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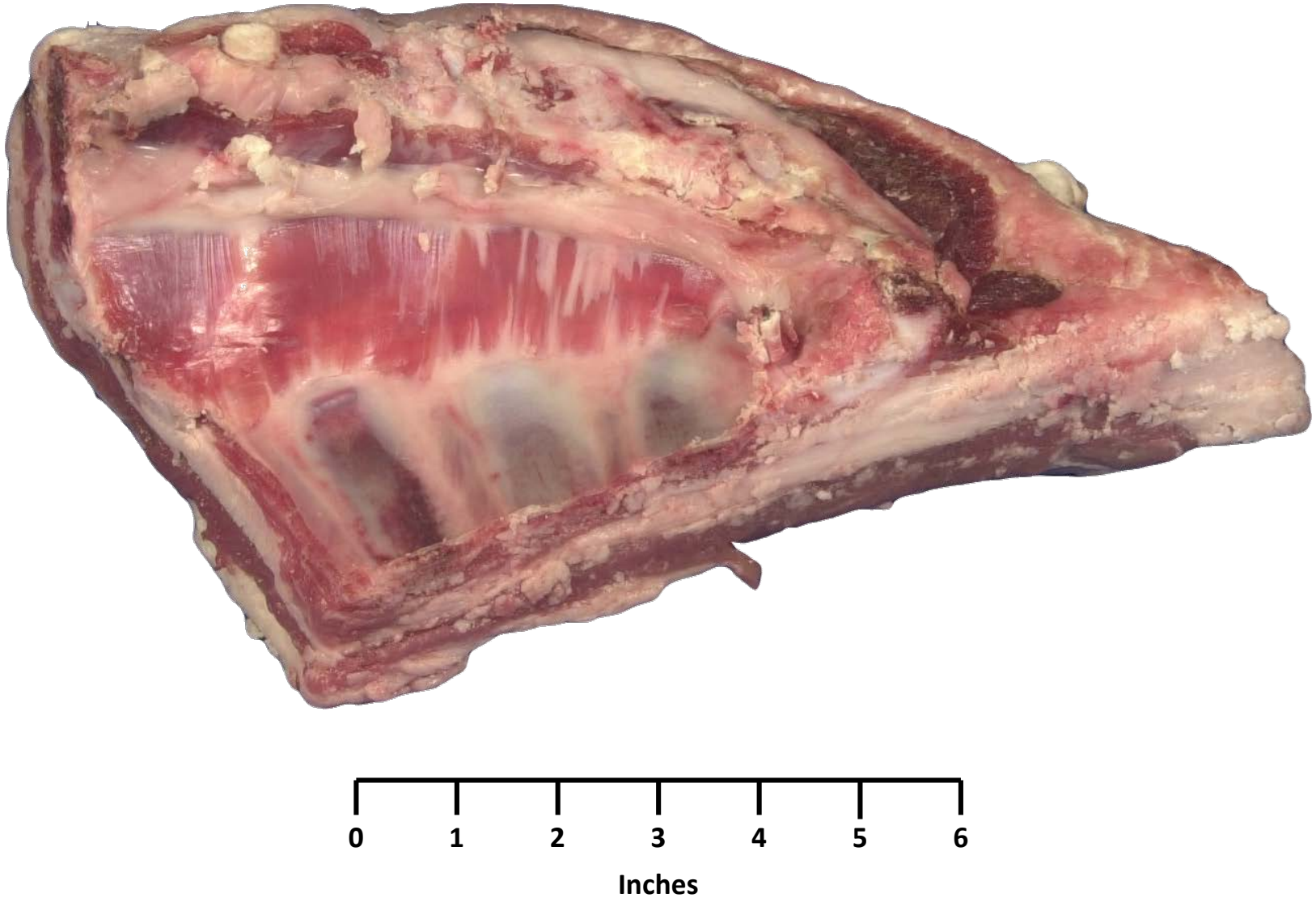

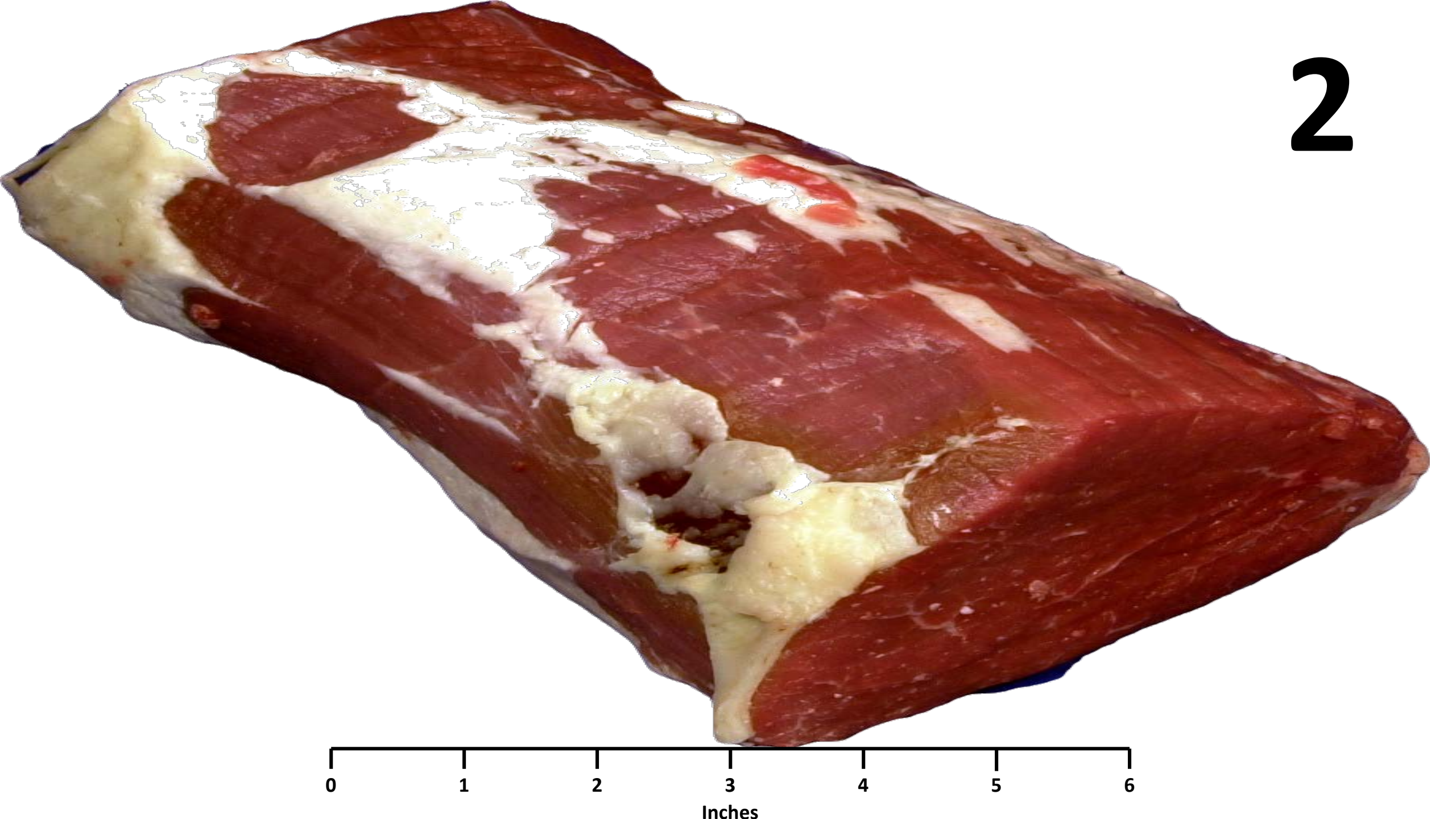
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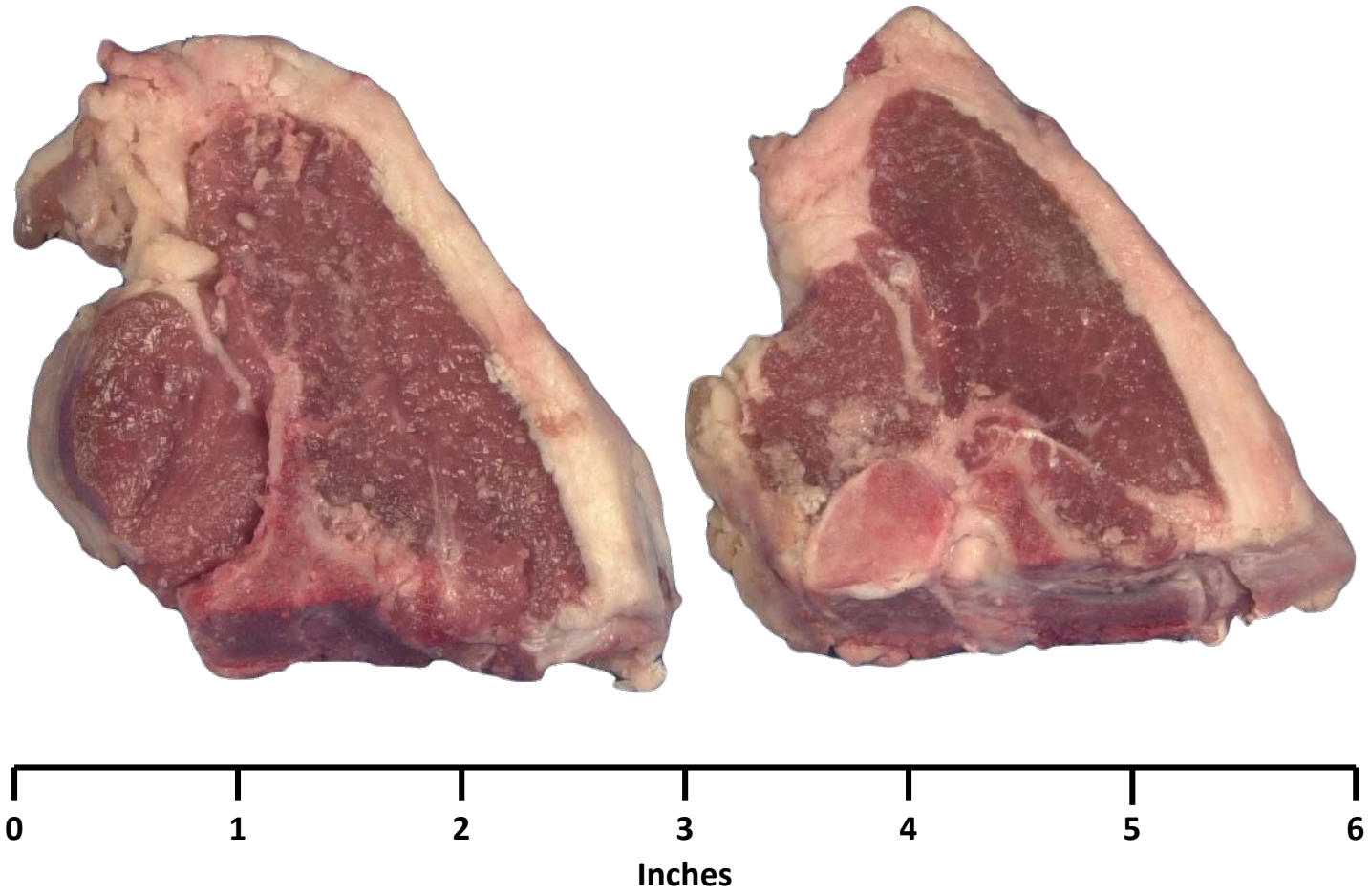

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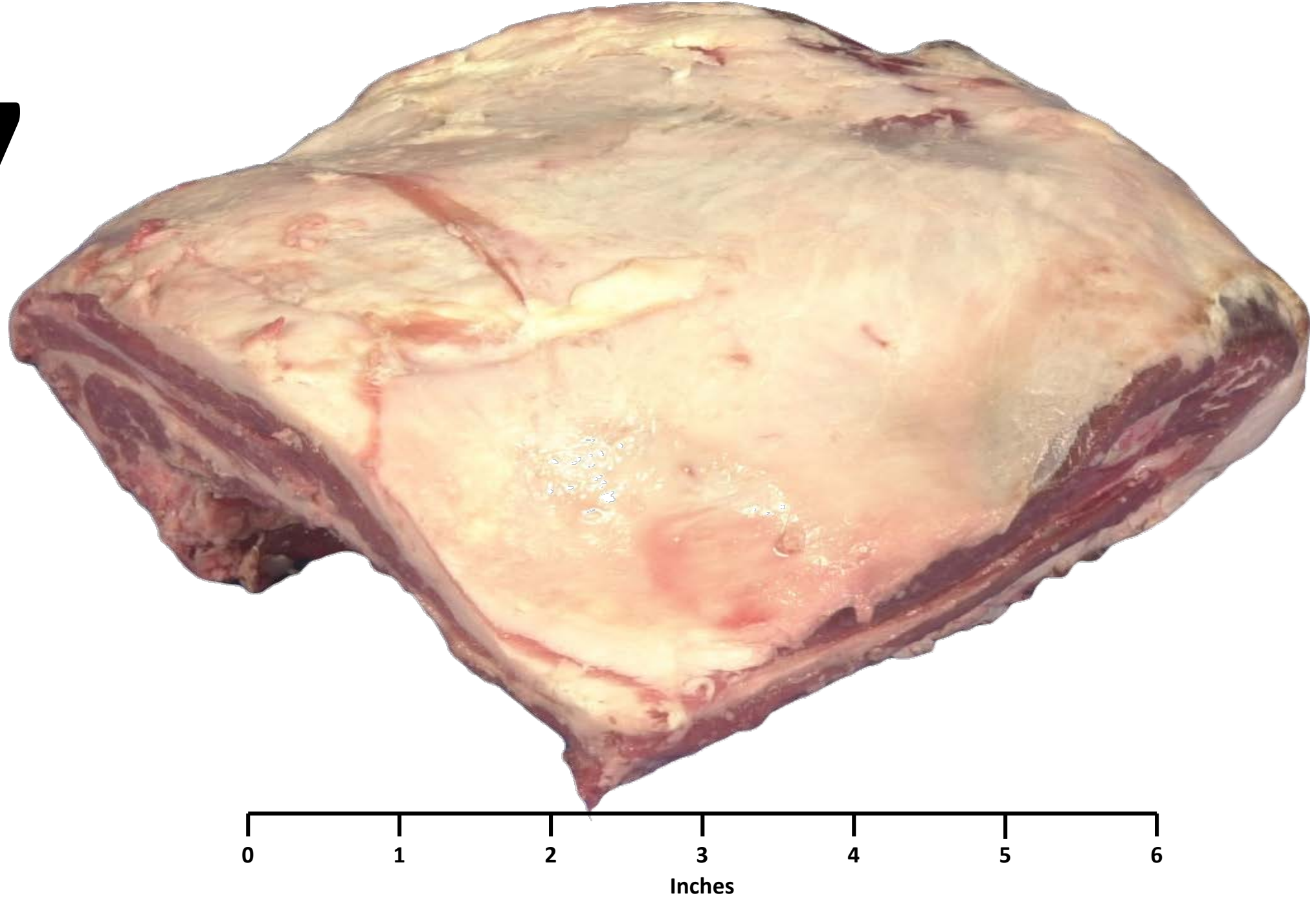

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Inches

9

10

Name ANSWER KEY Contestant #_____ County_____

Senior Retail Meat Cut Identification – 2017

INSTRUCTIONS: For each picture, use the columns on the right to choose the number or letter that indicates your answer for each retail meat cut. Use capital letters and write neatly. **Seniors** provide answers for retail cut name, species of cut, and wholesale cut of origin. Each question is worth 5 points (150 points total for Seniors).

