Part I: Multiple Choice. Circle the best answer (3 points each).

1. Reasons why you would replace machinery would include:
   a. it is too small.
   b. it is worn out and not dependable.
   c. it is obsolete.
   d. costs such as repairs for the present machine are increasing.
   e. all the above are reasons.

2. Methods for acquiring machinery would include:
   a. purchase or buy
   b. lease
   c. joint ownership
   d. custom hire
   e. all of the above are methods

3. Budgets are a common tool used in analyzing farm alternatives or decisions. Examples of budgets could include:
   a. a partial budget.
   b. a whole farm budget.
   c. an enterprise budget such as soybeans.
   d. a cash flow budget.
   e. All of the above are types of budgets.

4. A competitive enterprise is:
   a. where if you increase the production of one enterprise, you can also increase the production of another enterprise.
   b. where if you increase the production of one enterprise, you will need to reduce the production of another enterprise.
   c. where if you increase the production of one enterprise, you will not impact the production of another enterprise.
   d. None of the above represents a competitive enterprise.

5. In a partial budget:
   a. you only evaluate the costs and return for the items that are changing.
   b. you evaluate all costs and all revenues for the entire operation.
   c. you only evaluate the fixed costs for the operation.
   d. you only compare the return for the items that are changing.
   e. you evaluate the revenue for the entire operation.
The following seven questions are based on the attached corn silage budget.

6. Attached is an example budget for corn silage production. What is the nitrogen cost per pound (lb) used in the budget?
   a. $35.00
   b. $.13
   c. $.25
   d. $.15
   e. None of the above.

7. Given the attached corn silage budget, if you had larger machinery and you used 4 hours rather than 5.0 hours of labor per acre, what would your labor cost on the budget be?
   a. $47.50
   b. $38.00
   c. Would not change because it is not a fixed cost.
   d. $24.00
   e. None of the above.

8. Given the attached corn silage budget, if the price of corn silage is $30.00 per ton, what is the level of income over variable costs (gross margin) for an acre of corn silage? (Assume all costs are as provided in the budget.)
   a. $246.16
   b. $9.50
   c. $213.35
   d. $16.64
   e. None of the above.

9. Given the attached corn silage budget, what is the fixed cost of producing an acre of corn silage? (Assume all costs are as provided in the budget.)
   a. $440.50
   b. $236.65
   c. $203.84
   d. $320.96
   e. None of the above.

10. For the attached budget, how low can the price of corn silage go in the short run before you would decide not to grow corn silage and to let the land sit idle? (Assume you have no other use for the land. Your either produce corn silage or let it idle.)
    a. $13.58 or less per ton
    b. $15.77 or less per ton
    c. $29.37 or less per ton
    d. $25.47 or less per ton
11. What is the break-even price for corn silage?
   a. $13.58 per ton
   b. $15.77 per ton
   c. $25.47 per ton
   d. $29.37 per ton
   e. None of the above.

12. How much potash is used per acre of corn silage?
   a. $23.00
   b. 140 pounds
   c. 120 pounds
   d. $18.00
   e. None of the above

The following seven questions are based on the attached “Finishing Steer Calves” budget.

13. Given the attached “Finishing Steer Calves” budget, what is the income (gross revenue) per animal placed on feed if the death loss is 2 percent and the market pig price is $.80 per pound?
   a. $920
   b. $901.60
   c. $892.40
   d. $100.00
   e. None of the above.

14. For the “Finishing Steer Calves” budget, the corn fed (61 bushels) was:
   a. purchased at the elevator for $2.40 per bushel
   b. grown on the farm
   c. purchased from a neighbor for 2.40 per bushel
   d. a or c above

15. How much alfalfa-brome hay is fed per steer?
   a. .65 tons
   b. 75 pounds
   c. 116 pounds
   d. 61 bushels
   e. None of the above.

16. For the “Finishing Steer Calves” budget, if the market cattle price is $8.85 per pound, what is the income over variable costs (gross margin) per steer calf? All other information is as shown in the budget.
   a. $367.55
   b. $365.45
   c. $155.51
   d. $134.51
   e. None of the above.
17. The labor cost of $9.00 per hour as reflected on the “Finishing Steer Calf” budget is an example of:
   a. using opportunity cost to place a value on resources
   b. non-farm costs
   c. family living costs
   d. fixed costs
   e. None of the above.

