

Participant Number KEY State Abbreviation _____

Participant Name (please print) _____

IMPORTANT: Before you start this portion of the event, please write your participant number and state abbreviation in the blanks provided at the upper right hand corner of EACH page.

2004 NATIONAL FFA FARM BUSINESS MANAGEMENT CAREER DEVELOPMENT EVENT

| Page # | Part | Area | Possible Points | Score |
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| 28 | IX | Analysis of the Farm Business | 38 | _____ |
| TOTAL POSSIBLE POINTS | | | 300 | |
| Participant Points | | | | _____ |

PART I - PROJECTED CASH FLOW

The Moore farm business consulted their farm business management advisor in preparing a projected cash flow for 2004. Refer to the projected cash flow on **page R6 of the resource information.**

A. The following list of items are related to the Moore farm business. They are not sure if they should be included in the projected cash flow. Indicate with a (+) for those items that should be included in the projected cash flow and a (0) for those items that should not be listed on their projected cash flow. (1 point each)

| | |
|---|----------|
| 1. Value of the exchange of fuel for labor | <u>0</u> |
| 2. Cost of purchased harvest cartons for strawberries | <u>+</u> |
| 3. New term loan for purchase of machinery | <u>+</u> |
| 4. Seed purchased for this year | <u>+</u> |
| 5. Equity in 2004 crops listed on ending inventory | <u>0</u> |
| 6. Paid family labor | <u>+</u> |
| 7. Cost of livestock purchased for resale | <u>+</u> |
| 8. Payment of real estate tax | <u>+</u> |
| 9. End of the year accrued interest due on a machinery loan | <u>0</u> |
| 10. Ending inventory value of purchased machinery | <u>0</u> |

B. Review the projected cash flow for the farm business. In constructing the projected cash flow, identify where selected items should be found. Select the best answer from column B (cash flow categories) and write that letter in the correct blank in column A. Categories may be used more than once. (1 point each)

| <u>Column A</u> | <u>Column B</u> |
|--|---------------------------------|
| <u>J</u> 1. Interest paid on operating loan | A. Operating Receipts |
| <u>C</u> 2. Accounting software for farm business | B. Capital Sale |
| <u>N</u> 3. Principal payment on operating loan | C. Operating Expenses |
| <u>H</u> 4. Difference between cash outflows and inflows | D. Overhead Expenses |
| <u>E</u> 5. Spouse salary from bank | E. Non-farm Income |
| <u>A</u> 6. Sales from fruit and crop enterprises | F. Family Living |
| <u>F</u> 7. Payment of sales tax on personal expenses | G. Cash Position |
| <u>O</u> 8. Depreciation of machine storage building | H. Cash Difference |
| <u>L</u> 9. Cash received from a loan | I. Accrued Interest |
| <u>C</u> 10. Tuition paid for training hired labor | J. Interest Payments |
| | K. Total Cash Outflow |
| | L. Sources of Cash |
| | M. Net Cash Flow |
| | N. Principal Payments |
| | O. Not on a Projected Cash Flow |

20 points this page
part I continues on next page

C. Answer multiple choice questions 1-5. **Circle the best response.** (1 point each)

1. Which financial ratios affect the Moore farm business cash flow statement?

- A. solvency and term debt coverage
- B. net farm income and term debt coverage
- C. term debt coverage and capital replacement margin**
- D. capital replacement margin and working capital

2. A term-debt coverage ratio of 150% indicates:

- A. sufficient cash to cover all current (farm and non-farm) debt payments**
- B. sufficient to cover only current farm debt payments
- C. sufficient cash to cover only non-farm debt payments
- D. lack of cash to cover all current (farm and non-farm) debt payments

3. The Moore farm business projected cash flow includes:

- A. actual cash income, cash expenses and debt payments
- B. expenses, inventories and debt payments
- C. debt payments and expenses
- D. projected incomes**

4. During 2004, Moore farm business projected cash inflows of \$ 608,687 and cash outflows of \$ 672,250. The farm business projects a:

- A. net farm income of \$ -63,563
- B. net worth decrease of \$ -63,563
- C. negative cash difference of \$ 63,563**
- D. negative income change of \$ -63,563

5. A disadvantage of a cash flow projection is that:

- A. it shows when excess cash will be available
- B. projected prices are difficult to estimate due to yield, weather and supply**
- C. it lets you plan purchases
- D. it lets you evaluate relationship of short term debt to repayment capacity

Refer to page R6 of the resource information to answer the following questions in sections D, E, and F.

D. Answer the following questions regarding the Moore farm business 2004 projected cash flow. (1 point each)

1. What is the maximum amount the Moore farm business will have to borrow in any one month during 2004?

\$ 135,570 (March)

2. What are the projected total operating receipts for the year 2004?

\$ 566,687

7 points this page
part I continues on next page

3. What are the total cash outflows projected for the year 2004?

\$ 672,250

4. What are the total cash inflows projected for the year 2004?

\$ 608,687

5. What is the projected operating loan balance on December 31, 2004?

\$ 84,592

6. In what month does the Moore farm business have the greatest cash difference?

March (-135,570)

7. What was the beginning of the year operating loan balance?

\$ 32,654

8. In what month does the Moore farm business have the most negative cash position?

March (-132,570)

9. What is the largest projected operating expense item?

Harvest/ Cartons

10. What percent of total operating receipts do tobacco sales represent? **Round answer to two decimals.**

35.64 %
201,954 / 566,687

11. How much principal does the Moore farm business plan to pay on all operating loans during the year?

\$ 205,961

12. How much did the Moore farm business owe on their real estate loan on December 31, 2003? **(This question cannot be answered from page R6. See page R4 in the resource information.)**

