

2017 Iowa State FFA Meat Judging Contest Exam
August 26, 2017

Name _____ Chapter _____

ID # _____

A. Ground Beef Formulation Problem

Processors responsible for manufacturing ground beef for distribution to retail food stores must adhere to food safety standards as well as provide high quality products. Manufacturers must comply with all industry regulations, meat inspections, and retail store specifications. Each retail store has particular specifications for ground beef and costs must be as low as possible. Therefore, manufacturers must calculate least-cost formulations.

Definitions for USDA ground beef regulations:

Ground Beef: The terms "Ground Beef" and "Chopped Beef" are synonymous. Products labeled as "Ground Beef" and "Chopped Beef" must be made with fresh and/or frozen beef from primal cuts and trimmings with or without seasonings, without the addition of fat as such, and shall contain no more than 30% fat (70% lean). These products may not contain added water, binders, extenders, or phosphates. These products may contain beef cheek meat not to exceed 25%; however, heart meats or tongue meats are not acceptable ingredients.

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

If a product is to qualify for "lean" or "low fat" 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.

Specifications of this particular retail store's ground beef formulation are as follows:

- Follow all government regulations and retail food store specifications
- Only two meat ingredients will be used for each batch
- Must be least-cost formulated, determine ingredients used, and amount of each ingredient
- Manufacturing date = August 28, 2017
- Batch Size = 2500 lbs.
- Fat content of finished product = 20%
- All ingredients must be received fresh, not frozen
- Product must be received at the plant within 96 hours (4 days) of animal harvest date
- No product over 4 days old may be used for grinding (from date of harvest)
- No product with a receiving temperature of over 35° F may be used

Available Boneless Meat Ingredient Information:

Meat Ingredients	Date of Harvest	Date Received	Receiving Temperature (°F)	Condition Received	Fat (%)	Price/lb.
65% Lean Trim	8/24/17	8/26/17	34°	Fresh	35.0	\$1.61
85% Lean Trim	8/24/17	8/26/17	33°	Fresh	15.0	\$2.04
Beef Cheek Meat	8/24/17	8/27/17	33°	Frozen	15.0	\$0.72
Beef Heart Meat	8/21/17	8/27/17	36°	Fresh	4.0	\$0.37
Boneless Chuck	8/25/17	8/27/17	33°	Fresh	25.0	\$1.78

1. For least-cost formulation of 80% lean ground beef meeting all government specifications, as well as those of the retail store, which combination listed below would be used?

- A. 65% lean trim and 85% lean trim
- B. 65% lean trim and beef cheek meat
- C. 65% lean trim and beef heart meat
- D. 65% lean trim and boneless chuck
- E. 85% lean trim and beef cheek meat
- F. 85% lean trim and beef heart meat
- G. 85% lean trim and boneless chuck

2. For a least-cost ground beef formulation meeting the retail store's specifications, use the Pearson square method to calculate the amount of meat ingredients needed in a 2,500 pound batch of 80% lean ground beef. What would be the proportion of the two meat ingredients?

- A. 625.00 and 1875.00 lbs.
- B. 1290.00 and 1210.00 lbs.
- C. 1250.00 and 1250.00 lbs.
- D. 1904.76 and 595.24 lbs.

3. What would be the price per pound of the least-cost formulated ground beef meeting the retail store's specifications? Round to the nearest penny (ex., 0.00).

- A. \$1.01/lb.
- B. \$1.38/lb.
- C. \$1.91/lb.
- D. \$1.93/lb.
- E. \$1.64/lb.
- F. \$1.74/lb.
- G. \$0.94/lb.

4. If the ground beef you've formulated to meet these specifications was marked up 25% to cover overhead costs and make a profit for this store, what would this batch sell for per pound? Round to the nearest penny (ex., 0.00).

- A. \$1.73/lb.
- B. \$2.41/lb.
- C. \$2.18/lb.
- D. \$1.18/lb.
- E. \$2.05/lb.
- F. \$2.39/lb.
- G. \$1.26/lb.

5. The ground beef formulation would:

- A. Be labeled as ground beef
- B. Be labeled as ground chuck
- C. Qualify as lean product
- D. Qualify as extra lean product

B. Beef Carcass Pricing Problem

Rasmussen LLC retains ownership of their cattle until they are harvested. The feedlot receives payment for their cattle on a value-based pricing system that depends on carcass weight, USDA Quality Grades (QG) and Yield Grades (YG). They have recently marketed **200** head of cattle.

