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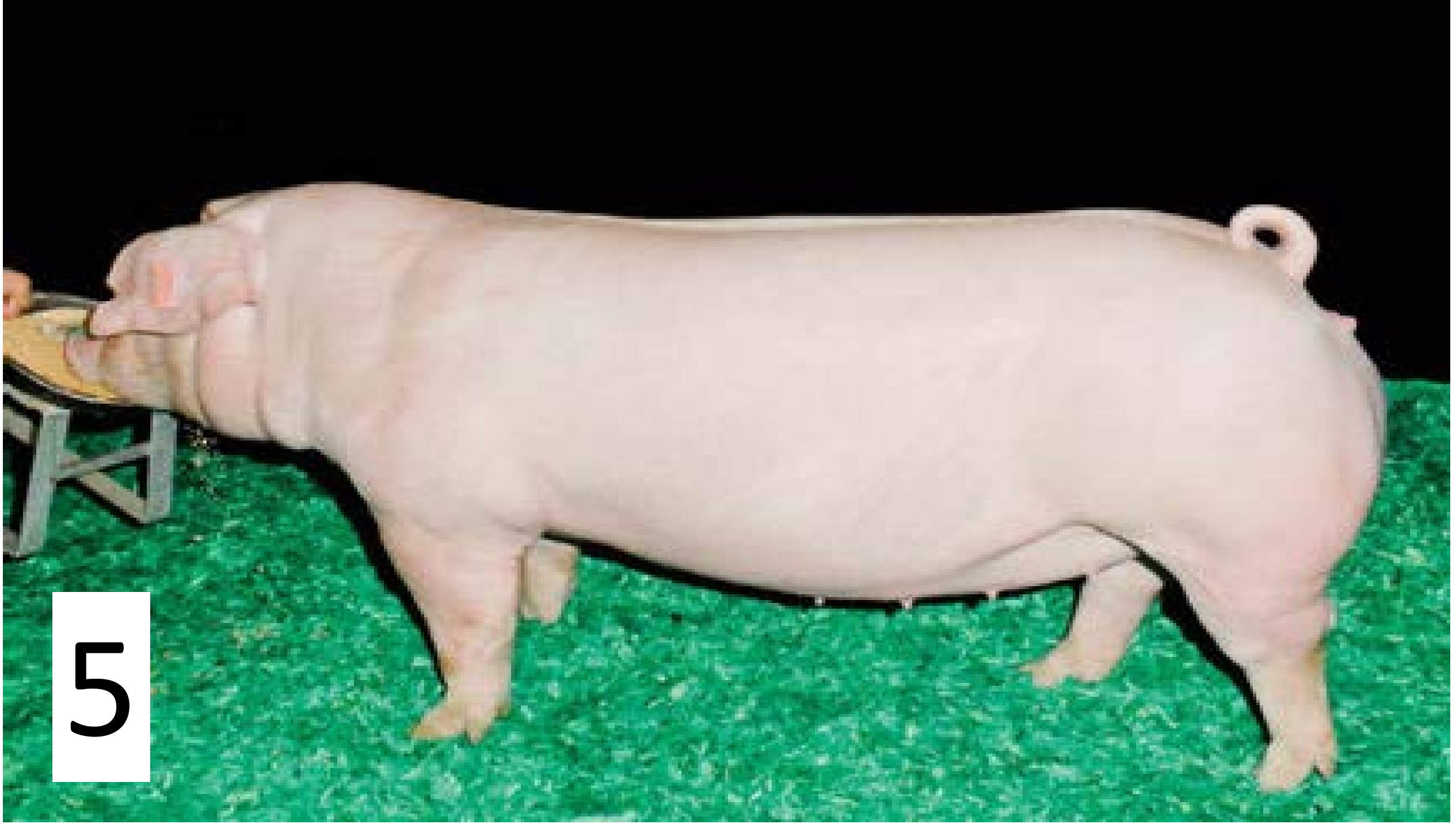
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Name_____ Contestant #_____County_____

# Senior Livestock Breeds Identification – 2016

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 (150 points total for Seniors).

| | Breed Name | Origin of Breed | Important Traits |
|---|---|---|---|
| 1. | | | |
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| 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. Oregon, US
D. British Isles
E. South Africa
F. Descendants of the Danish Landrace
G. Tees River Valley, England
H. Asia Minor
I. Suffolk England

**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. Black muzzle, large frame, well defined muscle and growth rate
- B. Excellent meat quality (nicely marbled), calving ease, and hardy.
- C. Pink muzzle, pale hooves, known for muscle and growth

Goats Characteristics/Traits
- D. Milk yield, high butterfat, sturdy, hardy, and excellent temperament.
- 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. Meat qualities, High production rate (Fertility), Reproduction (Twins), Weight gain, Carcass quality
- H. Carcass conformation, growth rate, feed conversion, and milking ability, large frame, black face, wool cap
- I. Muscling and leanness, growth rate, and fertility.

Swine Characteristics/Traits
- J. Prolificacy (litter size), milking ability, mothering ability.
- K. Extreme muscling and leanness.
- L. Excellent rate of gain and feed efficiency.

Name_____Answer Key___ Contestant #_____County_____

# Senior Livestock Breeds Identification – 2016

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 (150 points total for Seniors).

| | Breed Name | Origin of Breed | Important Traits |
|---|---|---|---|
| 1. | 19 | H | E |
| 2. | 22 | C | D |
| 3. | 50 | A | L |
| 4. | 57 | A | J |
| 5. | 52 | F | J |
| 6. | 11 | D | B |
| 7. | 14 | G | C |
| 8. | 1 | B | B |
| 9. | 46 | E | G |
| 10. | 45 | I | I |

**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. Oregon, US
D. British Isles
E. South Africa
F. Descendants of the Danish Landrace
G. Tees River Valley, England
H. Asia Minor
I. Suffolk England

**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. Black muzzle, large frame, well defined muscle and growth rate
- B. Excellent meat quality (nicely marbled), calving ease, and hardy.
- C. Early maturity, reproductive performance, mothering ability, disposition, and hardiness.

Goats Characteristics/Traits
- D. Milk yield, high butterfat, sturdy, hardy, and excellent temperament.
- 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. Meat qualities, High production rate (Fertility), Reproduction (Twins), Weight gain, Carcass quality
- H. Carcass conformation, growth rate, feed conversion, and milking ability, large frame, black face, wool cap
- I. Muscling and leanness, growth rate, and fertility.

Swine Characteristics/Traits
- J. Prolificacy (litter size), milking ability, mothering ability.
- K. Extreme muscling and leanness.
- L. Excellent rate of gain and feed efficiency.

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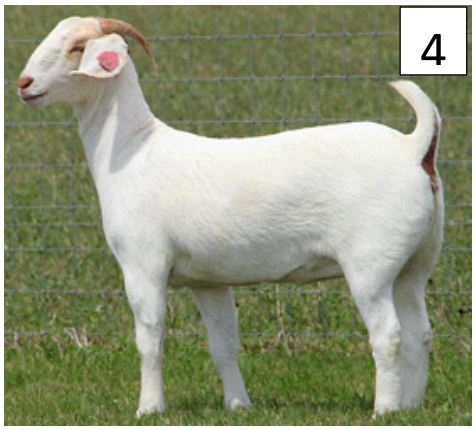

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County_____

Team Members

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# Senior Team Breeding Exercise – 2016

Your team is selecting 2-3 Does to start your own herd. Your hope is to raise competitive show kids to exhibit at District, Expo and State Fair Shows. You would like to offer a portion of your kids at the Kentucky Proud Sale. Goat Breeders throughout the State have watched and encouraged you over the years to increase your knowledge of the goat industry and your ability to exhibit your projects. As you are finishing your 4-H and FFA careers and entering into college you are trying to stay within a limited budget but also want to start out with quality breeding pieces. Again choose 2 or 3 Does that you feel would be acceptable to your operation and then explain why to the official. Prices of Does, a 120 day weight and a type of birth are provided.

[There are 9 questions with 10 answers worth 10 points each for a total of 100 possible points and your discussion with the Official is worth 100 possible points for a grand total of 200 possible points.]

**Circle Your Choices**

1.) Which Doe is the poorest balanced and the weakest on her pasterns?

1 2 3 4 5 6

2.) Which Doe has the best Data?

1 2 3 4 5 6

3.) Which Doe will produce daughters which will need the most feed to maintain body condition during lactation?

1 2 3 4 5 6

4.) Which 2 Does would you select on paper?

1 2 3 4 5 6

5.) Between Does 1 and 5 which Doe is the most outside of her skeleton with her front legs?

1 2 3 4 5 6

6.) Which Doe is the stoutest in her structure?

1 2 3 4 5 6

7.) Which Doe between 2 and 5 is the most correct in the angle to her rear pastern?

1 2 3 4 5 6

8.) Between 4 and 6 which Doe appears to be bolder in her fore rib and heart?

1 2 3 4 5 6

9.) Which Doe is elegant in her look, super extended and needs to be a shot bolder in her rib and stouter in her bone work?

1 2 3 4 5 6

| Doe # | Type of Birth | 120 Day Weight | Price |
|---|---|---|---|
| 1 | Single | 100 | $800.00 |
| 2 | Single | 101 | $850.00 |
| 3 | Triple | 78 | $500.00 |
| 4 | Single | 112 | $900.00 |
| 5 | Twin | 110 | $875.00 |
| 6 | Twin | 115 | $1000.00 |

County___Answer Key

Team Members

_____

_____

# Senior Team Breeding Exercise – 2016

Your team is selecting 2-3 Does to start your own herd. Your hope is to raise competitive show kids to exhibit at District, Expo and State Fair Shows. You would like to offer a portion of your kids at the Kentucky Proud Sale. Goat Breeders throughout the State have watched and encouraged you over the years to increase your knowledge of the goat industry and your ability to exhibit your projects. As you are finishing your 4-H and FFA careers and entering into college you are trying to stay within a limited budget but also want to start out with quality breeding pieces. Again choose 2 or 3 Does that you feel would be acceptable to your operation and then explain why to the official. Prices of Does, a 120 day weight and a type of birth are provided.

[There are 9 questions with 10 answers worth 10 points each for a total of 100 possible points and your discussion with the Official is worth 100 possible points for a grand total of 200 possible points.]

**Circle Your Choices**

1.) Which Doe is the poorest balanced and the weakest on her pasterns?

1 2 **3** 4 5 6

2.) Which Doe has the best Data?

1 2 3 4 5 **6**

3.) Which Doe will produce daughters which will need the most feed to maintain body condition during lactation?

1 2 **3** 4 5 6

4.) Which 2 Does would you select on paper? **Any 2 of these 3.**

1 2 3 **4 5 6**

5.) Between Does 1 and 5 which Doe is the most outside of her skeleton with her front legs?

**1** 2 3 4 5 6

6.) Which Doe is the stoutest in her structure?

1 2 3 4 5 **6**

7.) Which Doe between 2 and 5 is the most correct in the angle to her rear pastern?