\$ 61,917
57,932 + 3,985

13. In how many months will the Moore farm business not have to borrow money?

7

May, June, July, August, September, October, November

14. How much does the Moore farm business expect to borrow on their operating loan for the year?

\$ 257,899

15. What minimum monthly bank balance does the Moore farm business maintain?

\$ 3,000

13 points this page
part I continues on next page

E. Calculate the percent needed to cover the following: Round answers to two decimals. (1 point each blank)

1. Cash needed to pay operating loans as a percentage of total cash inflows:

principal payments/ total cash flow or 205,961/ 608,687 33.84 %

2. Cash needed to pay operating loans as a percentage of total operating expenses:

principal payments/ total operating expenses or 205,961/ 540,772 38.09 %

3. Interest paid as a percent of cash farm operating receipts:

$(3,625 + 18,772) / 566,687$ 3.95 %

F. In the projected cash flow operating debt analysis, assume the following change for the month of December and answer questions 1-7 below. (1 point each)

CHANGE (for questions 1-7 only):
Joanna expects to receive a \$20,000 bonus in salary in December.

- | | |
|---|---------------------|
| 1. What will be total cash inflows in December for the Moore farm business? | \$ <u>23,500</u> |
| 2. What will be the total operating expenses in December? | \$ <u>9,822</u> |
| 3. What will be the ending cash difference for debt service? | \$ <u>(-65,150)</u> |
| 4. How much cash will be available for new investment and risk? | \$ <u>0</u> |
| 5. How much cash will be generated to pay operating loans? | \$ <u>0</u> |
| 6. How much money will the Moore farm business need to borrow in December? | \$ <u>64,592</u> |

9 points this page
End of Part I – TOTAL 49 points

PART II - INCOME TAX MANAGEMENT

A copy of the 2003 IRS Publication 225- Farmers Tax Guide is provided to each participant to use in answering questions in this part.

- A. Using the income statement for the Moore farm business (**refer to page R5 of the resource information**), complete the following information for the Moore's 2003 Schedule F. **Note: Write "0" in a category if appropriate.** 1 point each blank.

| | 1997 | 2001 | 2002 | 2003 |
|-------------------------------------|-----------|-----------|-----------|--------------------|
| Gross Income (line 11) | \$657,637 | \$500,518 | \$482,656 | \$ <u>542,124</u> |
| Cash Expenses before interest | 542,136 | 445,113 | 499,061 | \$ <u>487,536</u> |
| Deductible interest expense | 26,823 | 17,961 | 14,812 | \$ <u>26,082</u> |
| Depreciation | 24,400 | 27,560 | 29,560 | \$ <u>38,261</u> |
| Total Expenses (line 35) | 593,359 | 490,634 | 543,433 | \$ <u>551,879</u> |
| Net Farm Profit or (loss) (line 36) | \$64,278 | \$9,884 | -\$60,777 | \$ <u>(-9,755)</u> |

- B. For the following questions, remember that cull breeding stock sales are not included on form Schedule F and the cost of non-breeding livestock is not deductible until the year it is sold. Also, the cost of non-breeding livestock sold is a reduction in Gross Income on Schedule F in the year the non-breeding livestock is sold and not an increase in Total Expenses. For this example in the Moore farm business, non-breeding livestock purchased in November is carried over into 2005.

1. Based on the 2004 projected cash flow (**page R6 of the resource information**), what will Moore farm business's deductible Schedule F cash expenses be before depreciation? (remember, purchased non-breeding livestock is a reduction in farm income, and not an additional farm expense) **Circle the best response.** (1 point)

- A. \$500,658
- B. \$519,430
- C. \$540,315
- D. \$542,284**

2. Based on the 2004 projected cash flow, what will the Moore farm business's Gross Income on Schedule F be? (non-breeding livestock purchased in November is to be considered sold in 2005) **Circle the best response.** (1 point)

- A. \$545,802
- B. \$566,687**
- C. \$587,572
- D. \$608,687

8 points this page
part II continues on next page

3. Using the correct answers to the above two questions and assuming a depreciation deduction in 2004 of \$39,000, what is the projected taxable income on Moore's 2004 Schedule F? **Circle the best response.** (1 point)

- A. **\$-14,597**
- B. \$ 29,372
- C. \$ 68,372
- D. \$ 89,257

4. Is this more or less net income on Schedule F than the Moore farm business experienced in 1997? **Circle the best response.** (1 point)

MORE

LESS

5. Assume that the Moore farm business sold the non-breeding livestock in December for \$25,000. What would happen to the Moore farm business's Schedule F expenses? **Circle the best response.** (1 point)

- A. They would increase by \$ 4,115
- B. They would increase by \$20,885
- C. They would increase by \$25,000
- D. **No change**

6. Assume that the Moore farm business sold the non-breeding livestock in December for \$25,000. What would happen to the Moore farm business's Schedule F gross income? **Circle the best response.** (1 point)

- A. **It would increase by \$ 4,115**
- B. It would increase by \$20,885
- C. It would increase by \$25,000
- D. No change

C. The Moore farm business has hired labor. Assume each hour is paid at the rate of \$10/hr or more and that more than \$20,000 is being spent on wages in a calendar quarter. Answer the following questions about hired labor by filling in the blanks. (1 point for each correct response)

1. Is the Moore farm business required to have an Employer Identification Number in order to report wages earned? **Circle the best response.**

YES

NO

Pub 225 page 94

2. How much does the Moore farm business have to withhold from wages to cover their obligation to the Social Security Administration (OASDI and Medicare)?

7.65 %

Pub 225 page 96

3. What is the total percentage of Old Age Survivor and Disability Insurance (OASDI) and Medicare that must be withheld from the employee and matched by the employer?