18. If the feeder steer reflected on the “Finishing Steer Calves” budget was on feed for 8 months rather than the 230 days, what would be the interest on the feeder steer purchase price if the rate is 7%?
   (The purchase price remains at $522.50)
   a. $36.58 to $36.60
   b. $24.38 to $24.40
   c. $3.04 to $3.06
   d. None of the above.
   e. Can’t determine with information provided.

19. What is the breakeven selling price for all costs given the budget information provided?
   a. 73.19¢ per pound
   b. 72.45¢ per pound
   c. 52.90¢ per pound
   d. 52.37¢ per pound
   e. None of the above.

The next two questions are based on the following information.

You have 100 acres of land and you can produce corn and wheat. If you produce all corn, you produce 12,000 bushels and if you produce all wheat, you produce 6,000 bushels. Other combinations are shown in the table below.

<table>
<thead>
<tr>
<th>Combination Number</th>
<th>Corn Bushels</th>
<th>Wheat Bushels</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>6,000</td>
</tr>
<tr>
<td>2</td>
<td>4,000</td>
<td>5,000</td>
</tr>
<tr>
<td>3</td>
<td>8,000</td>
<td>3,000</td>
</tr>
<tr>
<td>4</td>
<td>12,000</td>
<td>0</td>
</tr>
</tbody>
</table>

20. If the price of corn is $2.50 per bushel and the price of wheat is $3.50, what combination would you select to maximize your profits?
   a. Number 1
   b. Number 2
   c. Number 3
   d. Number 4
   e. Number 2 and 3 provide same profit
21. If the price of corn is $2.00, how high would the price of wheat need to be before you would produce all wheat? (Combination 1)
   a. At least $5.00 per bushel
   b. At least $7.50 per bushel
   c. At least $12.00 per bushel
   d. At least $10.00 per bushel
   e. Can't determine with information provided.

The following information is used for the next two questions and provides returns in $1,000 increments for three alternative uses of capital.

<table>
<thead>
<tr>
<th>Capital Invested</th>
<th>What Capital invested In</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cattle</td>
</tr>
<tr>
<td>1    First $1000</td>
<td>$2,800</td>
</tr>
<tr>
<td>2    Second $1000</td>
<td>$2,000</td>
</tr>
<tr>
<td>3    Third $1000</td>
<td>$1,500</td>
</tr>
<tr>
<td>4    Fourth $1000</td>
<td>$700</td>
</tr>
<tr>
<td>5    Fifth $1000</td>
<td>$500</td>
</tr>
</tbody>
</table>

22. If you have only $2,000 to invest where will you put your money?
   a. $1,000 in hogs and $1,000 in sheep.
   b. $2,000 in sheep.
   c. $2,000 in cattle.
   d. $2,000 in hogs.
   e. None of the above is the best combination.

23. How much would you invest if you have unlimited capital or you can invest as much as you want?
   a. $5,000 in all three areas as total returns exceed total costs.
   b. Only $2,000 in hogs and $2,000 in sheep.
   c. $3,000 in cattle; $5,000 in hogs; and $5,000 in sheep.
   d. $5,000 in sheep and none in the other areas as that provides the highest total return.
   e. None of the above.
The next seven questions are based on the following information.

You are looking into purchasing a combine for your farm business. You have pulled together the following information for a combine purchase and want to calculate costs.

- Purchase price = $150,000
- Salvage value = $40,000
- Years of useful life = 5 years
- Fuel cost = $1.50/gallon
- Fuel use (gallon/hour) = 6.0
- Taxes = 1% of new cost
- Labor cost = $10.00/hour
- Labor amount (use) = 1,000 hours
- Repairs = 10% of new cost
- Number of acres = 800 acres
- Interest rate = 10%
- Insurance and housing = 4% of new cost

24. In a budget for combine ownership, what is the annual interest cost?
   a. $15,000
   b. $11,000
   c. $9,500
   d. $4,000
   e. None of the above.

