Meats Evaluation CDE

Purpose
The purpose of the Meat Evaluation & Technology Career Development Event is to stimulate interest, encourage proficiency development and recognize student excellence in the meat industry as taught through the agricultural education curriculum. This event is designed to provide members with a better understanding of the meat processing industry and increase their knowledge of retail cuts and their quality.

Sponsor
The North Carolina Meat Processors Association and Country Meats - A French Tradition currently sponsor this event.

State Event Superintendent
The superintendent for this event is Horace Johnson, Central Region Agricultural Education Coordinator, 126 Alexander Drive, Lillington NC 27546. Phone: 910.814.6048; Fax: 919.515.6090; Email: horace_johnson@ncsu.edu

Comments or questions may also be directed to Jason Davis, State FFA Coordinator, Department of Agricultural and Extension Education, NCSU Campus Box 7654, Raleigh, NC 27695-7654. Phone: 919.513.0216; Fax: 919.513.3201; Email: jason_davis@ncsu.edu

Eligibility and General Guidelines
This event will be held during the North Carolina State FFA Convention. This event is open to all FFA chapters and FFA members in good standing. Members winning a previous state event in this area or that have participated in a previous national event in this area are ineligible.

Teams must consist of three and may consist of four individuals. The fourth lowest team member score is not considered except in the case of a tie. No alternates are allowed in state events. Any alternate found participating in a state event will result in team disqualification.

FFA members in good standing may also participate as individuals in this event. A chapter may have up to two members participate as individuals as long as the chapter does not have a team participating in the event. Their scores will only count toward individual recognition and will not be tallied as a team score.

The use or possession of cellular phones, Personal Digital Assistants (PDA's) or any other mobile electronic communication device is prohibited during any state-level career development event. Any violation of this rule by any team member will result in total team disqualification.

Calculators used for this event MUST BE basic five function (add, subtract, multiply, divide and square root only) calculators. Scientific calculators and other programmable calculators such as builder's calculators are not allowed in this event. The possession of a programmable calculator or other non-basic calculator by any team member shall result in a team disqualification.

Any member found cheating in any state-level career development event will result in total team disqualification for that event.

At the North Carolina FFA State Convention, members may participate in only one career development event with the exceptions of Creed and Parliamentary Procedure or Prepared Public Speaking and Parliamentary Procedure.

Dress Code
Participants are required to follow the North Carolina FFA Career Development Event Dress Code. A ten percent reduction in the total team score will be taken if a participant violates the dress code.

Procedures for Administering the Event

Part 1: Written Test – Multiple-Choice (100 Points)
The written test will be comprised of a total of 25 multiple-choice items designed to determine each team members understanding of the meat science industry. Sections of the reference to be used for the written test will be identified for CDE participants at least one week prior to the event when possible. The reference for the written test is included at the end of the rules for this event.

Part 2: Meats Identification (200 points)
Students will identify 20 retail meats cuts found on the *Meats Identification Card* **(Appendix A).**

Part 3: Retail Meat Quality (100 Points)
1. Students may receive up to **50 points** by using *Form 2* (**Appendix B**) to place four cuts from one of the following classes:
    a. Pork or Lamb – Loin Chops or Rib Chops
    b. Beef – T-bone steak or Porterhouse steaks
2. In addition, students will take notes on the four cuts in regards to marbling, external fat and amount of bone. Without review, students will answer five questions worth ten points each about the four cuts. This segment is worth a maximum of **50 points**. (See sample questions in **Appendix C**).

Part 4: Meat Formulation Problem Solving (100 Points)
Students will be given a situational problem involving the least cost formulation of a batch of particular meat products (hamburger, wiener, bologna, fresh ground pork, etc.).

Component A of Part IV = 20 points: Students will use the *Pearson Square* (**Appendix D**) method to correctly formulate the product. **Students will have to show their work in order to get credit for this component.**

Component B of Part IV = 80 points: Students will answer eight questions (value of ten points each) about the formulation.

Sample problems are provided in **Appendix E and F**.

Scoring

Written Test	100
Retail Cut Identification	200
Retail Quality	100
Meat Formulation Problem	100

Procedure for Determining the State Event Winner When Scores are Tied

In the event a tie score exists, apply the following methods in sequential order until the tie is broken:
1. Add the alternate score to the team score and the team with the highest total score for all four members is the winner.
2. Compare the total team scores for the retail cut identification and the higher scoring team is the winner.
3. Compare the total team scores for the written test and the higher scoring team is the winner.
4. If these methods fail to break the tie, co-winners will be declared and a run-off event will be held to determine which team will represent North Carolina at the National FFA Convention. The run-off event will follow the same rules as the state event.