15.3 %

Pub 225 page 96

7 points this page
part II continues on next page

4. Does the Moore farm business have to pay Federal Unemployment Insurance? **Circle the best response.**

YES

NO

Pub 225 page 97

5. If the Moore farm business is required to withhold for Federal Insurance Contributions Act (FICA), are they also required to withhold Federal and State income taxes? **Circle the best response.**

YES

NO

Pub 225 page 96

6. Name two of the federal tax forms related to wage employment that the Moore farm business needs to complete at year end.

940, W-2

943, W-3

** Any 2 of these 4 answers

Pub 225 page 10

- D. Complete the following blanks to make the statements correct. (1 point for each blank.)

1. OASDI and Medicare must be withheld if a person is paid \$ 150 or more in a year or any amount paid if total wages paid for the year are

\$ 2,500 or more.

Pub 225 page 95

2. The **Standard Deduction** on Form 1040 was \$ 4,750 for 2003 for a single individual.

Pub 225 page 114

3. The **Personal Exemption** on Form 1040 was \$ 3,050 for 2003.

Pub 225 page 114

4. The Standard Mileage Rate for **Business Purposes** was \$ 0.36 or 36¢ per mile for 2003.

Pub 225 page 2

5. The **maximum amount of Section 179 expense** that could be used in 2003 was \$ 100,000.

Pub 225 page 2

10 points this page
End of Part II – TOTAL 25 points

PART III - FAMILY LIVING

Answer the questions regarding the Moore Family Living expenses. **Refer to pages R6 and R17 of the resource information to answer the following questions.**

1. What is the Moore family budget for Family Living for 2004 excluding taxes and savings? (2 points)

\$ 48,000

2. For 2004, how many dollars would the farm operation need to provide in addition to the spouse's salary to cover the family living expense? (2 points)

\$ 6,000

3. For the 2004 projection, what is the family living percent increase compared to: **Round answers to two decimals.** (1 point each blank)

2002 9.59 %
4,200/ 43,800

2003 5.52 %
2,510/ 45,490

4. The Moore family may decide to reduce their family living expenses for 2004. **Circle the three (3) annual expenses that the Moore family exceeded the area averages in 2003.** (3 points)

- A. Gifts and cash donations
- B. Household repairs and supplies
- C. Clothing
- D. Recreation
- E. Food and Meals

5. How much more is the family living expenses for the Moore family in 2003 per adult equivalent than it is for the average family in the area? **Round answer to nearest dollar.** (2 points)

\$ 1,173
(45,940 - 41,619) / 3.3 = 1,173

6. What percent of projected 2004 total cash outflows does family living, income tax and savings represent for the Moore farm business? **Round answer to two decimals.** (2 points)

8.43 %
56,650/ 672,250

13 points this page
End of Part III – 13 points total

PART IV – ENTERPRISE BUDGETS

The Moore farm business has been reviewing the enterprise budgets they prepared at the beginning of the year. They would like to determine breakeven prices and yields and make adjustments to some of the enterprise budgets.

- A. Before working with the enterprise budgets, Wayne and Joanna feel that it is important to review some budgeting concepts and definitions. **Circle the best response for each question.** (1 point each)
1. A tool used in analyzing only changes in the farm operations and the potential change in net income is called the:
 - A. cash flow projection
 - B. enterprise budget
 - C. total farm budget
 - D. partial budget**
 2. A statement of projected costs and returns associated with one production process, usually for one production period is called the:
 - A. cash flow projection
 - B. enterprise budget**
 - C. total farm budget
 - D. partial budget
 3. Which of the following is considered to be a fixed cost?
 - A. feed purchased
 - B. machinery repairs
 - C. hired seasonal labor
 - D. depreciation on machinery**
 4. The Moore farm business decided that renting land on shares of production rather than for cash results in:
 - A. less risk for the landlord and more risk for the tenant.
 - B. more risk for the landlord and less risk for the tenant.**
 - C. less risk for both the landlord and the tenant.
 - D. more risk for both the landlord and the tenant.
 5. As the Moore farm business plants more acres of strawberries, which of the following costs is least likely to change?
 - A. total variable costs
 - B. average variable costs per acre**
 - C. average fixed costs per acre
 - D. average total costs per acre

5 points this page
part IV continues on next page

6. When an increase in the level of production of one enterprise causes a reduction in the level of production of another enterprise, these two enterprises are said to be:
- A. independent.
 - B. supplementary.
 - C. complementary.
 - D. **competitive.**
7. When considering the production information for the cantaloupe enterprise, the Moore farm business is trying to get the maximum returns above variable costs. You as a farm management analyst, should recommend that the Moore farm business produce where:
- A. marginal revenue is equal to average variable cost.
 - B. average total cost is equal to average total revenue.
 - C. marginal cost is equal to average total revenue.
 - D. **marginal cost is equal to marginal revenue.**
8. Enterprise accounting:
- A. **involves keeping records of receipts and expenses of each individual product or class of products.**
 - B. separates taxable income from nontaxable income.
 - C. is required for income tax purposes.
 - D. differentiates between the value of the operator's labor, management, and capital.
9. A physical and financial plan for the entire farm business for a specific period of time is called the:
- A. enterprise budget
 - B. cash flow projection
 - C. **total farm budget**
 - D. partial budget
10. Which of the following is considered to be a variable cost?
- A. real estate taxes
 - B. depreciation on machinery
 - C. **machinery fuel, lube, and repairs**
 - D. personal property taxes
- B. **Review the tobacco-owned enterprise budget on page R9 of the resource information.** Answer the following questions related to Wayne's projections. (1 point each blank)
1. What is the expected yield per acre? _____ **2,350** lbs.
2. What is the expected price for tobacco? \$ _____ **1.86** per lb.

7 points this page
part IV continues on next page

3. What are the expected costs per acre for sucker control?

\$ 60.51 per acre.

4. What are the total operating costs per acre?

\$ 2,925.83 per acre

5. What is the interest rate for operating capital?

6.00 %

6. What are the total fixed costs per acre?

\$ 238.49 per acre

7. What quantity of 16-0-0 fertilizer will be applied per acre?

1.76 cwt.