1 2 3 4 **5** 6

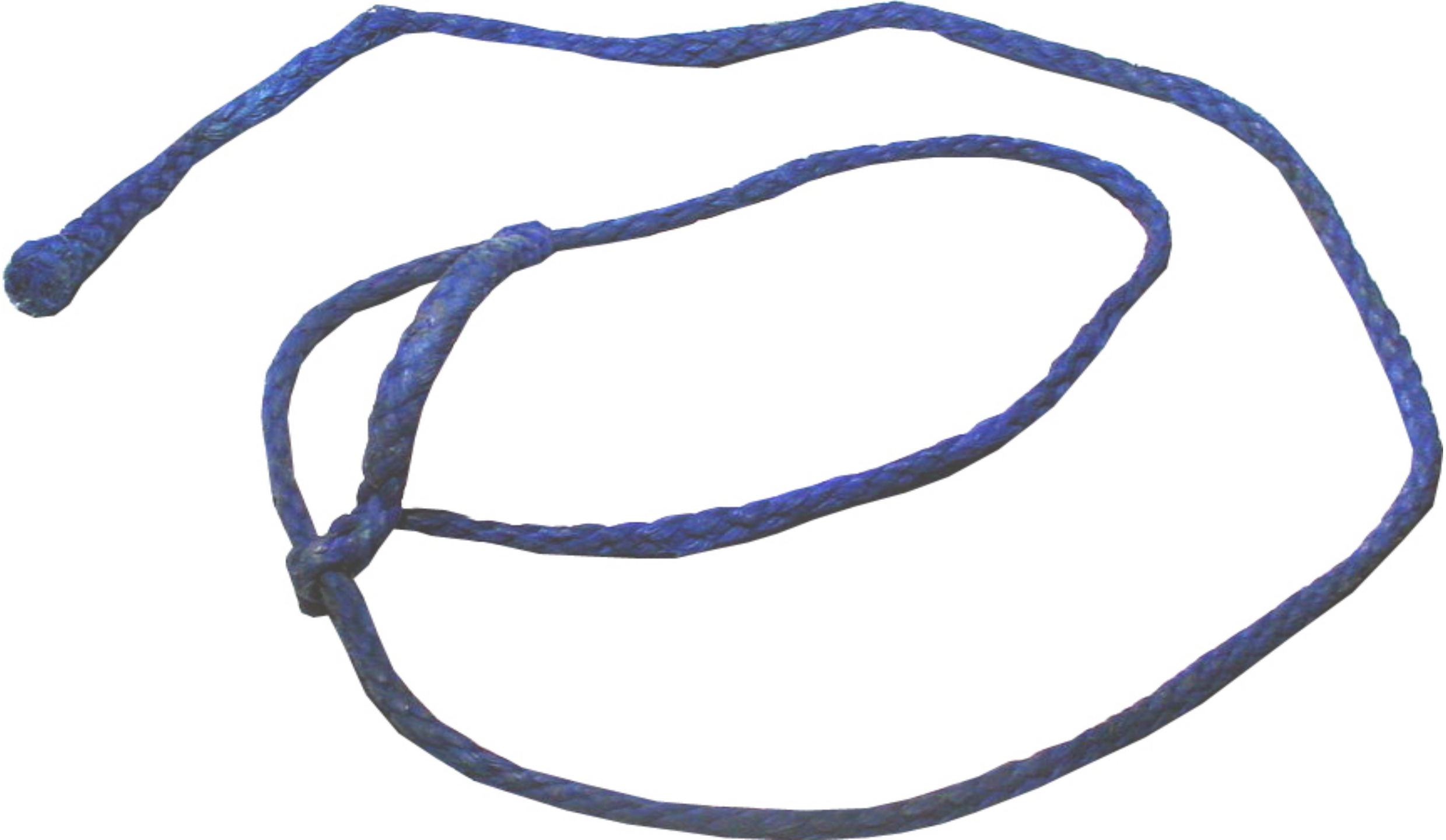
8.) Between 4 and 6 which Doe appears to be bolder in her fore rib and heart?

1 2 3 4 5 **6**

9.) Which Doe is elegant in her look, super extended and needs to be a shot bolder in her rib and stouter in her bone work?

1 2 3 **4** 5 6

| Doe # | Type of Birth | 120 Day Weight | Price |
|---|---|---|---|
| 1 | Single | 100 | $800.00 |
| 2 | Single | 101 | $850.00 |
| 3 | Triple | 78 | $500.00 |
| 4 | Single | 112 | $900.00 |
| 5 | Twin | 110 | $875.00 |
| 6 | Twin | 115 | $1000.00 |




ICE-N-EASY DRY
SOUTHTOWN, INC.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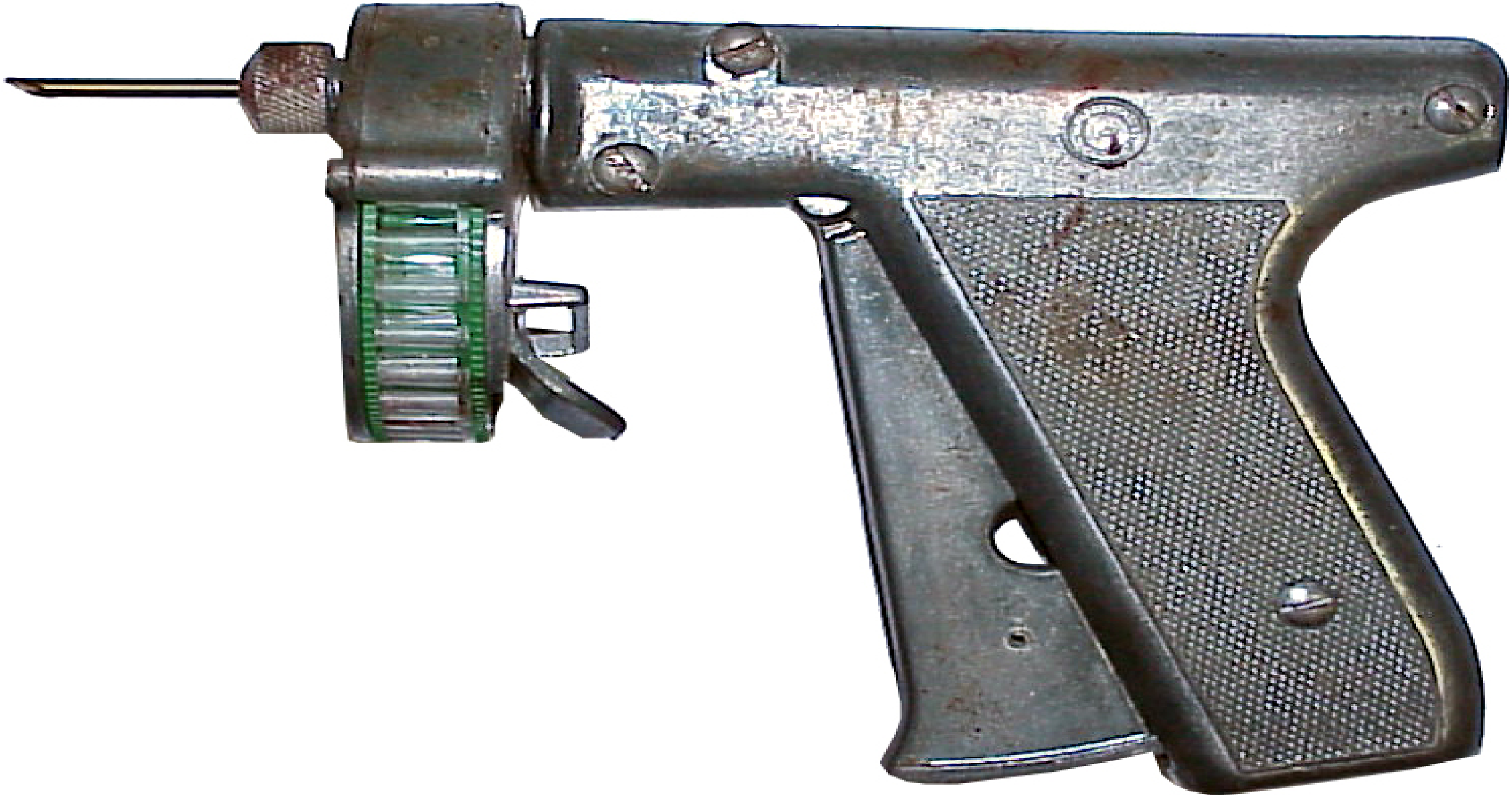


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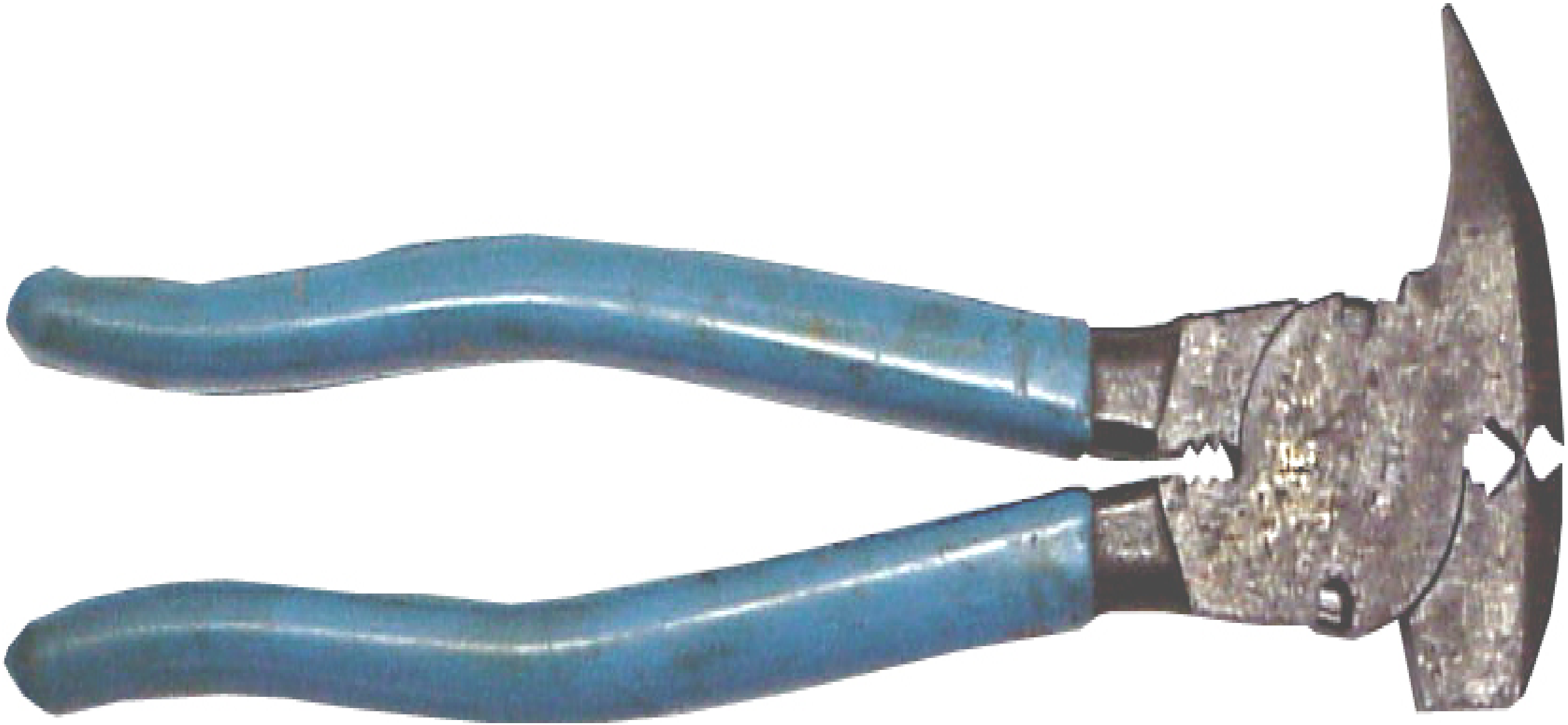


INSTRUCCIONES: Retire la película que cubre la punta de la barra todos los días antes de marcar.
Marca sobre cuero, pellejo y piel, secos y mojados.
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PART NO. 61025
ALL-WEATHER®
PAINTSTIK®
LIVESTOCK MARKER
MARQUEUR À BÉTAIL
MARCADOR PARA GANADO
NET WT. 3¼ oz.