25. In a budget for combine ownership, what is the annual depreciation? (Use straight line as you did in Lab 6)
   a. $30,000
   b. $22,000
   c. $19,000
   d. $38,000
   e. None of the above.

26. In a budget for combine ownership, what is the annual level of taxes?
   a. $1,000
   b. $1,100
   c. $950
   d. $1,500
   e. None of the above.

27. What is the level of fuel cost per acre? (As indicated, you will use the combine on 800 acres.)
   a. $11.25
   b. $10.50
   c. $9.75
   d. $6.50
   e. None of the above.
28. In a budget for combine operating cost, what is the annual repair cost per acre?
   a. $18.75
   b. $12.50
   c. $13.75
   d. $9.50
   e. None of the above.

29. In a budget for combine operating cost, what is the labor cost?
   a. $9,500
   b. $10,000
   c. $11,000
   d. $15,000
   e. None of the above.

30. If you use the combine for 1,000 acres rather than the 800 acres, what happens to your fixed cost per acre?
    a. Remains unchanged.
    b. Decreases.
    c. Increases.
    d. None of the above.

The following information is used for the next two questions.

You have the option of purchasing a self-propelled combine or having your neighbors, Joyce and her daughter Heather, custom harvest your crop. They will custom harvest the crop for $25.00 per acre. The purchase cost of the combine is $150,000. Given this, you calculate the annual fixed ownership cost to be $18,000 per year. Your operating cost per acre is $7.00 per acre while your fixed cost per acre is calculated to be $38.00 per acre.

31. Given this, how many acres are needed before you can justify ownership? (Don’t consider any factors such as potential yield differences, etc.)
   a. At least 1,000 acres
   b. At least 720 acres
   c. At least 580.65 acres
   d. At least 1384.6 acres
   e. None of the above.
32. With further calculation, you conclude that if you have Joyce and Heather custom combine your soybean crop they will have a combine with more current harvesting technology. However, you are paying them so much per acre so they travel at a rapid speed for harvesting. As a result, you get one bushel less of soybeans per acre. You project that the soybean price will be $7.00 per bushel. Given this, what is the break even number of acres? (However, with this calculation, assume that the annual fixed ownership cost is $15,000 per year; the custom rate per acre is $25.00, the operating cost is $10.00 per acre, and the fixed cost per acre is $35.00.)
   a. At least 1,000 acres
   b. At least 1,875 acres
   c. At least 681.82 acres
   d. At least 468.75 acres
   e. None of the above.

33. During Spring Break, which is a week away,
   a. you are going to get some time to yourself fully charged and come back ready to go to finish off the semester full of energy.
   b. you are going to do some fun things.
   c. you are going to do some thing that you enjoy.
   d. **Hint:** “You are going to do all of the above” is the best answer.
   e. You are going to do all the above.

**Part II. Bonus (3 points)**

What is the name of the person that sits next to you (closest to you) in this class (on most days)?
Supporting Information

Exam II

Econ 330

Spring 2004
## Corn Silage following Corn

<table>
<thead>
<tr>
<th></th>
<th>Fixed</th>
<th>Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preharvest Machinery 1/</strong></td>
<td>$20.05</td>
<td>$11.27</td>
</tr>
<tr>
<td>Seed, Chemical, etc.</td>
<td>Units</td>
<td></td>
</tr>
<tr>
<td>Seed @ $1.00 per 1000 k.</td>
<td>23,000</td>
<td>$23.00</td>
</tr>
<tr>
<td>Nitrogen @ $0.28 per lb. (Pound)</td>
<td>140</td>
<td>36.00</td>
</tr>
<tr>
<td>Phosphate @ $0.28 per lb. (Pound)</td>
<td>55</td>
<td>15.40</td>
</tr>
<tr>
<td>Potash @ $0.15 per lb. (Pound)</td>
<td>120</td>
<td>18.00</td>
</tr>
<tr>
<td>Lime (yearly cost)</td>
<td>8.00</td>
<td></td>
</tr>
<tr>
<td>Herbicide</td>
<td>32.00</td>
<td></td>
</tr>
<tr>
<td>Insecticide</td>
<td>15.00</td>
<td></td>
</tr>
<tr>
<td>Crop Insurance</td>
<td>7.00</td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>6.00</td>
<td></td>
</tr>
<tr>
<td>Interest on preharvest variable costs (8 months @ 8%)</td>
<td>6.83</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$166.23</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Fixed</th>
<th>Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Harvest Machinery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silage Harvester</td>
<td>$23.52</td>
<td>$11.34</td>
</tr>
<tr>
<td>Haul</td>
<td>14.87</td>
<td>8.41</td>
</tr>
<tr>
<td>Blower</td>
<td>10.92</td>
<td>6.59</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$54.11</td>
<td>$26.34</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Fixed</th>
<th>Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Labor</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.0 hours @ $9.5</td>
<td>$47.50</td>
<td></td>
</tr>
<tr>
<td><strong>Land</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash rent equivalent</td>
<td>$115.00</td>
<td></td>
</tr>
<tr>
<td><strong>Total fixed, variable</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per acre</td>
<td>$236.85</td>
<td>$203.84</td>
</tr>
<tr>
<td>Per ton</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total cost per acre</strong></td>
<td>$440.50</td>
<td></td>
</tr>
<tr>
<td><strong>Total cost per ton</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1/ Chisel plow, tandem disk, apply N, field cultivate, plant, cultivate, and spray. See the Estimated Machinery Costs table.
**FINISHING STEER CALVES — One Head**