8. What are the total receipts per acre?

\$ 4,371.00 per acre

9. What is the return above all specified costs per acre?

\$ 1,206.68 per acre

10. What is the hired labor rate per hour?

\$ 8.00 per hour

- C. **Review the cantaloupe enterprise budget on page R14 of the resource information.** Wayne developed this enterprise budget at the beginning of the year to be used with his cash flow projection. As production time approaches, Wayne wants to make the following changes in the enterprise budget to better reflect current conditions. Using the changes Wayne provides, make the changes on the enterprise budget and answer the following questions. **Round all answers to two decimals.** (1 point each blank)

Changes:

| | | |
|-----------------------|------------------|------------------------|
| Nitrogen | \$35.00 per cwt. | $35 * 2.043 = 71.51$ |
| Phosphorus | \$25.00 per cwt. | $25 * 0.43 = 10.75$ |
| Potassium | \$12.00 per cwt. | $12 * 4.582 = 54.98$ |
| Bee Hive Rental | \$30.00 per each | $30 * 1 = 30$ |
| 40 Pound Cartons | \$1.00 each | $1 * 450 = 450$ |
| Cantaloupe production | \$0.70 each | $0.70 * 5,500 = 3,850$ |

1. What are the total operating costs per acre?

\$ 2611.62 per acre

2. What are the total fixed costs per acre?

\$ 30.53 per acre

10 points this page
part IV continues on next page

3. What are total receipts?
\$ 3,850.00 per acre
4. What are the returns above total operating costs?
\$ 1238.38 per acre
5. What are the returns above all specified costs?
\$ 1207.85 per acre
6. What is the breakeven price per cantaloupe to cover total operating costs?
\$ 0.47 or 0.48 per cantaloupe
Either answer dependent on rounding
7. What is the breakeven yield to cover total operating costs? (Note: Remember the price of cantaloupes is \$0.70 each.) **Round answer to nearest whole number.**
 $2611.62 / 0.70$ 3731 cantaloupes per acre

- D. The following questions are related to the strawberries budget found on **page R15 of the resource information**. (1 point each blank) **Round answers to two decimals.**

Harvest, containers, and advertisement are three operating costs that are yield dependent.

1. What is the total of the **yield dependent** operating costs per pound of strawberries harvested?
 $(4750 + 1900 + 380) / 19,000$ \$ 0.37 per pound
2. If the total projected yield of strawberries was increased by 1,000 pounds, the **operating costs** would increase by how much?
 $1000 (.250 + .100 + .020)$ \$ 370.00
3. What is the **breakeven price** per pound to cover all specified costs for strawberries if the yield increased to 20,000 pounds per acre?
 $(11,749 + 370 + 3,975) / 20,000$ \$ 0.80 or 0.81 per pound
Either answer dependent on rounding

8 points this page
End of Part IV – TOTAL 30 points

PART V - RISK MANAGEMENT

Understanding the effect of expected prices for commodities on the returns for those commodities, as well as, the effect on net returns to the farm has become an integral part of farm business management. There are many ways to evaluate expected prices and net returns, and it is useful to understand different methods of calculating them. Typically, the market reflects a change in supply resulting from a change in price. When yields decrease the price tends to increase or if yields increase then the price tends to decrease.

It is essential in evaluating risk management to also perform a breakeven analysis. Farm programs have developed a need for agricultural producers to become familiar with risk and how that risk relates to farm management, marketing, and financing and the interrelationships that exist between them. Insurance is a method of reducing risk but is used primarily for avoiding major losses. It is also necessary to understand market risk that provides price risk. Wayne and Joanna are trying to understand the effect that risk has on their net return.

Wayne is concerned about the exposure to risk that they are experiencing and wants to evaluate that risk for their cantaloupe operation on owned land. The enterprise budget for the cantaloupe operation (**page R14 of the resource information**) contains information at the bottom of the sheet about breakeven analysis and risk analysis. Use the information provided to help Wayne complete this analysis on risk. For this analysis, match one deviation in price with a deviation in yield. A price increase of one box corresponds with a yield increase of one box. **Note: Round all answers in this section to two decimals.**

- A. Cantaloupe on owned land is sold when harvested. The prices over time are summarized below. Calculate the Risk Rated Expected Price that Wayne can expect for cantaloupe at harvest. (2 points)

| Occurrence | Event Occurrence | Expected Prices |
|-------------------------------|---------------------------------|---------------------------|
| 30% above expected price | 1 (10 out of 100 months) | \$0.98 (per each) |
| 15% above expected price | 2 (20 out of 100 months) | \$0.86 (per each) |
| <i>Typical expected price</i> | <i>3 (30 out of 100 months)</i> | <i>\$ 0.75 (per each)</i> |
| 15% below expected price | 2 (20 out of 100 months) | \$0.64 (per each) |
| 30% below expected price | 2 (20 out of 100 months) | \$0.53 (per each) |

Risk Rated Expected Price \$ 0.73
 $(.98*1 + .86*2 + .75*3 + .64*2 + .53*2) / 10$

- B. Calculate the Risk Rated Expected Returns above all specified costs that Wayne can expect for cantaloupe at harvest. (2 points)

| Occurrence | Event Occurrence | Expected Returns |
|--|---------------------------------|-------------------|
| 30% above expected price and 30% decrease in yield | 1 (10 out of 100 months) | \$ 994.48 |
| 15% above expected price and 15% decrease in yield | 2 (20 out of 100 months) | \$1,272.91 |
| <i>Typical expected price and expected yield</i> | <i>3 (30 out of 100 months)</i> | <i>\$1,365.73</i> |
| 15% below expected price and 15% increase in yield | 2 (20 out of 100 months) | \$1,272.91 |
| 30% below expected price and 30% increase in yield | 2 (20 out of 100 months) | \$ 994.48 |