	Retail Cut Name	Species of Cut	Wholesale Cut of Origin
1.	48	L	J
2.	34	B	G
3.	72	P	T
4.	2	B	A
5.	56	L	L
6.	77	P	T
7.	65	L	O
8.	86	P	P
9.	69	P	P
10.	84	P	S

Retail Names – to be used in answer column 1 by Seniors

Beef Retail Meat Cuts

1. Beef for stew
2. Brisket, point half
3. Brisket, whole
4. Arm roast
5. Arm roast, boneless
6. Arm steak
7. Arm steak, boneless
8. Blade roast
9. Blade steak
10. 7-bone roast
11. 7-bone steak
12. Flank steak
13. Sirloin steak, flat bone
14. Sirloin steak, pin bone
15. Sirloin steak, round bone
16. Sirloin steak, wedge bone
17. Sirloin steak, shell
18. Sirloin steak, boneless
19. Tenderloin steak
20. Porterhouse steak
21. T-bone steak
22. Top loin steak
23. Top loin steak, boneless
24. Short ribs
25. Skirt steak
26. Rib roast, large end
27. Rib roast, small end
28. Rib steak, small end
29. Rib steak, small end, boneless
30. Ribeye roast
31. Ribeye steak
32. Bottom round roast
33. Bottom round steak
34. Eye round roast
35. Eye round steak
36. Heel of round roast
37. Rump roast, boneless
38. Round steak
39. Round steak, boneless
40. Tip roast
41. Tip roast, cap off
42. Tip steak
43. Tip steak, cap off
44. Top round roast
45. Top round steak
46. Cross cuts
47. Cross cuts, boneless

Lamb Retail Meat Cuts

48. Breast
49. Breast riblets
50. American style roast
51. Leg Center slice
52. French style roast
53. Leg shank half
54. Sirloin chop
55. Leg sirloin half
56. Loin chop
57. Loin double chop
58. Loin roast
59. Rib chop
60. Rib roast
61. Rib roast, boneless
62. Shanks
63. Blade chop
64. Neck slice
65. Shoulder square cut

Pork Retail Meat Cuts

66. Fresh ham center slice
67. Fresh ham rump portion
68. Fresh ham shank portion
69. Fresh side pork
70. Blade chop
71. Blade roast
72. Butterfly chop
73. Center rib roast
74. Center loin roast
75. Loin chop
76. Rib chop
77. Sirloin chop
78. Top loin chop
79. Arm picnic roast
80. Arm roast
81. Arm steak
82. Blade Boston roast
83. Sliced bacon
84. Smoked jowl
85. Smoked Canadian Style Bacon
86. Spare Ribs

Species of Cut – to be used in answer column 2 by Seniors

(You may use the letter more than once!!)

B. Beef L. Lamb P. Pork

Wholesale Cut of Origin – to be used in answer column 3 by Seniors

Beef Wholesale Cuts

A. Brisket
B. Chuck
C. Flank
D. Loin
E. Plate
F. Rib
G. Round
H. Shank
I. Variety cut

Lamb Wholesale Cuts

J. Breast
K. Leg
L. Loin
M. Rack
N. Shank
O. Shoulder

Pork Wholesale Cuts

P. Belly (Side, Bacon)
Q. Boston Butt
R. Ham
S. Jowl
T. Loin
U. Picnic Shoulder

Name_____ Contestant #_____County_____

Senior Retail Meat Cut Identification – 2017

INSTRUCTIONS: For each picture, use the columns on the right to choose the number or letter that indicates your answer for each retail meat cut. Use capital letters and write neatly. **Seniors** provide answers for retail cut name, species of cut, and wholesale cut of origin. Each question is worth 5 points (150 points total for Seniors).

	Retail Cut Name	Species of Cut	Wholesale Cut of Origin
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Retail Names – to be used in answer column 1 by Seniors

Beef Retail Meat Cuts

1. Beef for stew
2. Brisket, point half
3. Brisket, whole
4. Arm roast
5. Arm roast, boneless
6. Arm steak
7. Arm steak, boneless
8. Blade roast
9. Blade steak
10. 7-bone roast
11. 7-bone steak
12. Flank steak
13. Sirloin steak, flat bone
14. Sirloin steak, pin bone
15. Sirloin steak, round bone
16. Sirloin steak, wedge bone
17. Sirloin steak, shell
18. Sirloin steak, boneless
19. Tenderloin steak
20. Porterhouse steak
21. T-bone steak
22. Top loin steak
23. Top loin steak, boneless
24. Short ribs
25. Skirt steak
26. Rib roast, large end
27. Rib roast, small end
28. Rib steak, small end
29. Rib steak, small end, boneless
30. Ribeye roast
31. Ribeye steak
32. Bottom round roast
33. Bottom round steak
34. Eye round roast
35. Eye round steak
36. Heel of round roast
37. Rump roast, boneless
38. Round steak
39. Round steak, boneless
40. Tip roast
41. Tip roast, cap off
42. Tip steak
43. Tip steak, cap off
44. Top round roast
45. Top round steak
46. Cross cuts
47. Cross cuts, boneless

Lamb Retail Meat Cuts

48. Breast
49. Breast riblets
50. American style roast
51. Leg Center slice
52. French style roast
53. Leg shank half
54. Sirloin chop
55. Leg sirloin half
56. Loin chop
57. Loin double chop
58. Loin roast
59. Rib chop
60. Rib roast
61. Rib roast, boneless
62. Shanks
63. Blade chop
64. Neck slice
65. Shoulder square cut

Pork Retail Meat Cuts

66. Fresh ham center slice
67. Fresh ham rump portion
68. Fresh ham shank portion
69. Fresh side pork
70. Blade chop
71. Blade roast
72. Butterfly chop
73. Center rib roast
74. Center loin roast
75. Loin chop
76. Rib chop
77. Sirloin chop
78. Top loin chop
79. Arm picnic roast
80. Arm roast
81. Arm steak
82. Blade Boston roast
83. Sliced bacon
84. Smoked jowl
85. Smoked Canadian Style Bacon
86. Spare Ribs

Species of Cut – to be used in answer column 2 by Seniors

(You may use the letter more than once!!)

B. Beef L. Lamb P. Pork

Wholesale Cut of Origin – to be used in answer column 3 by Seniors

Beef Wholesale Cuts

A. Brisket
B. Chuck
C. Flank
D. Loin
E. Plate
F. Rib
G. Round
H. Shank
I. Variety cut

Lamb Wholesale Cuts

J. Breast
K. Leg
L. Loin
M. Rack
N. Shank
O. Shoulder

Pork Wholesale Cuts

P. Belly (Side, Bacon)
Q. Boston Butt
R. Ham
S. Jowl
T. Loin
U. Picnic Shoulder

Name_____Answer Key_____Contestant #_____County_____

Senior Livestock Feed Identification – 2017

INSTRUCTIONS: For each sample, use the columns on the right to choose the number or letter that indicates your answer for each livestock feedstuff. Use capital letters and write neatly. **Seniors** provide answers for feedstuff name, nutrient group, and characteristics/uses of the feedstuff. Each question is worth 5 points (150 points total for Seniors).

	Feedstuff Name	Nutrient Group	Characteristics/ Uses
1.	65	M	H
2.	73	C	A
3.	3	C	F
4.	55	C	E
5.	68	P	D
6.	16	C	B
7.	49	C	C
8.	9	P	J
9.	14	P	K
10.	10	P	G

Feed Names – to be used in answer column 1 by Seniors

1. Alfalfa cubes
2. Alfalfa pasture
3. Barley (whole)
4. Blood meal
5. Brewers dried grain
6. Canola meal
7. Copper sulfate
8. Corn distillers dried grain
9. Corn distillers dried grain with soluble
10. Corn gluten feed
11. Copper Sulfate
12. Cottonseed (whole)
13. Cottonseed hulls
14. Cottonseed meal
15. Cracked shelled corn
16. Crimped oats
17. Defluorinated rock phosphate
18. Dicalcium phosphate
19. DL-methionine
20. Dried Beet pulp
21. Dried molasses
22. Dried skim milk
23. Feather meal
24. Fish meal
25. Grain sorghum (whole)
26. Ground ear corn
27. Ground limestone
28. Ground shelled corn
29. Kentucky Bluegrass pasture
30. L-lysine HCl
31. L-threonine
32. L-tryptophan
33. Linseed meal
34. Liquid molasses
35. Meat and bone meal
36. Millet (whole)
37. Oats (whole)
38. Oat hulls
39. Orchardgrass hay
40. Orchardgrass pasture
41. Oyster shells
42. Peanut meal
43. Red Clover hay
44. Red Clover pasture
45. Roller dried whey
46. Rye (whole)
47. Salt, white
48. Santoquin
49. Shelled corn
50. Soybean hulls
51. Soybean meal
52. Soybeans (whole)
53. Spray-dried animal plasma
54. Spray-dried whey
55. Steam flaked corn
56. Steam rolled barley
57. Steam rolled oats
58. Steamed bone meal
59. Sunflower meal
60. Tall Fescue hay
61. Tall Fescue pasture
62. Timothy hay
63. Timothy pasture
64. Trace-mineral premix
65. Trace-mineralized salt
66. Triticale (whole)
67. Tryptosine
68. Urea
69. Vegetable oil
70. Vitamin premix
71. Wheat (whole)
72. Wheat bran
73. Wheat middlings
74. White Clover hay
75. White Clover pasture

Feeds Nutrient Groups – to be used in answer column 2 by Seniors

(You may use the letter more than once!!)

B. By-product feed
C. Carbohydrate (energy)
F. Fats (energy)
M. Mineral
P. Protein
V. Vitamin

Important Characteristics/Uses of Feedstuffs – to be used in answer column 3 by and Seniors

A. By-product of the milling Industry that has a mild laxative effect.

B. Increases surface area and improves energy utilization – primarily used in horse diets or diets for young animals.

C. Most often used in swine rations.

D. Should only be fed to ruminants and can be toxic if fed at excessive levels.

E. Increases the surface area and gelatinizes some of the starch making it more digestible.

F. Bulk density = 48 pounds/bushel

G. Contains corn bran and soluble protein.

H. Commonly fed free-choice to grazing animals in either loose or block form.

I. Produced by extracting the sugar from sugar beets.

J. By-product of the distillers industry.

K. Excellent protein source for ruminants and is low in lysine and tryptophan.

Name_____ Contestant #_____County_____

Senior Livestock Feed Identification – 2017

INSTRUCTIONS: For each sample, use the columns on the right to choose the number or letter that indicates your answer for each livestock feedstuff. Use capital letters and write neatly. **Seniors** provide answers for feedstuff name, nutrient group, and characteristics/uses of the feedstuff. Each question is worth 5 points (150 points total for Seniors).

	Feedstuff Name	Nutrient Group	Characteristics/ Uses
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Feed Names – to be used in answer column 1 by Seniors

1. Alfalfa cubes
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6. Canola meal
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9. Corn distillers dried grain with soluble
10. Corn gluten feed
11. Copper Sulfate
12. Cottonseed (whole)
13. Cottonseed hulls
14. Cottonseed meal
15. Cracked shelled corn
16. Crimped oats
17. Defluorinated rock phosphate
18. Dicalcium phosphate
19. DL-methionine
20. Dried Beet pulp
21. Dried molasses
22. Dried skim milk
23. Feather meal
24. Fish meal
25. Grain sorghum (whole)
26. Ground ear corn
27. Ground limestone
28. Ground shelled corn
29. Kentucky Bluegrass pasture
30. L-lysine HCl
31. L-threonine
32. L-tryptophan
33. Linseed meal
34. Liquid molasses
35. Meat and bone meal
36. Millet (whole)
37. Oats (whole)
38. Oat hulls
39. Orchardgrass hay
40. Orchardgrass pasture
41. Oyster shells
42. Peanut meal
43. Red Clover hay
44. Red Clover pasture
45. Roller dried whey
46. Rye (whole)
47. Salt, white
48. Santoquin
49. Shelled corn
50. Soybean hulls
51. Soybean meal
52. Soybeans (whole)
53. Spray-dried animal plasma
54. Spray-dried whey
55. Steam flaked corn
56. Steam rolled barley
57. Steam rolled oats
58. Steamed bone meal
59. Sunflower meal
60. Tall Fescue hay
61. Tall Fescue pasture
62. Timothy hay
63. Timothy pasture
64. Trace-mineral premix
65. Trace-mineralized salt
66. Triticale (whole)
67. Tryptosine
68. Urea
69. Vegetable oil
70. Vitamin premix
71. Wheat (whole)
72. Wheat bran
73. Wheat middlings
74. White Clover hay
75. White Clover pasture

Feeds Nutrient Groups – to be used in answer column 2 by Seniors

(You may use the letter more than once!!)

