

Name: \_\_\_\_\_

**Assignment 2: ENTERPRISE BUDGETS AND QUALITY MANAGEMENT**

Due: Tuesday, February 19

This assignment is worth 100 points. Each part is worth 20 points.

**A. DEVELOPING AN ENTERPRISE BUDGET USING ECONOMIC ENGINEERING**

Prepare an enterprise budget using the economic engineering method and the products, resources, prices and costs listed below and the blank form on the next page.

Title: Finish Feeder Pigs (one pig)

Product: Market hog; 260 lbs.; estimated price: \$42/cwt. (cwt = 100 lbs.)

## Direct costs for materials and services

Feeder pig (50 lbs)	\$50/head
Corn grain	9.0 bushels @ \$3.60/bu.
Soybean meal	82 lbs. @ \$0.16/lb.
Dried distiller grain	32 lbs. @ \$0.06/lb.
Vitamin & minerals	14.4 lbs. @ \$0.40/lb.
Feed processing & delivery	0.3 tons @ \$10.75/ton
Feed additives	\$4/head
Veterinary & medical	\$4/head
Fuel, repairs, utilities	\$7.30/head
Marketing & miscellaneous	\$4/head
Manure application cost	190 gallon @ \$0.012/gal.
Interest on direct costs	7% on 2 months of all other direct costs
Death loss	2% of initial feeder pig cost

## Overhead costs

Machinery & facilities	\$8.20/head
Misc. overhead costs	\$0.21/head
Owner labor, mgt., risk	\$3/head



## B. DEVELOPING AN ENTERPRISE BUDGET FROM WHOLE FARM RECORDS

Using the whole-farm information for last year (described below) for the Patterson farm and the budget form on page 5, estimate a dairy enterprise budget on a per cow basis. This budget will be for all dairy animals: milking cows and replacement stock. The farm produces corn and soybeans but buys hay and other feed.

TITLE: Dairy Herd and Replacement Heifers

DESCRIPTION: Average per cow

### 1. Whole Farm Returns

In addition to the crop and dairy information listed below, this farm also sold cull cows worth a total of \$107,060 and calves worth \$34,800.

	Corn	Soybean	Dairy	Total
Size	105 acres	60 acres	175 cows	xxx
Yield	145 bu./ac.	47 bu./ac.	20,331 lb/cow	xxx
Price per unit	\$3.65	\$8.50	\$18/cwt	xxx
Other income	24.00	22.00	\$200/cow	xxx
Gross per acre or cow				xxx
Cull cows & calves	xxx	xxx	\$141,860	xxx
Total Gross Income				
% of Gross Income				xxx

### 2. Whole farm direct expenses.

From their records, the Pattersons easily divide most of their direct expenses between corn, soybean, and dairy just by looking at the individual items. For other items, they have to estimate how much is for each enterprise. After considering the number of machinery operations for each crop and the amount of repairs to dairy buildings and equipment, they decided to allocate 67% of the whole-farm repair bill to dairy, 18% to corn and 15% to soybeans. They estimate dairy's share to be 44% of fuel and oil expenses and 70% of miscellaneous costs, but the operating interest was due only to corn and soybeans. They felt they had included all their whole-farm expenses from their records but realized that the corn grain and silage they grew and fed was not included. After some estimating of daily feed rates and local prices, they decided they had fed \$33,240 worth of corn grain and \$37,000 worth of corn silage.

Using the information above, they allocate the following direct, whole-farm expenses to the dairy enterprise and calculate the expense per cow.

<b>Direct, whole farm expenses</b>				
Corn Seed	10,005		Alfalfa hay, purchased	74,565
Soybean Seed	3,670		Complete feed ration	35,044
Corn Fertilizer	6,800		Protein, vitamin, & minerals	77,560
Soybean Fertilizer	0		Breeding fees	8,924
Corn Chemical	9,796		Veterinary	36,622
Soybean Chemical	3,660		Dairy supplies	38,098
Fuel & oil	32,778		Bedding	8,316
Repairs	55,338		Manure hauling	12,778
Crop insurance	644		Milk hauling	5,165
Misc. direct costs	4707		Dairy marketing	9,978

### 3. Overhead costs

The Pattersons could identify the following overhead costs specifically as dairy expenses. The dairy facilities were listed separately on the county records so the real estate taxes were easily identified as totaling \$12,576 for dairy. They have paid off their loan for the dairy barn. They decided to allocate the rest of their overhead costs (listed below) to each enterprise by using dairy's share of total gross income.

Machinery and building depreciation	\$32,290
Farm Insurance	\$13,638
Utilities	\$21,339
Miscellaneous overhead	\$23,471

4. Operator's labor, management, and risk. The Pattersons want to earn about \$36,000 for family living expenses from the dairy enterprise.



### **C. Fail-Safe Process Control**

Richard Johnson wants to be sure that his on-farm, stored grain is kept in proper condition from harvest through selling. The corn is already dried to 15% moisture. He expects to start selling some in January and finish selling the rest by July at the latest.

On a separate sheet, develop a checklist that shows the tasks that need to be done, how they will be done and on what schedule, what control standards will be used, and what corrective actions may be needed if the standards are not met. For an example, use the illustrative fail-safe plan in Figure 6.4 in the text.

(If you would prefer to work on a problem more closely related to your interests or knowledge, suggest another problem you would like to work on. Alternatives need to be approved before credit is given.)

**D. Using Trend or Run Charts to Identify Problems**

(This problem is for dairy. If this does not fit your interests or knowledge, please just do the numbers and evaluate whether you think the process is fluctuating randomly or in a pattern.)

Betty Thompson is concerned about the somatic cell count in her milk. The price she receives for milk is affected by the somatic cell count and she wants to get the highest price premium possible. In chronological order, the last ten measurements of somatic cells per milliliter are (in thousands) : 220, 320, 275, 300, 350, 275, 350, 430, 550, 500.

1. Prepare a run diagram that charts the somatic cell count measurements.

600										
550										
500										
450										
400										
350										
300										
250										
200										
scc/ count	1	2	3	4	5	6	7	8	9	10

2. Now that you have constructed a run diagram, is the somatic cell count moving randomly or in specific direction that is a potential cause for concern?

## E. Cause and Effect Charts

Either below or on a separate sheet, develop a cause-and-effect (CE) diagram for **one** of the following problems: (1) high production costs per bushel for wheat in Minnesota, (2) low average daily gain in feeder pig finishing, (3) high bacteria count in milk, (4) poor stand of second-year alfalfa, or (5) lower than expected corn population. Start with the five basic categories for farm and ranch management: equipment/tools, materials/inputs, workers, inspection, and weather. Your diagram should look similar to those in Figures 6.4 and 6.5 in the text.

(If none of these fit your future interests in farming, ask me if your choice would work.)