Procedure for Determining the State Event High Scorer When Scores are Tied for individual Participants

In the event a tie score exists, apply the following methods in sequential order until the tie is broken:
1. Compare the individual scores on the retail cut identification and the high scoring individual is the winner.
2. Compare the individual score on the written test and the high scoring individual is the winner.
3. Compare the individual score on the meat formulation problem and the high scoring individual is the winner.
4. If a tie still exists for individuals, co-high scorers will be declared and all tied individuals will be recognized.

State Awards

The following awards will be presented annually at the State FFA Convention provided sponsorship is available:

State Winning Team

$500, 1st place team plaque, team pins for members

Second Place Team

2nd place team plaque, team pins for members

Third Place Team

3rd place team plaque, team pins for members

Highest Scoring Individual

Plaque

National Career Development Event Participation

State winning teams advancing to the national career development event will be automatically registered for the national event. It is the responsibility of the FFA Chapter Advisor to complete all necessary national certification and waiver forms and return them to the State FFA Coordinator by the assigned due date.

State winning CDE teams that choose not to participate at the national level should contact the state office by September 1 prior to National Convention. Teams that fail to inform the state office prior to September 1 will be ineligible to participate in that same CDE for the next year (chapters may appeal to the State FFA Board of Directors). Teams that do not compete at the National Convention will be required to pay back the $500 travel award.

There is one reference for the written test. It is the Meat Science and Food Safety DVD available from CEV Multimedia. Contact information below:

Meat Science and Food Safety DVD
CEV Multimedia
1020 SE Loop 289
Lubbock, TX 79404
Phone: 800.922.9965

There are many other good references that are not required for this event but may be useful to those teams qualifying for the National FFA Meats Evaluation Career Development Event. One such resource is the Meat Identification Tutorial CD-ROM (MID-05) available from the National FFA Organization for $99.00. The phone number is 1.888.332.2668 or online at http://www.ffaunlimited.org/meevandte.html for more information.

Appendix B   **North Carolina FFA Association**

Meats Identification Official Scorecard

Name:_____ Chapter Name:_____ Participant Number: _____

Number of Samples Identified Correctly _____ x 10 = _____ Participant Score (Maximum = 200 Points)

Instructions: Identify by visual observation the retail cut of meat for numbers 1 – 20. Write the retail cut number from the chart at the left beside the appropriate sample number on the right.

	Retail Cut	Species	Primal		Sample Number	Retail Cut Number
1	Beef Brisket	Beef	Brisket			
2	Beef for Stew	Beef	Various		1	_____
3	Beef Short Ribs	Beef	Rib			
4	Boneless Round Steak	Beef	Round		2	_____
5	Boneless Top Loin Steak (Strip or NY Strip)	Beef	Loin			
6	Bottom Round Roast (Rump Roast)	Beef	Round	BNLS	3	_____
7	Chuck (Tender) Roast	Beef	Chuck	BI, BNLS		
8	Cubed Steak	Beef	Various		4	_____
9	Eye of Round Steak	Beef	Round			
10	Ground Beef	Beef	Various		5	_____
11	Liver	Beef, Lamb, Pork	Variety			
12	London Broil	Beef	Round		6	_____
13	Oxtail	Beef	Variety			
14	Porterhouse Steak	Beef	Loin		7	_____
15	Ribeye Steak	Beef	Rib			
16	T-bone Steak	Beef	Loin		8	_____
17	Tenderloin (Filet Mignon) Steak	Beef	Loin			
18	Tongue	Beef, Lamb, Pork	Variety		9	_____
19	Top Blade (Flat Iron) Steak	Beef	Chuck			
20	Loin Chops	Lamb, Pork	Loin	BNLS	10	_____
21	Rib Chops	Lamb, Pork	Loin, Rib	BI		
22	Shank Portion	Lamb	Various		11	_____
23	Lamb Shoulder Roast (Square Cut)	Lamb	Shoulder			
24	Back Ribs (Baby Back Ribs)	Pork	Loin	BI, BNLS	12	_____
25	Boneless Butterfly Chops	Pork	Loin			
26	Boneless Shoulder Picnic Roast	Pork	Shoulder		13	_____
27	Boneless Smoked Ham	Pork	Ham/Leg			
28	Center Slice	Pork	Ham/Leg		14	_____
29	Country Style Ribs	Pork	Loin			
30	Ground Pork	Pork	Various		15	_____
31	Hock (may or may not be cured)	Pork	Various			
32	Tenderloin	Pork	Loin		16	_____
33	Pork Fat Back	Pork	Various			
34	Pork Shoulder Butt Roast (Boston Butt)	Pork	Shoulder		17	_____
35	Pork Shoulder Blade Steak (Pork Butt Steak)	Pork	Shoulder			
36	Sausage (Link or Pattie)	Pork	Various		18	_____
37	Sliced Bacon	Pork	Side			
38	Smoked or Fresh Rump Portion	Pork	Ham/Leg		19	_____
39	Smoked or Fresh Shank Portion	Pork	Ham/Leg			
40	Spareribs	Pork	Spareribs		20	_____