B. By-product feed
C. Carbohydrate (energy)
F. Fats (energy)
M. Mineral
P. Protein
V. Vitamin

Important Characteristics/Uses of Feedstuffs – to be used in answer column 3 by and Seniors

A. By-product of the milling Industry that has a mild laxative effect.

B. Increases surface area and improves energy utilization – primarily used in horse diets or diets for young animals.

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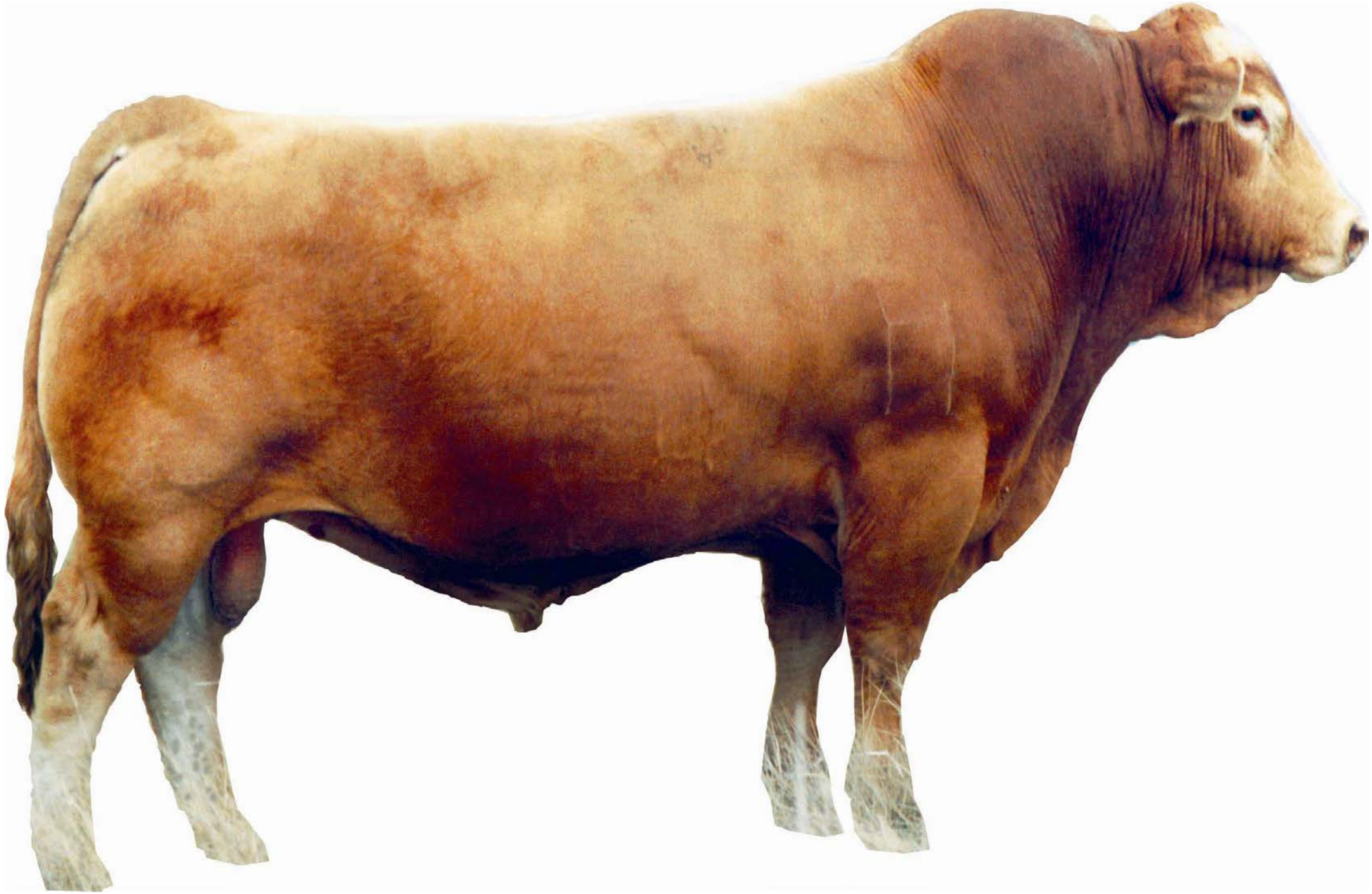

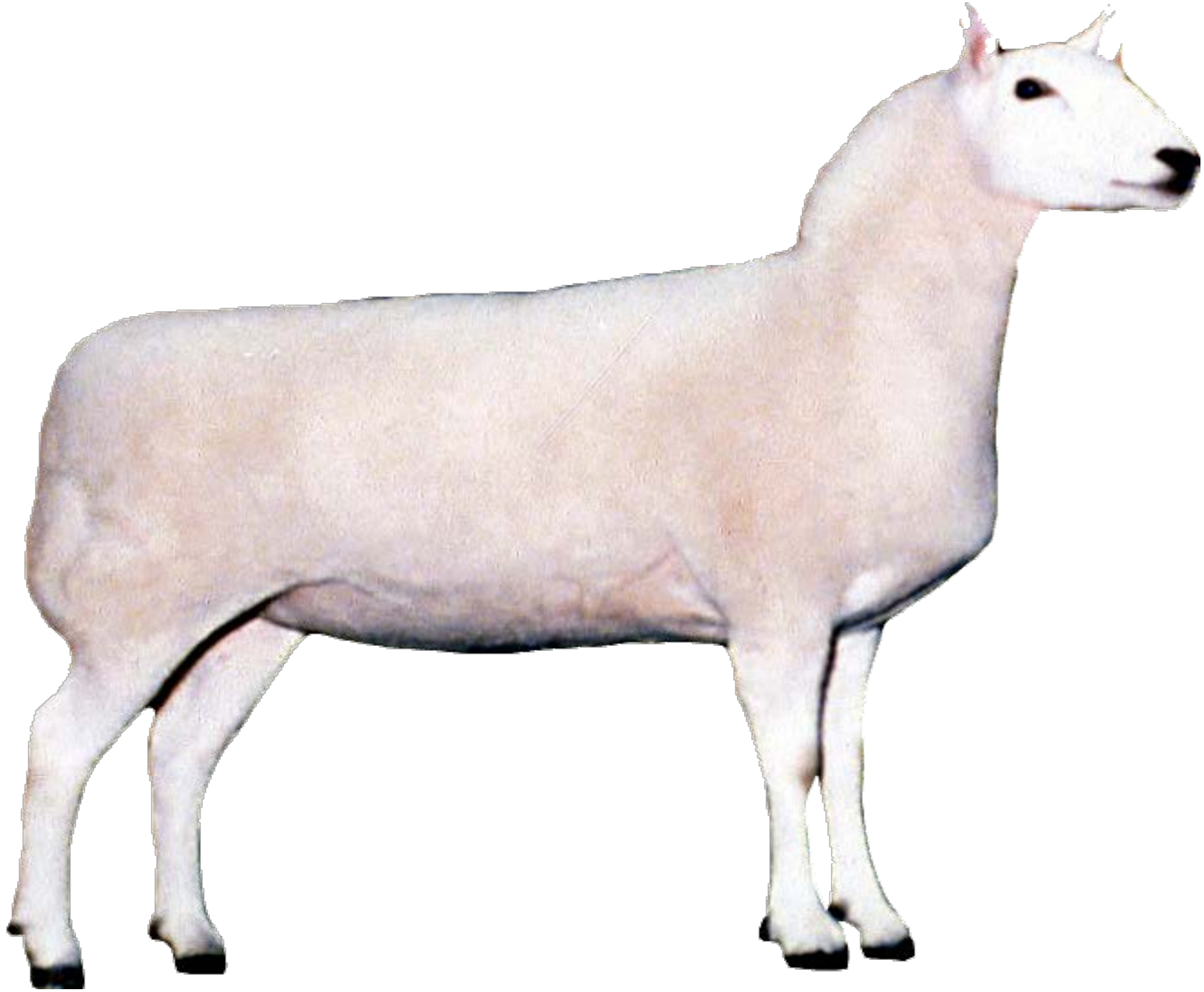

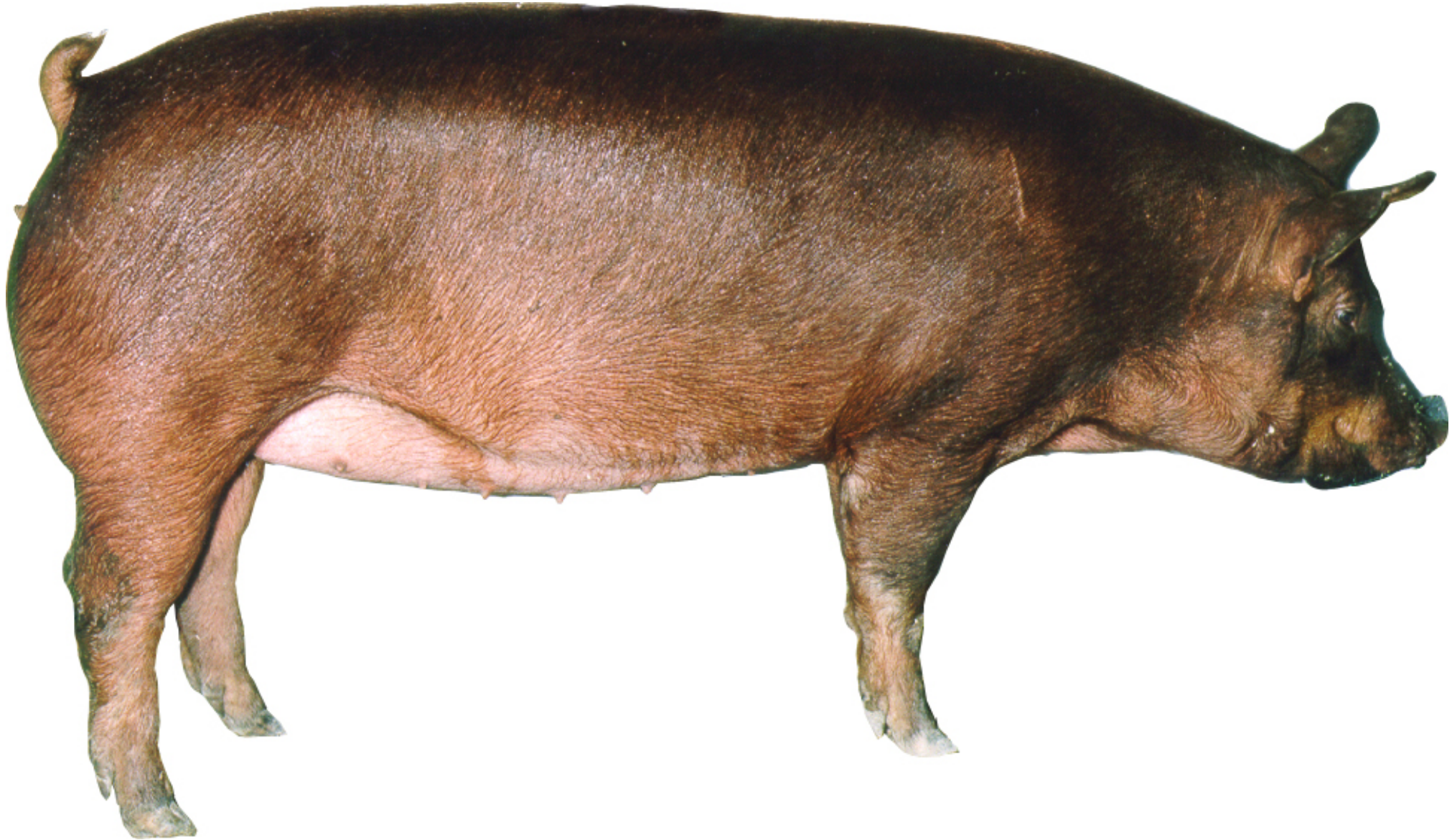

Name_____ Contestant #_____County_____

Senior Livestock Breeds Identification – 2017

INSTRUCTIONS: For each picture, use the columns on the right to choose the number or letter that indicates your answer for each livestock breed. Use capital letters and write neatly. **Seniors** provide answers for breed name, origin of breed, and important characteristics/traits. Each question is worth 5 points for each part of the question. (150 points total for Seniors).

	Breed Name	Origin of Breed	Important Traits
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Breed Names – to be used in answer column 1 by Seniors

Beef Breeds	Goat Breeds	Sheep Breeds	Swine Breeds
1. Angus	17. Alpine	30. Cheviot	47. Berkshire
2. Brahman	18. American Cashmere	31. Columbia	48. Chester White
3. Brangus	19. Angora	32. Corriedale	49. Duroc
4. Charolais	20. Boer	33. Dorper	50. Hampshire
5. Chianina	21. Kiko	34. Dorset	51. Hereford
6. Gelbvieh	22. Lamancha	35. Finnsheep	52. Landrace
7. Hereford	23. Nubian	36. Hampshire	53. Pietrain
8. Limousin	24. Oberhasli	37. Katahdin	54. Poland China
9. Maine Anjou	25. Pygmy	38. Merino	55. Spotted
10. Polled Hereford	26. Saanen	39. Montadale	56. Tamworth
11. Red Angus	27. Spanish	40. Oxford	57. Yorkshire
12. Red Poll	28. Tennessee Fainting	41. Polled Dorset	
13. Santa Gertrudis	29. Toggenburg	42. Rambouillet	
14. Shorthorn		43. Romney	
15. Simmental		44. Southdown	
16. Tarentaise		45. Suffolk	
		46. White Dorper	

Origins of Breeds – to be used in answer column 2 by Intermediates

Some answers will be used more than once

A. England
B. Scotland
C. Louisiana, US
D. Border of England and Scotland
E. South Africa
F. Danish Ancestry
G. Bavaria, Germany
H. Asia Minor
I. France
J. Des Moines, IA
K. Pennsylvania, US

Important Characteristics/Traits Origins of Breeds – to be used in answer column 3 by Seniors

Some answers will be used more than once

Beef Cattle Characteristics/Traits
- A. Foraging Ability and Docility.
- B. Disease and heat resistant.
- C. Excellent meat quality (nicely marbled), calving ease, and hardy.
- D. Growth rate and early maturity.

Goats Characteristics/Traits
- E. Mohair production, browsing ability, meat production, and not as prolific as other goats (single lambs more common than twins).
- F. Meat yield, growth rate, adaptability to wide climatic conditions

Sheep Characteristics/Traits
- G. Lambing ability, early maturity, vigorous instinct.
- H. Wool Quality.
- I. Muscling and leanness.

Swine Characteristics/Traits
- J. Prolificacy (litter size), milking ability, mothering ability.
- K. Aggressive breeders and mothering ability.
- L. Excellent rate of gain and feed efficiency.
- M. Conception rate and mothering ability.