Risk Rated Expected Returns Above All Specified Costs \$ 1,217.23
 $(994.48*1 + 1272.91*2 + 1365.73*3 + 1272.91*2 + 994.48*2) / 10$

4 points this page
part V continues on next page

Calculate the new values for returns above total operating costs and for returns above all specified costs for cantaloupes raised on owned land using the Risk Rated Expected Net Returns above total operating costs and above all specified costs. (1 point each)

| | From Enterprise Budget | New Values: Risk Rated |
|-------------------------------------|------------------------|------------------------|
| Returns above total operating costs | \$1,396.26 | \$ 1,247.76 |
| Returns above all specified costs | \$1,365.73 | \$ 1,217.23 |

*** See addendum for alternative solution at the bottom of this page

- C. What is the effect on breakeven yields of using the risk-rated price for cantaloupes raised on owned land? (2 points)

Will provide a breakeven yield that is higher than just using expected price (it raises breakeven)

- D. What is the effect on returns above all specified costs of using the risk-rated net returns for cantaloupes raised on owned land? (2 points)

Returns above all costs will be reduced because of rating the returns for risk of price and yield rather than an expected price and yield. (Reduces returns)

- E. Watermelons are an alternative to cantaloupes. The enterprise budget for the watermelon alternative (**page R16 of the resource information**) contains information at the bottom of the sheet about breakeven analysis and risk analysis. For this analysis, match one deviation in price with a deviation in yield. A price increase of one box corresponds with a yield increase of one box.

Calculate the Risk Rated Expected Returns above all specified costs that Wayne could expect for the watermelon alternative at harvest. (2 points)

| Occurrence | Event Occurrence | Expected Returns |
|--|---------------------------------|-------------------|
| 30% above expected price and 30% decrease in yield | 1 (10 out of 100 months) | \$ 899.54 |
| 15% above expected price and 15% decrease in yield | 2 (20 out of 100 months) | \$1,172.92 |
| <i>Typical expected price and expected yield</i> | <i>4 (40 out of 100 months)</i> | <i>\$1,264.04</i> |
| 15% below expected price and 15% increase in yield | 2 (20 out of 100 months) | \$1,172.92 |
| 30% below expected price and 30% increase in yield | 1 (10 out of 100 months) | \$ 899.54 |

Risk Rated Expected Returns Above All Specified Costs

\$ 1,154.69

Addendum for alternative solution

Part B: Returns above total operating costs can be **\$1,286.26**. This solution can be calculated by taking $\$5500 \times 0.73$ and subtracting total operating costs (\$2,728.74) from the cantaloupe budget (**page R14 of the resource information**). Thus returns above all specified costs would be **\$1,255.73**.

8 points this page
part V continues on next page

F. From a risk rated income perspective, should Wayne and Joanne change from Cantaloupes to Watermelons? **Circle the best response.** 1 point

YES

NO

What impact on expected returns does the consideration of risk rated net returns give? (2 points)

Represents the expected returns that is based on a distribution of prices and yields and their expected occurrence.

G. There are five general areas of risk (production, market or price, human, financial and legal). A number of alternatives are available that can be used to manage these risks. The following is a list of several risk management alternatives that the Moore farm business might consider. Indicate what area of risk that each alternative would affect the **most** (put an **X** in the appropriate column). (1 point each)

Five General Areas of Risk

| Risk management alternatives | Production | Market | Legal | Human | Financial |
|---|------------|--------|-------|-------|-----------|
| Purchase crop multiple peril insurance | X | | | | |
| Purchase health insurance | | | | X | |
| Use own equipment to harvest corn | X | | | | |
| Purchase farm liability insurance | | | X | | |
| Replace tobacco with cantaloupes | X | | | | |
| Calculate risk rated expected prices | | X | | | |
| Calculate risk rated expected net returns | | | | | X |
| Lease instead of purchase equipment | | | | | X |
| Obtain fixed interest rates on loans | | | | | X |

12 points this page
part V continues on next page

H. Answer multiple choice questions 1-5. Circle the best response. (2 points each)

1. Which of the following is not a production peril?
 - A. **market supply**
 - B. insects
 - C. disease
 - D. weather

2. Which of the following risk management strategies would most directly reduce financial risk?
 - A. identity preserved crops
 - B. precision agriculture
 - C. **production contracting**
 - D. genetically modified crops

3. Which of the following is a disadvantage of a fixed-price forward contract sale?
 - A. seller can lock in the “carry” or carrying charges
 - B. eliminates the risk of price decrease
 - C. **delivery is required to fill the contract**
 - D. estimates the risk of market fluctuation

4. Hedging involves the exchange of cash price risk for:
 - A. futures price risk.
 - B. premium risk.
 - C. **basis risk.**
 - D. deferred compensation risk.

5. Which of the following types of life insurance policies does not have a cash value?
 - A. whole life
 - B. **term life**
 - C. universal life
 - D. health-life insurance

10 points this page
End of Part V – TOTAL 34 points

10. Compute the **percent** of the 12/31/03 total assets that are classified as current. **Round answer to two decimals.**

$$\frac{3.99}{23750 / 594,495} \%$$

11. If current assets, as a percent of total assets, are less than the same ratio for liabilities, then the business is said to be "top heavy" with debt. Is this a good description for the Moore farm business? **Circle the best response.**

YES NO

12. Calculate the following measures of liquidity, solvency and profitability for 2001. **Round answers to the nearest dollar or two decimals.** (2 points each)

Liquidity Measures (as of December 31, 2001)

| | | | |
|-----------------|------------------|----|-----------------|
| Current Ratio | <u>1.21</u> | :1 | 69087/ 56933 |
| Working Capital | \$ <u>12,154</u> | | 69,087 – 56,933 |
| Debt Structure | <u>0.27</u> | :1 | 56,933/ 213,173 |