INSTRUCCIONES: Retire la película que cubre la punta de la barra todos los días antes de marcar.
Marca sobre cuero, pellejo y piel, secos y mojados.
48615 61024 6
PART NO. 61024
ALL-WEATHER®
PAINTSTIK®
LIVESTOCK MARKER
MARQUEUR À BÉTAIL
MARCADOR PARA GANADO
NET WT. 3¼ oz.

Name_____ Contestant #_____County_____

# Senior Livestock and Meat Equipment Identification – 2016

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. **Intermediates** 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. All weather Paint Sticks
3. Bowl waterer
4. Balling gun
5. Barnes dehorner
6. Cattle clippers
7. Clipper comb
8. Clipper cutter
9. Currycomb
10. Disposable syringes
11. Ear notchers
12. Ear tag
13. Elastrator
14. Electric branding iron
15. Electric fence wire roller
16. Electric fence wire
17. Electric sheep shears
18. Emasculatome (Burdizzo)
19. Ewe prolapse retainer
20. Fencing pliers
21. Foot rot shears
22. Freeze branding iron
23. Hanging Scale
24. Hand sheep shears
25. Hoof pick
26. Lamb tube feeder
27. Needle teeth nippers
28. Nipple waterer
29. Nose ring
30. Nose ring pliers
31. Obstetrical (O.B.) chain
32. Ralgro pellet injector
33. Ram marking harness
34. Rice root brush
35. Rumen magnate
36. Semen Tank
37. Sheep Halter
38. Slap tattoo
39. SYNOVEX Implant cartridge
40. Syringes
41. Water Heater
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 Intermediates**

A. A tool used on live hogs to identify pork carcasses.

B. Used to help stretch, or cut fencing materials .

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

D. Used to remove wool from sheep.

E. An instrument used to control vaginal prolapse in ewes.

F. Used to freeze brand cattle to provide a form of identification.

G. Used to help id baby pigs.

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. A device used to keep water from freezing.

J. Used to place bands on tails and testicles of lambs.

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

L. Used to store frozen semen and embryos.

M. An instrument used for weighing materials.

N. Used to temporarily mark all species of livestock.

O. Used to lead show lambs or restrain sheep.

Name___Answer Key_____ Contestant #_____County_____

# Senior Livestock and Meat Equipment Identification – 2016

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. **Intermediates** 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 | O |
| 2. | 38 | A |
| 3. | 41 | I |
| 4. | 36 | L |
| 5. | 32 | H |
| 6. | 17 | D |
| 7. | 20 | B |
| 8. | 11 | G |
| 9. | 13 | J |
| 10. | 2 | N |

**Equipment Names – to be used in answer column 1 by Intermediates**

Livestock Equipment

1. All-in-one castrator/docker
2. All Weather Paint Sticks
3. Bowl waterer
4. Balling gun
5. Barnes dehorner
6. Clipper comb
7. Clipper cutter
8. Currycomb
9. Disposable syringes
10. Drench gun
11. Ear notchers
12. Ear tag
13. Elastrator
14. Electric branding iron
15. Electric docker
16. Electric fence wire roller
17. Electric sheep clippers
18. Emasculatome (Burdizzo)
19. Ewe prolapse retainer
20. Fencing pliers
21. Foot rot shears
22. Freeze branding iron
23. Hanging Scale
24. Hand sheep shears
25. Lamb tube feeder
26. Needle teeth nippers
27. Nipple waterer
28. Nose ring
29. Nose ring pliers
30. Obstetrical (O.B.) chain
31. Plastic Sleeve
32. Ralgro pellet injector
33. Ram marking harness
34. Rumen magnate
35. Scotch Comb
36. Semen Tank
37. Sheep halter
38. Slap tattoo
39. Syringe Needles
40. Tattoo pliers
41. Water Heater
42. Wool card

**Equipment Uses – to be used in answer column 2 by Intermediates**

A. A tool used on live hogs to identify pork carcasses.

B. Used to help stretch, or cut fencing materials .

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

D. Used to remove wool from sheep.

E. An instrument used to control vaginal prolapse in ewes.

F. Used to freeze brand cattle to provide a form of identification.

G. Used to help id baby pigs.

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. A device used to keep water from freezing.

J. Used to place bands on tails and testicles of lambs.

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

L. Used to store frozen semen and embryos.

M. An instrument used for weighing materials.

N. Used to temporarily mark all species of livestock.

O. Used to lead show lambs or restrain sheep.


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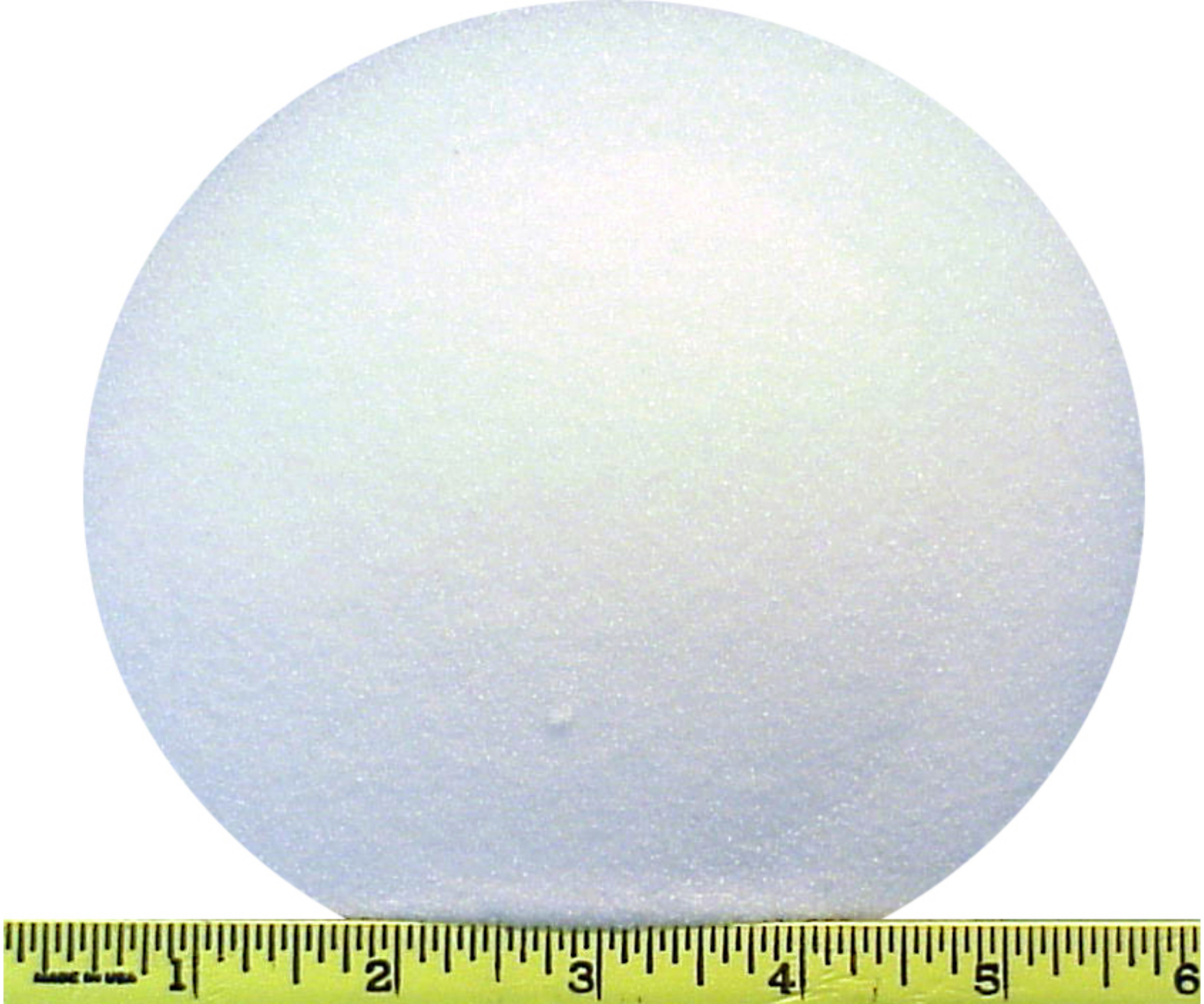
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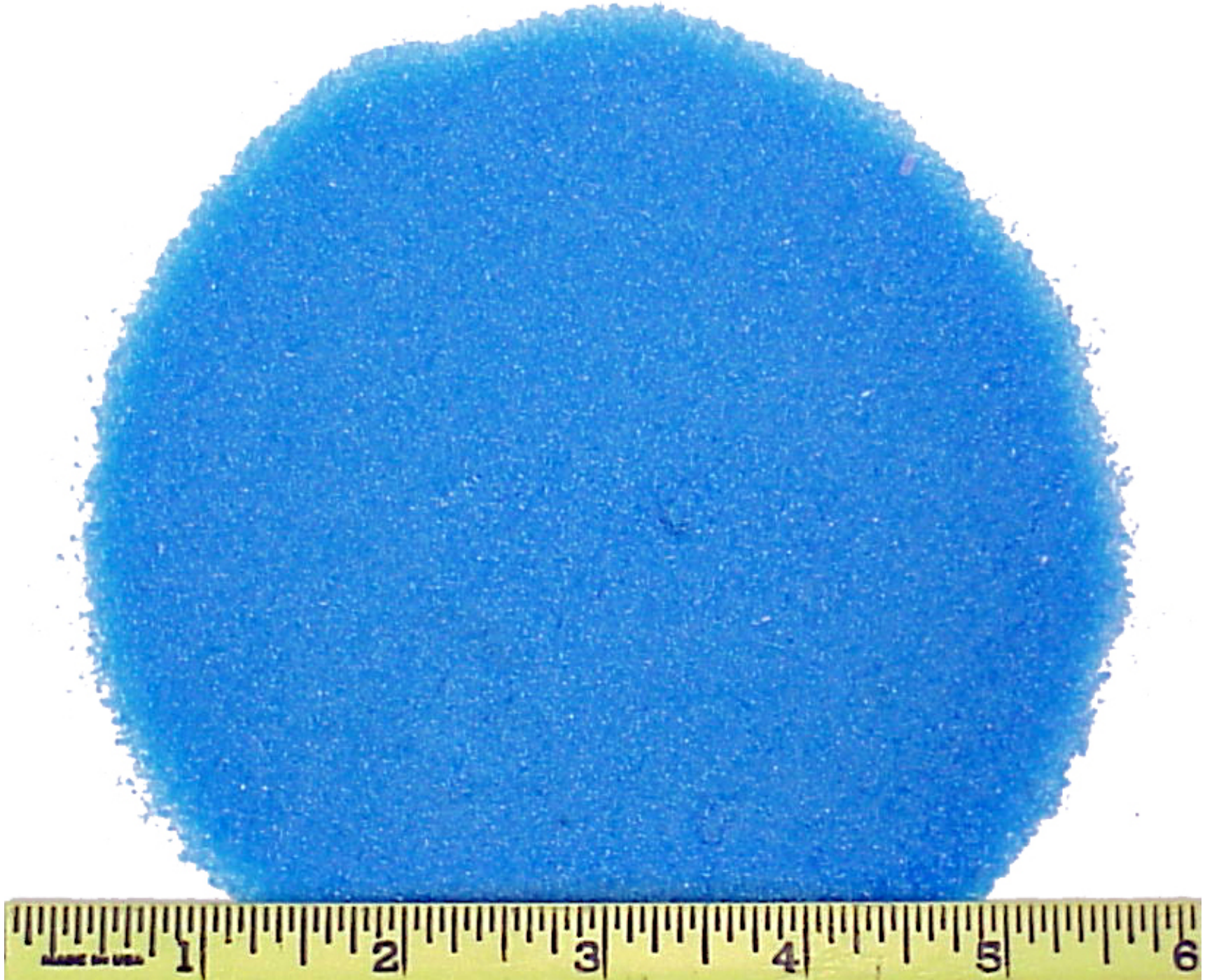
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Name_____ Contestant #_____County_____

