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1

**2013 Iowa State FFA Meat Judging Contest**

**August 24, 2013**

Name \_\_\_\_\_

Chapter \_\_\_\_\_

ID # \_\_\_\_\_

**A. Ground Beef Formulation Problem**

Assume that you are the manager of a company which manufactures ground beef for distribution to retail food stores. You must adhere to high quality and food safety standards. Your company goal is to produce fresh and wholesome products that are in compliance 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 (least-cost formulations).

*Ground beef regulations (USDA) are defined as follows:*

Ground Beef: The terms "Ground Beef" and "Chopped Beef" are synonymous. Products so labeled must be made with fresh and/or frozen beef with or without seasoning, without the addition of fat as such, and shall contain no more than 30% fat. It may not contain added water, binders, extenders, or phosphates. 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 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.

*Industry guidelines for ground beef manufacture:*

To get the most desirable color and maximum shelf life, all boneless meats used to manufacture ground beef must be fresh (not frozen), well chilled (temperature no higher than 35° F), and shall arrive at the plant within 96 hours (4 days) of animal harvest. A least-cost formulation shall be calculated using acceptable meat ingredients, selecting those meats that produce the lowest cost product, while meeting all ground beef guidelines. To simplify the grinding and blending operation **only two meat ingredients will be used for each batch.** In order to make specification ground beef in a least-cost formulation process, you must determine the ingredients to use and in what amounts. All government regulations and retail food store specifications must be followed.

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

- Fat content of finished product = 20%
- Batch Size = 3000 lbs.
- Manufacturing date = August 27
- 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.
- Product must be received at the plant within 96 hours (4 days) of animal harvest date.
- All ingredients must be received fresh, not frozen.
- Must be least-cost formulated.

## Available Boneless Meat Ingredient Information:

Meat Ingredients	Date of Harvest	Date Received	Receiving Temperature (°F)	Condition Received	Fat (%)	Price/lb.
75% Lean Trim	8/23	8/23	29°	Fresh	25.0	\$1.94
50% Lean Trim	8/23	8/23	36°	Fresh	50.0	\$1.60
Beef Cheek Meat	8/23	8/24	35°	Fresh	15.0	\$1.40
Beef Heart Meat	8/22	8/27	35°	Fresh	20.0	\$0.70
Boneless Chuck	8/23	8/27	28°	Fresh	10.0	\$2.06
Bull Meat	8/22	8/23	34°	Fresh	8.0	\$2.18

- For least-cost formulation of 80% lean ground beef meeting all specifications of your retail store you would use a combination of:
  - 50% lean trim and beef cheek meat
  - 75% lean trim and beef cheek meat
  - Boneless chuck and bull meat
  - 75% lean trim and boneless chuck
  - 50% lean trim and bull meat
  
- 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 3000 pound batch of 80% lean ground beef. What would be the proportion of the two meat ingredients?
  - 1000 lbs. and 2000 lbs.
  - 1500 lbs. and 1500 lbs.
  - 2000 lbs. and 1000 lbs.
  - 1636.36 lbs. and 1363.64 lbs.
  - 2117.65 lbs. and 882.35 lbs.

*OK* Correct answer is A or C
  
- What would be the price per pound of the least-cost formulated ground beef meeting the retail store's specifications? Round to the nearest cent (ex., 0.00).
  - \$2.01/lb.
  - \$1.67/lb.
  - \$2.11/lb.
  - \$1.98/lb.
  - \$1.60/lb.

4. If the ground beef was marked up 25% to cover overhead costs and make a profit for the store, what would this batch sell for per pound? Round to the nearest cent (ex., 0.00).
- \$2.00/lb.
  - \$2.48/lb.
  - \$2.51/lb.
  - \$2.64/lb.
  - \$2.09/lb.
5. The ground beef formulation would:
- qualify as ground chuck
  - be labeled as ground beef
  - be labeled as "low fat" ground beef
  - be labeled as "extra lean" ground beef

### **B. Beef Carcass Pricing Problem**

Timber Ridge Cattle Company, Inc. retains ownership of their cattle until they are harvested. The ranch 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 a **425 head** lot of cattle.