Solvency Measures (as of December 31, 2001)

| | | | |
|-----------------------|-------------|----|------------------|
| Debt to Asset Ratio | <u>0.35</u> | :1 | 213,173/ 606,885 |
| Equity to Asset Ratio | <u>0.65</u> | :1 | 393,712/ 606885 |
| Debt to Equity Ratio | <u>0.54</u> | :1 | 213,173/ 393,712 |

Profitability Measures (for calendar year 2001)

| | | | |
|------------------------|----------------|---|--------------------------------|
| ROA (Return on Assets) | <u>1.37</u> | % | (20,553+17961-30000) / 623,180 |
| ROE (Return on Equity) | <u>(-2.46)</u> | % | (20,553-30,000)/ 383,677 |
| COD (Cost of Debt) | <u>7.50</u> | % | 17,961/ 239,503 |

22 points this page
part VI continues on next page

13. Answer the following questions regarding the financial statement ratios for the Moore farm business by **circling the best response**. (1 point each)

- a. If the current ratio for a firm is more than 1:1, the working capital for this firm will be a(n) _____ amount.

POSITIVE

NEGATIVE

UNKNOWN

- b. If all assets are valued at book value at the beginning and end of the year and if family living withdrawals are greater than net farm income from operations, the net worth of the farm business will _____.

INCREASE

DECREASE

- c. If market values for land are increasing and are used in computing the net worth of a farm business and an estimated contingent tax liability, the estimated net worth of the farm business will be _____ the net worth when book values are used.

GREATER THAN

LESS THAN

UNKNOWN

- d. The Cost of Debt (COD) for the Moore farm business _____ in 2003 when compared to 2002.

INCREASED

DECREASED

STAYED THE SAME

- e. The interest expense for the Moore farm business _____ in 2003 when compared to 1997.

INCREASED

DECREASED

STAYED THE SAME

5 points this page
End of Part VI – TOTAL 45 points

PART VII – ALTERNATIVES (PARTIAL BUDGETING)

Proposed Change: Add drip irrigation system to cantaloupe enterprise.

Refer to the Cantaloupe enterprise budget found on page R14 of resource information.

- A. After the 2002 drought, Wayne is considering a drip irrigation system for his cantaloupes that will cost about \$2,500 per acre to install. A neighbor has a similar system installed and finds that his annual yield is about 6,500 melons per acre. Wayne estimates depreciation, taxes, insurance and interest at 10% of the installation cost. Wayne further estimates the fuel, lube, repairs, and operating interest for such a system will be about \$65.00 per acre. In addition, his yield dependent expenses (custom harvest and cartons) will increase proportionately to the increase in yield.

Using the form below, construct a partial budget to determine the **expected change in net return per acre** from an investment in the **irrigation** system. **Note: Write “none” or “zero” in any category with no entry. Round answers to two decimal places.** (2 points each)

| | |
|--|--|
| <p><u>Added Returns</u> Cantaloupes 1000 * 0.75 750.00 Subtotal \$ <u>750.00</u></p> | <p><u>Reduced Returns</u> Subtotal \$ <u>none</u></p> |
| <p><u>Reduced Costs</u> Subtotal \$ <u>none</u></p> | <p><u>Added Costs</u> Dep., Taxes, Ins. 250.00 Fuel 65.00 Cartons 102.28 81.82 cartons * 1.25 Harvest 80.00 1000 * .08 Subtotal \$ <u>497.28</u></p> |
| <p>Total AR+RC \$ <u>750.00</u></p> | <p>Total RR+AC \$ <u>497.28</u></p> |
| <p>Net Change \$ <u>252.72</u></p> | |

Note about correct answers in Section A:
A range of answers can be calculated simply by increasing or decreasing the number of decimal places for the number of cartons needed for the change. Evaluate the method which your answers were calculated and use the following range for correct answers:

Added Costs Subtotal: 497.28 – 499.16
Total RR + AC : 497.28 – 499.16
Net Change: 250.84 – 252.72

14 points this page
part VII continues on next page

- B. The previous partial budget shows the net return to an irrigation system in a normal year. Now Wayne wants to know what the return to irrigation might be in a drought year such as 2002. According to his records, Wayne's harvest in 2002 fell to **3,000 cantaloupes per acre**. Remember the only expenses that fell in that year were yield dependent. Now prepare a partial budget to determine the **net return to irrigation in a drought year**.

Note: Write "none" or "zero" in any category with no entry. Round answers to two decimal places. (2 points each)

| | | | |
|-------------------------------|--------------------|------------------------|------------------|
| <u>Added Returns</u> | | <u>Reduced Returns</u> | |
| Cantaloupe | 2625.00 | | |
| 3500 * 0.75 | | | |
| Subtotal | \$ <u>2,625.00</u> | Subtotal | \$ <u>none</u> |
| <u>Reduced Costs</u> | | <u>Added Costs</u> | |
| | | Dep., taxes, ins. | 250.00 |
| | | Fuel | 65.00 |
| | | Cartons | 357.95 |
| | | Harvest | 280.00 |
| | | 3500 * .08 | |
| Subtotal | \$ <u>none</u> | Subtotal | \$ <u>952.95</u> |
| Total AR+RC | \$ <u>2,625.00</u> | Total RR+AC | \$ <u>952.95</u> |
| Net Change \$ <u>1,672.05</u> | | | |

Wayne checks with the local county extension office which maintains historical meteorological records. Based on these records it appears that a drought of the magnitude of the 2002 drought can be expected every seven years. Based on this information and the two partial budgets, what is the annual average increase net return per acre to the irrigation system? (2 points)

$$\frac{\$ \underline{455.48}}{[(252.72 * 6) + 1,672.05] / 7}$$

Note about correct answers in Section B:

A range of answers can be calculated simply by increasing or decreasing the number of decimal places for the number of cartons needed for the change. Evaluate the method which your answers were calculated and use the following range:

Added Costs Subtotal: 952.95 – 959.59
 Total RR + AC : 952.95 – 959.59
 Net Change: 1665.42 – 1672.05

Annual average increase net return 452.49 – 455.58

16 points this page
 End of Part VII – TOTAL 30 points

PART VIII - MARKETING

With strawberries and cantaloupes, the Moore's are considering some direct marketing opportunities. They are brushing up on some of their marketing knowledge. Answer the following questions.