BI = Bone in; BNLS = Boneless

Appendix B

JUDGING EVENT PLACING CARD (form 2)

PARTICIPANT NUMBER	
NAME	
CHAPTER	
CLASS NAME	

PLACINGS	CHECK PLACING
1-2-3-4	A
1-2-4-3	B
1-3-2-4	C
1-3-4-2	D
1-4-2-3	E
1-4-3-2	F
2-1-3-4	G
2-1-4-3	H
2-3-1-4	I
2-3-4-1	J
2-4-1-3	K
2-4-3-1	L
3-1-2-4	M
3-1-4-2	N
3-2-1-4	O
3-2-4-1	P
3-4-1-2	Q
3-4-2-1	R
4-1-2-3	S
4-1-3-2	T
4-2-1-3	U
4-2-3-1	V
4-3-1-2	W
4-3-2-1	X

Participant Score_____

Appendix C

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North Carolina Meat Evaluation
Career Development Event

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Part III: Retail Meat Quality (100 points)

1. **Students will use Form 2 to place four cuts from one of the following classes:**

    a. **Pork or Lamb – Loin Chops or Rib Chops**
    b. **Beef – T-bone steaks or Porterhouse steaks**

    The placement activity is worth 50 points if the class is placed perfectly according to the Official's placing.

2. **In addition, students will take notes on the four cuts in regards to marbling, external fat, and amount of bone. Without review, students will answer five questions worth ten points each about the four cuts. This segment is worth a maximum of 50 points.**
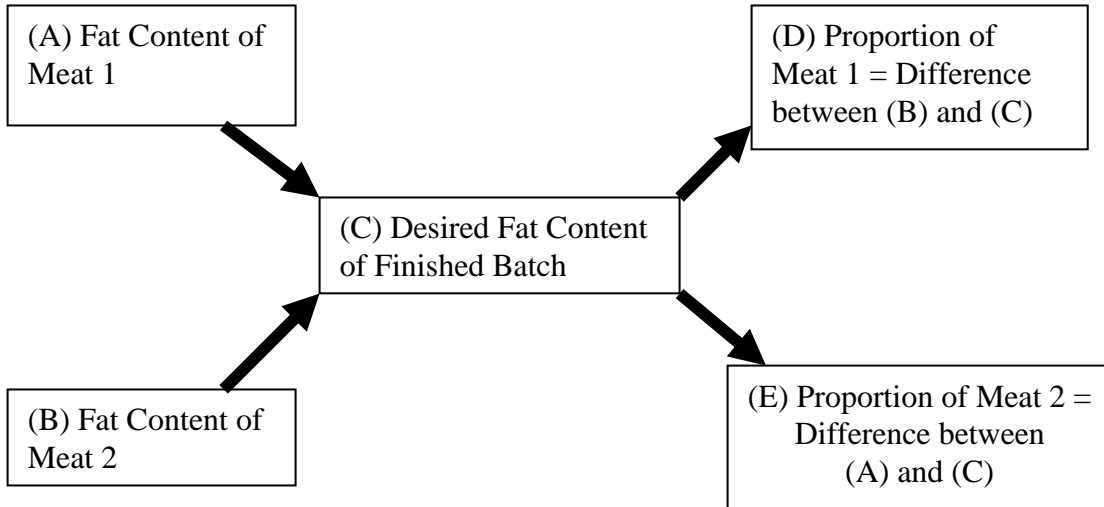
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Sample Questions (Steaks)

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1. **The steak with the most external fat is:**   **a.**   **b.**   **c.**   **d.**   **10 pts.**
2. **The steak that has the least bone is:**   **a.**   **b.**   **c.**   **d.**   **10 pts.**
3. **The steak with the least marbling is:**   **a.**   **b.**   **c.**   **d.**   **10 pts.**
4. **The steak with the best color is:**   **a.**   **b.**   **c.**   **d.**   **10 pts.**
5. **The largest of the four steaks is:**   **a.**   **b.**   **c.**   **d.**   **10 pts.**

Questions are worth a total of 50 pts. if all questions are answered correctly.

Appendix D

Pearson Square
Calculation

(A) Fat Content of Meat 1		(D) Proportion of Meat 1 = Difference between (B) and (C)
	(C) Desired Fat Content of Finished Batch	
(B) Fat Content of Meat 2		(E) Proportion of Meat 2 = Difference between (A) and (C)

*To check the set up of the Pearson Square:
The difference in A and B should equal the sum of D and E.

The <u>PERCENTAGE</u> of each meat component is determined by dividing the proportion of each component by the total meat components and rounding the answer to <u>four decimal places</u> as seen below.