The average live weight, dressing percentage, yield grades, quality grades, and pricing information of the 425 head lot are as follows:

Average live weight: 1275 lbs.  
 Average dressing percent: 64%  
 USDA Yield Grade (YG): 40% were YG 2's  
 60% were YG 3's  
 \*Assume equal distribution of yield grades within the three quality grades.

USDA Quality Grade (QG): 35% were high Choice (Ch+)  
 45% were low Choice (Ch-)  
 20% were USDA Select (Se+)

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

#### **Base Price of YG3 low Choice = \$190.07/cwt.**

Acceptable hot carcass weight range	= 600 to 900 lbs.
Under 600 lbs.	= deduct \$12.66/cwt. from base price
Over 900 lbs.	= deduct \$4.61/cwt. from base price
YG 2 carcasses	= add \$2.71/cwt. to base price
Average and high Choice carcasses	= add \$3.37/cwt. to base price
Select carcasses	= deduct \$9.17/cwt. from base price

1. Are you producing cattle with average carcass weights within the acceptable range (no discounts)?

- a. Yes
- b. No

2. What is the price/cwt. of the average and high Choice Yield Grade 2 carcasses?

- a. \$196.15/cwt.
- b. \$193.34/cwt.
- c. \$187.36/cwt.
- d. \$192.78/cwt.

3. What is the price/cwt. of the Select Yield Grade 3 carcasses?

- a. \$199.24/cwt.
- b. \$180.90/cwt.
- c. \$190.07/cwt.
- d. \$184.27/cwt.

4. What is the average price/cwt. for the lot of 425 cattle?

- a. \$193.42/cwt.
- b. \$191.19/cwt.
- c. \$190.07/cwt.
- d. \$190.50/cwt.

5. What would be the best strategy to increase the value of these cattle?

- a. decrease the percentage of Yield Grade 2 and 3 Select carcasses
- b. increase the percentage of Yield Grade 3 carcasses
- c. decrease carcass size
- d. increase carcass size

## State FFA Meat Judging Contest Classes, Placings, Cuts

Date: 8-24-13

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

Iowa State FFA Meat Judging Contest - Date 8-21-13

Beef Carcasses - Official Yield and Quality Grades

Beef Carcass Yield Grading

Carcass	PYG/ADJ	HCW	REA	KPH%	Final Yield Grade
1	2.1 / +.2	850	14.3 / -1 14.0	3.5 0	3.5
2	2.5 / +.2	840	13.1 / +.1 13.8	3.0 -1	3.7
3	2.3 / +.1	845	14.3 / -.2 13.9	2.5 -.2	3.0
4	2.8 / +.1	816	13.8 / -.1 13.5	1.5 -.2	3.0
5	2.1 / +.2	788	15.1 / 13.2	2.0 -.3	2.1

2.2 -.7

Beef Carcass Quality Grading

Carcass	Marbling	Skeletal Maturity	Lean Maturity	Overall Maturity	Final Quality Grade
1	<del>SM</del> SM <sup>50</sup>	A <sup>50</sup>	A <sup>40</sup>	A <sup>45</sup>	<del>Ch</del> Ch <sup>-</sup>
2	MT <sup>70</sup>	A <sup>40</sup>	A <sup>46</sup>	A <sup>46</sup>	Ch <sup>0</sup>
3	MT <sup>30</sup>	A <sup>50</sup>	A <sup>50</sup>	A <sup>50</sup>	Ch <sup>0</sup>
4	SM <sup>70</sup>	A <sup>50</sup>	A <sup>40</sup>	A <sup>45</sup>	Ch <sup>-</sup>
5	SM <sup>100</sup>	A <sup>50</sup>	A <sup>46</sup>	A <sup>45</sup>	Ch <sup>-</sup>

# Iowa FFA Meats CDE Retail Identification

Participant Number

Participant Name,  
Chapter Name,  
School P. O. (Town)

Key

**Directions:** Select Species, Primal Cut, Retail Name, and Cookery Method from the listing below and fill in the column blanks beside the cut number. The SCORE column is for the tabulators use only. EXAMPLE: Beef (1), Round (9), Round Steak (38), Moist Heat (2).

