

1999 IA FFA Meat Judging Contest
August 28, 1999

Name _____
Chapter _____
ID# _____

A. Ground Beef Formulation Problem

Assume that you manage a company which manufactures ground beef for retail food stores. This particular retail food store has strong specifications to meet its food safety and chopped beef quality standards. Your goal is to produce a fresh, wholesome product which complies with all meat inspection, industry regulations, and retail store specifications. The fat content and all other specifications must comply with the specifications of the retail food store. The cost of the product must 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 degrees 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, and 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 retail food store specifications 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 process.

SPECIFICATIONS of the retail food store's ground beef formulation are:

Fat content of finished product = 12%

Batch Size = 2000 lbs.

Manufacturing date = Aug. 28

No product over 4 days old may be used for grinding (from date of slaughter)

No product with a receiving temperature of over 34 degrees F may be used

Product must be received 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	8/25	8/27	28°	Frozen	7	18.5	0.95	\$1.00
Bull Beef	8/25	8/27	32°	Fresh	5	20.8	1.00	\$1.10
Boneless Chuck	8/26	8/28	36°	Fresh	15	19.5	0.85	\$0.97
65% Lean Trim	8/26	8/28	32°	Fresh	35	10.5	0.45	\$0.65
Beef Cheek Meat	8/26	8/28	31°	Fresh	15	18.3	0.85	\$0.71
Boneless Round	8/26	8/28	34°	Fresh	5	21.2	0.85	\$1.40

^xThe higher the number, the greater the binding potential of the ingredient

1. For least cost ground beef formulation of 88% lean ground beef, meeting all specifications of the retail food store, you would use a combination of
 - a. cow beef and 65% lean trim
 - b. bull beef and 65% lean trim
 - c. boneless round and 65% lean trim
 - d. bull beef and beef cheek
 - e. boneless chuck and bull beef

2. For least cost ground beef formulation meeting all retail food store specifications, use the Pearson square method to calculate the amount of meat ingredients needed in a 2000 lb batch of 88% lean ground beef. What would be the proportion of the two meat ingredients? (round to the nearest whole number)
 - a. 1533 and 467
 - b. 1767 and 233
 - c. 1234 and 766

3. Price per pound (round to the nearest cent) of the least cost formulated ground beef meeting retail food store specifications would be:
 - a. \$0.97/lb
 - b. \$1.00/lb
 - c. \$1.05/lb
 - d. \$1.10/lb

4. If you mark up the ground beef 30% to cover overhead costs and make a profit for your company, you will sell (round to the nearest cent) this batch for:
 - a. \$1 19/lb
 - b. \$1.24/lb
 - c. \$1.29/lb
 - d. \$1 30/lb

5. The ground beef formulation would
 - a. qualify as beef chuck, ground
 - b. qualify as ground beef round
 - c. be labeled as ground beef
 - d. be labeled as low fat ground beef

B. Carcass Pricing Problem

As a beef producer you have worked intelligently and hard to be knowledgeable about the composition and quality of your cattle. You also know that profitable marketing will be based on the composition (yield grade) and palatability indicating factors (quality grade). You know this as value-based marketing. You also recognize its important to choose a processor who recognizes the importance of value based marketing. Consequently, you sell your steers to Beef Innovators, Inc. This futuristic company pays for quality and yield as they believe the producer must be compensated for their superior efforts, and consumers deserve the most tender, flavorful beef steaks and roasts

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

Average live weight	1168 lbs.
Average dressing percent	62.5%
USDA yield grades (YG)	100% were USDA Yield Grade (YG) 2s
USDA quality grades	40% were USDA low choice
	10% were USDA average and high choice

USDA Quality Grade and Yield Grade. Prices, and Adjustments/cwt

Hot Carcass weight range of 650 to 800 lbs.
 Under 650 lbs. -\$5.00/cwt
 Over 800 lbs. -\$5.00/cwt
 YG 3 Low Choice \$104/cwt
 Add \$2/cwt for YG 2 carcasses
 Add \$5/cwt for average and high choice carcasses

1. What is the average hot carcass weight?
 - a. 810 lbs.
 - b. 730 lbs.

2. Is the hot carcass weight acceptable
 - a. Yes
 - b. No

3. What is the carcass price/cwt for YG 2 average and high choice steers?
 - a. \$104/cwt
 - b. \$106/cwt
 - c. \$109/cwt
 - d. \$111/cwt

4. What is the carcass price/cwt for YG 2 low choice steers?
 - a. \$104/cwt
 - b. \$106/cwt
 - c. \$111/cwt
 - d. \$112/cwt

5. What is the average carcass price/cwt for this lot of cattle when both quality and yield grades are taken into consideration?
 - a. \$106/cwt
 - b. \$107/cwt
 - c. \$108.50/cwt
 - d. \$111/cwt