# Senior Livestock Feed Identification – 2016

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 | Charact-eristics/ 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
2. Alfalfa
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. Can be used in swine diets as a growth promotant, used in treatment of sheep foot rot, or to treat stomach worms in sheep.**

**B. Great feed for lactating ewes and does. Very palatable and high in protein.**

**C. Most widely used supplement, high nutritional value, very palatable and excellent source of amino acids.**

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

**E. Primarily fed to ruminant show animals and sometimes horses. Increases surface area and gelatinizes some of the starch.**

**F. Used primarily in horse diets or diets of young animals.**

**G. Most common mineral supplement in livestock, horse and poultry feeds.**

H. **Increases diet palatability and reduces dust in rations**.

**I. By-Product of the Meat Packing Industry.**

**J. High in fiber, used to add bulk to feed rations.**

Name_____Answer Key_____ Contestant #_____County_____

# Senior Livestock Feed Identification – 2016

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 | Charact-eristics/ Uses |
|---|---|---|---|
| 1. | 2 | P | B |
| 2. | 13 | B | J |
| 3. | 47 | M | G |
| 4. | 68 | M | D |
| 5. | 69 | F | H |
| 6. | 51 | P | C |
| 7. | 55 | C | E |
| 8. | 4 | B | I |
| 9. | 16 | C | F |
| 10. | 11 | M | A |

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

1. Alfalfa cubes
2. Alfalfa
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. Can be used in swine diets as a growth promotant, used in treatment of sheep foot rot, or to treat stomach worms in sheep.**

**B. Great feed for lactating ewes and does. Very palatable and high in protein.**

**C. Most widely used supplement, high nutritional value, very palatable and excellent source of amino acids.**

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

**E. Primarily fed to ruminant show animals and sometimes horses. Increases surface area and gelatinizes some of the starch.**

**F. Used primarily in horse diets or diets of young animals.**

**G. Most common mineral supplement in livestock, horse and poultry feeds.**

**H. Increases diet palatability and reduces dust in rations.**

**I. By-Product of the Meat Packing Industry.**

**J. High in fiber, used to add bulk to feed rations.**

# Senior Hay Judging Class – 2016

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]**

**Scenario**:
You are feeding 150 pound ewes in late gestation. They will be getting only hay and free choice mineral. No grain. Rank the four hay samples in the order that you would utilize them to feed your flock. After lambing you will add grain to their diet.

**Nutrient Requirements for 150 pound ewes is 4-5 pounds of hay per day for them to maintain body weight and condition in late gestation.**

| | |
|---|---|
| Dry Matter: | 4.4 pounds per day |
| Crude Protein: | 11.1% |
| Total Digestible Nutrients | 65.9% |

# Forage Analysis

| | Hay Lot #1 Mixed Grass | Hay Lot #2 Grass/Legume Mixture | Hay Lot #3 1st Cutting Orchardgrass | Hay Lot # 4 2nd Cutting Orchardgrass |
|---|---|---|---|---|
| **Dry matter** | 88.9% | 88.6% | 87.9% | 88.6% |
| **Crude protein** | 8.4% | 12.2% | 8.7% | 10.5% |
| **Total digestible nutrients (TDN)** | 60.0% | 68.5% | 59.0% | 67.5% |
| **Price per ton** | $80 | $115 | $85 | $110 |

# Senior Hay Judging Class – 2016

Name_____Answer Key_____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 | **28** |
| B | 1 2 4 3 | **36** |
| C | 1 3 2 4 | **18** |
| D | 1 3 4 2 | **16** |
| E | 1 4 2 3 | **34** |
| F | 1 4 3 2 | **24** |
| G | 2 1 3 4 | **36** |
| H | 2 1 4 3 | **44** |
| I | 2 3 1 4 | **34** |
| J | 2 3 4 1 | **40** |
| K | 2 4 1 3 | **50** |
| L | 2 4 3 1 | **48** |
| M | 3 1 2 4 | **16** |
| N | 3 1 4 2 | **14** |
| O | 3 2 1 4 | **24** |
| P | 3 2 4 1 | **30** |
| Q | 3 4 1 2 | **20** |
| R | 3 4 2 1 | **28** |
| S | 4 1 2 3 | **40** |
| T | 4 1 3 2 | **30** |
| U | 4 2 1 3 | **48** |
| V | 4 2 3 1 | **46** |
| W | 4 3 1 2 | **28** |
| X | 4 3 2 1 | **36** |

**[Turn over for Scenario and Forage Analysis Information]**

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You are feeding 150 pound ewes in late gestation. They will be getting only hay and free choice mineral. No grain. Rank the four hay samples in the order that you would utilize them to feed your flock. After lambing you will add grain to their diet.

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| **Total digestible nutrients (TDN)** | 60.0% | 68.5% | 59.0% | 67.5% |
| **Price per ton** | $80 | $115 | $85 | $110 |

Elanco™ AF0472

For Use in Swine and Cattle Feeds Only

# Pulmotil® 90 tilmicosin™

**Net Weight: 10 kg (22.0 lb)**

## Type A Medicated Article

Do not feed undiluted.

**CAUTION:** Federal law limits this drug to use under the professional supervision of a licensed veterinarian. Animal feed bearing or containing this veterinary feed directive drug shall be fed to animals only by or upon a lawful veterinary feed directive issued by a licensed veterinarian in the course of the veterinarian's professional practice.

**Active Drug Ingredient:** Tilmicosin (as tilmicosin phosphate) 90.7 g per lb (200 g per kg)

**Inert Ingredients:** Ground corncobs.

**Description:** Pulmotil® is a formulation of the antibiotic tilmicosin. Tilmicosin is produced semi-synthetically and is in the macrolide class of antibiotics. Each kilogram of Type A Medicated Article contains 200 grams (0.44 lbs) of tilmicosin adsorbed onto ground corncobs.

**Indications:**
**Swine:** For the control of swine respiratory disease (SRD) associated with *Actinobacillus pleuropneumoniae* and *Pasteurella multocida*.

**Cattle:** For the control of bovine respiratory disease (BRD) associated with *Mannheimia haemolytica*, *Pasteurella multocida* and *Histophilus somni* in groups of beef and non-lactating dairy cattle, where active BRD has been diagnosed in at least 10% of the animals in the group.

**Feeding Directions:**
**Swine:** Tilmicosin is to be fed continuously at 181 grams to 363 grams per ton (200 ppm to 400 ppm) of Type C medicated feed as the sole ration for a 21-day period, beginning approximately 7 days before an anticipated disease outbreak.

**Cattle:** Tilmicosin is to be fed continuously for a single, 14 day period at 568 grams to 757 grams (626 ppm to 834 ppm) per ton on a 100% dry matter basis of Type C medicated feed as the sole ration to provide 12.5 mg tilmicosin/kg/head/day.

**IMPORTANT: Must be thoroughly mixed in swine or cattle feeds before use.**

**Mixing Directions:**
**For Incorporation into Swine Feeds:** Thoroughly mix Pulmotil Type A medicated article with feed to provide a Type B medicated feed containing up to 36,300 grams tilmicosin per ton or to provide a complete Type C medicated feed containing 181 to 363 g tilmicosin per ton. Do not use in any feeds containing bentonite. Bentonite in feeds may affect the efficacy of tilmicosin.

| Starting concentration of Pulmotil 90 Type A Medicated Article[a] | Amount of Type A Medicated Article to add per ton | Resulting concentration in Type B Medicated Feed | |
|---|---|---|---|
| grams per pound | pounds | grams per ton | grams per pound |
| 90.7 | 400 | 36,300 | 18.1 |
| | 300 | 27,200 | 13.6 |
| | 200 | 18,100 | 9.1 |

| Starting concentration of Pulmotil 90 Type A Medicated Article[a] | Amount of Type A Medicated Article to add per ton | Resulting concentration in Type C Medicated Feed |
|---|---|---|
| grams per pound | pounds | grams per ton |
| 90.7 | 4 | 363 |
| | 3 | 272 |
| | 2 | 181 |

[a]Pulmotil 90 contains 90.7 g tilmicosin phosphate per pound

**For Incorporation into Cattle Feeds:** Thoroughly mix Pulmotil Type A medicated article with feed to provide a Type B medicated feed containing up to 36,300 grams tilmicosin per ton on a 100% dry matter basis or to provide a complete Type C medicated feed containing 568 to 757 g tilmicosin per ton on a 100% dry matter basis. Complete Type C medicated feeds should not be pelleted. Do not use in any feeds containing bentonite, cottonseed meal, or cottonseed hulls. Bentonite, cottonseed meal, or cottonseed hulls in feeds may affect the efficacy of tilmicosin.

| Starting concentration of Pulmotil 90 Type A Medicated Article[a] | Amount of Type A Medicated Article to add per ton | Resulting concentration in Type B Medicated Feed[b] | |
|---|---|---|---|
| grams per pound | pounds | grams per ton | grams per pound |
| 90.7 | 400 | 36,300 | 18.1 |
| | 200 | 18,100 | 9.1 |
| | 100 | 9,070 | 4.5 |

| Starting concentration of Pulmotil 90 Type A Medicated Article[a] | Amount of Type A Medicated Article to add per ton | Resulting concentration in Type C Medicated Feed[b] |
|---|---|---|
| grams per pound | pounds | grams per ton |
| 90.7 | 8.35 | 757 |
| | 6.26 | 568 |

[a]Pulmotil 90 contains 90.7 g tilmicosin phosphate per pound
[b]100% dry matter basis

**CAUTION:**
Do not allow horses or other equines access to feeds containing tilmicosin. The safety of tilmicosin has not been established in cattle or male swine intended for breeding purposes. To assure both food safety and responsible use in cattle, the treatment of cattle with this medicated feed is required to be initiated within the first 45 days of the production period. The treatment should not occur concurrent with or following administration of an injectable macrolide, or within 3 days following administration of a non-macrolide injectable BRD therapy.