Multiple Choice: Circle the best response for each question (2 points each)

1. Comparing the average retail price and the farm value of agricultural commodities allows one to determine the portion of each dollar spent at the retail level that farmers and producers receive for agricultural commodities. The difference between retail value and the farm value is the:
 - A. **value of marketing services for the commodity.**
 - B. profit.
 - C. net farm revenue.
 - D. farm to city transportation cost.

2. In the produce industry, direct marketing is described as selling:
 - A. to a produce wholesaler.
 - B. directly to a local retail grocery store.
 - C. on a cash basis.
 - D. **through farmers markets, roadside markets, pick your own operations and directly to local retail stores, restaurants, and institutions.**

3. From the Moore's perspective, the advantages of direct marketing include all of the following except:
 - A. by cutting out the middleman, a higher percentage of food dollar can go to the farmer.
 - B. the farmer can be in control of the produce from "seed to sale."
 - C. it can be a cash business
 - D. **it's less labor intensive.**

4. From the Moore's perspective, special challenges of direct marketing include all of the following except:
 - A. **the farmer must accept the market price offered by a wholesale produce distributor.**
 - B. the volume sold is limited by the number of customers living nearby.
 - C. the customer wants to meet the farmer.
 - D. the farmer must also be a marketer and know about merchandising, display, quality control, pricing, and packaging.

8 points this page
part VIII continues on next page

5. A trade-off to the Moore's using direct marketing for their strawberries and cantaloupes is:
- A. spending more time, work, and resources in marketing.
 - B. spending less time, work, and resources on production.**
 - C. learning what the customer wants.
 - D. earning a greater return per acre for strawberries and cantaloupes.
6. Production of basic agricultural commodities and the incorporation of value-added services at various stages of marketing respond to:
- A. changes in weather conditions during the production season.
 - B. what the farmer can grow the best.
 - C. consumer behavior.**
 - D. how close the farm is to customers.
7. Derived demand is:
- A. consumer wants and needs that are backed by buying power.
 - B. business demand that ultimately comes from the demand for consumer goods and services.**
 - C. completing a survey to determine your customers' wants and needs.
 - D. completing a survey to determine the wants and needs of all consumers.
8. Primary marketing research collects data and information that is:
- A. for the specific purpose at hand.**
 - B. already exists somewhere, having been collected another purpose.
 - C. is easiest and least expensive to obtain.
 - D. conducted first to see what's out in the marketplace.
9. Before they start direct marketing of their strawberries and cantaloupes, the Moore's want to know about customer's knowledge, attitudes, preferences, and buying behavior. Sometimes the best way to find this out is by "asking the customers." Surveys, whether mail, telephone, personal, or on-line, can be used to "ask the customers." Surveys are an example of:
- A. primary marketing data collection.**
 - B. secondary marketing data collection.
 - C. the least expensive way to collect marketing data.
 - D. a marketing data collection approach that does not work because people do not like to complete surveys.

10 points this page
part VIII continues on next page

10. For the Moore's strawberries and cantaloupes, value-adding can be thought of as activities that:
- A. make the customer pay more for the same product.
 - B. adjust the four Ps of the marketing mix to make the product match the wants and needs of the customer.**
 - C. change the physical characteristics of the product.
 - D. reduce the price of the product so the customer thinks that they are getting more value for their dollar.
11. Before the Moore's begin direct marketing of their strawberries and cantaloupes, their marketing research should do all of the following except:
- A. evaluate the market potential for their products.
 - B. define the target customers for strawberries and cantaloupes.
 - C. answer most of their questions before proceeding to develop the enterprises.
 - D. determine what they think will sell.**
12. Marketing is defined as the process of identifying target market(s), determining the needs and wants of the target market(s), and fulfilling those needs and wants better than the competition. For the Moore's strawberry and cantaloupe direct marketing enterprises, identifying the target market(s) is a critical step in the marketing planning process. The Moore's should use market segmentation to:
- A. divide the broad consuming market into manageable customer or non-customer groups with common characteristics.**
 - B. group all their customers into one segment that is the easiest to get to purchase their products.
 - C. identify only the largest groups of customers.
 - D. locate groups of customers that already consume strawberries and cantaloupes.
13. For marketing and selling their strawberries and cantaloupes, one choice the Moore's are considering is joining the local marketing cooperative. For the Moore's, which of the following is not an advantage of the cooperative way of doing business?
- A. the co-op sales manager spends time selling the products and the Moore's can spend more time on growing the products.
 - B. by working with other growers in the cooperative, the Moore's can meet minimum volume requirements of larger volume buyers, and the group can deliver a more sustained and consistent supply of produce.
 - C. by operating under democratic decision-making –one member, one vote – cooperatives can be slow to make decisions.**
 - D. by spreading out costs over a number of member/growers, cooperatives can make it possible to develop capital-intensive, value-added products, something individual farmers often can't afford to do.

8 points this page
part VIII continues on next page

14. From a producer's or seller's point of view of the marketplace, the four Ps of the marketing mix are product, price, place, and promotion. In this age of knowing your customer, the four Ps might better be described as the four Cs. Which list below of four Cs best matches in order with the four Ps?

product, price, place, and promotion

- A. customer character, customer control, customer coverage, and customer collateral
- B. customer solution, customer cost, convenience, and communication**
- C. customer, customer, customer, and customer
- D. character, capital, corner, and calling

It's important for a producer to know the price at which enterprises will break even or make their target profit level. The table below contains information about "Break-Even Volume and Profits at Different Prices" for an enterprise.