Name_____KEY_____ Contestant #_____County_____

Senior Livestock Breeds Identification – 2017

INSTRUCTIONS: For each picture, use the columns on the right to choose the number or letter that indicates your answer for each livestock breed. Use capital letters and write neatly. **Seniors** provide answers for breed name, origin of breed, and important characteristics/traits. Each question is worth 5 points for each part of the question. (150 points total for Seniors).

	Breed Name	Origin of Breed	Important Traits
1.	1	B	C
2.	3	C	B
3.	10	J	A
4.	6	G	D
5.	30	D	G
6.	42	I	H
7.	19	H	E
8.	20	E	F
9.	48	K	M
10.	56	A	K

Breed Names – to be used in answer column 1 by Seniors

Beef Breeds
1. Angus
2. Brahman
3. Brangus
4. Charolais
5. Chianina
6. Gelbvieh
7. Hereford
8. Limousin
9. Maine Anjou
10. Polled Hereford
11. Red Angus
12. Red Poll
13. Santa Gertrudis
14. Shorthorn
15. Simmental
16. Tarentaise

Goat Breeds
17. Alpine
18. American Cashmere
19. Angora
20. Boer
21. Kiko
22. Lamancha
23. Nubian
24. Oberhasli
25. Pygmy
26. Saanen
27. Spanish
28. Tennessee Fainting
29. Toggenburg

Sheep Breeds
30. Cheviot
31. Columbia
32. Corriedale
33. Dorper
34. Dorset
35. Finnsheep
36. Hampshire
37. Katahdin
38. Merino
39. Montadale
40. Oxford
41. Polled Dorset
42. Rambouillet
43. Romney
44. Southdown
45. Suffolk
46. White Dorper

Swine Breeds
47. Berkshire
48. Chester White
49. Duroc
50. Hampshire
51. Hereford
52. Landrace
53. Pietrain
54. Poland China
55. Spotted
56. Tamworth
57. Yorkshire

Origins of Breeds – to be used in answer column 2 by Intermediates

Some answers will be used more than once

A. England
B. Scotland
C. Louisiana, US
D. Border of England and Scotland
E. South Africa
F. Danish Ancestry
G. Bavaria, Germany
H. Asia Minor
I. France
J. Des Moines, IA
K. Pennsylvania, US

Important Characteristics/Traits Origins of Breeds – to be used in answer column 3 by Seniors

Some answers will be used more than once

Beef Cattle Characteristics/Traits
- A. Foraging Ability and Docility.
- B. Disease and heat resistant.
- C. Excellent meat quality (nicely marbled), calving ease, and hardy.
- D. Growth rate and early maturity.

Goats Characteristics/Traits
- E. Mohair production, browsing ability, meat production, and not as prolific as other goats (single lambs more common than twins).
- F. Meat yield, growth rate, adaptability to wide climatic conditions

Sheep Characteristics/Traits
- G. Lambing ability, early maturity, vigorousforaging instinct.
- H. Wool Quality.
- I. Muscling and leanness.

Swine Characteristics/Traits
- J. Prolificacy (litter size), milking ability, mothering ability.
- K. Aggressive breeders and mothering ability.
- L. Excellent rate of gain and feed efficiency.
- M. Conception rate and mothering ability.

Name_____ Contestant #_____County_____

Senior Livestock and Meat Equipment Identification – 2017

INSTRUCTIONS: For each picture, use the columns on the right to choose the number or letter that indicates your answer for each piece of equipment. Use capital letters and write neatly. **Seniors** provide answers for livestock/meat equipment names and equipment use. Each question is worth 5 points (100 points total for Intermediates).

	Equipment Name	Equipment Use
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____
9.	_____	_____
10.	_____	_____

Equipment Names – to be used in answer column 1 by Seniors

Livestock Equipment

1. All-in-one castrator/docker
2. Artificial insemination pipettes (Swine)
3. Bio Security Suit.
4. Balling gun
5. Barnes dehorner
6. Cattle clippers
7. Clipper comb
8. Clipper cutter
9. Currycomb
10. Disposable syringes
11. Drench gun
12. Ear notchers
13. Ear tag
14. Elastrator
15. Electric branding iron
16. Electric docker
17. Electric fence wire roller
18. Electric sheep shears
19. Emasculatome (Burdizzo)
20. Ewe prolapse retainer
21. Fencing pliers
22. Foot rot rubber boot
23. Goat show lead
24. Hanging Scale
25. Hoof trimmers
26. Lamb tube feeder
27. Needle teeth nippers
28. Nipple waterer
29. Nose ring
30. Nose ring pliers
31. Obstetrical (O.B.) chain
32. Plastic Sleeve
33. Post Driver
34. Ram marking harness
35. Rumen magnate
36. Scotch Comb
37. Show Harness
38. SYNOVEX Implant cartridge
39. SYNOVEX Implant gun
40. Syringe Needles
41. Swine or lamb feeder
42. Wool card

Meat Equipment

43. Backfat ruler
44. Band saw
45. Bone dust scraper
46. Boning knife
47. Bowl chopper
48. Dehairing machine
49. Electrical stunner
50. Emulsifier
51. Ham net
52. Hand saw
53. Hard hat
54. Loin eye area grid
55. Meat grinder
56. Meat grinder auger
57. Meat grinder knife
58. Meat grinder plate
59. Meat grinder stuffing rod
60. Meat hook
61. Meat tenderizer
62. Meat trolley
63. Metal knife scabbard
64. Rubber apron
65. Sharpening steel
66. Smoke house
67. Thermometer
68. Tumbler
69. Vacuum sausage stuffer
70. Whale saw

Equipment Uses – to be used in answer column 2 by Seniors

A. A device placed on rams that shows when a ewe has been serviced.

B. Used to measure precise amounts of a vaccine and to administer vaccines to livestock and horses.

C. A device used to deposit boar semen into reproductive tract of a gilt or sow.

D. Used to hold number of exhibitor when showing cattle.

E. An instrument used to control cattle.

F. Used for small animals to eat out of.

G. .Used to help pull unborn calves from cows that are experiencing calving problems (dystocia).

H. Used to inject a RALGRO pellet under the loose skin and above the cartilage on the back side of a beef calf's ear.

I. Used to provide clean, fresh water to pigs

J. Used to provide protective barrier from diseases.

K. A magnate used to remove metal from the stomach of cattle that they inadvertently consumed while eating.

L. Used to lead goats in the show ring.

M. An instrument used for the bloodless castration of young male calves, lambs, and goats by severing (crushing) the testicular cord.

N. Used to trim away excess hoof goats and sheep.

O. Used to place post in ground.

Name___Answer Key_____ Contestant #_____County_____

Senior Livestock and Meat Equipment Identification – 2017

INSTRUCTIONS: For each picture, use the columns on the right to choose the number or letter that indicates your answer for each piece of equipment. Use capital letters and write neatly. **Seniors** provide answers for livestock/meat equipment names and equipment use. Each question is worth 5 points (100 points total for Intermediates).

	Equipment Name	Equipment Use
1.	37	D
2.	23	L
3.	41	F
4.	3	J
5.	31	G
6.	25	N
7.	33	O
8.	28	I
9.	34	A
10.	29	E

Equipment Names – to be used in answer column 1 by Seniors

Livestock Equipment

1. All-in-one castrator/docker
2. Artificial insemination pipettes (Swine)
3. Bio Security Suit.
4. Balling gun
5. Barnes dehorner
6. Cattle clippers
7. Clipper comb
8. Clipper cutter
9. Currycomb
10. Disposable syringes
11. Drench gun
12. Ear notchers
13. Ear tag
14. Elastrator
15. Electric branding iron
16. Electric docker
17. Electric fence wire roller
18. Electric sheep shears
19. Emasculatome (Burdizzo)
20. Ewe prolapse retainer
21. Fencing pliers
22. Foot rot rubber boot
23. Goat show lead
24. Hanging Scale
25. Hoof trimmers
26. Lamb tube feeder
27. Needle teeth nippers
28. Nipple waterer
29. Nose ring
30. Nose ring pliers
31. Obstetrical (O.B.) chain
32. Plastic Sleeve
33. Post Driver
34. Ram marking harness
35. Rumen magnate
36. Scotch Comb
37. Show Harness
38. SYNOVEX Implant cartridge
39. SYNOVEX Implant gun
40. Syringe Needles
41. Swine or lamb feeder
42. Wool card

Meat Equipment

43. Backfat ruler
44. Band saw
45. Bone dust scraper
46. Boning knife
47. Bowl chopper
48. Dehairing machine
49. Electrical stunner
50. Emulsifier
51. Ham net
52. Hand saw
53. Hard hat
54. Loin eye area grid
55. Meat grinder
56. Meat grinder auger
57. Meat grinder knife
58. Meat grinder plate
59. Meat grinder stuffing rod
60. Meat hook
61. Meat tenderizer
62. Meat trolley
63. Metal knife scabbard
64. Rubber apron
65. Sharpening steel
66. Smoke house
67. Thermometer
68. Tumbler
69. Vacuum sausage stuffer
70. Whale saw

Equipment Uses – to be used in answer column 2 by Seniors

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B. Used to measure precise amounts of a vaccine and to administer vaccines to livestock and horses.

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H. Used to inject a RALGRO pellet under the loose skin and above the cartilage on the back side of a beef calf's ear.

I. Used to provide clean, fresh water to pigs

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K. A magnate used to remove metal from the stomach of cattle that they inadvertently consumed while eating.

L. Used to lead goats in the show ring.

M. An instrument used for the bloodless castration of young male calves, lambs, and goats by severing (crushing) the testicular cord.

N. Used to trim away excess hoof on goats and sheep.

O. Used to place post in ground.

Key

Senior Individual Quality Assurance – 2017

Your family has a flock of 35 ewes. After your first lambs reach 3 weeks of age you have a couple that die. One became lame then very stiff before death. The other one showed signs of diarrhea and looked like it was wasting away. After taking them to the UK Diagnostic Lab it was determined that they had white muscle disease. Your local vet prescribed **BO-SE** and developed a vacicination protocol for your flock. Use the **partial BO-SE label** and your knowledge of quality assurance management to answer the **10 questions** below relating to quality assurance.
Circle your answers. (10 questions worth 5 points per question for 50 total points).

1. **What animal should BO-SE not be given to?**

   A.) Weaned lambs
   C.) New born lambs
   B.) Weaned pigs
   D.) Non-pregnant ewes

2. **If you have a group of pigs averaging 79.5 pounds apiece, what dosage would you use?**

   A.) 2 ½ mL
   C.) 2 mL
   B.) ¼ mL
   D.) 6 mL

3. **If you give a dairy steer an injection of BO-SE on July 1, when would it first be safe to slaughter the steer for food?**

   A.) July 2
   C.) July 19
   B.) August 1
   D.) August 6

4. **How is BO-SE administered to cattle, sheep or swine?**

   A.) On the skin (topically)
   C.) In the nose (intranasal)
   B.) Under the skin (subcutaneously)
   D.) In the feed

5. What other way can BO-SE be administered?

A.) On the skin (topically)
C.) In the nose (intranasal)
B.) In the feed
D.) Intramuscular

Question 6 became an issue and the answer was changed in the scoring room.

6. When injecting BO-SE intramuscularly we should not give it in the _____?

A.) Loin
B.) Flank
C.) Neck
D.) Under skin on Neck

7. What is the best way to fully understand how to properly use BO-SE?

A.) Follow your veterinarians instructions and/or the label insert for **BO-SE**
B.) Carefully read and follow the entire insert for Pulmotil 90
C.) Only take the advice of your neighbor down the road
D.) All are correct

8. What is the active ingredient(s) in BO-SE?

A.) Selenium
B.) Vitamin E
C.) Sulfamethazine
D.) Both A and B

9. What is the closest to the correct dosage for a 150 pound replacement ewe?

A.) 2 mL
B.) 7.5 mL
C.) 10 mL
D.) 3.75 mL

10. New born pigs are given a shot of _____?

A.) BO-SE
B.) Water
C.) Iron
D.) PG 600 (used to bring sows in heat)

Name_____Contestant#_____County_____

Senior Individual Quality Assurance – 2017

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A.) On the skin (topically) C.) In the nose (intranasal)

B.) In the feed D.) Intramuscular

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A.) Loin B.) Flank C.) Neck D.) Under skin on Neck

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A.) Follow your veterinarians instructions and/or the label insert for **BO-SE**

B.) Carefully read and follow the entire insert for Pulmotil 90

C.) Only take the advice of your neighbor down the road

D.) All are correct

8. **What is the active ingredient(s) in BO-SE?**

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MERCK ANIMAL HEALTH
Intervet Inc.
2 GIRALDA FARMS, MADISON, NJ, 07940

Customer Service:	800-521-5767
Order Desk:	800-648-2118
Technical Service (Companion Animal):	800-224-5318
Technical Service (Livestock):	800-211-3573
Fax:	973-937-5557
Website:	www.merck-animal-health-usa.com

BO-SE®

℞

Intervet/Merck Animal Health

PRODUCT INFORMATION

(SELENIUM, VITAMIN E)

Injection

FOR VETERINARY USE ONLY

CAUTION Federal law restricts this drug to use by or on the order of a licensed veterinarian.

DESCRIPTION BO-SE (selenium, vitamin E) is an emulsion of selenium-tocopherol for the prevention and treatment of white muscle disease (Selenium-Tocopherol Deficiency) syndrome in calves, lambs, and ewes, and as an aid in the prevention and treatment of Selenium-Tocopherol Deficiency in sows and weanling pigs.

PHARMACOLOGY It has been demonstrated that selenium and tocopherol exert physiological effects and that these effects are intertwined with sulfur metabolism. Additionally, tocopherol appears to have a significant role in the oxidation process, thus suggesting an interrelationship between selenium and tocopherol in overcoming sulfur-induced depletion and restoring normal metabolism. Although oral ingestion of adequate amounts of selenium and tocopherol would seemingly restore normal metabolism, it is apparent that the presence of sulfur and, perhaps, other factors interfere during the digestive process with proper utilization of selenium and tocopherol. When selenium and tocopherol are injected, they bypass the digestive process and exert their full metabolic effects promptly on cell metabolism.

