

**AGRIBUSINESS MANAGEMENT**  
**2008 Career Development Events**

Multiple Choice Section

50 points

50 questions (1 point each)

Select the best response for each question and mark that answer on the answer card by using a No. 2 pencil. Be sure to shade the whole circle on the answer card.

1. Which of the following is (are) subject to margin calls?
  - A. Buyer of a Put Option
  - B. Buyer of a Call Option
  - C. Futures Contract
  - D. All of the above
  - E. None of the above
  
2. On April 1, Karen borrowed \$8,000 to plant corn. On November 1, she repaid the \$8,000 along with \$495 interest. What annual interest rate did she pay?
  - A. 6.187%
  - B. 9.281%
  - C. 9.991%
  - D. 10.607%
  - E. 12.375%
  
3. A farmer wants to use a futures contract to set the price of this year's wheat crop. Today, July South Carolina wheat is trading at \$2.53 per bushel and the farmer's local basis is \$0.42 under the July delivery time period. The local cash price is \$2.34 per bushel. What price per bushel can the farmer expect to set for his wheat today, by using a futures contract? (Ignore commissions.)
  - A. \$2.11
  - B. \$2.37
  - C. \$2.53
  - D. \$2.79
  - E. \$2.95
  
4. If a farmer writes a check for \$8,000 to pay off the remainder of a tractor loan:
  - A. assets are reduced and equity declines
  - B. liabilities are reduced and equity increases
  - C. assets and liabilities are reduced and equity is unaffected
  - D. assets, liabilities and equity each decline
  - E. None of the above

5. A cattle producer sells a Live Cattle Futures contract at \$65.00/cwt. with an estimated local basis of - \$1.50/cwt. Later, when her cattle are ready for slaughter, she sells them in the local cash market for \$65.00/cwt. and buys back the futures contract for \$66.00/cwt. What was the expected hedge price? (Ignore commissions)
- A. \$65.00/cwt.
  - B. \$63.50/cwt.
  - C. \$64.00/cwt.
  - D. \$63.00/cwt.
  - E. None of the above
6. The cost of using a resource based on what it could have earned in the next best alternative is:
- A. An opportunity cost
  - B. Always a variable cost
  - C. Always a fixed cost
  - D. Never a consideration in enterprise analysis
  - E. All of the above
7. A grain combine can be purchased for \$90,000. Total annual fixed costs will be \$12,000 and variable costs per acre will be \$10. If a custom operator can be hired to combine grain for \$25 per acre, what is the minimum number of acres one should plan to harvest to justify buying the combine?
- A. 700 acres
  - B. 800 acres
  - C. 600 acres
  - D. 1,000 acres
  - E. 1,200 acres
8. Mr. Mealoil Crush produced 32 bushels per acre of soybeans. His fixed and variable costs per acre for those soybeans were \$87.95 and \$120.73, respectively. What were Mr. Crush's total costs per bushel?
- A. \$4.90
  - B. \$5.40
  - C. \$6.52
  - D. \$7.28
  - E. Cannot be determined without more information

Use the following information to answer Questions 9-10:

Year	Present Value of \$1	Future Value of \$1	Present Value of Annuity
1	0.930	1.080	0.930
2	0.857	1.166	1.783
3	0.794	1.260	2.577
4	0.735	1.361	3.312
5	0.681	1.469	3.993
6	0.630	1.587	4.623

9. An alfalfa field will produce \$500 income during the first year, \$1,000 each year for the next 4 years, and \$750 the sixth year. What is the present value of this income stream?
- A. \$3,818.50
  - B. \$4,004.50
  - C. \$4,731.50
  - D. \$5,589.50
  - E. None of the above.
10. A beef cow produces \$80/year for 5 years and can be sold for \$400 at the end of the fifth year. Determine the present value of the cow.
- A. \$561.20
  - B. \$591.84
  - C. \$663.16
  - D. \$836.50
  - E. None of the above
11. If the farmer expects interest rates to decrease, but no decrease in net returns on cattle, what impact is this likely to have on the present value of the beef cow?
- A. Decrease the present value
  - B. Increase the present value
  - C. Would not change the present value
  - D. Cannot tell
  - E. None of the above
12. For an individual producer the marginal cost curve above the average variable cost curve is the individual producer's
- A. Supply curve
  - B. Demand curve
  - C. Put option
  - D. Total cost of production
  - E. None of the above