Percentage of Meat 1 = D / (Sum of D + E) = .xxxx

Percentage of Meat 2 = E / (Sum of D + E) = .xxxx

Pounds of Meat 1 Needed = % of Meat 1 x Batch Size

Pounds of Meat 2 Needed = % of Meat 2 x Batch Size

To Check: Pounds of Meat 1 + Pounds of Meat 2 = Batch Size

To verify Final Fat Content:

Total lbs. of (Meat 1) x (%fat content) =   Pounds of Fat from Meat 1
Total lbs. of (Meat 2) x (%fat content) =   <u>Pounds of Fat from Meat 2</u>
*   Total Pounds of Fat in Batch*

<u>Total Pounds of Fat in Batch</u> = Percentage of Fat in Final Product
*   Batch Size in Pounds*

Appendix E

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North Carolina Meat Evaluation
Career Development Event
PART IV: MEATS CDE FORMULATION PROBLEM
100 Total Points

SAMPLE PROBLEM 1

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Assume Quality Beef Inc. is a meat plant that manufactures ground beef for a chain of retail stores. Quality Beef's mission is to produce a fresh, wholesome product which complies with all meat inspection regulations and which will have three days' shelf life in the meat counter. Fat content of the ground beef is specified by each individual retail chain. Quality Beef strives to produce a product at the lowest possible cost to retain financial solvency while complying with federal regulations as well as local store specifications.

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USDA Ground Beef Regulations

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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 contain added water, binders, or extenders. It may contain beef cheek meat not to exceed 25%. Heart and tongue 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.

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Industry Guidelines on Ground Beef Manufacture

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1. 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 96 hours of slaughter.

2. A least-cost determination shall be performed on acceptable meat ingredients to select those meats that produce the lowest cost product that conforms to all ground beef guidelines.

3. To simplify the grinding and blending operation, only two meat ingredients will be used for each batch of ground beef produced.

4. Rounding of decimals: 1 – 4 will be rounded down and 5 – 9 will be rounded up.

Batch Description

Desired Fat Content: 20%
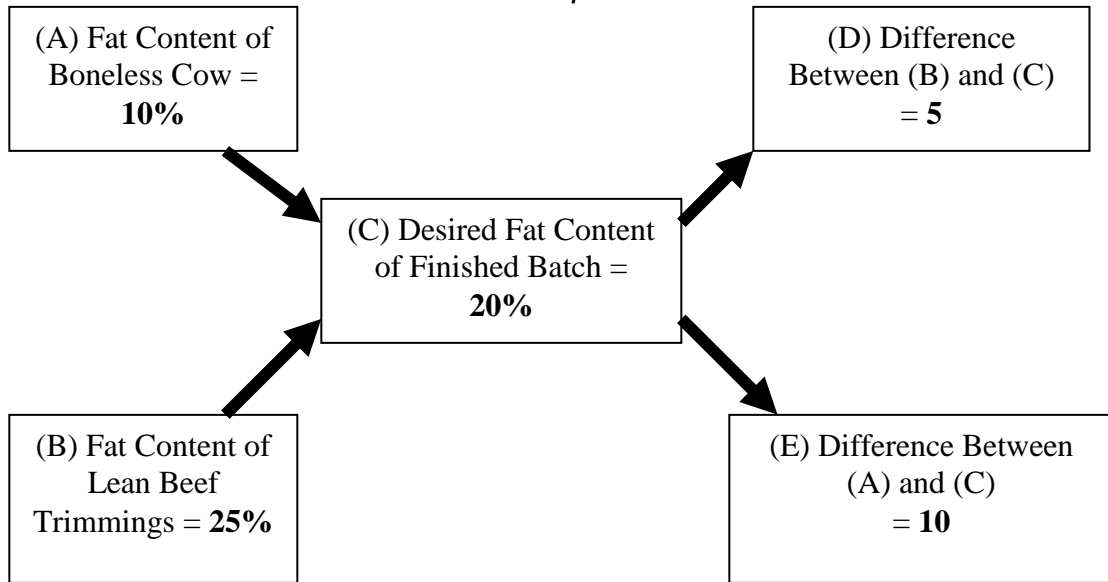Batch Size: 1,000 lbs.
Meats:
1. Boneless cow meat (10% fat @ $0.99/lb.)
2. 75% lean beef trimmings (25% fat @ $0.79/lb.)

Solution to Sample Problem 1

1. The amounts of the two types of meat that must be blended together to give the desired fat content.

Pearson Square

(A) Fat Content of Boneless Cow = **10%**		(D) Difference Between (B) and (C) = **5**

(C) Desired Fat Content of Finished Batch = **20%**

(B) Fat Content of Lean Beef Trimmings = **25%**		(E) Difference Between (A) and (C) = **10**

The difference in A and B = 15 and the sum of D and E = 15 so the Pearson Square is set up properly.

