1996 IA FFA Meat Judging Contest
August 5, 1996

Name _____
Chapter _____
ID# _____

A. Ground Beef Formulation Problem

Assume that you manage a company which manufactures ground beef for a chain of fast food stores. Your goal is to produce a fresh, wholesome product which complies with all meat inspection and industry regulations. The fat content and other specifications must comply with the specifications of the stores. The cost of the product should be as low as possible (least cost formulation).

Ground beef regulations (USDA) are defined as follows:
GROUND BEEF: The term "Ground Beef" and "Chopped Beef" are synonymous. Products so labeled must be made with fresh and/or frozen beef with or without seasoning, and without the addition of fat as such, and shall contain no more than 30% fat. It may not contain added water, binders, or extenders. It may contain beef cheek meat not to exceed 25%. Heart meat and tongue meat are not acceptable ingredients.

If the name is qualified by the name of a particular cut, such as "Ground Beef Round" or "Beef Chuck, Ground" the product must consist entirely of meat from the particular cut or part.

If a product is to qualify for "low fat" or "lean" labeling the product must contain less than 10% total fat. If a product is to be labeled "extra lean" the product must contain less than 5% total fat.

Industry Guidelines on Ground Beef Manufacture

To get the most desirable color and maximum shelf life, all boneless meats used to manufacture ground beef shall be fresh (not frozen), well chilled (temperature no higher than 35°F), and shall arrive at the plant within 72 hours of animal slaughter.
A least-cost formulation shall be performed on acceptable meat ingredients to select those meats which produce the lowest cost product which meets all ground beef guidelines.
To simplify the grinding and blending operation, only two meat ingredients will be used for each batch.

You must follow all government regulations and company policies listed, and you are to determine which available ingredients to use and in what amounts, to make specification ground beef in a least cost formulation.

SPECIFICATIONS of your company's ground beef formulation are:

Fat content of finished product = 15%
Batch Size - 1000 lbs.
Manufacturing date = Aug. 7
No product over 5 days old may be used for grinding (from date of slaughter)
No product with a receiving temperature of over 35° F may be used
Product must arrive at the plant within 72 hours (3 days) of animal slaughter date
All product shall be received fresh (not frozen)
Must be least cost formulated

Data on Available Boneless Meat Ingredients

Meat Ingredients	Date Slaughtered	Date Received	Temp (° F) Received	Condition Received	Fat Content (%)	Protein Content (%)	Bind[x] Value	Price/ lb
Cow Beef	8/2	8/5	32°	fresh	8	18.5	0.95	1.02
Bull Beef	8/2	8/5	38°	fresh	5	20.8	1.00	1.09
Boneless Chuck	8/3	8/5	34°	fresh	12	19.5	0.85	1.02
50% Lean Trim	8/2	8/5	34°	fresh	50	9.7	0.45	0.58
Beef Cheek Meat	7/29	7/31	35°	fresh	15	18.3	0.85	0.84
Boneless Round	8/3	8/5	33	fresh	5	21.2	0.85	1.44

[x]The higher the number, the greater the binding potential of the ingredient

1. For least cost ground beef formulation of an 85% lean ground beef, meeting all specifications of the fast food store, you would use a combination of

   a. boneless round and 50% lean trim.
   b. boneless chuck and bull beef.
   c. beef cheek meat and 50% lean trim.
   d. bull beef and 50% lean trim.
   e. cow beef and 50% lean trim.

2. For least cost ground beef formulation meeting all fast food store specifications, use the Pearson square method to calculate the amount of meat ingredients needed in a 1000 lb batch of 85% lean ground beef. What would be the proportion of the two meat ingredients? (round to the nearest whole number)

   a. 833 and 167 lb
   b. 921 and 79 lb
   c. neither a nor b

3. Price per pound (round to the nearest cent) of the least cost formulated ground beef meeting fast food store specifications would be:

   a. $0.98/lb
   b. $0.95/lb
   c. $0.85/lb
   d. $0.58/lb
   e. none of the above

4. If you mark up the ground beef 35% to cover overhead costs and make a profit for your company, you will sell (round to the nearest cent) this batch for:

   a. $1.32/lb
   b. $1.28/lb
   c. $1.18/lb
   d. none of these

5. The ground beef formulation would

   a. qualify as low fat
   b. be labeled as chopped beef
   c. both of these
   d. neither of these

B. Carcass Pricing Problem

As a beef producer, you sell 100 steers to Food for the Future of Fort Dodge on a carcass grade and weight basis because you feel they are worth more than the live bid you were quoted by another packer.

The average live weight, hot carcass weight, yield and quality grades of your cattle, and pricing information are as follows:

Average live weight	1250 lbs.
Average hot carcass weight	788 lbs.
USDA yield grades (YG)	50% were USDA Yield Grade (YG) 2's 50% were USDA Yield Grade (YG) 3's
USDA quality grades	50% were USDA Choice 50% were USDA Select
Pricing information	Hot Carcass Price/cwt for USDA Choice and Select Carcasses, Hot Carcass weight range, 550 to 800 lbs.

USDA Quality Grade

Choice	$102/cwt
Select	$92/cwt

Add $1/cwt for YG 2 carcasses

1. What is the average dressing percentage?

   a. 60%
   b. 63%
   c. neither a nor b

2. What is the carcass price/cwt for YG 2 Choice steers?

   a. $103/cwt
   b. $102/cwt
   c. $97.50/cwt
   d. $93/cwt
   e. none of the above

3. What is the carcass price/cwt for YG 3 Select steers?

   a. $102/cwt
   b. $93/cwt
   c. $92/cwt
   d. $92.50/cwt
   e. none of the above

4. What is the average carcass price/cwt for this lot of cattle when both quality and yield grades are taken into consideration?

   a. $103/cwt
   b. $93/cwt
   c. $97.50/cwt
   d. $98/cwt
   e. none of the above

5. If you were offered $63/cwt to sell the cattle on a live basis instead of selling on a carcass grade and weight basis as you chose to, would you have:

   a. Made less money
   b. Stayed the same
   c. Made more money