13. If the quantity of a commodity decreases by 20% when the price increases by 10%, the demand for this commodity is considered to be:
- A. Upward sloping
  - B. Unstable
  - C. Inelastic
  - D. Decreasing
  - E. Elastic
14. Renting farm land on shares of production rather than cash results in:
- A. Less risk for the landlord, more risk for the tenant
  - B. More risk for the landlord, less risk for the tenant
  - C. More risk for both the landlord and the tenant
  - D. Less risk for both the landlord and the tenant
  - E. All of the above
15. Just before harvest Mr. Mealoil Crush has \$190.68 per acre invested in his soybeans. He anticipates a yield of 32 bushels per acre. He is sure he can sell the soybeans for \$4.50 per bushel. His total harvesting and marketing costs are \$18.00 per acre. In order to maximize profits (or minimize losses), Mr. Crush should:
- A. Leave the soybeans in the field because his costs before harvest are too high.
  - B. Have the soybeans custom harvested for \$19.00 per acre.
  - C. Harvest the soybeans
  - D. Let his neighbor graze cattle on the soybeans for \$15.00 per acre.
  - E. All of the above
16. Which of the following is a measure of financial solvency?
- A. Net farm income
  - B. Current ratio
  - C. Debt-to-Asset ratio
  - D. Current assets minus current liabilities
  - E. None of the above
17. A local elevator quotes corn at 20 cents under March futures, and will pick up the grain for free. A terminal quotes 5 cents under, but it costs 10 cents to haul it there. If March futures sell for \$3.25, where can you get the highest net price, and how much is it?
- A. \$3.10 at the terminal
  - B. \$3.20 at the terminal
  - C. \$3.20 at the elevator
  - D. \$3.05 at the elevator
  - E. None of the above
18. Before fertilizing and planting, the costs of seed and fertilizer would normally be considered
- A. A Section 179 deduction
  - B. Depreciable expenses
  - C. Fixed costs
  - D. Variable costs
  - E. All of the above

19. A demand curve shows the relationship between:

- A. Output prices and quantity demanded by consumers
- B. Output prices and quantity supplied by producers
- C. Variable input used and output produced
- D. Quantity demanded and consumer tastes
- E. None of the above

20. How many bushels of soybeans per acre will be required to equal the net returns for corn?

<u>Crop</u>	<u>Production Cost</u>	<u>Market Price</u>	<u>Expected Yield</u>
Corn	\$140 per acre	\$2.40 per bushel	120 bu./acre
Soybeans	\$110 per acre	\$6.00 per bushel	___bu./acre

- A. 31.9 bushels
- B. 35.2 bushels
- C. 38.7 bushels
- D. 43.0 bushels
- E. 45.0 bushels

21. A lease between a landlord and a tenant is equitable if it:

- A. Divides returns equally between the landlord and the tenant
- B. Is written by an attorney
- C. Holds strictly to traditional lease rates in the area
- D. Divides the income between the landlord and the tenant according to the contribution of each
- E. All of the above

22. The increase in corn yield decreases for each additional pound of nitrogen after 50 pounds applied per acre. This is an example of:

- A. Decreasing total production
- B. Increasing marginal product
- C. Diminishing marginal product
- D. The risk of using too much fertilizer
- E. All of the above

23. If the total costs are \$400 to produce 100 units of output and total variable costs are \$50 for that level of output, then average fixed cost are

- A. \$0.50
- B. \$2.50
- C. \$3.50
- D. \$4.00
- E. None of the above

24. A farm is purchased for \$1,000 per acre. The value has inflated at an annual rate of 4 percent. After five years an acre is worth: (Round the answer to the nearest dollar)
- A. \$1,040
  - B. \$1,170
  - C. \$1,217
  - D. \$1,400
  - E. \$1,571
25. When a farmer borrows money to purchase land, he/she usually must offer the title to the property as collateral until the loan has been paid. This credit instrument is commonly referred to as a:
- A. Liability
  - B. Promissory note
  - C. Mortgage
  - D. Sales contract
  - E. Asset
26. A farmer who wants the right, but not the obligation, to sell a particular commodity at a specific price would use a:
- A. Basis contract
  - B. Put option
  - C. Call option
  - D. Cash forward contract
  - E. None of the above
27. A farmer who buys feeder pigs could use the options market to reduce his price risk by:
- A. Buying a hog Put option
  - B. Selling a hog Put option
  - C. Buying a hog Call option
  - D. Selling a hog Call option
  - E. None of the above
28. The book value of a piece of farm equipment would be the:
- A. Value that the item currently has on the open market
  - B. Cost of the item plus the total depreciation to date
  - C. Cost of the item minus depreciation to date
  - D. Sentimental value of the item to the producer
  - E. All of the above
29. The spread between local cash price and the price of the near term underlying futures contract is called:
- A. Put option
  - B. Strike price
  - C. Basis
  - D. Commission
  - E. None of the above