**Swine:** Feed containing tilmicosin shall not be fed to pigs for more than 21 days during each phase of production without ceasing administration for reevaluation of antimicrobial use by a licensed veterinarian before re-initiating a further course of therapy with an appropriate antimicrobial. Veterinary Feed Directive (VFD) expiration date for swine must not exceed 90 days from the time of issuance. VFDs for tilmicosin phosphate shall not be refilled.

**Cattle:** Use only in cattle fed in confinement for slaughter. Tilmicosin medicated feed treatment has not been evaluated in cattle with severe clinical disease. Cattle with severe clinical illness should be evaluated for individual treatment with an alternative non-macrolide therapy. The expiration date for a tilmicosin Veterinary Feed Directive (VFD) for cattle must not exceed 45 days from the time of issuance. VFDs for tilmicosin phosphate shall not be refilled.

**WARNINGS:**

**RESIDUE WARNING: Swine:** Swine intended for human consumption must not be slaughtered within 7 days of the last treatment of this drug product.

**RESIDUE WARNING: Cattle:** Cattle intended for human consumption must not be slaughtered within 28 days of the last treatment with this drug product.

This drug product is not approved for use in female dairy cattle 20 months of age or older. Use in these cattle may cause drug residues in milk. This drug 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.

**User Safety Warnings:** Avoid inhalation, oral exposure and direct contact with skin or eyes. Operators mixing and handling Pulmotil 90 should use protective clothing, impervious gloves, goggles and a NIOSH-approved dust mask. Wash thoroughly with soap and water after handling. If accidental eye contact occurs, immediately rinse thoroughly with water. If irritation persists, seek medical attention. Not for human consumption. Keep out of reach of children. The Material Safety Data Sheet contains more detailed occupational safety information. To report adverse effects in users, to obtain more information, or to obtain a Material Safety Data Sheet, call 1-800-428-4441.

**Clinical Pharmacology:** Oral dosing of tilmicosin phosphate to swine at 181 to 363 g/ton of feed results in serum tilmicosin levels, which do not correlate with efficacy. Lung concentrations of tilmicosin are significantly higher than serum. Following 7 consecutive days of administering tilmicosin-medicated feeds to swine, the concentration of tilmicosin in respiratory tissues, phagocytic cells, and nasal secretions was significantly higher than that of plasma or serum. Lung levels are achieved within 2 days after beginning feeding and plateau by 4 days. Using *in-vitro* incubation techniques, the ratio of intracellular to extracellular concentrations of tilmicosin for neutrophils, monocyte-macrophages and alveolar macrophages were 69, 19 and 17, respectively, after four hours of incubation. Although lower levels of accumulation were observed *in-vivo*, swine alveolar macrophages have been shown *in-vitro* and *in-vivo* to concentrate large amounts of tilmicosin; these cells may be important for *in-vivo* distribution of the drug and may serve as an important reservoir for tilmicosin in lung tissue.

Oral dosing of tilmicosin phosphate to cattle to target a dose of 12.5 mg/kg body weight resulted in serum tilmicosin concentrations above the analytical limit of quantification (0.5 ng/mL) within 12 hours following treatment administration.

The relationship of serum tilmicosin concentration to lung tilmicosin concentration has not been determined following oral administration of tilmicosin.

**Toxicology:** The cardiovascular system is the target of toxicity in laboratory and domestic animals given tilmicosin by oral or parenteral routes. Primary cardiac effects are increased heart rate (tachycardia) and decreased contractility (negative inotropy). Given orally, the median lethal dose is 800 mg/kg in fasted rats and 2250 mg/kg in non-fasted rats. No compoundrelated lesions were found at necropsy. Results of genetic toxicology studies were all negative. Results of teratology and reproduction studies in rats were all negative. The no effect level in dogs after daily oral doses for up to one year is 4 mg/kg of body weight. Tilmicosin was included in the diet of 18 adult horses for a period of 14 days at dose levels of 400, 1200 and 2000 ppm. Some horses at both the low and high dose levels demonstrated gastrointestinal disturbance with more severe colic evident at the higher levels. One horse died after consuming the 2000 ppm diet. A study was conducted in cattle administered oral tilmicosin at 12.5, 25.0 or 37.5 mg/kg for 42 days or administered 12.5 mg/kg of oral tilmicosin for 14 days followed by 20 mg/kg injection of tilmicosin or saline (volume equivalent). Cardiac lesions observed (one animal in the 12.5 mg/kg for 42 days treatment group; one animal in the 12.5 mg/kg for 14 days followed by tilmicosin injection treatment group) were not considered clinically significant as no other abnormalities were seen and the affected animals were clinically normal.

To report adverse effects, access medical information or obtain additional product information, call 1-800-428-4441.

Storage Information:
Store at less than or equal to 25°C (77°F). Excursions to 40°C (104°F) are acceptable.
Avoid excessive moisture.

Restricted Drug (California) - Use Only as Directed
NADA # 141-064, Approved by FDA

Manufactured For:
Elanco Animal Health
A Division of Eli Lilly and Company
Indianapolis, IN 46285, USA



TAKE TIME TO
OBSERVE LABEL DIRECTIONS

Name_____ Contestant #_____County_____

# Senior Individual Quality Assurance – 2016

You are the manager of 1,000 head of feeder cattle in a confinement setting. Recently, you noticed a large percentage of the calves had reduced feed intakes, had developed a persistent cough and began running temperatures. Your veterinarian has prescribed **Pulmotil 90** for treatment. Use the **Pulmotil 90** 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. **Pulmotil 90 is labeled for what other species of farm animal(s)?**

   A.) Swine
   C.) Turkeys
   B.) Sheep
   D.) Horses

2. **What is the active ingredient in Pulmotil 90?**

   A.) Sulfamethazine
   C.) Tilmicosin
   B.) Oxytetracycline
   D.) Ground corn cobs

3. **What is the best way to fully understand how to properly use Pulmotil 90?**

   A.) Carefully read and follow the entire medication insert for Pulmotil 90
   B.) Follow your veterinarians instructions
   C.) Carefully read and follow the entire medication label for Pulmotil 90
   D.) All are correct

4. **What is the appropriate amount of Pulmotil 90 that is recommend for use in pigs?**

   A.) 568-757 grams per ton of feed
   C.) 12.5 mg per kg per head per day
   B.) 181-363 grams per ton of feed
   D.) 90.7 grams per pound

5. **How is Pulmotil 90 to administered to your pigs?**

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

6. **Which of the following is not a true statement?**

   A.) Swine intended for human consumption must be slaughtered within 7 days of the last treatment of this drug product.

   B.) This drug product is not approved for use in calves intended to be processed for veal.

   C.) Cattle intended for human consumption must be slaughtered within 28 days of the last treatment of this drug product.

   D.) This drug product is not approved for use in breeding cattle.

   E.) All of the statements are true.

7. **What is the maximum length of time Pulmotil 90 can be given to cattle?**

   A.) 7 days before expected outbreak
   C.) 14 days

   B.) 21 days
   D.) 45 days

8. **If your veterinarian instructed you to provide 568 grams of tilmicosin, how much Pulmotil 90 would you add per ton of feed?**

   A.) 8.35 pounds per ton
   C.) 3 pounds per ton

   B.) 6.26 pounds per ton
   D.) 2.5 pounds per ton

9. **Treatment with Pulmotil 90 should not be at the same time or following the administration of what?**

   A.) Tilmicosin phosphate
   C.) Neutrophils

   B.) Penicillin
   D.) Injectable macrolide

10. **What class of drug product is Pulmotil 90?**

    A.) Prescription
    C.) Veterinary Feed Directive

    B.) Swine Practioners Approved
    D.) Over-the-counter

Name___Answer Key_____ Contestant #_____County_____

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

   B.) Follow your veterinarians instructions

   C.) Carefully read and follow the entire medication label for Pulmotil 90

   D.) All are correct

4. **What is the appropriate amount of Pulmotil 90 that is recommend for use in Pigs? Wording was incorrect on Answer Key as Steve Austin had cattle instead of pig but was caught and corrected by the individuals scoring before it caused and issue with scoring.**

   A.) 568-757 grams per ton of feed
   C.) 12.5 mg per kg per head per day
   B.) 181-363 grams per ton of feed
   D.) 90.7 grams per pound

5. **How is Pulmotil 90 administered to your Pig?**

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

6. **Which of the following is not a true statement?** **Question 6 was thrown out due to incorrect wording on the part of Steve Austin**

A.) Swine intended for human consumption must not be slaughtered within 7 days of the last treatment of this drug product.

B.) This drug product is not approved for use in calves intended to be processed for veal.

C.) Cattle intended for human consumption must be slaughtered within 28 days of the last treatment of this drug product.

D.) This drug product is not approved for use in male dairy cattle 20 months of age or older.

E.) All of the statements are true.

7. **What is the maximum length of time Pulmotil 90 can be given to cattle?**

A.) 7 days before expected outbreak

C.) 14 days

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D.) 45 days

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C.) Veterinary Feed Directive