**SPECIES - 1 POINT**

- 1. Beef
- 2. Pork
- 3. Lamb

**PRIMAL CUTS- 2 POINTS**

- 1. Breast
- 2. Brisket
- 3. Chuck
- 4. Flank
- 5. Ham or Leg
- 6. Loin
- 7. Plate
- 8. Rib or Rack
- 9. Round
- 10. Shoulder
- 11. Side (Belly)
- 12. Spare Ribs
- 13. Variety Meats
- 14. Various

**RETAIL TRADE NAMES- 2 POINTS**

**Roast/Pot Roast**

- 1. American Style
- 2. Arm Picnic - Whole
- 3. Arm
- 4. Back Ribs
- 5. Blade
- 6. Blade Boston
- 7. Bottom Round Rump - Boneless
- 8. Brisket, Whole - Boneless
- 9. Center Loin
- 10. Eye Rib - Boneless
- 11. Eye Round
- 12. Flat Half - Boneless
- 13. Frenched Style
- 14. Fresh Side
- 15. Leg - Boneless
- 16. Loin
- 17. Rib
- 18. Rib - Frenched
- 19. Ribs - Denver Style
- 20. Rump Portion
- 21. Shank Portion
- 22. Short Ribs
- 23. Sirloin
- 24. Sirloin Half
- 25. Spare Ribs
- 26. Square Cut - Whole
- 27. Tenderloin
- 28. Tip, Cap Off

**Steaks**

- 29. Arm
- 30. Blade
- 31. Center Slice
- 32. Eye Round
- 33. Flank
- 34. Mock Tender
- 35. Porterhouse
- 36. Ribeye - boneless
- 37. Ribeye, Lip On
- 38. Round
- 39. Round - Boneless
- 40. T-Bone
- 41. Tenderloin
- 42. Tip, Cap Off
- 43. Top Blade - Flat Iron -boneless
- 44. Top Loin
- 45. Top Loin - boneless
- 46. Top Round
- 47. Top Sirloin - boneless

**Chops**

- 48. Arm
- 49. Blade
- 50. Butterflied - Boneless
- 51. Loin
- 52. Rib
- 53. Rib-Frenched
- 54. Sirloin

**Variety Meats**

- 55. Heart
- 56. Kidney
- 57. Liver
- 58. Tongue

**Various Meats**

- 59. Beef for Stew
- 60. Cubed Steak
- 61. Ground Beef
- 62. Ground Pork
- 63. Sausage Link/Pattie

**Smoked or Cured Pork**

- 64. Center Slice
- 65. Ham Boneless
- 66. Loin Chop
- 67. Picnic (whole)
- 68. Rib Chop
- 69. Rump Portion
- 70. Shank Portion
- 71. Slab Bacon
- 72. Slice Bacon

Cut No.	Species	Primal	Retail Name	Cookery	Score
1	3	13	56	3	
2	2	5	65	1	
3	1	9	7	3	
4	1	9	38	2	
5	2	5	21	3	
6	3	5	13	1	
7	3	8	18	1	
8	2	5	64	1	
9	1	6	35	1	
10	2	11	72	1	
11	2	6	49	3	
12	2	6	52	1	
13	3	10	26	3	
14	2	13	55	3	
15	2	10	2	3	
16	1	3	5	2	
17	1	7	22	2	
18	2	6	29	1	
19	3	6	51	1	
20	2	14	63	1	
21	2	12	25	3	
22	1	14	59	2	
23	1	8	37	1	
24	1	13	58	3	
25	1	4	33	3	
<b>Total Score</b>					

**Cookery Methods - 1 POINT**

- 1. Dry Heat
- 2. Moist Heat
- 3. Dry or Moist Heat

# Wrong

