| **Fixed Costs** | | | | | | | | |
| Machinery, equipment, facilities | | | | | | | | $620.00 |
| Interest, insurance on herd | | | | | | | | 326.20 |
| **Total Fixed Costs** | | | | | | | | $946.20 |
| **Total of All Costs** | | | | | | | | $4,770.41 |
| **Income over All Costs** | | | | | | | | |
| Income from cull cows, calves, and heifers | | | | | | | | $480.00 |
| Break-even selling price for variable costs | | | | | | | | $14.54 per cwt |
| Break-even selling price for all costs | | | | | | | | $18.65 per cwt |

## Corn following Soybeans

| **Gross returns** | Price | Yield | | | |
|---|---|---|---|---|---|
| Grain | *$5.00* | 180 | | $900.00 | **bu./acre** |
| Stover bales | $ 35.00 | 4 | | $140.00 | |
| **Gross income** | | | | $1,040.00 | |

| | | Cost per Acre | | |
|---|---|---|---|---|
| **Preharvest machinery** | | **Fixed** | **Variable** | **Total** |
| Tandem disk | | $3.60 | $3.10 | $6.70 |
| Apply nitrogen | | $4.70 | $5.30 | $10.00 |
| Field cultivate | | $2.50 | $3.10 | $5.60 |
| Plant | | $6.00 | $5.40 | $11.40 |
| Spray | | $2.00 | $2.00 | $4.00 |
| Custom hire | | $0.00 | $0.00 | $0.00 |
| Other | | $0.00 | $0.00 | $0.00 |
| Other | | $0.00 | $0.00 | $0.00 |
| **Total per acre** | | $18.80 | $18.90 | **$37.70** |
| | | | | |
| **Seed, chemicals, etc.** | | | | |
| Seed | | ---- | $102.00 | $102.00 |
| *cost per 1000 kernels* | *$3.40* | | | |
| *kernels per acre* | *30,000* | | | |
| Nitrogen | | ---- | $76.20 | $76.20 |
| *price per pound* | *$0.60* | | | |
| *pounds per acre* | *127* | | | |
| Phosphate | | ---- | $43.52 | $43.52 |
| *price per pound* | *$0.64* | | | |
| *pounds per acre* | *68* | | | |
| Potash | | ---- | $29.70 | $29.70 |
| *price per pound* | *$0.55* | | | |
| *pounds per acre* | *54* | | | |
| Lime (annual cost) | | ---- | $9.67 | $9.67 |
| Herbicide | | ---- | $20.00 | $20.00 |
| Crop insurance | | ---- | $22.50 | $22.50 |
| Miscellaneous | | ---- | $9.00 | $9.00 |
| Interest on preharvest variable costs | | ---- | $11.05 | $11.05 |
| *length of period (months)* | *8* | | | |
| *interest rate* | *5.0%* | | | |
| **Total** | | | $323.64 | **$323.64** |
| | | | | |
| **Harvest machinery** | | | | |
| Combine | | $20.60 | $11.40 | $32.00 |
| Grain Cart | | $5.70 | $3.30 | $9.00 |
| Haul | | $36.00 | $36.00 | $72.00 |
| *Fixed- price per bushel* | *$0.04* | | | |
| *Variable- price per bushel* | *$0.04* | | | |
| Drying | | $45.00 | $135.00 | $180.00 |
| *Fixed- price per bushel* | *$0.05* | | | |
| *Variable- price per bushel* | *$0.15* | | | |
| Handling | | $15.30 | $22.50 | $37.80 |
| *Fixed- price per bushel* | *$0.02* | | | |
| *Variable- price per bushel* | *$0.03* | | | |
| Custom hire | | $0.00 | $0.00 | $0.00 |
| **Total per acre** | | $122.60 | $208.20 | **$330.80** |
| | | | | |
| **Labor** | | | | |
| *Hours* | *2.6* | $36.40 | | $36.40 |
| *Rate per hour* | *$14.00* | | | |
| | | | | |
| **Land** | | | | |
| Cash rent | | $250.00 | | $250.00 |
| | | | | |
| **Total fixed, variable and all costs** | | **Fixed** | **Variable** | **Total** |
| Per acre | | $427.80 | $550.74 | $978.54 |
| | | | | |
| **Profit** | | | | **$61.46** |