Percentage of Boneless Cow =   5/15 = .3333 or 33.33%
Percentage of Lean Beef Trimmings =   10/15 = .6667 or 66.67%

Pounds of Boneless Cow Needed = 33.33% x 1,000 lbs. = 333.3 lbs.
Pounds of Lean Beef Trimmings = 66.67% x 1,000 lbs. = 666.7 lbs.

Verify Final Fat Content:

333.3 lbs. of boneless cow x 10% fat content = 33.33 lbs. of fat from boneless cow
666.7 lbs. of beef trimmings x 25% fat content = 166.67 lbs. of fat from beef trim

33.33 + 166.67 = 200/1000 = 20% fat in final product

Calculation

2. **Questions** (For this sample ten questions are given. Eight questions valued at 10 points each will be used for the actual problem). **These are only sample questions that may or may not be included for the actual problem.**

   NOTE: In an actual situation, overhead cost must also be added to the cost of the ground beef to account for labor, equipment, transportation, etc., but in this exercise the student will only be determining meat cost and need not be concerned with overhead costs.

   Cost per Pound

Boneless cow meat 0.3333 x $0.99/lb. = .33
75% Beef trim   0.6667 x $0.79/lb. = .53

                                    $0.86 lb.

Cost of Final Product = .86 x 1000 = $860.00

1. What is the cost of the finished product/lb.?

    a. $0.58
    b. **$0.86**
    c. $0.98
    d. $1.02

2. What is the total cost for the final batch of ground beef?

    a. $ 330.00
    b. $ 670.00
    c. **$ 860.00**
    d. $1000.00

3. What amount of fat from boneless cow and 75% beef trim needs to be mixed to produce a 1,000 lb. batch of ground beef with 20% fat content?

    a. 20 lbs. of boneless cow and 100 lbs. of 75% beef trim
    b. 25 lbs. of boneless cow and 150 lbs. of 75% beef trim
    c. **33 lbs. of boneless cow and 167 lbs. of 75% beef trim**
    d. 167 lbs. of boneless cow and 33 lbs. of 75% beef trim

4. What is the desired percentage of fat content of the final product?

    a. 10
    b. 15
    c. **20**
    d. 25

5. Which ingredient is **NOT** allowed in ground beef?

    a. Chopped beef
    b. **Heart**
    c. Round
    d. Sirloin

6. According to USDA standards, what is the highest percentage of fat that ground beef can contain?

    a. 10
    b. 20
    c. **30**
    d. 40

7. How many pounds of ground beef will be in the final batch?

     a.   100
     b.   300
     c.   600
     d.   **1,000**

8. Which is true of boneless cow meat?

     a.   Contains the most fat of any ingredient
     b.   Cost less per pound than 75% beef trim
     c.   **Is the cheaper ingredient in the final product**
     d.   May include heart and tongue

9. What is the fat content of the final batch of ground beef?

     a.   20 lbs.
     b.   100 lbs.
     c.   **200 lbs.**
     d.   500 lbs.

10. Which is true of the 75% beef trim?

     a.   Contains the least fat of any ingredient
     b.   **Cost less per pound than boneless cow meat**
     c.   Is the cheaper ingredient in the final product
     d.   May include heart and tongue

Appendix F

SAMPLE PROBLEM 2

Best Beef Company must operate according to the same government regulations that Quality Beef Inc. and other companies follow. However, **Best Beef** also has its own specific requirements. Determine which available ingredients to use (and at what levels) to make the lowest priced ground beef acceptable to the company management.

USDA Ground Beef Regulations

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 contain added water, binders, or extenders. It may contain beef cheek meat not to exceed 25%. Heart and tongue 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.

Industry Guidelines on Ground Beef Manufacture

1. 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 96 hours of slaughter.

2. A least-cost determination shall be performed on acceptable meat ingredients to select those meats that produce the lowest cost product that meets all ground beef guidelines.

3. To simplify the grinding and blending operation, only two meat ingredients will be used for each batch of ground beef produced.

4. Rounding of decimals: 1 – 4 will be rounded down and 5 – 9 will be rounded up.

Best Beef Specifications

Desired fat content of finished product is **18%**.
Batch size = **5,000 lbs.**
Manufacturing Date = **February 10**
No product over **five days old may be used.**
No variety meat may be used.
No product over 35°F may be used.