The average live weight, dressing percentage, yield grades, quality grades, and pricing information of the 200 head lot are as follows:

Average live weight:	1,335 lbs.
Average dressing percent:	61%
USDA Yield Grade (YG):	50% were YG 2's 50% were YG 3's *Assume equal distribution of yield grades within the four quality grades
USDA Quality Grade (QG):	20% were USDA Average or High Choice 50% were USDA Low Choice 30% were USDA High Select

USDA carcass yield and quality grades, prices, and adjustments/cwt.

Base Price of YG3 low Choice = \$184.00/cwt.

Acceptable Hot Carcass Weight range = 600 to 899 lbs.

500 to 549 lbs. = deduct \$21.00/cwt. from base price

550 to 599 lbs. = deduct \$8.00/cwt. from base price

900 to 999 lbs. = deduct \$2.00/cwt. from base price

1000 to 1049 lbs. = deduct \$8.00/cwt. from base price

1050 lbs. and up = deduct \$24.00/cwt. from base price

YG 2 carcasses = add \$2.00/cwt. to base price

Average and High Choice carcasses = add \$2.00/cwt. to base price

High Select carcasses = deduct \$13.00/cwt. from base price

- Are you producing cattle with average carcass weights within the acceptable range (no discounts)?
 - Yes
 - No
- What is the price/cwt. of the Average Choice Yield Grade 2 carcasses?
 - \$171.00/cwt.
 - \$184.00/cwt.
 - \$186.00/cwt.
 - \$188.00/cwt.
- What is the price/cwt. of the High Select Yield Grade 3 carcasses?
 - \$171.00/cwt.
 - \$184.00/cwt.
 - \$186.00/cwt.
 - \$188.00/cwt.

4. What is the average price/cwt. for the lot of 200 cattle?

- A. \$181.50/cwt.
- B. \$184.00/cwt.
- C. \$197.00/cwt.
- D. \$199.00/cwt.

5. Which of the following may affect the quality and yield grades of feedlot cattle? Circle your answer.

- A. Nutrition
- B. Genetics
- C. Humane animal welfare and handling systems
- D. All of the above

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State FFA Meat Judging Contest Classes, Placings, Cuts

Date: 8-26-17

Class No.	Description	Placing	Cuts
1	Beef Cxs	2-4-1-3	4-2-3
2	Pork Cxs	4-3-2-1	3-3-5
3	Lamb Cxs	2-3-1-4	3-4-2
4	Beef Wholesale Class	2-1-3-4	4-3-5
5	Pork Hams	3-4-2-1	5-3-2
6	Retail Cuts Class	3-1-2-4	3-4-3
7	Beef Q/Y	See Attached	
8	Retail Identification	See Attached	

Iowa State FFA Meat Judging Contest - Date 8-26-17

Beef Carcasses - Official Yield and Quality Grades

Beef Carcass Yield Grading

Carcass	PYG/ADJ	HCW	REA	KPH%	Final Yield Grade
1	2.9 / +0.2	862	15.3 / -0.4	2.0 / -0.3	2.4
2	2.7 / +0.1	626	17.2 / -1.1	1.5 / -0.4	1.3
3	2.9 / +0.3	736	13.2 / -0.2	2.5 / -0.2	2.8
4	3.9 / +0.4	828	14.7 / -0.3	3.5 / 0	4.0
5	3.7 / +0.1	864	13.1 / +0.3	3.0 / -0.1	4.0

Beef Carcass Quality Grading

Carcass	Marbling	Skeletal Maturity	Lean Maturity	Overall Maturity	Final Quality Grade
1	Small 70	A ⁰⁰	B ²⁰	A ²⁰	Low Choice
2	Moderate 90	A ⁰⁰	A ³⁰	A ¹⁰	High Choice
3	Small 10	A ⁰⁰	B ²⁰	A ²⁰	Low Choice
4	Moderate 70	A ⁰⁰	A ²⁰	A ¹⁰	High Choice
5	Modest 40	A ⁰⁰	B ⁵⁰	A ⁵⁰	Average Choice