INDICATIONS BO-SE (selenium, vitamin E) is recommended for the prevention and treatment of white muscle disease (Selenium-Tocopherol Deficiency) syndrome in calves, lambs, and ewes. Clinical signs are: stiffness and lameness, diarrhea and unthriftiness, pulmonary distress and/or cardiac arrest. In sows and weanling pigs, as an aid in the prevention and treatment of diseases associated with Selenium-Tocopherol deficiency, such as hepatic necrosis, mulberry heart disease, and white muscle disease. Where known deficiencies of selenium and/or vitamin E exist, it is advisable, from the prevention and control standpoint, to inject the sow during the last week of pregnancy.

CONTRAINDICATIONS DO NOT USE IN PREGNANT EWES. Deaths and abortions have been reported in pregnant ewes injected with this product.

WARNINGS Anaphylactoid reactions, some of which have been fatal, have been reported in animals administered BO-SE Injection. Signs include excitement, sweating, trembling, ataxia, respiratory distress, and cardiac dysfunction.
Discontinue use 30 days before the treated calves are slaughtered for human consumption. Discontinue use 14 days before the treated lambs, ewes, sows, and pigs are slaughtered for human consumption. Selenium-Vitamin E preparations can be toxic when improperly administered.

PRECAUTIONS Selenium-Tocopherol Deficiency (STD) syndrome produces a variety and complexity of symptoms often interfering with a proper diagnosis. Even in selenium deficient areas there are other disease conditions which produce similar clinical signs. It is imperative that all these conditions be carefully considered prior to treatment of STD syndrome. Serum selenium levels, elevated SGOT, and creatine levels may serve as aids in arriving at a diagnosis of STD, when associated with other indices. Selenium is toxic if administered in excess. A fixed dose schedule is therefore important (read package insert for each selenium-tocopherol product carefully before using).

ADVERSE REACTIONS Reactions, including acute respiratory distress, frothing from the nose and mouth, bloating, severe depression, abortions, and deaths have occurred in pregnant ewes. No known treatment exists because at this time the cause of the reaction is unknown.

DOSAGE AND ADMINISTRATION Inject subcutaneously or intramuscularly. Calves: 2.5-3.75 mL per 100 pounds of body weight depending on the severity of the condition and the geographical area. Lambs 2 weeks of age and older: 1 mL per 40 pounds of body weight (minimum, 1 mL). Ewes: 2.5 mL per 100 pounds of body weight. Sows: 1 mL per 40 pounds of body weight. Weanling pigs: 1 mL per 40 pounds of body weight (minimum, 1 mL). Not for use in newborn pigs.

STORAGE Store between 2° and 30°C (36° and 86°F). Protect from freezing.
HOW SUPPLIED 100 mL sterile, multiple dose vial, NDC 0061-0807-05.
NADA #12-635, Approved by FDA.
October 1998

Made in Germany.
141329 R1
CPN: 1047025.3

Name_____ Contestant #_____County_____

Senior Quiz – 2017

Carefully circle the correct answer to each of the questions below. (Each question is worth 2 points each for a total of 50 points)

1.) The number of litters a sow has carried is called _____.

a. Standing heat
c. Parity
b. Efficiency
d. Cervix

2.) The temperature range at which a pig feels the most comfortable _____.

a. Thermal comfort zone
c. Summer heat
b. Follicle stimulating hormone
d. Winter cold

3.) Number of pounds of feed an animal is fed for each pound of gain achieved is_____.

a. Both B and D
c. Vitamins
b. Average daily gain
d. Feed efficiency

4.) Most hogs are raised in the "corn belt" **and** this particular state?

a. Illinois
c. Arizona
b. North Carolina
d. Kentucky

5.) All pigs that die shortly before farrowing in the uterine horn or during the farrowing process are called?

a. Mummified
c. Stillborn
b. Aborted
d. Cross fostering

6.) To help with biosecurity you can wear which of the following?

a. Plastic Coveralls
c. Same boots from one pig farm to another
b. Plastic Boots
d. Both A and B

7.) When we are ready to AI sows or cows we check for signs of _____?

a. Lactation
c. Mortality
b. Estrus
d. Gestation

8.) What is the number one factor in figuring Yield Grade in sheep?

a. Brisket fullness
c. KPH
b. Leg shape and forearm
d. How trim they are

9.) Programs such as “Berkshire Gold”, “Certified Angus Beef “or “Laura’s Lean Beef” are called?

a. Organic
c. Cheap products
b. Boxes of meat
d. Branded Products or niche market

10.) When using manure for fertilizer it is **best** applied during which season?

a. Spring
c. Fall
b. Summer
d. Winter

11.) Which one of the following would be an acceptable ADG for a feedlot calf?

a. 0.27
c. 1.23
b. 3.75
d. 8.9

12.) Conception rates and litter size will increase if we AI or allow boars to breed sows?

a. Pre-estrus
c. Two times
b. One time
d. Post-estrus

13.) Which breed is known for its docility and early maturity?

a. Hereford
c. Charolais
b. Chianina
d. Limousin

14.) The majority of the market ready cattle in the United States are sold as Yield Grades?

a. 1 and 2
c. 4 and 5
b. 2 and 3
d. 5 and 6

15.) Which state is the leading livestock state based on annual gross receipts?

a. Washington
c. Texas
b. West Virginia
d. Maine

16.) What would be the most important factor when deciding where to buy a cattle farm?

a. Water availability
c. Road access to the local restaruant
b. Fencing
d. School District

17.) In stocker cattle we want to promote _____?

a. Pregancy
c. Growth
b. Finish
d. Milk production

18.) Which combination is **leaner** in comparison to their male or female counterparts within their species?

a. Barrows and Steers
b. Gilts and Steers
c. Angus and Berkshires
d. Hampshire and Southdowns

19.) The following would be average gestation lengths for cattle, sheep and swine_____.

a. 205, 127, 104
b. 283, 149, 114
c. 280, 167, 94
d. 325, 150, 110

20.) Most market hogs in the United States are sold based on _____.

a. On-line pig sales
b. Carcass merit
c. Local sale barn prices
d. On farm buyers

21.) Hormone responsible for milk let down and smooth muscle contractions?

a. Oxytocin
b. FSH
c. Testosterone
d. Progesterone

22.) Which of the following would be best fed to mid-lactation ewes in late January?

a. Fescue hay
b. Beet Pulp
c. Quality Alfalfa hay
d. Pasture only

23.) Which breed of goats are born without ears?

a. Boer
b. Lamancha
c. Angora
d. Spanish

24.) What potential hazardous gasses can be found on swine farms _____.

a. Helium
b. Ammonia
c. Methane
d. Both B and C

25.) What does PSE stand for when discussing pork?

a. Pale, Soft, Exudative
b. Passes, Saleable, Extraordinary
c. Pink, Sweet, Exceptional
d. Pork, Sales, Excel

Key

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Senior Retail Meat Judging Class 1 – 2017

Official: 1-3-4-2 Cuts: 3-4-5

Contestant Number _____

Placing Score _____

University of Kentucky
College of Agriculture
Animal Sciences Department

Contestant's Name

_____

_____

Address

_____

_____

County

_____

Class: 1. Pork Steaks

A	1 2 3 4	**36**
B	1 2 4 3	**32**
C	1 3 2 4	**45**
D	1 3 4 2	**50**
E	1 4 2 3	**37**
F	1 4 3 2	**46**
G	2 1 3 4	**24**
H	2 1 4 3	**20**
I	2 3 1 4	**21**
J	2 3 4 1	**14**
K	2 4 1 3	**13**
L	2 4 3 1	**10**
M	3 1 2 4	**42**
N	3 1 4 2	**47**
O	3 2 1 4	**30**
P	3 2 4 1	**23**
Q	3 4 1 2	**40**
R	3 4 2 1	**28**
S	4 1 2 3	**30**
T	4 1 3 2	**39**
U	4 2 1 3	**18**
V	4 2 3 1	**15**
W	4 3 1 2	**36**
X	4 3 2 1	**24**

Senior Retail Meat Judging Class 1 – 2017

Name_____ Contestant #_____ County_____

Contestant Number _____
Placing Score _____

University of Kentucky
College of Agriculture
Animal Sciences Department

Contestant's Name

_____
_____

Address

_____
_____

County

_____

Class: 1. Pork Steaks

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

Senior Retail Meat Judging Class 2 – 2017

Name_____ Contestant #_____ County_____

Contestant Number _____

Placing Score _____

University of Kentucky
College of Agriculture
Animal Sciences Department

Contestant's Name

_____

_____

Address

_____

_____

County

_____

Class

__**Retail Meat Class 2 Strip Steaks**____

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

[Turn over and answer questions on the back of this sheet]

QUESTIONS

1) **Which steak has the most edible product? _____**

2) **Which steak has the most external fat cover? _____**

3) **Between 1 and 3, which steak is leaner? _____**

4) **Between 1 and 2 which steak has the most tail waste? _____**

5) **Between 1 and 4 which steak has more marbling? _____**

Senior Retail Meat Judging Class 2 – 2017

Official: 2-3-1-4 Cuts 5-2-3

Contestant Number _____

Placing Score _____

University of Kentucky
College of Agriculture
Animal Sciences Department

Contestant's Name

_____

_____

Address

_____

_____

County

_____

Class

__**Retail Meat Class 2 Strip Steaks**____

A	1 2 3 4	**41**
B	1 2 4 3	**36**
C	1 3 2 4	**36**
D	1 3 4 2	**26**
E	1 4 2 3	**26**
F	1 4 3 2	**21**
G	2 1 3 4	**48**
H	2 1 4 3	**43**
I	2 3 1 4	**50**
J	2 3 4 1	**47**
K	2 4 1 3	**40**
L	2 4 3 1	**42**
M	3 1 2 4	**38**
N	3 1 4 2	**28**
O	3 2 1 4	**45**
P	3 2 4 1	**42**
Q	3 4 1 2	**25**
R	3 4 2 1	**32**
S	4 1 2 3	**23**
T	4 1 3 2	**18**
U	4 2 1 3	**30**
V	4 2 3 1	**32**
W	4 3 1 2	**20**
X	4 3 2 1	**27**

[Turn over and answer questions on the back of this sheet]

QUESTIONS

1) **Which steak has the most edible product? ___2___**

2) **Which steak has the most external fat cover? ____4____**

3) **Between 1 and 3, which steak is leaner? ____3____**

4) **Between 1 and 2 which steak has the most tail waste? ___1_____**

5) **Between 1 and 4 which steak has more marbling? ____1___**


3

4

Senior Hay Judging Class – 2017

Name_____Contestant #_____County_____

Contestant Number _____
Placing Score _____

University of Kentucky
College of Agriculture
Animal Sciences Department

Contestant's Name

_____
_____

Address

_____
_____

County

_____

Class

__**Hay Judging Class**____

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

[Turn over for Scenario and Forage Analysis Information]

Hay Purchasing/Evaluation

Rank this hay in the order that you would feed it as a supplemental protein source to 1300 lb. mature black baldy cows grazing corn stalks during mid-gestation. Feeding conditions are during late fall and early winter in the upper Midwest. This hay will be hand-fed to supply an extra half-pound of crude protein per cow per day.

Forage Analysis

	Sample 1 Mixed Grass	Sample 2 2nd Cutting Orchard grass	Sample 3 1st Cutting Orchard grass	Sample 4 Grass/Legume Mixture
Dry matter	**92%**	**89%**	**91%**	**87%**
Crude protein	**7.5%**	**18.0%**	**11%**	**21%**
Acid detergent fiber (ADF)	**48%**	**34%**	**35%**	**29%**
Neutral detergent fiber (NDF)	**58%**	**45%**	**47%**	**38%**
Total digestible nutrients (TDN)	**42%**	**52%**	**46%**	**64%**
Price per ton	**$55**	**$90**	**$85**	**$110**

Calculation area if needed:

Key

Senior Hay Judging Class – 2017

Official: 2-4-3-1 Cuts: 4-3-7

Contestant Number _____

Placing Score _____

University of Kentucky
College of Agriculture
Animal Sciences Department

Contestant's Name

_____

_____

Address

_____

_____

County

_____

Class

__**Hay Judging Class**____

A	1 2 3 4	**16**
B	1 2 4 3	**19**
C	1 3 2 4	**9**
D	1 3 4 2	**5**
E	1 4 2 3	**15**
F	1 4 3 2	**8**
G	2 1 3 4	**30**
H	2 1 4 3	**33**
I	2 3 1 4	**37**
J	2 3 4 1	**47**
K	2 4 1 3	**43**
L	2 4 3 1	**50**
M	3 1 2 4	**16**
N	3 1 4 2	**12**
O	3 2 1 4	**30**
P	3 2 4 1	**40**
Q	3 4 1 2	**22**
R	3 4 2 1	**36**
S	4 1 2 3	**25**
T	4 1 3 2	**18**
U	4 2 1 3	**39**
V	4 2 3 1	**46**
W	4 3 1 2	**25**
X	4 3 2 1	**39**

For Animal Use only BOVI-SHIELD® GOLD 5 Reg. No. 3675 Act 36/1947
Namibia reg. no. NSR 1339

For use by or under the control of a veterinarian only

INDICATIONS:
Bovi-Shield® GOLD 5 is recommended for vaccination of healthy cattle as an aid in preventing disease caused by infectious bovine rhinotracheitis virus (IBRV), bovine viral diarrhoea virus (BVD Type 1 and 2)), parainfluenza$_3$ virus (PI$_3$) and bovine respiratory syncytial virus (BRSV). **Bovi-Shield® GOLD 5** may be administered to pregnant cattle provided they were vaccinated with Bovi-Shield® FP4+L5 vaccine within the past 12 months. It may also be administered to calves nursing pregnant cows provided their dams were vaccinated within the past 12 months with Bovi-Shield® FP 4+L5.

STORAGE INSTRUCTIONS:
The vaccine should be stored at temperatures between 2°C and 7°C, and must be protected from light. Do not freeze.

COMPOSITION:
Bovi-Shield® GOLD 5 is a freeze-dried preparation of modified live virus strains of IBR, BVD (Type 1 and 2), PI$_3$ and BRS viruses, plus a sterile diluent used to re-hydrate the freeze-dried vaccine. Viral antigens are propagated on established cell lines.

WARNING:
Do not vaccinate within 21 days before slaughter. Keep out of reach of children and uninformed persons.
For veterinary use only.
Contains gentamicin as a preservative.
Do not use in pregnant cows, abortion can result, unless they were vaccinated strictly according to the instructions. As with many vaccines, anaphylaxis may occur after use.
This vaccine has been shown to be efficacious in healthy animals. A protective immune response may not be elicited:

* if animals are incubating an infectious disease,
* are malnourished or parasitized,
* are stressed due to shipment or environmental conditions,
* are otherwise immuno-compromised,
* or the vaccine is not administered in accordance with label directions.