BONELESS MEAT INGREDIENTS AVAILABLE

Meat Product	Slaughter Date	Temperature	Fat Content	Price
Bull meat	February 6	33°F	8%	$1.05
Boneless chuck	February 7	35°F	14%	$1.00
75% lean trim	February 4	32°F	25%	$0.75
50% lean trim	February 6	31°F	50%	$0.55
Beef chuck	February 7	37°F	12%	$0.70
Beef hearts	February 6	32°F	15%	$0.35

Solution to Sample Problem 2

1. Do all potential ingredients meet government regulations and company specifications?

Acceptable	*Non Acceptable*
Bull meat	75% lean trim is too old
Boneless chuck	Beef chuck got too warm
50% lean trim	Beef hearts are not allowed

2. Therefore, to produce desired fat content, product could be made from either of the following two combinations:
    a. Bull meat and 50% lean trim
    b. Boneless chuck and 50% lean trim

3. Use the Pearson Square method to determine which combination will result in the lowest meat cost.
    a. Part A

(A) Bull meat = 8%

(D) 32

(C) 18% Fat Content of Finished Batch

(B) 50% lean trim = 50% fat

(E) 10
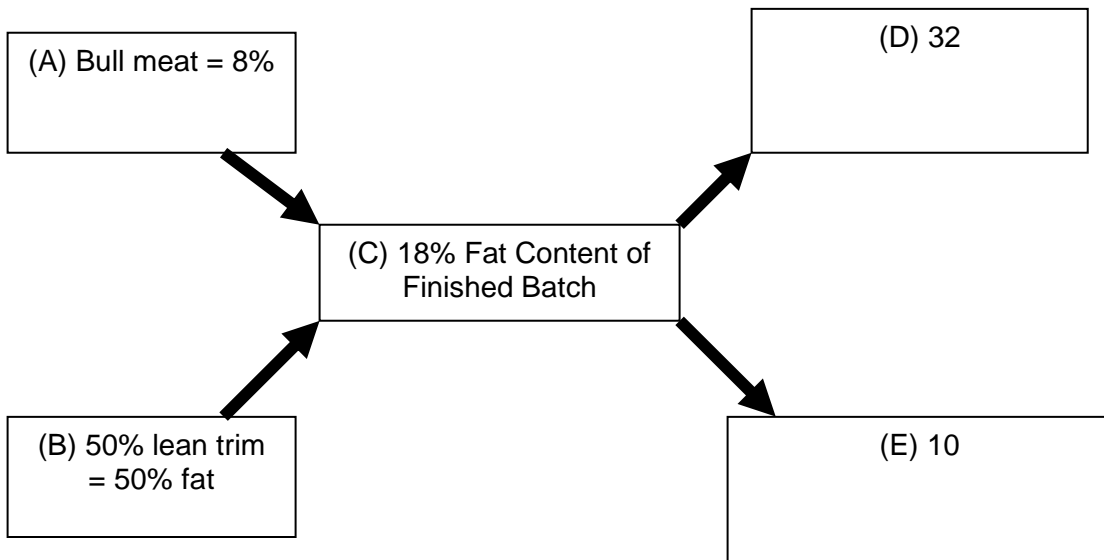
The difference in A and B = 42 and the sum of D and E = 42 so the Pearson Square is set up properly.

Percentage of Bull Meat   = 32/42 = .7619 = 76.19%
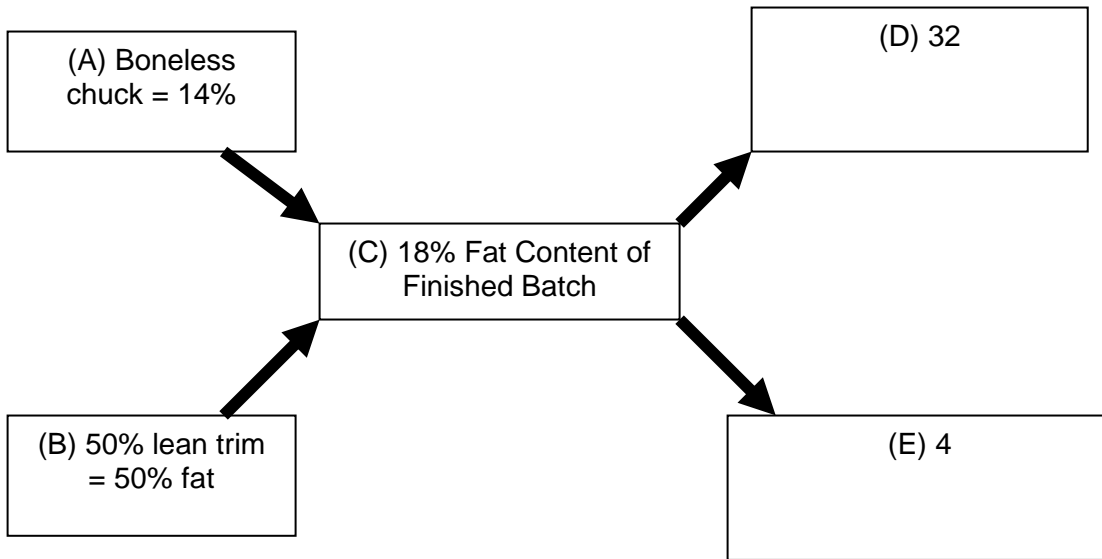Percentage of Lean Trim   = 10/42 = .2381 = 23.81%