<table>
<thead>
<tr>
<th><strong>INCOME</strong></th>
<th><strong>Corn and Hay Ration</strong></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales income (1,150 lbs @ $.............)</td>
<td>$................</td>
<td>$......</td>
<td>$......</td>
</tr>
<tr>
<td>Minus death loss (-1.00% of sales)</td>
<td>$................</td>
<td>$......</td>
<td>$......</td>
</tr>
<tr>
<td><strong>GROSS INCOME</strong></td>
<td>$................</td>
<td>$......</td>
<td>$......</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>VARIABLE COSTS</strong></th>
<th><strong>Total</strong></th>
<th><strong>Cash</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeder Cost @ $0.95 per lb</td>
<td>550 lbs</td>
<td>$522.50</td>
</tr>
<tr>
<td>Interest @ 6.5%</td>
<td>230 days</td>
<td>21.40</td>
</tr>
<tr>
<td><strong>Feed Costs</strong></td>
<td></td>
<td>$201.48</td>
</tr>
<tr>
<td>Corn @ $2.40 per bushel</td>
<td>61 bu</td>
<td>$146.40</td>
</tr>
<tr>
<td>Supplement &amp; minerals @ $0.16 per lb</td>
<td>75 lbs</td>
<td>12.00</td>
</tr>
<tr>
<td>Supplement &amp; minerals @ $0.08 per lb</td>
<td>116 lbs</td>
<td>9.28</td>
</tr>
<tr>
<td>Alfalfa - brome hay @ $52.00 per ton</td>
<td>0.85 tons</td>
<td>33.80</td>
</tr>
<tr>
<td>Corn Silage @ $22.00 per ton</td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total Feed Costs</strong></td>
<td></td>
<td>$201.48</td>
</tr>
<tr>
<td>Veterinary and health</td>
<td></td>
<td>$10.00</td>
</tr>
<tr>
<td>Machinery and equipment</td>
<td></td>
<td>11.00</td>
</tr>
<tr>
<td>Marketing and miscellaneous</td>
<td></td>
<td>14.00</td>
</tr>
<tr>
<td>Interest on feed &amp; other costs @ 6.5%</td>
<td>115 days</td>
<td>4.94</td>
</tr>
<tr>
<td>Labor @ $9.00 per hour</td>
<td>3 hours</td>
<td>27.00</td>
</tr>
<tr>
<td><strong>TOTAL VARIABLE COSTS</strong></td>
<td></td>
<td>$812.22</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>FIXED COSTS</strong></th>
<th><strong>Total</strong></th>
<th><strong>Cash</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Machinery, equipment, housing</td>
<td></td>
<td>$21.00</td>
</tr>
</tbody>
</table>

| **TOTAL ALL COSTS**                     |                         | $833.22 | $602.28 |

| **INCOME OVER ALL COSTS**               |                         | $......  | $......  |

- Break-even selling price for variable costs
- Break-even selling price for all costs