B.) Swine Practioners Approved

D.) Over-the-counter


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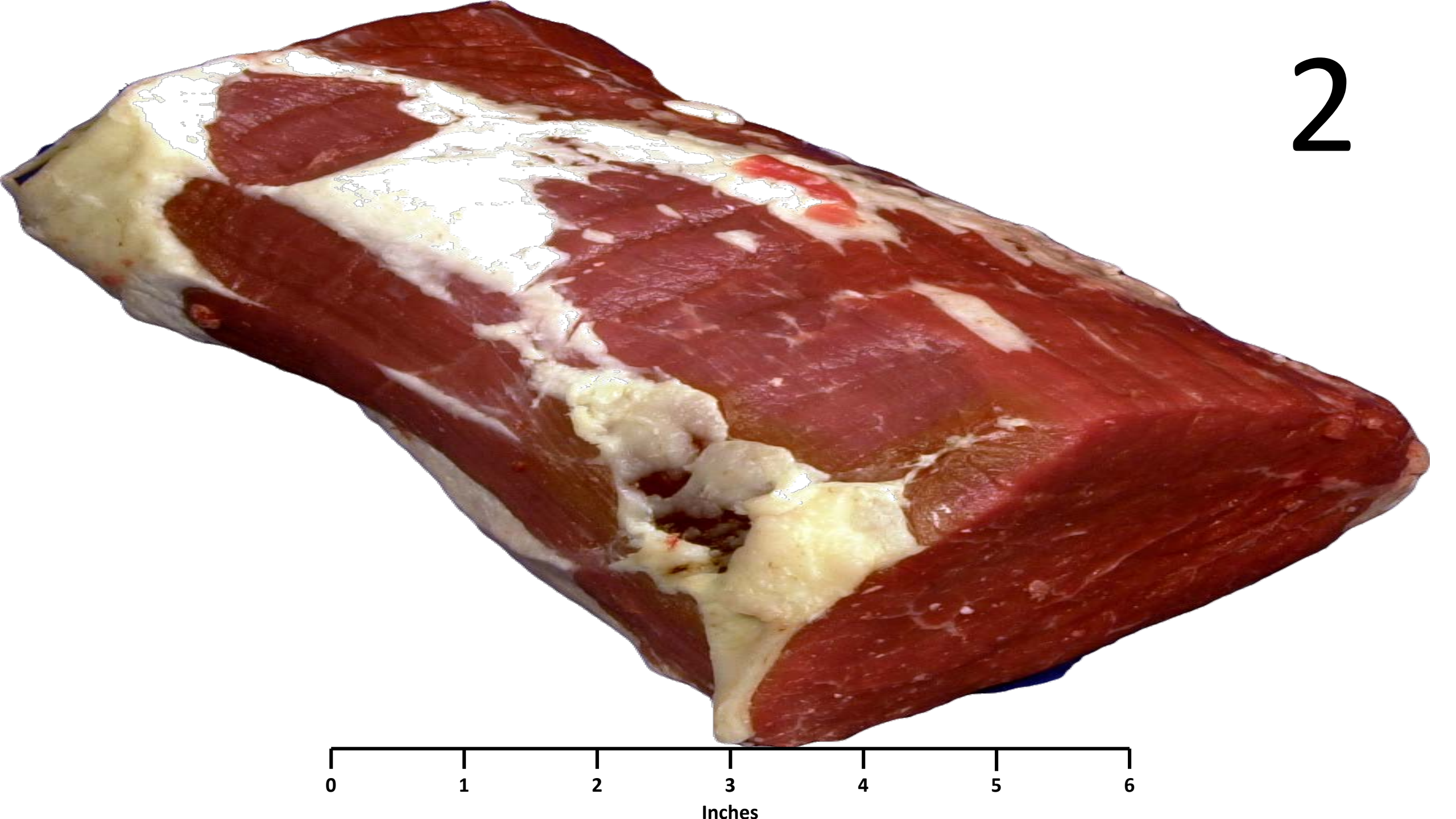
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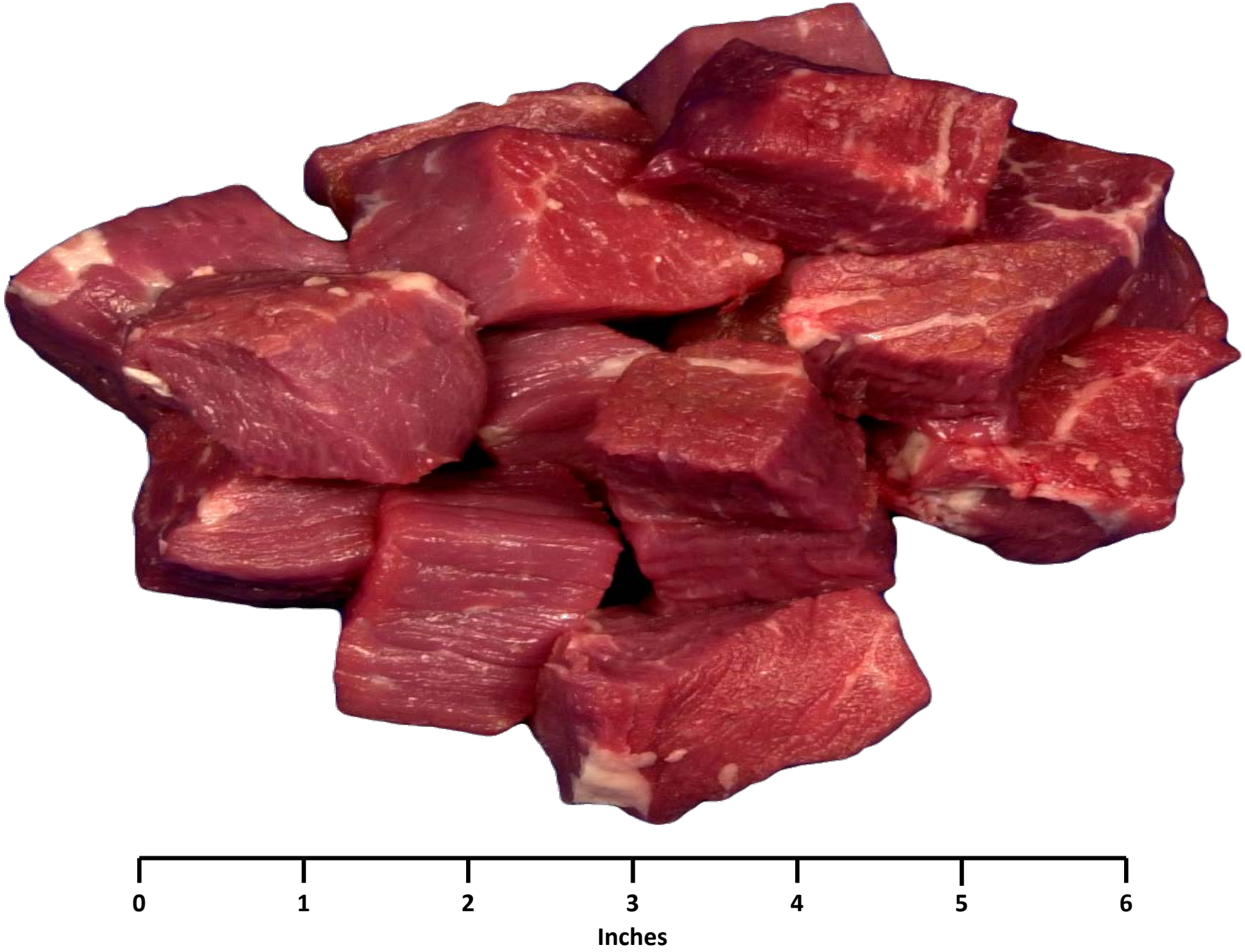

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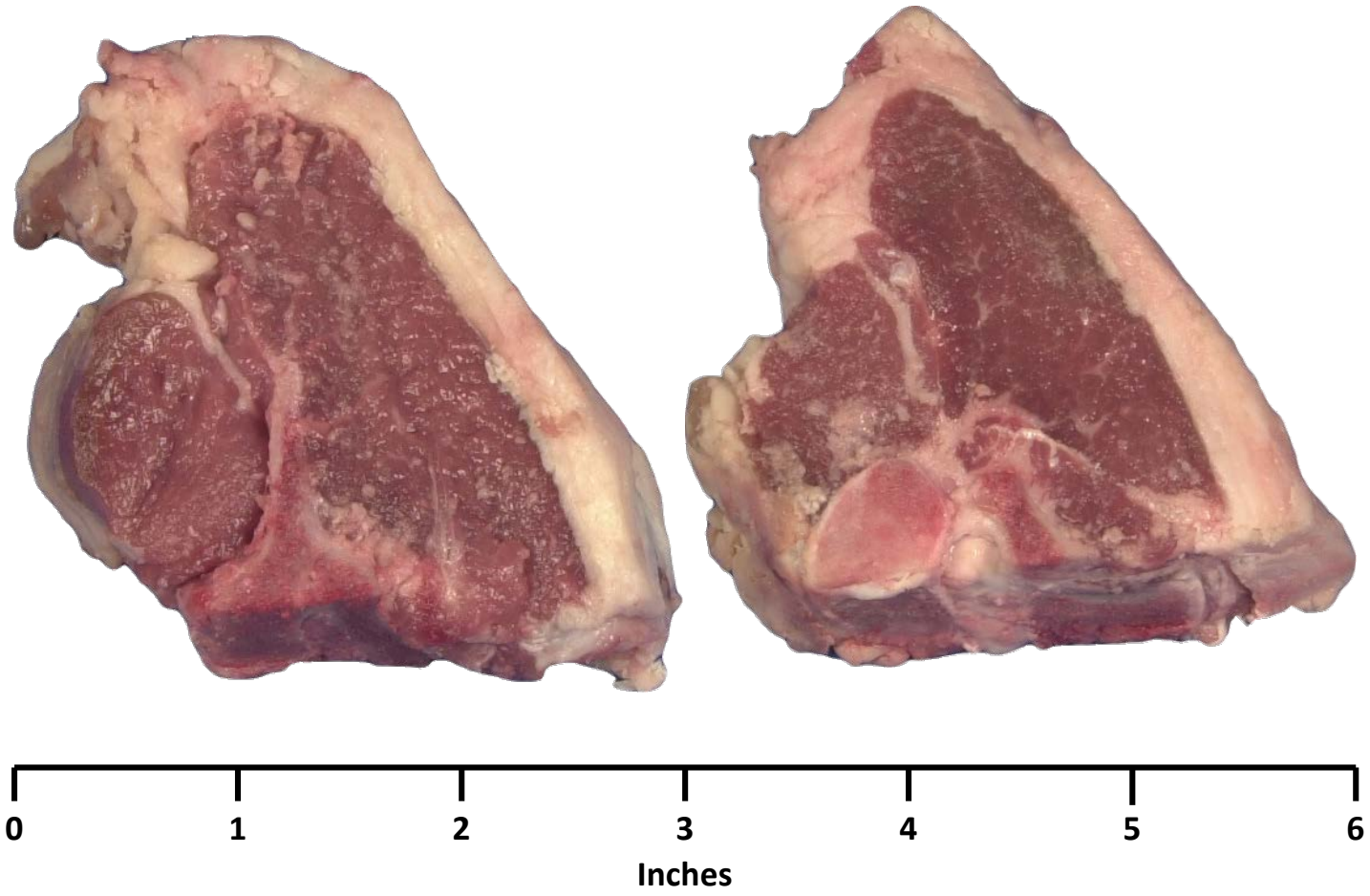