Pounds of Bull Meat needed = 76.19% x 5,000 lbs. = 3809.5
Pounds of 50% lean trim (B) = 23.81% x 5,000 lbs. = 1190.5

Verify Final Fat Content
3809.5 lbs. of bull meat x   8% fat content =   *304.76*
1190.5 lbs. of lean trim x 50% fat content =   *595.25*

Cost: Bull Meat 0.7619 x $1.05 = $0.799 = $0.80
**   50% trim 0.2381 x $0.55 = $0.130 = $0.13**
** $0.93 or $0.93/lb.**

b. Part B

```
┌─────────────────────┐                          ┌─────────────────────┐
│ (A) Boneless        │                          │ (D) 32              │
│ chuck = 14%         │                          │                     │
│                     │                          │                     │
└─────────────────────┘                          └─────────────────────┘
            ↘                                    ↗
              ┌──────────────────────────────┐
              │ (C) 18% Fat Content of       │
              │     Finished Batch           │
              └──────────────────────────────┘
            ↗                                    ↘
┌─────────────────────┐                          ┌─────────────────────┐
│ (B) 50% lean trim   │                          │ (E) 4               │
│    = 50% fat        │                          │                     │
│                     │                          │                     │
└─────────────────────┘                          └─────────────────────┘
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The difference in A and B = 36 and the sum of D and E = 36 so the Pearson Square is set up properly.

Percentage of boneless chuck = 32/36 = .8888 = 88.88%
Percentage of Lean Trim   =   4/36 = .1111 = 11.11%

Pounds of boneless chuck needed = 88.88% x 5,000 pounds = 4444
Pounds of 50% lean trim (B) =   11.11% x 5,000 pounds = 555.5

Verify Final Fat Content
4444 lbs. of bull meat x 14% fat content =   622.16
555.5 lbs. of lean trim x 50% fat content) =   277.75

Cost: boneless chuck 0.8888 x $1.00 = $0.888 = $0.89
**   50% trim 0.1111 x $0.55 = $0.061 = $0.16**
** $0.95 or $0.95/lb.**

Final Product: To make the lowest priced ground beef acceptable to the company management.

Meats to be used: Bull Meat …..3,809.5 lbs.
**   50% trim …..1,190.5 lbs.**
Cost of final Product ……………$0.93 lb. or $0.93 x 5,000 = $ 4650.00

Questions (For this sample ten questions are given. Eight questions valued at ten points each will be used for the actual problem). **These are only sample questions that may or may not be included for the actual problem.**

> **NOTE: In an actual situation, overhead cost must also be added to the cost of the ground beef to account for labor, equipment, transportation, etc., but in this exercise the student will only be determining meat cost and need not be concerned with overhead costs.**

1. What amount of bull meat and 50% beef trim needs to be mixed to produce a 5,000 lb. batch of ground beef with 18% fat content?