30. The demand for food is usually considered an inelastic demand. This implies that for a given percentage change in price:
- A. The percentage change in quantity demanded is less than the percentage change in price
  - B. The percentage change in quantity demanded is more than the percentage change in price
  - C. The percentage change in quantity supplied decreases
  - D. The percentage change in quantity supplied increases
  - E. All of the above
31. A \$1 deductible expense (before tax) will cost after tax if the farmer's marginal tax rate is 40%.
- A. \$0.00
  - B. \$0.40
  - C. \$0.60
  - D. \$1.00
  - E. None of the above
32. Accrual accounting:
- A. Records income when received and expenses when paid
  - B. Records income when earned and expenses when incurred
  - C. Does not require maintaining an inventory of assets
  - D. Is not recommended by accountants
  - E. All of the above
33. Which of the following is a noncurrent asset?
- A. Market livestock purchased for resale
  - B. Crop inventory
  - C. Cash
  - D. All of the above
  - E. None of the above
34. Which asset or type of asset may be depreciated?
- A. Tractors
  - B. Land
  - C. Feed
  - D. All of the above
  - E. None of the above
35. Solvency has been achieved when a farmer has:
- A. Sufficient current assets to cover current debts
  - B. Sufficient equity to cover current debts
  - C. Sufficient assets to cover all debts
  - D. A positive cash flow
  - E. A positive profit

36. If you dispose of depreciable property at a gain

- A. You depreciate the profit using the MACRS method.
- B. You claim a Section 179 deduction on the profit.
- C. You may have to report, as ordinary income, all or part of the gain.
- D. All of the above
- E. None of the above

37. The present value of \$100 that will be received at the end of 1 year, given a 5% interest (discount) rate is:

- A. \$100.00
- B. \$ 95.24
- C. \$105.00
- D. \$ 90.70
- E. \$107.95

38. Which of the following is not normally on a cash flow statement ?

- A. Principal payments on loans
- B. Depreciation
- C. Interest payments
- D. All of the above
- E. None of the above

39. At the beginning of the year a farmer had a loan for \$150,000. The interest charged on this debt is 10% APR. If the farmer makes a loan payment at the end of the year of \$32,000, what would be the loan balance at the start of the new year?

- A. \$118,000
- B. \$133,000
- C. \$135,000
- D. \$142,000
- E. None of the above

40. A farmer has a debt-to-equity ratio of 2:1. The current liabilities total \$50,000 and the noncurrent liabilities total \$70,000. What is the value of the assets?

- A. \$240,000
- B. \$120,000
- C. \$ 60,000
- D. \$180,000
- E. None of the above

41. Liquidity is best described as:

- A. The ability to meet cash obligations as they come due
- B. Total assets minus total liabilities
- C. Having no long-term debt
- D. The rate of capital turnover
- E. Positive net farm income

42. Mr. Mealoil Crush wants to rent land to produce soybeans. He is very averse to risk. He should try to negotiate a rental agreement based on
- A. Cash rent
  - B. Rent as a share of production
  - C. Indifference between cash rent and share rent
  - D. All of the above
  - E. None of the above
43. A cash flow statement for the future should include:
- A. Depreciation
  - B. Net farm income
  - C. Net worth
  - D. All the above
  - E. None of the above
44. A business has adequate liquidity if:
- A. Value of total assets exceeds value of total liabilities
  - B. Net worth is positive
  - C. Equity is positive
  - D. All the above
  - E. None of the above
45. A ratio used to measure liquidity is the:
- A. Debt/equity ratio
  - B. Debt/asset ratio
  - C. Rate of return on assets
  - D. All the above
  - E. None of the above
46. Net worth is calculated from information on the balance sheet by:
- A. Subtracting total assets from current assets
  - B. Subtracting total liabilities from current liabilities
  - C. Subtracting total liabilities from total assets
  - D. All the above
  - E. None of the above
47. The market value of a piece of farm equipment would be the:
- A. Value that the item currently has on the open market
  - B. Cost of an item plus the total depreciation to date
  - C. Cost of the item minus depreciation to date
  - D. Sentimental value of the item to the producer
  - E. None of the above