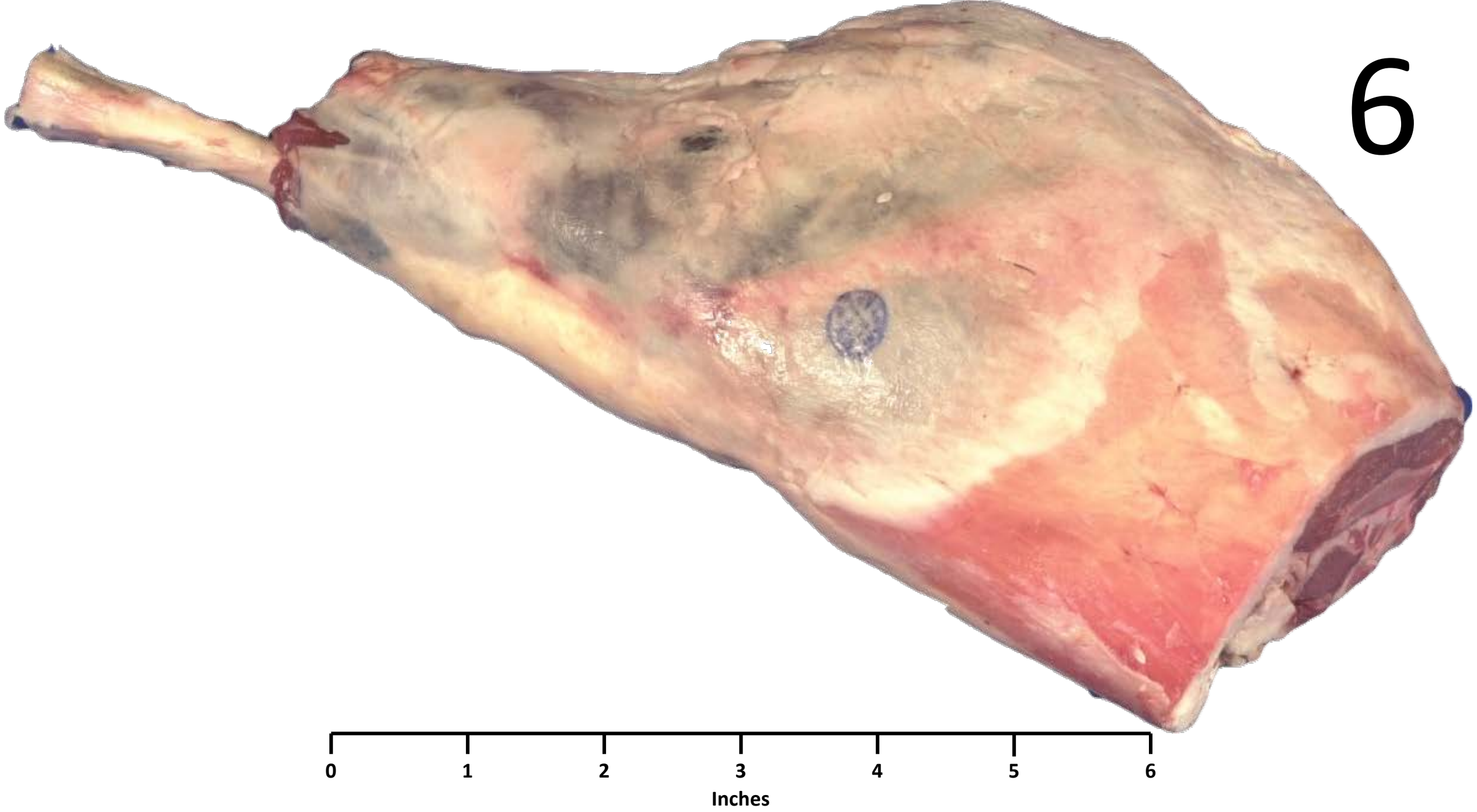
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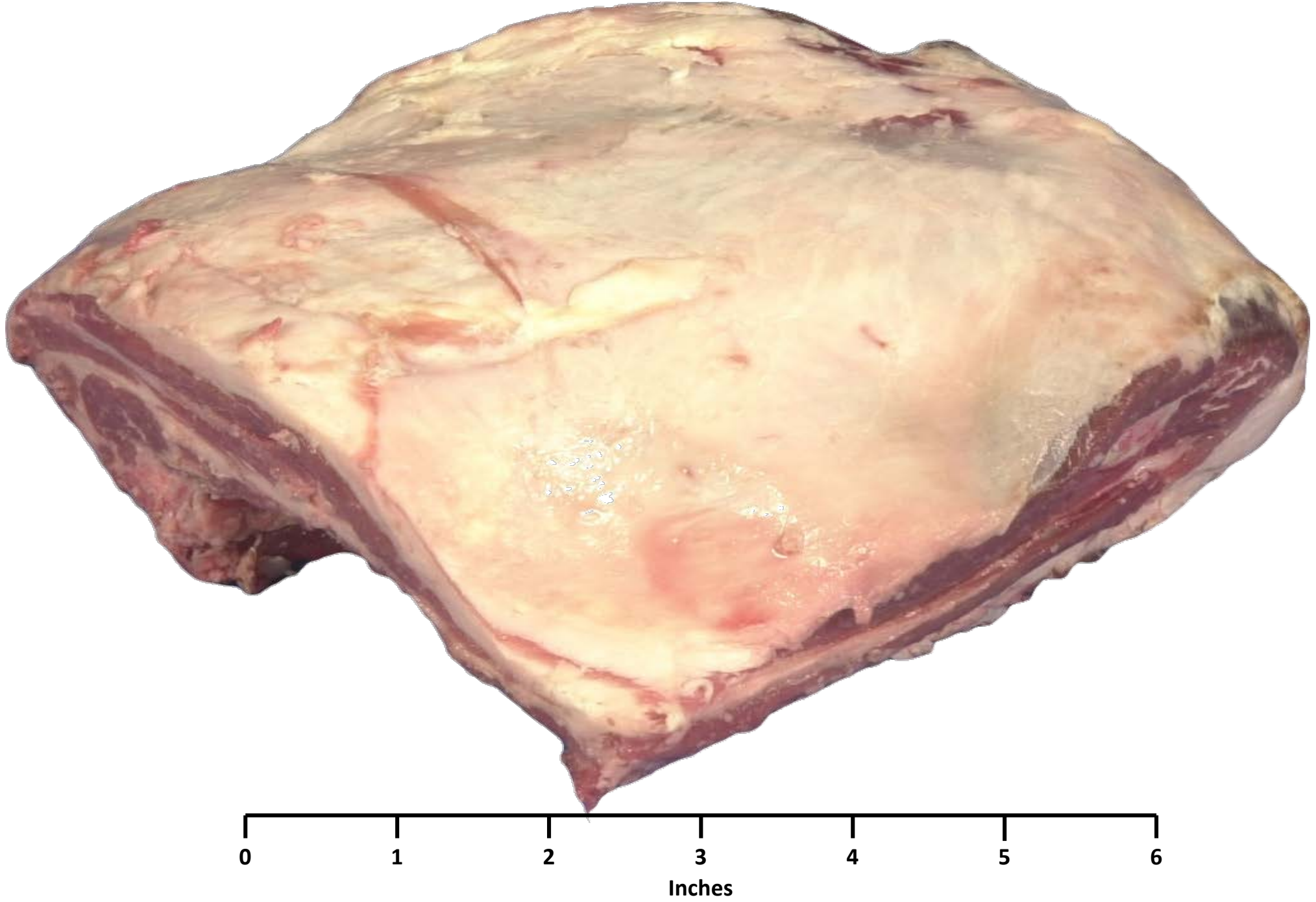


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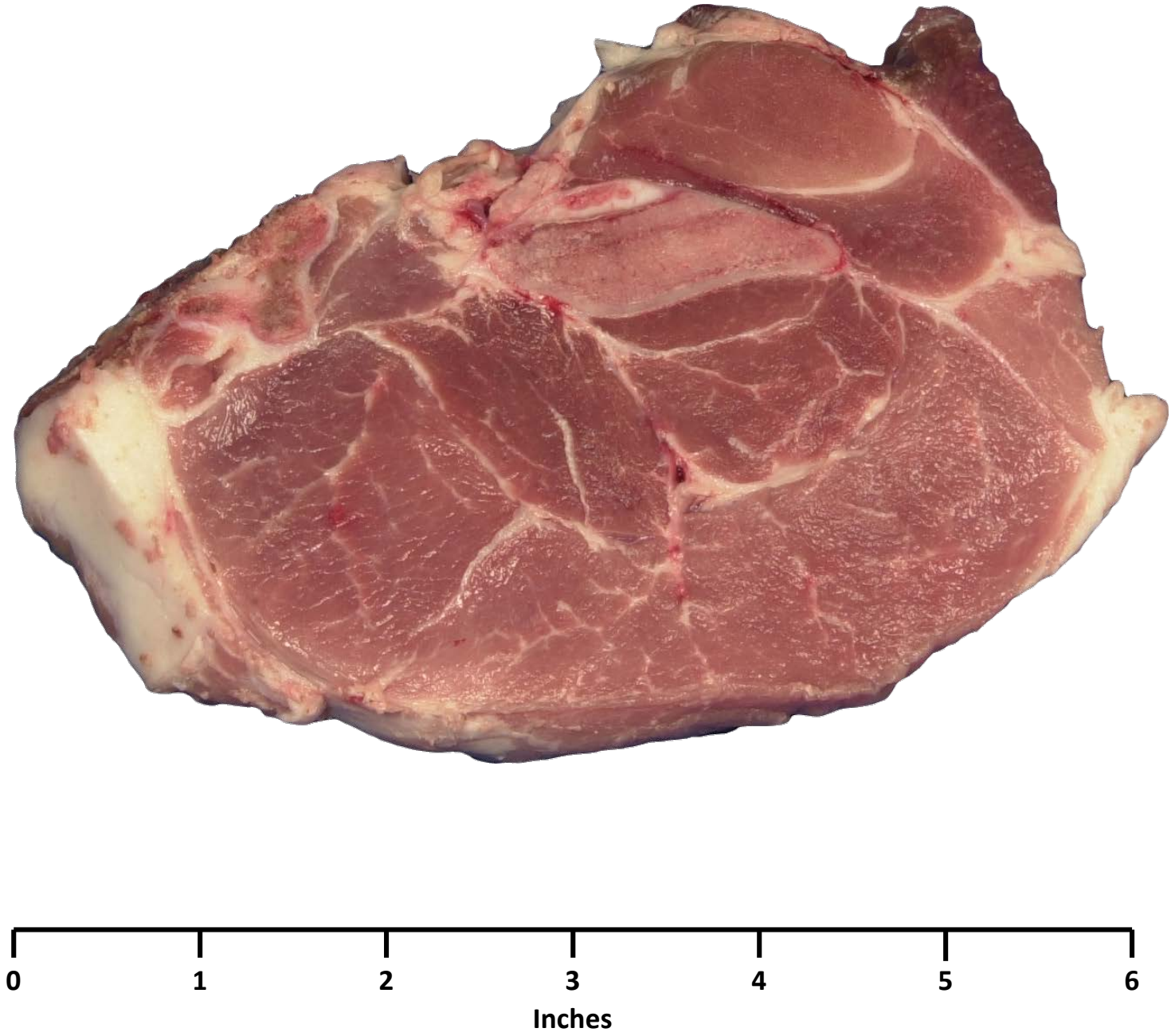


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Name_____ Contestant #_____County_____

# Senior Retail Meat Cut Identification – 2016

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

**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 Retail Meat Cut Identification – 2016

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. | 11 | B | B |
| 2. | 34 | B | R |
| 3. | 20 | B | D |
| 4. | 1 | B | I |
| 5. | 56 | L | L |
| 6. | 52 | L | K |
| 7. | 65 | L | O |
| 8. | 66 | P | R |
| 9. | 77 | P | T |
| 10. | 73 | P | T |

**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

**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

Loin
Chop


3 Loin Chop


3 8oz
Chop


4 Loin Chop

# Senior Retail Meat Judging Class 1 – 2016

Name_____ Contestant #_____ County_____

**Contestant Number _____**
**Placing Score _____**

*University of Kentucky*
*College of Agriculture*
*Animal Sciences Department*

**Contestant's Name**

_____
_____

**Address**

_____
_____

**County**

_____

**Class**

_1._Pork Loin Chops_

| | | |
|---|---|---|
| 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 1 – 2016