    a. 1200.5 lbs. of bull meat and 3800.5 lbs. of 50% beef trim
    b. 1800.5 lbs. of bull meat and 3200.5 lbs. of 50% beef trim
    c. 2600.5 lbs. of bull meat and 2400.5 lbs. of 50% beef trim
    d. **3809.5 lbs. of bull meat and 1190.5 lbs. of 50% beef trim**

2. What amount of boneless chuck and 50% beef trim needs to be mixed to produce a 5,000 lb. batch of ground beef with 18% fat content?
    a. **4444 lbs. of boneless chuck and 555.5 lbs. of 50% beef trim**
    b. 3450.5 lbs. of boneless chuck and 1550 lbs. of 50% beef trim
    c. 1450 lbs. of boneless chuck and 3550.5 lbs. of 50% beef trim
    d. 555.5 lbs. of boneless chuck and 4444 lbs. of 50% beef trim

3. How much is saved per pound if bull meat is used instead of boneless chuck?
    a. **$0.02**
    b. $0.05
    c. $0.10
    d. $0.20

4. Which ingredient could **NOT** be used because it was kept too warm?
    a. **Beef chuck**
    b. Beef hearts
    c. Boneless chuck
    d. Bull meat

5. Which ingredient is too old to be used in the ground beef?
    a. 50% lean trim
    b. **75% lean trim**
    c. Beef chuck
    d. Beef hearts

6. Which ingredient does not meet USDA standards to be included in ground beef?
    a. Beef chuck
    b. **Beef hearts**
    c. Boneless chuck
    d. Lean trim

7. Which ingredient was kept the coldest?
    a. **50% lean trim**
    b. 75% lean trim
    c. Beef chuck
    d. Beef hearts

8. Which ingredient had the greatest percentage of fat?
   a. 50% lean trim
   b. 75% lean trim
   c. Beef chuck
   d. Beef hearts

9. Which ingredient had the least percentage of fat?
   a. 50% lean trim
   b. 75% lean trim
   c. Beef chuck
   d. Bull meat

10. How much is the total savings if bull meat is used instead of boneless chuck?
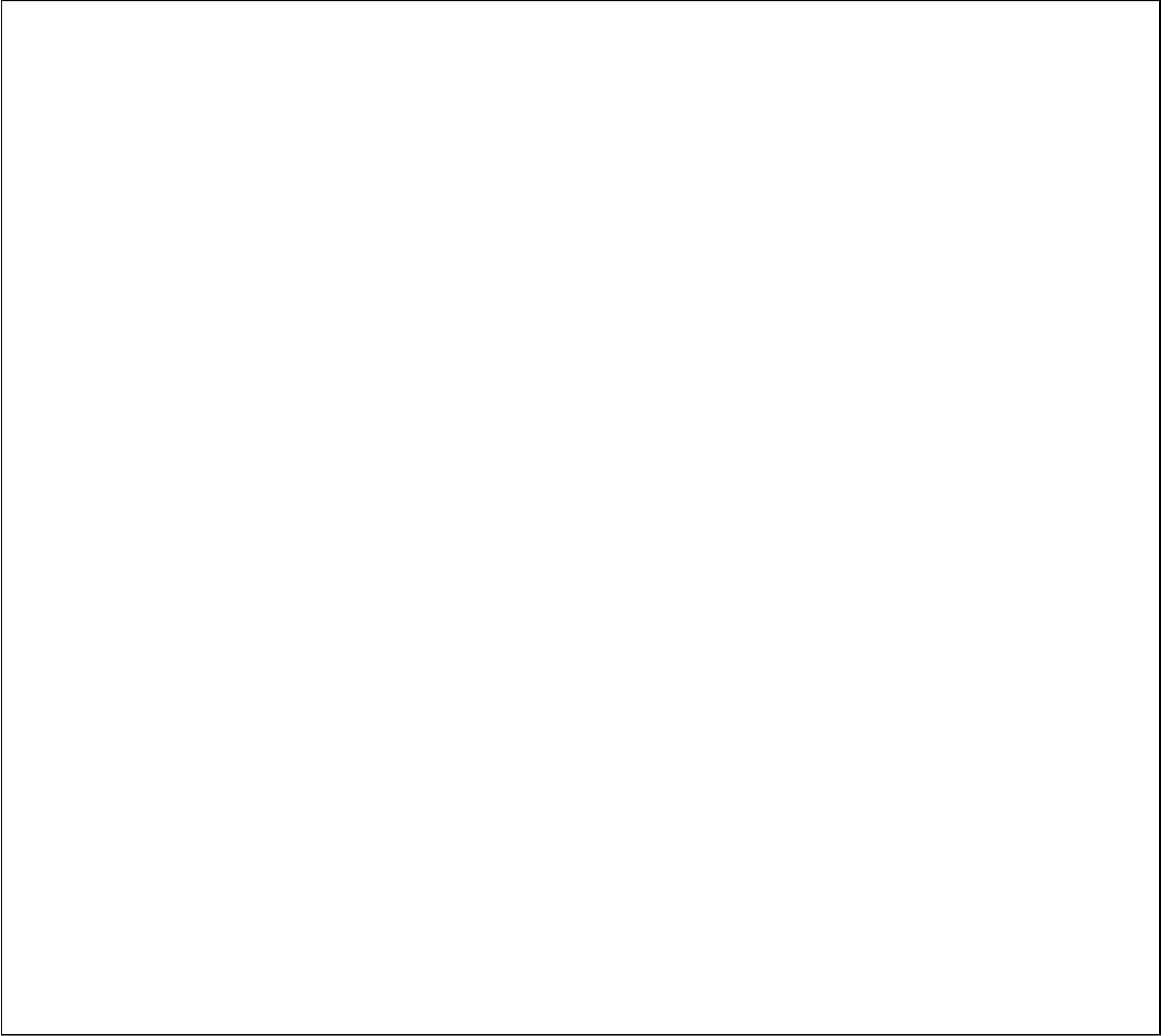   a. $ 50.00
    b. $100.00
    c. $150.00
    d. $200.00

Meats Evaluation CDE 20XX
Meats Formulation Problem Answer Sheet

Part I – Students: You must show your work to complete the Pearson Square within the block below in order to receive the full 20 points for Part I.

Neatness and ability to read your work will affect scoring.

Scoring Use Only
Points Earned for Part I = _____

Name _____ Chapter_____ ID Number_____

Scoring Use Only
Part I Total Points = _____ (possible 20 points from opposite side)
Part II Total Points= _____ (possible 80 points from questions below)

Student Score =   _____

Part II – Eight Questions – 10 points for each correct answer.

Place the correct letter for the best answer to each question in the blank beside the number. Please be sure to put your name, chapter, and student ID in the designated box at the top of each page. You may do calculations to the right of and below the blanks.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

Scoring Use Only
Points Earned for Part II
Number Correct x 10   = _____