Although this vaccine has been extensively tested under a large variety of conditions, failure thereof may ensue as a result of a wide range of reasons. If this is suspected, seek veterinary advice and notify the registration holder.

PRECAUTIONS:
Do not use in pregnant cows, unless they were vaccinated with Bovi-Shield® FP 4+L5 within the past 12 months.
Use the entire contents when first opened.
Do not use in calves nursing pregnant cows unless their dams were vaccinated within the past 12 months with Bovi-Shield® FP 4+L5. Sterilized syringes and needles should be used to administer the vaccine. Do not sterilize with chemicals because traces of disinfectant may inactivate the vaccine. Burn containers and all unused contents. If vaccination results in anaphylaxis, initial antidote of adrenalin, or equivalent is recommended, and should be followed with appropriate supportive therapy.

DOSAGE AND DIRECTIONS FOR USE:
Vaccination of healthy cattle is recommended

Aseptically rehydrate the freeze-dried vaccine with the sterile diluent provided, shake well and administer 2 ml intramuscularly, in the muscular region of the neck.
Primary Vaccination: Administer a single 2 ml dose to healthy cattle, followed by a second dose of Bovi-Shield® GOLD 5, 3–4 weeks later.
Revaccination: Annual revaccination with a single dose is recommended.

Draxxin®
(tulathromycin)
Injectable Solution

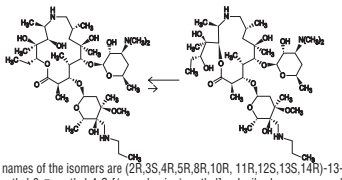
Antibiotic
100 mg of tulathromycin/mL

For use in beef cattle (including suckling calves), non-lactating dairy cattle (including dairy calves), veal calves, and swine. Not for use in female dairy cattle 20 months of age or older.
CAUTION: Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

DESCRIPTION
DRAXXIN Injectable Solution is a ready-to-use sterile parenteral preparation containing tulathromycin, a semi-synthetic macrolide antibiotic of the subclass triamilide. Each mL of DRAXXIN contains 100 mg of tulathromycin as the free base in a 50% propylene glycol vehicle, monothioglycerol (5 mg/mL), with citric and hydrochloric acids added to adjust pH.

DRAXXIN consists of an equilibrated mixture of two isomeric forms of tulathromycin in a 9:1 ratio. Structures of the isomers are shown below.

Figure 1.



The chemical names of the isomers are (2R,3S,4R,5R,8R,10R, 11R,12S,13S,14R)-13-[[2,6 dideoxy-3-C-methyl-3-O-methyl-4-C-[(propylamino) methyl]-α-L-ribo-hexopyrano-syl]oxy]-2-ethyl-3,4,10-trihydroxy-3,5,8,10,12,14-hexamethyl-11- [[3,4,6-trideoxy-3-(dimethylamino)-β-D-xylo-hexopyranosyl]-oxy]-1-oxa-6-azacyclopentadecan-15-one and (2R,3R,6R, 8R,9R,10S,11S,12R)-11-[[2,6-dideoxy-3-C-methyl-3-O-methyl-4-C-[(propylamino)methyl]-α-L-ribo-hexopyrano-syl] oxy]-2-[(1R,2R)-1,2-dihydroxy-1-methylbutyl]-8-hydroxy- 3,6,8,10,12-pentamethyl-9-[[3,4,6-tride-oxy-3-(dimethylamino)- β-D-xylo-hexopyranosyl]oxy]-1-oxa-4-azacyclotridecan-13-one, respectively.

INDICATIONS

Beef and Non-Lactating Dairy Cattle
BRD – DRAXXIN Injectable Solution is indicated for the treatment of bovine respiratory disease (BRD) associated with *Mannheimia haemolytica, Pasteurella multocida, Histophilus somni,* and *Mycoplasma bovis*; and for the control of respiratory disease in cattle at high risk of developing BRD associated with *Mannheimia haemolytica, Pasteurella multocida, Histophilus somni,* and *Mycoplasma bovis.*
IBK – DRAXXIN Injectable Solution is indicated for the treatment of infectious bovine keratoconjunctivitis (IBK) associated with *Moraxella bovis.*
Foot Rot – DRAXXIN Injectable Solution is indicated for the treatment of bovine foot rot (interdigital necrobacillosis) associated with *Fusobacterium necrophorum* and *Porphyromonas levii.*
Suckling Calves, Dairy Calves, and Veal Calves
BRD - DRAXXIN Injectable Solution is indicated for the treatment of BRD associated with *M. haemolytica, P. multocida, H. somni,* and *M. bovis.*

Swine
DRAXXIN Injectable Solution is indicated for the treatment of swine respiratory disease (SRD) associated with *Actinobacillus pleuropneumoniae, Pasteurella multocida, Bordetella bronchiseptica, Haemophilus parasuis,* and *Mycoplasma hyopneumoniae;* and for the control of SRD associated with *Actinobacillus pleuropneumoniae, Pasteurella multocida,* and *Mycoplasma hyopneumoniae* in groups of pigs where SRD has been diagnosed.

DOSAGE AND ADMINISTRATION

Cattle
Inject subcutaneously as a single dose in the neck at a dosage of 2.5 mg/kg (1.1 mL/100 lb) body weight (BW). Do not inject more than 10 mL per injection site.

Table 1. DRAXXIN Cattle Dosing Guide

Animal Weight (Pounds)	Dose Volume (mL)
100	1.1
200	2.3
300	3.4
400	4.5
500	5.7
600	6.8
700	8.0
800	9.1
900	10.2
1000	11.4

Swine
Inject intramuscularly as a single dose in the neck at a dosage of 2.5 mg/kg (0.25 mL/22 lb) BW. Do not inject more than 2.5 mL per injection site.

Table 2. DRAXXIN Swine Dosing Guide

Animal Weight (Pounds)	Dose Volume (mL)
15	0.2
30	0.3
50	0.6
70	0.8
90	1.0
110	1.3
130	1.5
150	1.7
170	1.9
190	2.2
210	2.4
230	2.6
250	2.8
270	3.1
290	3.3

CONTRAINDICATIONS
The use of DRAXXIN Injectable Solution is contraindicated in animals previously found to be hypersensitive to the drug.

WARNINGS
FOR USE IN ANIMALS ONLY.
NOT FOR HUMAN USE.
KEEP OUT OF REACH OF CHILDREN.
NOT FOR USE IN CHICKENS OR TURKEYS.

RESIDUE WARNINGS

Cattle
Cattle intended for human consumption must not be slaughtered within 18 days from the last treatment. Do not use in female dairy cattle 20 months of age or older.

Swine
Swine intended for human consumption must not be slaughtered within 5 days from the last treatment.

PRECAUTIONS

Cattle
The effects of DRAXXIN on bovine reproductive performance, pregnancy, and lactation have not been determined. Subcutaneous injection can cause a transient local tissue reaction that may result in trim loss of edible tissue at slaughter.

Swine
The effects of DRAXXIN on porcine reproductive performance, pregnancy, and lactation have not been determined. Intramuscular injection can cause a transient local tissue reaction that may result in trim loss of edible tissue at slaughter.

ADVERSE REACTIONS

Cattle
In one BRD field study, two calves treated with DRAXXIN at 2.5 mg/kg BW exhibited transient hypersalivation. One of these calves also exhibited transient dyspnea, which may have been related to pneumonia.

Swine
In one field study, one out of 40 pigs treated with DRAXXIN at 2.5 mg/kg BW exhibited mild salivation that resolved in less than four hours.

CLINICAL PHARMACOLOGY
At physiological pH, tulathromycin (a weak base) is approximately 50 times more soluble in hydrophilic than hydrophobic media. This solubility profile is consistent with the extracellular pathogen activity typically associated with the macrolides.[1] Markedly higher tulathromycin concentrations are observed in the lungs as compared to the plasma. The extent to which lung concentrations represent free (active) drug was not examined. Therefore, the clinical relevance of these elevated lung concentrations is undetermined.

Although the relationship between tulathromycin and the characteristics of its antimicrobial effects has not been characterized, as a class, macrolides tend to be primarily bacteriostatic, but may be bactericidal against some pathogens.[2] They also tend to exhibit concentration independent killing; the rate of bacterial eradication does not change once serum drug concentrations reach 2 to 3 times the minimum inhibitory concentration (MIC) of the targeted pathogen. Under these conditions, the time that serum concentrations remain above the MIC becomes the major determinant of antimicrobial activity. Macrolides also exhibit a post-antibiotic effect (PAE), the duration of which tends to be both drug and pathogen dependent. In general, by increasing the macrolide concentration and the exposure time, the PAE will increase to some maximal duration. Of the two variables, concentration and exposure time, drug concentration tends to be the most powerful determinant of the duration of PAE.

Tulathromycin is eliminated from the body primarily unchanged via biliary excretion.

*[1] Carbon, C. 1998. Pharmacodynamics of Macrolides, Azalides, and Streptogramins: Effect on Extracellular Pathogens. Clin. Infect. Dis., **27**:28-32.*

*[2] Nightingale, C.J. 1997. Pharmacokinetics and Pharmacodynamics of Newer Macrolides. Pediatr. Infect. Dis. J., **16**:438-443.*

Cattle
Following subcutaneous administration into the neck of feeder calves at a dosage of 2.5 mg/kg BW, tulathromycin is rapidly and nearly completely absorbed. Peak plasma concentrations generally occur within 15 minutes after dosing and product relative bioavailability exceeds 90%. Total systemic clearance is approximately 170 mL/hr/kg. Tulathromycin distributes extensively into body tissues, as evidenced by volume of distribution values of approximately 11 L/kg in healthy ruminating calves.[3] This extensive volume of distribution is largely responsible for the long elimination half-life of this compound [approximately 2.75 days in the plasma (based on quantifiable terminal plasma drug concentrations) versus 8.75 days for total lung concentrations (based on data from healthy animals)]. Linear pharmacokinetics are observed with subcutaneous doses ranging from 1.27 mg/kg BW to 5.0 mg/kg BW. No pharmacokinetic differences are observed in castrated male versus female calves.

[3] Clearance and volume estimates are based on intersubject comparisons of 2.5 mg/kg BW administered by either subcutaneous or intravenous injection.

Swine
Following intramuscular administration to feeder pigs at a dosage of 2.5 mg/kg BW, tulathromycin is completely and rapidly absorbed (T_{max} ~0.25 hour). Subsequently, the drug rapidly distributes into body tissues, achieving a volume of distribution exceeding 15 L/kg. The free drug is rapidly cleared from the systemic circulation ($CL_{systemic}$ = 187 mL/hr/kg). However, it has a long terminal elimination half-life (60 to 90 hours) owing to its extensive volume of distribution. Although pulmonary tulathromycin concentrations are substantially higher than concentrations observed in the plasma, the clinical significance of these findings is undetermined. There are no gender differences in swine tulathromycin pharmacokinetics.

MICROBIOLOGY

Cattle
Tulathromycin has demonstrated *in vitro* activity against *Mannheimia haemolytica, Pasteurella multocida, Histophilus somni,* and *Mycoplasma bovis,* four pathogens associated with BRD; against *Moraxella bovis* associated with IBK; and against *Fusobacterium necrophorum* and *Porphyromonas levii* associated with bovine foot rot.

The MICs of tulathromycin against indicated BRD and IBK pathogens were determined using methods recommended by the Clinical and Laboratory Standards Institute (CLSI, M31-A2). The MICs against foot rot pathogens were also determined using methods recommended by the CLSI (M11-A6). All MIC values were determined using the 9:1 isomer ratio of this compound.

BRD - The MICs of tulathromycin were determined for BRD isolates obtained from calves enrolled in therapeutic and at-risk field studies in the U.S. in 1999. In the therapeutic studies, isolates were obtained from pre-treatment nasopharyngeal swabs from all study calves, and from lung swabs or lung tissue of saline-treated calves that died. In the at-risk studies, isolates were obtained from nasopharyngeal swabs of saline-treated non-responders, and from lung swabs or lung tissue of saline-treated calves that died. The results are shown in Table 3.

IBK - The MICs of tulathromycin were determined for *Moraxella bovis* isolates obtained from calves enrolled in IBK field studies in the U.S. in 2004. Isolates were obtained from pre-treatment conjunctival swabs of calves with clinical signs of IBK enrolled in the DRAXXIN and saline-treated groups. The results are shown in Table 3.

Foot Rot - The MICs of tulathromycin were determined for *Fusobacterium necrophorum* and *Porphyromonas levii* obtained from cattle enrolled in foot rot field studies in the U.S. and Canada in 2007. Isolates were obtained from pre-treatment interdigital biopsies and swabs of cattle with clinical signs of foot rot enrolled in the DRAXXIN and saline-treated groups. The results are shown in Table 3.

Table 3. Tulathromycin minimum inhibitory concentration (MIC) values* for indicated pathogens isolated from field studies evaluating BRD and IBK in the U.S. and from foot rot field studies in the U.S. and Canada.

Indicated pathogen	Date isolated	No. of isolates	MIC_{50}** (µg/mL)	MIC_{90}** (µg/mL)	MIC range (µg/mL)
Mannheimia haemolytica	1999	642	2	2	0.5 to 64
Pasteurella multocida	1999	221	0.5	1	0.25 to 64
Histophilus somni	1999	36	4	4	1 to 4
Mycoplasma bovis	1999	43	0.125	1	≤ 0.063 to > 64
Moraxella bovis	2004	55	0.5	0.5	0.25 to 1
Fusobacterium necrophorum	2007	116	2	64	≤ 0.25 to > 128
Porphyromonas levii	2007	103	8	128	≤ 0.25 to > 128

* The correlation between *in vitro* susceptibility data and clinical effectiveness is unknown.
** The lowest MIC to encompass 50% and 90% of the most susceptible isolates, respectively.