**USE THE FOLLOWING INFORMATION TO ANSWER QUESTIONS 48 THROUGH 50. THIS INFORMATION IS COMPLEX BUT VERY REALISTIC FOR TODAY'S CROP PRODUCER. WE HOPE YOU FIND THESE QUESTIONS INTERESTING, CHALLENGING, AND WORTHWHILE.**

Most farmers recognize price and yield risk as the two major risks in production agriculture. With reduced government support for agriculture more of that risk has been shifted to farmers. Farmers may in turn shift some of that risk to futures, options, forward contracts, Multi-Peril Crop Insurance (MPCI), the new Crop Revenue Coverage (CRC), and other new risk management tools.

An MPCI contract guarantees farmers a minimum yield level based on their proven yield (actual production history (APH)), percent coverage level, and price election, which is the Risk Management Agency (RMA) forecast of prices at harvest. For example if a farmer, who produces 500 acres of corn has a 142.9 bushel APH and selects 70% coverage, then the MPCI contract would guarantee this grower 100 bushels ( $142.9 \text{ APH} \times 70\% = 100 \text{ bushels}$  at the RMA forecast price election, e.g., \$2.50). If the RMA subsidized MPCI premium rate is \$5.00 per \$100, then this 500 acre grower would pay  $142.9 \text{ (APH)} \times 70\% \text{ coverage} \times \$2.50 \text{ price election} \times [\$5.00/100] \text{ rate} = \$12.50 \text{ per acre} \times 500 \text{ acres} = \$6,250$  of premium of a 50,000 bushel MPCI guarantee (see Table 1).

If this grower were to produce only 40 bushels, then he/she would be paid 100 bushels guarantee -  $40 \text{ bushels of production} \times \$2.50 = \$150 \text{ per acre} \times 500 = \$75,000$  (see Table 1).

This grower could have purchased CRC and guaranteed revenue rather than just yield under the MPCI contract. For example, the CRC minimum revenue guarantee for this grower set on March 1 would equal  $142.9 \text{ APH} \times 70\% \text{ coverage} \times \$2.60$  (February average closing prices of the December CBOT corn contract) =  $\$260 \text{ per acre} \times 500 \text{ acres} = \$130,000$  minimum revenue guarantee. If November average closing price of the CBOT December futures contract is higher than the February average price, then the CRC coverage increases. For example, if the November average price equals \$3.60, then the fall guarantee would equal  $142.9 \text{ APH} \times 70\% \text{ coverage} \times \$3.60 = \$360 \text{ per acre} \times 500 \text{ acres} = \$180,000$ . The grower gets the higher of spring or fall guarantee without an additional premium charge. Only under CRC does the coverage increase if market prices increase, and the spring base price is often higher than the MPCI price election.

**Table 1. Example 500 Acre Corn Grower Premium & Indemnity Payments**

			Example effect price increase	of	a
<u>Premium</u>	MPCI	CRC	CRC		
1. APH (Average Yield per acre)	142.9	142.9	142.9		
2. Coverage Level	70%	70%	70%		
3. Bushels Guaranteed per acre Multiply (Ln 1 x Ln 2)	100				
4. Enter MPCI Price Election per bushel	<b>\$2.50</b>				
5. \$ of Coverage/Acre Multiply (Ln 3 x Ln 4)	\$250				
6. Higher of Feb or Nov Average Price		<b>\$2.60</b>	<b>\$3.60</b>		
7. Min Revenue Guarantee per price Multiply (Ln 1 x Ln 2 x Ln 6)	\$260	\$360			
8. Enter Base Premium Rate / \$100	\$5.00	\$7.50	No Change		
9. Farmer Paid Premium Multiply (Ln 5 or Ln 7 x Ln 8/100)	\$12.50	\$19.50	No Change		
10. Acres	500	500	No Change		
11. Total Farmer Paid Premium Multiply (Ln 9 x Ln 10)	\$6,250	\$9,750	No Change		
<b><u>Indemnity Payment (if any)</u></b>					
12. Current Year's Crop (bu)	<b>40.0</b>	<b>40.0</b>	<b>40.0</b>		
13. Lost Bushels per acre (Ln 3 - Ln 12)	60.0				
14. Nov Average Futures Price per bushel		<b>\$2.00</b>	<b>\$3.60</b>		
15. Revenue to Count per acre Multiply (Ln 12 x Ln 14)		\$80.00	\$144.00		
16. Indemnity Payment per acre Multiply (Ln 4 x Ln 13) or (Ln 7 - Ln 15)	\$150.00	\$180.00	\$216.00		
17. Total Indemnity Payment Multiply (Ln 10 x Ln 16)	\$75,000	\$90,000	\$108,000		
18. Net Indemnity Payment per acre Subtract (Ln 16 - Ln 9)	\$137.50	\$160.50	\$196.50		
19. Total net Indemnity Payment Multiply (Ln 10 x Ln 18)	<b>\$68,750</b>	<b>\$80,250</b>	<b>\$98,250</b>		