Use the information in the table to answer questions 15–18.

| Break-Even Volume and Profits at Different Prices | | | | | |
|---|----------------------------------|-------------------------------------|---------------------|--------------|------------|
| Price | Unit demand needed to break even | Expected unit demand at given price | Total Revenue P x Q | Total Costs* | Profit |
| \$14 | 7,500 | 7,100 | \$ 99,400 | \$101,000 | \$ - 1,600 |
| 16 | 5,000 | 6,700 | 107,200 | 97,000 | 10,200 |
| 18 | 3,750 | 6,000 | 108,000 | 90,000 | 18,000 |
| 20 | 3,000 | 4,200 | 84,000 | 72,000 | 12,000 |
| 22 | 2,500 | 2,300 | 50,600 | 53,000 | - 2,400 |

*assumes fixed costs of \$30,000 and constant unit variable cost of \$10

15. At the \$22 price, the producer clears \$12 per unit and must sell only 2,500 units to break even. But at this price, profits are:
- A. are positive.
 - B. are negative.**
 - C. are highest because price is the highest.
 - D. do not matter because the price is so high.
16. What price yields the highest profit?
- A. \$14
 - B. \$16
 - C. \$18**
 - D. \$20

6 points this page
part VIII continues on next page

17. The producer has set a target profit for this enterprise of \$20,000. At what price level(s) does the producer achieve this target return?
- A. \$18
 - B. \$22
 - C. all of the levels shown in the table
 - D. **none of the levels shown in the table**
18. To achieve this target return, the producer will:
- A. **have to search for ways to lower fixed or variable costs, thus lowering the break even volume.**
 - B. charge a price higher than \$22
 - C. produce more units to sell
 - D. do all of the above.

4 points this page
End of Part VIII – TOTAL 36 points

PART IX - ANALYSIS OF MOORE FARM BUSINESS

A. Answer the questions regarding the analysis of the Moore farm business

1. By what percentage has owner's equity declined from 2000 to 2002? **Round answer to two decimals.** (2 points)

$$\frac{51.43}{373,641 - 181,465 = 192,176} \%$$

$$100 * (192,176 / 373,641)$$

2. At the end of which year did the Moore farm business show the poorest ability to cover current debt for the following year? **Circle the best response.** (3 points)

2000 2001 **2002** 2003

3. Which classification of debt, current or non-current, grew by the greatest percentage in 2002? **Circle the best response.** (2 points)

Current Non-Current

4. What was the percentage of growth in this classification of debt experienced by the Moore farm business? **Round answer to two decimals.** (2 points)

$$\frac{270.11}{210,714 - 56,933 = 153,781} \%$$

$$(153,781 / 56,933) * 100$$

5. Managers must control costs; one method to focus on this task is to track the top five (5) expenses over time. What are the **top five** expenses on the Moore farm business over time? (1 point each blank)

- i. **Labor Hired**
- ii. **Cash Rent**
- iii. **Chemicals**
- iv. **Fertilizer and Lime**
- v. **Repairs - Mach**

6. On average from 2001 through 2003, what percentage of total operating expenses is the largest expense? **Round answer to two decimals.** (2 points)

$$\frac{26.01}{\text{Labor Hired } (132,866.66 / 510,807) * 100} \%$$

7. What is the projected percentage of total operating receipts coming from the largest (by dollars received) enterprise? **Round answer to two decimals.** (2 points)

$$\frac{38.56}{(218,500 / 566,687) * 100} \%$$

18 points this page
part IX continues on next page

8. What two enterprises are projected to generate over 74% of total operating receipts in 2004? (2 points each blank)

Tobacco

Strawberries

6. Application of an 80/20 rule (80 percent of the gross revenues come from 20 percent of business enterprises/clients) to the Moore farm is an accurate statement for 2003; true or false? **Circle the best response.** (2 points)

True

False

7. The patronage dividend (**page R5 of the resource information**) comes entirely from the regional Farm Credit Association from which the Moore's borrow nearly all of their farm debt. This dividend is cash and non-cash (capital retained) and is paid or credited in the year following being earned. Therefore, it might be argued that the "actual" interest paid by the Moore's is less than reported in the previous year due to this patronage dividend. What is the patronage dividend adjusted interest for the Moore farm in 2001? **Circle the best response.** (2 points)

- A. \$11,838
- B. \$12,192
- C. \$20,949
- D. \$21,054

8. Looking at the projected cash flow (**page R6 of the resource information**) and comparing projected operating receipts with 2003's performance (**page R5 of the resource information**), which cropping enterprise (profit center) shows the largest gain (nominally) in 2004? **Circle the best response.** (2 points)

- A. Wheat
- B. Tobacco
- C. **Strawberries**
- D. Cantaloupes

10 points this page
part IX continues on next page

- B. Evaluate the following financial measures as represented as trends for the Moore farm business. **Indicate below if the following financial measures for the Moore farm business have been INCREASING (+) OR DECREASING (-) since 2001.** (1 point each)

| | | Trend for Moore farm business + or - |
|--------------------------------------|--|---|
| Liquidity | | |
| Current ratio | | - |
| Working capital | | - |
| Debt Structure | | + |
| Solvency | | |
| Debt to Asset | | + |
| Debt to Equity | | + |
| Profitability | | |
| Net Farm Income | | - |
| Return on Assets (ROA) | | + |
| Return on Equity (ROE) | | - |
| Cost of Debt (COD) | | + |
| Return to Labor and Management (RLM) | | + |

10 points this page
End of Part IX – TOTAL 38 points

End of this Section of the Event