Swine
In vitro activity of tulathromycin has been demonstrated against *Actinobacillus pleuropneumoniae, Pasteurella multocida, Bordetella bronchiseptica, Haemophilus parasuis,* and *Mycoplasma hyopneumoniae.*

The MICs of tulathromycin against indicated SRD pathogens were determined using methods recommended by the Clinical and Laboratory Standards Institute (CLSI, M31-A and M31-A3). MICs for *Haemophilus parasuis* were determined using Veterinary Fastidious Medium and were incubated up to 48 hours at 35 to 37°C in a CO_2-enriched atmosphere. All MIC values were determined using the 9:1 isomer ratio of this compound. Isolates obtained in 2000 and 2002 were from lung samples from saline-treated pigs and non-treated sentinel pigs enrolled in Treatment of SRD field studies in the U.S. and Canada. Isolates obtained in 2007 and 2008 were from lung samples from saline-treated and DRAXXIN-treated pigs enrolled in the Control of SRD field study in the U.S. and Canada. The results are shown in Table 4.

Table 4. Tulathromycin minimum inhibitory concentration (MIC) values* for indicated pathogens isolated from field studies evaluating SRD in the U.S. and Canada.

Indicated pathogen	Date isolated	No. of isolates	MIC_{50}** (µg/mL)	MIC_{90}** (µg/mL)	MIC range (µg/mL)
Actinobacillus pleuropneumoniae	2000-2002 2007-2008	135 88	16 16	32 16	16 to 32 4 to 32
Haemophilus parasuis	2000-2002	31	1	2	0.25 to > 64
Pasteurella multocida	2000-2002 2007-2008	55 40	1 1	2 2	0.5 to > 64 ≤ 0.03 to 2
Bordetella bronchiseptica	2000-2002	42	4	8	2 to 8

* The correlation between *in vitro* susceptibility data and clinical effectiveness is unknown.
** The lowest MIC to encompass 50% and 90% of the most susceptible isolates, respectively.

EFFECTIVENESS

Cattle
BRD – In a multi-location field study, 314 calves with naturally occurring BRD were treated with DRAXXIN. Responses to treatment were compared to saline-treated controls. A cure was defined as a calf with normal attitude/activity, normal respiration, and a rectal temperature of ≤ 104°F on Day 14. The cure rate was significantly higher (P ≤ 0.05) in DRAXXIN-treated calves (78%) compared to saline-treated calves (24%). There were two BRD-related deaths in the DRAXXIN-treated calves compared to nine BRD-related deaths in the saline-treated calves.

Fifty-two DRAXXIN-treated calves and 27 saline-treated calves from the multi-location field BRD treatment study had *Mycoplasma bovis* identified in cultures from pre-treatment nasopharyngeal swabs. Of the 52 DRAXXIN-treated calves, 37 (71.2%) calves were categorized as cures and 15 (28.8%) calves were categorized as treatment failures. Of the 27 saline-treated calves, 4 (14.8%) calves were categorized as cures and 23 (85.2%) calves were treatment failures.

A Bayesian meta-analysis was conducted to compare the BRD treatment success rate in young calves (calves weighing 250 lbs or less and fed primarily a milk-based diet) treated with DRAXXIN to the success rate in older calves (calves weighing more than 250 lbs and fed primarily a roughage and grain-based diet) treated with DRAXXIN. The analysis included data from four BRD treatment effectiveness studies conducted for the approval of DRAXXIN in the U.S. and nine contemporaneous studies conducted in Europe. The analysis showed that the BRD treatment success rate in young calves was at least as good as the BRD treatment success rate in older calves. As a result, DRAXXIN is considered effective for the treatment of BRD associated with *M. haemolytica, P. multocida, H. somni,* and *M. bovis* in suckling calves, dairy calves, and veal calves.

In another multi-location field study with 399 calves at high risk of developing BRD, administration of DRAXXIN resulted in a significantly reduced incidence of BRD (11%) compared to saline-treated calves (59%). Effectiveness evaluation was based on scored clinical signs of normal attitude/activity, normal respiration, and a rectal temperature of ≤ 104°F on Day 14. There were no BRD-related deaths in the DRAXXIN-treated calves compared to two BRD-related deaths in the saline-treated calves. Fifty saline-treated calves classified as non-responders in this study had *Mycoplasma bovis* identified in cultures of post-treatment nasopharyngeal swabs or lung tissue.

Two induced infection model studies were conducted to confirm the effectiveness of DRAXXIN against *Mycoplasma bovis.* A total of 166 calves were inoculated intratracheally with field strains of *Mycoplasma bovis.* When calves became pyrexic and had abnormal respiration scores, they were treated with either DRAXXIN (2.5 mg/kg BW) subcutaneously or an equivalent volume of saline. Calves were observed for signs of BRD for 14 days post-treatment, then were euthanized and necropsied. In both studies, mean lung lesion percentages were statistically significantly lower in the DRAXXIN-treated calves compared with saline-treated calves (11.3% vs. 28.9%, P = 0.0001 and 15.0% vs. 30.7%, P < 0.0001).

IBK – Two field studies were conducted evaluating DRAXXIN for the treatment of IBK associated with *Moraxella bovis* in 200 naturally-infected calves. The primary clinical endpoint of these studies was cure rate, defined as a calf with no clinical signs of IBK and no corneal ulcer, assessed on Days 5, 9, 13, 17, and 21. Time to improvement, defined as the first day on which a calf had no clinical signs of IBK in both eyes, provided that those scores were maintained at the next day of observation, was assessed as a secondary variable. At all time points, in both studies, the cure rate was significantly higher (P < 0.05) for DRAXXIN-treated calves compared to saline-treated calves. Additionally, time to improvement was significantly less (P < 0.0001) in both studies for DRAXXIN-treated calves compared to saline-treated calves.

Foot Rot - The effectiveness of DRAXXIN for the treatment of bovine foot rot was evaluated in 170 cattle in two field studies. Cattle diagnosed with bovine foot rot were enrolled and treated with a single subcutaneous dose of DRAXXIN (2.5 mg/kg BW) or an equivalent volume of saline. Cattle were clinically evaluated 7 days after treatment for treatment success, which was based on defined decreases in lesion, swelling, and lameness scores. In both studies, the treatment success percentage was statistically significantly higher in DRAXXIN-treated calves compared with saline-treated calves (60% vs. 8%, P < 0.0001 and 83.3% vs. 50%, P = 0.0088).

Swine
In a multi-location field study to evaluate the treatment of naturally occurring SRD, 266 pigs were treated with DRAXXIN. Responses to treatment were compared to saline-treated controls. Success was defined as a pig with normal attitude, normal respiration, and rectal temperature of < 104°F on Day 7. The treatment success rate was significantly greater (P ≤ 0.05) in DRAXXIN-treated pigs (70.5%) compared to saline-treated pigs (46.1%). *M. hyopneumoniae* was isolated from 106 saline-treated and non-treated sentinel pigs in this study.

Two induced infection model studies were conducted to confirm the effectiveness of DRAXXIN against *M. hyopneumoniae.* Ten days after inoculation intranasally and intratracheally with a field strain of *M. hyopneumoniae,* 144 pigs were treated with either DRAXXIN (2.5 mg/kg BW) intramuscularly or an equivalent volume of saline. Pigs were euthanized and necropsied 10 days post-treatment. The mean percentage of gross pneumonic lung lesions was statistically significantly lower (P < 0.0001) for DRAXXIN-treated pigs than for saline-treated pigs in both studies (8.52% vs. 23.62% and 11.31% vs. 26.42%).

The effectiveness of DRAXXIN for the control of SRD was evaluated in a multi-location natural infection field study. When at least 15% of the study candidates showed clinical signs of SRD, all pigs were enrolled and treated with DRAXXIN (226 pigs) or saline (227 pigs). Responses to treatment were evaluated on Day 7. Success was defined as a pig with normal attitude, normal respiration, and rectal temperature of < 104°F. The treatment success rate was significantly greater (P < 0.05) in DRAXXIN-treated pigs compared to saline-treated pigs (59.2% vs. 41.2%).

ANIMAL SAFETY

Cattle
Safety studies were conducted in feeder calves receiving a single subcutaneous dose of 25 mg/kg BW, or 3 weekly subcutaneous doses of 2.5, 7.5, or 12.5 mg/kg BW. In all groups, transient indications of pain after injection were seen, including head shaking and pawing at the ground. Injection site swelling, discoloration of the subcutaneous tissues at the injection site and corresponding histo-pathologic changes were seen in animals in all dosage groups. These lesions showed signs of resolving over time. No other drug-related lesions were observed macroscopically or microscopically.

An exploratory study was conducted in feeder calves receiving a single subcutaneous dose of 10, 12.5, or 15 mg/kg BW. Macroscopically, no lesions were observed. Microscopically, minimal to mild myocardial degeneration was seen in one of six calves administered 12.5 mg/kg BW and two of six calves administered 15 mg/kg BW.

A safety study was conducted in preruminant calves 13 to 27 days of age receiving 2.5 mg/kg BW or 7.5 mg/kg BW once subcutaneously. With the exception of minimal to mild injection site reactions, no drug-related clinical signs or other lesions were observed macroscopically or microscopically.

Swine
Safety studies were conducted in pigs receiving a single intramuscular dose of 25 mg/kg BW, or 3 weekly intramuscular doses of 2.5, 7.5, or 12.5 mg/kg BW. In all groups, transient indications of pain after injection were seen, including restlessness and excessive vocalization. Tremors occurred briefly in one animal receiving 7.5 mg/kg BW. Discoloration and edema of injection site tissues and corresponding histopathologic changes were seen in animals at all dosages and resolved over time. No other drug-related lesions were observed macroscopically or microscopically.

STORAGE CONDITIONS
Store at or below 25°C (77°F)

HOW SUPPLIED
DRAXXIN Injectable Solution is available in the following package sizes:
50 mL vial
100 mL vial
250 mL vial
500 mL vial
NADA 141-244, Approved by FDA

zoetis Distributed by:
Zoetis Inc. Kalamazoo, MI 49007

To report a suspected adverse reaction or to request a safety data sheet call **1-888-963-8471**.
For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or online at http://www.fda.gov/AnimalVeterinary/SafetyHealth.

For additional DRAXXIN product information call: **1-888-DRAXXIN** or go to **www.DRAXXIN.com**

TAKE TIME  OBSERVE LABEL DIRECTIONS

Made in Brazil

032908ZOA&P
Revised: February 2014

County_____

Team Members:_____

Senior Team Quality Assurance Exercise – 2017

You have a 200 head fall calving cow-calf operation in Kentucky. You sell the majority of your calves through the local market, however you also have a small customer base that purchase freezer beef for a premium. You usually feed out five or six head. As a good management practice you keep track of all vaccinations and medications given. You have a processing delivery date scheduled for Monday, February 20, 2017 with processing done early Tuesday, February 21, 2017. Using the four (4) medication inserts provided, answer the questions below and finish filling in the table of treatment records on the reverse side of this page. Once the table is filled in, list the cattle that can sent to the processor and those that should be held until a later date. (Each correct answer on this page is worth 10 points each for a total of 100 points. Each correct answer where information about shots is recorded are worth 5 points each for a total of 100 points. When added together there are a possible 200 points.)

NOTES ON TREATMENTS:

- Assume you accurately followed the directions on the medication insert.
- Assume the treatment date given in the treatment records is the last date of treatment
- If a range of recommended dosage is given on the medication insert, assume you gave the highest dosage recommended

1) How many of the medications contain modified live viruses? _____

2) When giving Tylan 200 to beef cattle, what's the largest amount that should be administered in one site? ___mL

3) Which is the better choice for foot rot in heavy fat cattle? Circle one: Tylan Draxxin

4) As of January of this year, you must have a VFD. What does VFD stand for?

V_____ F_____ D_____

5) Name one of the medications that has to be rehydrated before use? _____

Out of the five cattle numbers on the treatment sheet put them under go to processor or hold.

Cattle That Can Go to Processing	Cattle to Hold Until a Later Date
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

County_____Key_____

Senior Team Quality Assurance Exercise – 2017

You have a 200 head fall calving cow-calf operation in Kentucky. You sell the majority of your calves through the local market, however you also have a small customer base that purchase freezer beef for a premium. You usually feed out five or six head. As a good management practice you keep track of all vaccinations and medications given. You have a processing delivery date scheduled for Monday, February 20, 2017 with processing done early Tuesday, February 21, 2017. Using the four (4) medication inserts provided, answer the questions below and finish filling in the table of treatment records on the reverse side of this page. Once the table is filled in, list the cattle that can be sent to the processor and those that should be held until a later date. (Each correct answer on this page is worth 10 points each for a total of 100 points. Each correct answer where information about shots is recorded are worth 5 points each for a total of 100 points. When added together there are a possible 200 points.)

NOTES ON TREATMENTS:

- Assume you accurately followed the directions on the medication insert.
- Assume the treatment date given in the treatment records is the last date of treatment
- If a range of recommended dosage is given on the medication insert, assume you gave the highest dosage recommended

1) How many of the medications contain modified live viruses? _____2_____

2) When giving Tylan 200 to beef cattle, what's the largest amount that should be administered in one site? _10_ mL

3) Which is the better choice for foot rot in heavy fat cattle? Circle one: Tylan (Draxxin)

4) As of January of this year, you must have a VFD. What does VFD stand for?

Veterinarian or Vet Feed Directive All three words for it to be correct

5) Name one of the medications that has to be rehydrated before use? **Vista Once SQ or Bovi - Shield**

Out of the five cattle numbers on the treatment sheet put them under go to processor or hold.

Cattle That Can Go to Processing	Cattle to Hold Until a Later Date
#35	#107
#47	
#51	
#198	

TREATMENT RECORD

Each correct answer on this page is worth 5 points each.

Treatment Date & Time	Cattle Treated (Tag #)	Cattle Weight	Condition Being Treated	Medication Given	Route Given	Total Amount Given	Required Withdrawal Period (days)	Date & Time Withdrawal Complete
December 15th, 2015 1:00 pmEST	5 Fat Cattle as Babies	Average 325	Prevention of respiratory disease	Vista Once SQ	SC	2 ML	21	January 5th, 2016 1:00 pm EST
January 29th, 2017 1:00 pm EST	Heifer Tags #35 & #47	Average 435	Prevention of BVD and IBRV	Bovi-Shield Gold 5	IM	2 ML	21	February 19th, 2017 1:00 pm EST
January 30th, 2017 8:00 am EST	Tag #51	1300	Foot Rot	Tylan 200	IM	52 ML	21	February 20th, 2017 8:00 am EST
January 31st, 2017 4:00 pm EST	Tag #107	1100	Foot Rot	Tylan 200	IM	44 ML	21	February 21st, 2107 4:00 pm EST
February 2nd,2017 8:00 am EST	Tag #198	1050	Foot Rot	Draxin	SC	11-12 ML 11.55ML	18	February 20th, 2017 8:00 am EST

Intramuscular = IM **Intravenous = IV** **Topical = T** **Added to feed = F** **Subcutaneous = SC**

TREATMENT RECORD Each box is worth 5 points each.