If the CRC subsidized premium rate is \$7.50 per \$100, then this grower would pay  $142.9 \text{ APH} \times 70\% \times \$2.60 \times \$7.50/100 = \$19.50$  per acre  $\times 500$  acres = \$9,750 of premium. If the grower produces 40 bushels and the market falls to \$2.00 at harvest, then the grower receives the higher spring guarantee of \$260 less the revenue to count of  $\$2.00 \times 40$  bushels of production equals \$80 resulting in a CRC indemnity payment of  $\$180$  per acres  $\times 500$  acres = \$90,000. If the harvest price has increased to \$3.60, the grower would receive the higher fall guarantee of \$360 less revenue to count of  $40$  bushels  $\times \$3.60 = \$144$  resulting in a CRC indemnity payment of  $\$216 \times 500$  acres = \$108,000 (see Table 1).

Assume the new crop futures market after March 15 increases to \$3.00, and the grower forward contracts 50,000 bushels at 15 under. Also assume the grower covers all 50,000 contracted bushels with a \$3.20 call, for a \$0.10 per bushel cost that includes all call premiums and call commissions. Assume the calls are held until harvest. Please answer the following questions based on this example farmer.

48. For the situations described in A, B, C, and D below, calculate the gross indemnity payments for MPCl and CRC for the example 500 acre farm described above (do not subtract premium cost and round to the nearest dollar). Which of the following is (are) correct?

- A. If yield equals 110 bushels and fall futures price equals \$2.00, then CRC pays \$20,000 and MPCl pays \$0.00
- B. If yield equals 110 bushels and fall futures price equals \$3.00, then CRC pays \$0.00 and MPCl pays \$0.00
- C. If yield equals 143 bushels and fall futures price equals \$1.85, then CRC pays \$0.00 and MPCl pays \$0.00
- D. If yield equals 60 bushels and fall futures price equals \$3.80, then CRC pays \$76,000 and MPCl pays \$50,000
- E. All of the above are correct

49. For situations described in A, B, C, and D below, calculate the total adjusted revenue for this example farm. Include all cash sales, forward contract sales, calls sold, and indemnity payments less cancellation penalties, call premiums and insurance premiums. Assume the grower purchased the 70% coverage MPCl contract described above, and basis remains at 15 under. Which of the following is (are) correct?

- A. If yield equals 40 bushels and fall futures price increases to \$3.60, then adjusted revenue equals \$122,750.
- B. If yield equals 40 bushels and fall futures price decreases to \$2.00, then adjusted revenue equals \$120,750.
- C. If yield equals 120 bushels and fall futures price decreases to \$2.00, then adjusted revenue equals \$131,250.
- D. If yield equals 120 bushels and fall futures price increases to \$3.60, then adjusted revenue equals \$216,000.
- E. Only A, B, and C are correct

50. Let's assume the example grower purchased a CRC contract, rather than an MPCl contract. Calculate the total adjusted revenue for this example farmer under the same set of conditions as described in question 49. Which of the following is (are) correct?

- A. If yield equals 40 bushels and fall futures price increases to \$3.60, then adjusted revenue equals \$152,250.
- B. If yield equals 40 bushels and fall futures price decreases to \$2.00, then adjusted revenue equals \$162,250.
- C. If yield equals 120 bushels and fall futures price decreases to \$2.00, then adjusted revenue equals \$156,250.
- D. If yield equals 120 bushels and fall futures price increases to \$3.60, then adjusted revenue equals \$192,000.
- E. Only A, B, and C are correct.