Treatment Date & Time	Cattle Treated (Tag #)	Cattle Weight	Condition Being Treated	Medication Given	Route Given	Amount Given	Required Withdrawal Period (days)	Date & Time Withdrawal Complete
December 15th, 2015 1:00 pmEST	5 Fat Cattle as Babies	Average 325	Prevention of respiratory disease	Vista Once SQ				
January 29th, 2017 1:00 pm EST	Heifer Tags #35 & #47	Average 435	Prevention of BVD and IBRV	Bovi-Shield Gold 5				
January 30th, 2017 8:00 am EST	Tag #51	1300	Foot Rot	Tylan 200				
January 31st, 2017 4:00 pm EST	Tag #107	1100	Foot Rot	Tylan 200				
February 2nd,2017 8:00 am	Tag #198	1050	Foot Rot	Draxin				

Intramuscular = IM
Subcutaneous = SC
Intravenous = IV
Topical = T
Added to feed = F

Tylan 200

Indications:

In Beef Cattle and Non-lactating Dairy Cattle, Tylan 200 Injection is indicated for use in the treatment of bovine respiratory complex (shipping fever, pneumonia) usually associated with Pasteurella multocida and Actinomyces pyogenes; foot rot (necrotic pododermatitis) and calf diphtheria caused by Fusobacterium necorphorum and metritis caused by Actinomyces pyogenes.

In Swine, Tylan 200 Injection is indicated for use in the treatment of swine arthritis caused by Mycoplasma hyosynoviae; swine pneumonia caused by Pasteurella spp.; swine erysipelas caused by Erysipelothrix rhusiopathiae; swine dysentery associated with Treponema hyodysenteriae when followed by appropriate medication in the drinking water and/or feed.

ADMINISTRATION AND DOSAGE:

Tylan 200 Injection is administered intramuscularly.

BEEF CATTLE AND NON-LACTATING DAIRY CATTLE-Inject intramuscularly 8 mg per pound of body weight one time daily (1 mL per 25 pounds). Treatment should be continued for 24 hours following remission of disease signs, not to exceed 5 days. Do not inject more than 10 mL per site.

SWINE-Inject intramuscularly 4 mg per pound of body weight (1 mL per 50 pounds) twice daily. Treatment should be continued for 24 hours following remission of disease signs, not to exceed 3 days. Do not inject more than 5 mL per site.

CAUTION:

Do not mix Tylan 200 Injection with other injectable solutions as this may cause a precipitation of the active ingredients.

RESIDUE WARNING: Swine: Swine intended for human consumption must not be slaughtered within 14 days of the last use of this drug product.

RESIDUE WARNING: Cattle: Cattle intended for human consumption must not be slaughtered within 21 days of the last use of this drug product. This drug product is not approved for use in female dairy cattle 20 months of age or older, including dry dairy cows. Use in these cattle may cause drug residues in milk and/or in calves born to these cows. This product is not approved for use in calves intended to be processed for veal. A withdrawal period has not been established in pre-ruminating calves.

MERCK ANIMAL HEALTH
Intervet Inc.
2 GIRALDA FARMS, MADISON, NJ, 07940

Vista® Once SQ

Intervet/Merck Animal Health

BOVINE RHINOTRACHEITIS-VIRUS DIARRHEA-PARAINFLUENZA 3-RESPIRATORY SYNCYTIAL VIRUS-MANNHEIMIA HAEMOLYTICA-PASTEURELLA MULTOCIDA VACCINE

Modified Live Virus, Avirulent Live Culture

Cattle Vaccine

Product Description: The reconstituted vaccine product contains modified-live cultures of bovine rhinotracheitis (IBR) virus, bovine virus diarrhea (BVD) virus (Types 1 and 2); parainfluenza 3 virus (PI3), bovine respiratory syncytial virus (BRSV) and avirulent live cultures of *Mannheimia haemolytica* and *Pasteurella multocida*.

Indications: For the vaccination of healthy cattle, 3 months of age or older, as an aid in the prevention of respiratory disease caused by IBR, BVD (Type 2), and BRSV and as an aid in the control of disease caused by BVD (Type 1), PI3, *Mannheimia haemolytica* and *Pasteurella multocida*. Duration of Immunity (DOI) has been demonstrated to be at least 1 year for IBR and BVD (Types 1 & 2) and at least 16 weeks for *Mannheimia haemolytica* and *Pasteurella multocida*. Additionally, Vista® Once SQ is for the vaccination of healthy cows and heifers prior to breeding as an aid in the prevention of fetal infection, including persistently infected calves caused by BVD (Types 1 & 2); and as an aid in the prevention of persistently infected calves caused by BVD (Type 2); and as an aid in the reduction of abortion due to IBR. Reproductive Duration of Immunity (DOI) has been demonstrated to be at least 217 days for IBR, and at least 206 days for BVD (Types 1 & 2). Safe for use in pregnant heifers and cows or calves nursing pregnant cows provided the cows and heifers in the herd are vaccinated prior to breeding, within the previous 12 months, with any of the modified live IBR and BVD containing vaccine(s) in this product line.

Use Directions: Inject 2.0 mL subcutaneously. Annual revaccination is recommended. A revaccination dose can be administered at more frequent intervals based upon individual farm disease risk assessment or any time epidemic conditions exist or are reported. Consult your veterinarian.

Cautions: Store at 2°-7°C (35°-45°F). Do not freeze. Use immediately after reconstitution; do not save partial contents. Burn the containers and all unused product. Use only in healthy cattle. Do not vaccinate within 21 days before slaughter. Fetal health risks associated with vaccination of pregnant animals with modified live vaccines cannot be unequivocally determined by clinical trials conducted for licensure. Management strategies based on vaccination of pregnant animals with modified live vaccines should be discussed with a veterinarian. If allergic reaction occurs, treat with epinephrine. Contains penicillin and streptomycin as preservatives.

2017 Team Breeding Activity

County: _____ Team Members:_____

_____

Questions on Data:

Each question is worth 10 points each, for a total of 50 points.

1. Which bull would cause the most concerns with Dystocia? _____
2. Which bull should sire fat cattle who when harvested should have the most intra-muscular fat? _____
3. Which bull's calves should be born giving the cattle producer the least amount of worry? _____
4. Which bull is the only one on the right side of breed average in every category? _____
5. Which bull would sire calves with the least amount of growth? _____

_____

Each bull has a point value. Select only three bulls. Possible 50 points.

Write down the 3 bulls that your group selected from the data. They do not have to be in any particular order. _____, _____, _____

_____

Each heifer has a point value. Select only two heifers. Possible 50 points.

Write down the 2 heifers that your group selected from visually looking at them. They do not have to be in any particular order. _____, _____

_____

Score for Presentation is out of 50 points.

Total Score for the Team is out of 200 points:

KEY for SR Breeding Activity

Questions on Data:

Each question is worth 10 points each, for a total of 50 points.

1. Which bull would cause the most concerns with Dystocia? **8 or 9**
2. Which bull should sire fat cattle who when harvested should have the most intra-muscular fat? **7**
3. Which bull's calves should be born giving the cattle producer the least amount of worry? **5**
4. Which bull is the only one on the right side of breed average in every category? **3**
5. Which bull would sire calves with the least amount of growth? **4**

Each bull has a point value. Select the three bulls that add up to a total of 50 points.

Write down the 3 bulls that your group selected from the data. They do not have to be in any order. **They can only choose 3.**

If they choose more than 3 then add the 3 lowest point totals together.

Bull #3 = 18 pts., Bull #5 = 17 pts., Bull #6 = 15 pts., Bull #2 = 10 pts.,

Bull #7 = 7 pts., Bulls 1-4-8-9-10 all get Zero points.

Each heifer has a point value. Select the two heifers that add up to a total of 50 points.

Write down the 2 heifers that your group selected from visually looking at them. They do not have to be in any particular order.

1 = 20 points 2 = 26 points 3 = 24 points 4 = 5 points 5 = 18 points

Score for Presentation is out of 50 points.

Total Score for the Team is out of 200 points:

2017 Senior Team Breeding Activity County:_____

Team Members:

_____

You are the manager of an Angus herd who derives two-thirds of their income from the sale of bulls to commercial breeders. Your customers want to purchase bull prospects that will sire moderate birth weights, grow fast and tap into both sides of the beef grid. You have been asked by one of your repeat buyers to select 3 bulls based on the following data that you would recommend to them for purchase. They have also asked that you select 2 heifers visually out of your heifer sale pen that they would want to bid on at your upcoming on farm female production sale. Answer the questions that follow and explain your bull and female choices to the listener. **(Each bull and heifer will have a point value for a total of 50 pts on the bulls and 50 pts on the heifers. Five questions over data worth 10 pts. each for a total of 50 pts. Your presentation to the listener is worth 50 points. Total for Breeding Activity 200 pts.) Turn Paper Over to Finish this Activity.**

Number	Birth Date	Sire Name	CED	BW	WW	YW	Milk	Marbling	Ribeye
1	09/09/15	GRC Magnificent 2268 of 2097	7	2.1	36	57	25	0.36	0.40
2	09/14/15	GRC Magnificent 2268 of 2097	7	1.3	32	60	20	0.45	0.45
3	11/07/15	GRC Magnificent 2268 of 2097	7	0.1	43	68	22	0.47	0.48
4	10/15/15	GRC Magnificent 2268 of 2097	5	0.8	21	31	21	0.14	0.37
5	09/13/15	GRC Magnificent 2268 of 2097	8	0.1	37	74	20	0.44	0.47
6	03/10/16	GRC Magnificent 2268 of 2097	6	1.2	47	72	26	0.49	0.42
7	03/20/16	GRC Magnificent 2268 of 2097	5	2.2	25	43	19	0.52	0.44
8	04/15/16	GRC Magnificent 2268 of 2097	3	1.5	45	64	23	0.20	0.32
9	06/13/16	GRC Magnificent 2268 of 2097	3	2.5	39	63	25	0.21	0.41
10	11/12/15	GRC Magnificent 2268 of 2097	6	1.8	34	49	24	0.40	0.38
		Angus Breed Averages	6	1.3	38	65	21	0.43	0.45

Presentation Score:

2017 TEAM FEEDING EXERCISE KEY

Total Score:

You have recently purchased 3 separate 5 acre well fenced and fertilized lots. You do not want to have it mowed off twice during the year at $20 per acre each time. Your neighbor raises Dorper sheep and would like to work a deal to use your pastures. He has a buyer for all the ewe lambs he can raise at $1.50 per pound on November 1, 2017. He is willing to give you one – third of what the total gain is for the time they are on your pasture. You wanted $75 per acre up front. Using the information from this paragraph and the information given below, do your calculations, answer the questions and then go explain to the best of your ability what would be best for you. (Each question is worth 10 points each and your explanation is worth 100 points for a total of 200 points.)

1. All 15 acres are lush, green high – protein pastures.
2. On average, you can grow 4 ewe lambs per acre.
3. Dorper ewe lambs on pasture should gain .3 pounds per day.
4. Months needed are May 1 – October 31. No calendar. Just a short riddle (30 days has September, April, June and November; All the rest have 31, except February which has 28.)
5. Starting weight per head is 50#.

1. How many total days will the lambs be on your pastures? **Add the days in M, J, JU, A, S, & O 184 days**
2. How many ewe lambs can your pastures hold? **4 ewes per acre multiplied by 15 acres 60 ewe lambs**
3. On the average, how much weight should each ewe lamb gain (round to the nearest pound)? **55 pounds**

   184 days times .3 of a pound/day equals 55.2 round to nearest pound final answer 55#
4. What would be the total amount gained, for the entire group over the time period? **3300 pounds**

   60 ewe lambs times 55 pounds of gain equals 3300 pounds
5. Taking the answer from question #4 and multiplying it by $1.50 will be how much money? **$4950**

   3300 pounds times $1.50 equals $4950
6. You get what fraction of the amount you arrived at in question #5? **1/3**
7. How much money would you receive for pasturing your neighbor's ewe lambs? **$1650**

   $4950 / 3 = $1650
8. How much money would you receive if he just paid you the $75 per acre in a one-time fee? **$1125**

   15 acres times $75/acre equals $1125
9. Which way would you make more money? (circle one) **Answer to #7** Answer to #8
10. What would it cost for you to just have all of it mowed off twice and forget leasing? **$600**

    15 acres times $20/acre times 2 equals $600

Presentation Score:

2017 TEAM FEEDING EXERCISE

Total Score:

COUNTY_____ Team Members: _____

You have recently purchased 3 separate 5 acre well fenced and fertilized lots. You do not want to have it mowed off twice during the year at $20 per acre each time. Your neighbor raises Dorper sheep and would like to work a deal to use your pastures. He has a buyer for all the ewe lambs he can raise at $1.50 per pound on November 1, 2017. He is willing to give you one – third of what the total gain is for the time they are on your pasture. You wanted $75 per acre up front. Using the information from this paragraph and the information given below, do your calculations, answer the questions and then go explain to the best of your ability what would be best for you. (Each question is worth 10 points each and your explanation is worth 100 points for a total of 200 points.)

Facts:

1. All 15 acres are lush, green high – protein pastures.
2. On average, you can grow 4 ewe lambs per acre.
3. Dorper ewe lambs on pasture should gain .3 pounds per day.
4. Months needed are May 1 – October 31. No calendar. Just a short riddle (30 days has September, April, June and November; All the rest have 31, except February which has 28.)
5. Starting weight per head is 50#.

Questions:

1. How many total days will the lambs be on your pastures? _____
2. How many ewe lambs can your pastures hold? _____
3. On the average, how much weight should each ewe lamb gain (round to the nearest pound)? _____
4. What would be the total amount gained, for the entire group over the time period? _____
5. Taking the answer from question #4 and multiplying it by $1.50 will give me how much money? _____
6. You get what fraction of the amount you arrived at in question #5? _____
7. How much money would you receive for pasturing your neighbor's ewe lambs? _____
8. How much money would you receive if he just paid you the $75 per acre in a one-time fee? _____
9. Which way would you make more money? (circle one) Answer to #7 Answer to #8
10. What would it cost for you to just have all of it mowed off twice and forget leasing? _____