Name_____ANSWER KEY_____ Contestant #_____ County_____

## Official Placing = 2-1-3-4

## Cuts = 4-2-4

(50 points possible)

**Contestant Number** _____

**Placing Score** _____

*University of Kentucky*
*College of Agriculture*
*Animal Sciences Department*

**Contestant's Name**

_____

_____

**Address**

_____

_____

**County**

_____

**Class**

**Class 1 Pork Loin Chops___**

| | | |
|---|---|---|
| A | 1 2 3 4 | 46 |
| B | 1 2 4 3 | 42 |
| C | 1 3 2 4 | 40 |
| D | 1 3 4 2 | 30 |
| E | 1 4 2 3 | 32 |
| F | 1 4 3 2 | 26 |
| G | 2 1 3 4 | 50 |
| H | 2 1 4 3 | 46 |
| I | 2 3 1 4 | 48 |
| J | 2 3 4 1 | 42 |
| K | 2 4 1 3 | 40 |
| L | 2 4 3 1 | 38 |
| M | 3 1 2 4 | 38 |
| N | 3 1 4 2 | 28 |
| O | 3 2 1 4 | 42 |
| P | 3 2 4 1 | 36 |
| Q | 3 4 1 2 | 22 |
| R | 3 4 2 1 | 26 |
| S | 4 1 2 3 | 26 |
| T | 4 1 3 2 | 20 |
| U | 4 2 1 3 | 30 |
| V | 4 2 3 1 | 28 |
| W | 4 3 1 2 | 18 |
| X | 4 3 2 1 | 22 |

# Senior Retail Meat Judging Class 2 – 2016

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 Ribeyes**____

| | | |
|---|---|---|
| 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 largest eye? _____**

2) **Which steak between 3 and 4 has the most external fat cover? _____**

3) **Between 2 and 3, which steak has the most bone? _____** **Wrong Question. Threw it out.**

4) **Which steak is the darkest in it's color? _____**

5) **Which steak has the least amount of bone? _____** **Wrong Question. Threw it out.**

# Senior Retail Meat Judging Class 2 – 2016

Name_____ANSWER KEY_____ Contestant #_____ County_____

## Official Placing = 4-3-2-1

## Cuts = 3-2-5

(Placing the meat is worth a possible 50 points and each of the 5 questions is worth 10 points for 50 possible points – Grand Total of 100 possible points)

**Contestant Number** _____

**Placing Score** _____

*University of Kentucky*
*College of Agriculture*
*Animal Sciences Department*

**Contestant's Name**

_____

_____

**Address**

_____

_____

**County**

_____

**Class**

**Class 2 Ribeye Steaks**

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

***[Turn over and answer the 5 questions on the back of this page]***

# QUESTIONS

1) **Which steak has the largest eye? ____4____**

2) **Which steak between 3 and 4 has the most external fat cover? ___3_____**

3) **Between 2 and 3, which steak has the most internal and external fat? ___2_____ This was supposed to be the question on contestant sheet but Steve Austin put the wrong question on their sheet. Threw this Question Out.**

4) **Which steak is the best combination of muscle and marbling? ____4____**

5) **Which steak has the knife cut? _____1___ This was supposed to be the question on contestant sheet but Steve Austin put the wrong question on their sheet. Threw this Question Out.**

Name__Answer Key___Contestant#_____County_____

# Senior Quiz – 2016

**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 Kentucky Beef Expo is held at?

a. University of Kentucky, Lexington
b. Kentucky State Fairgrounds, Louisville
c. Morehead Expo
d. Bowling Green Expo

2.) Which of the following is a correct term for lamb carcasses?

a. Easter Lamb
b. Spider Leg Lamb
c. New Year Lamb
d. Two Year Freezer

3.) Which of the following is not a yield grade for beef?

a. 3
b. 2
c. 1
d. 7

4.) Majority of cattle sold in the US are numerical yield grades?

a. 1 and 5
b. 2 and 3
c. 4
d. 2 and 7

5.) What mineral should not be included in diets for sheep?

a. Copper
b. Phosphorus
c. Molybdenum
d. Magnesium

6.) Which of the following is a monogastric?

c. Doe
d. Steer
c. Wether
d. Market Hog

7.) Majority of cattle sold in the US quality grade?

a. Prime
b. Utility
c. Standard
d. Choice and Select

8.) What historic livestock marketing center in Kentucky was recently destroyed by fire?

a. Blue Grass Stockyards, Lexington
b. WIU Livestock Center, Macomb
c. Double Acres, Omaha
d. Keystone Super Sales, Harrisburg

9.) The female reproductive organ where the embryo develops is called the _____.

a. Ovary
b. Oviduct
c. Cervix
d. Uterus

10.) The hormone that brings females into heat and prepares her for breeding is called

a. Luteinizing hormone
a. Follicle stimulating hormone
c. Estrogen
d. Prostaglandin

11.) What is the average length of gestation in goats?

a. 114 days
b. 150 days
c. 244 days
d. 283 days

12.) What is the average length of the estrous cycle in a doe?

a. 7days
b. 10 days
c. 21 days
d. 28 days

13.) What is the average length of time of heat phase of a doe?

a. 90 hours
b. 5 hours
c. 12-48 hours
d. 48-60 hours

14.) Obtaining immunity by absorbing immunoglobulins from colostrum is called

a. Partial immunity
b. Passive immunity
c. Active immunity
d. Postpartum immunity

15.) Which one of the following hormones maintains pregnancy in farm animals?

a. Estrogen
b. Progesterone
c. Prostaglandin
d. Testosterone

16.) Where is the hormone testosterone produced?

a. Testicle
b. Ovary
c. Brain
d. Pancreas

17.) Which of the following is **Not** a high priced wholesale cut in lambs?

a. Neck Slice
b. Rack
c. Loin
d. All of the above

18.) Which of the following could be fed to fat cattle as a roughage or filler?

a. Alfalfa Hay
b. Cracked Corn
c. Straw
d. Finely ground corn

19.) Which of the following is added to ruminant diets primarily to cut down on dust or give flavor to show rations?

a. Canola meal
b. Molasses
c. Steam flaked corn
d. Soybean hulls

20.) Which of the following pig breeds is known as a "maternal line"?

a. Landrace
b. Yorkshire
c. Duroc
d. Both A and B

21.) Which of the following could be found in ruminant diets?

a. Cracked corn
b. Protein Pellets
c. Soybean Meal
d. All of these

22.) The female reproductive organ where usually fertilization occurs is called?

a. Ovary
b. Oviduct
c. Cervix
d. Vulva

23.) What is the average length of gestation in cattle?

a. 114 days
b. 150 days
c. 244 days
d. 283 days

24.) A heifer that is a twin to a bull can be?

a. Freemartin
b. Never fertile
c. Always fertile
d. No value

25.) How many interdigital glands does a sheep have?

a. 2
b. 1
c. 4
d. 20

Name__Answer Key___Contestant#_____County_____

# Senior Quiz – 2016

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**d. Market Hog**

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a. Follicle stimulating hormone
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c. **12-48 hours**
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d. 48-60 hours

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a. Partial immunity
c. Active immunity
b. **Passive immunity**
d. Postpartum immunity

15.) Which one of the following hormones maintains pregnancy in farm animals?

a. Estrogen
c. Prostaglandin
b. **Progesterone**
d. Testosterone

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c. Brain
b. Ovary
d. Pancreas

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a. Alfalfa Hay
**c. Straw**
b. Cracked Corn
d. Finely ground corn

19.) Which of the following is added to ruminant diets primarily to cut down on dust or give flavor to show rations?

a. Canola meal
c. Steam flaked corn
b. **Molasses**
d. Soybean hulls

20.) Which of the following pig breeds is known as a "maternal line"?

a. Landrace
c. Duroc
b. Yorkshire
d**. Both A and B**

21.) Which of the following could be found in ruminant diets?

a. Cracked corn
c. Soybean Meal
b. Protein Pellets
**d. All of these**

22.) The female reproductive organ where usually fertilization occurs is called?

a. Ovary
c. Cervix
b. **Oviduct**
d. Vulva

23.) What is the average length of gestation in cattle?

a. 114 days
c. 244 days
b. 150 days
**d. 283 days**

24.) A heifer that is a twin to a bull can be?

a. **Freemartin**
c. Always fertile
b. Never fertile
d. No value

25.) How many interdigital glands does a sheep have?

a. 2
**c. 4**
b. 1
d. 20

# 2016 TEAM FEEDING EXERCISE

## COUNTY_____

**You have twenty-five wether dams mated to a new ram purchased at the 2015 Midwest Stud Ram Sale in Sedalia, Missouri. Your ewes are entering the last 28 days of gestation. Evaluate the following information, then calculate and answer the following questions and then explain to the official what ration you chose, and why you selected it and what you hope to do with your lamb crop.**

**(Each question is worth 10 points and your discussion is worth**

**Ration 1** **Complete Show Feed**

**18% Protein**

**Price per pound $0.35**

---

**Ration 2** **Ground / Cracked Corn / SBM / Distillers Dried Grains**

**13.75% Protein**

**Price per pound $0.12**

---

**Ration 3** **Finely Ground Corn / SBM**

**17% Protein**

**Price per pound $0.12**

---

**Ration 4** **Cracked Corn / SBM / Cottonseed Hulls / Beet Pulp**

**16% Protein**

**Price per pound $0.14**

## More Information and Questions on the Back

**25 Ewes weigh a total of 5000 pounds.**

**Ewes eat a ratio of 4:1 Hay to Grain**

**Ewes eat 2.5% of their body weight per day of a combination of Hay & Grain**

**Alfalfa hay $200 / Ton**

1. **Calculate the average weight of the ewes:**

2. **Calculate how many total pounds of a combination of Hay and Grain does each ewe need?**

3. **Which ration would you most likely be feeding to ewes at this stage of pregnancy?**

4. **What would your grain cost be for the group for the last 28 days of gestation if you didn't have to add any extra grain beside the 4:1 ratio?**

5. **If you needed to added energy due to an extreme drop in temperatures would you increase the grain or the hay?**

6. **How much hay would it take to feed the ewes for 28 days?**

7. **What would be your hay cost?**

8. **What would be your total cost per ewe for the 28 day period?**

9. **Which ration would best fit the needs of a Cattle Project?**

10. **Which ration would best fit the needs of a Swine Project?**

# 2016 TEAM FEEDING EXERCISE

## COUNTY_____Key_____

**You have twenty-five wether dams mated to a new ram purchased at the 2015 Midwest Stud Ram Sale in Sedalia, Missouri. Your ewes are entering the last 28 days of gestation. Evaluate the following information, then calculate and answer the following questions and then explain to the official what ration you chose, and why you selected it and what you hope to do with your lamb crop.**

**Ration 1** **Complete Show Feed**

**18% Protein**

**Price per pound $0.35**

---

**Ration 2** **Ground / Cracked Corn / SBM / Distillers Dried Grains**

**13.75% Protein**

**Price per pound $0.12**

---

**Ration 3** **Finely Ground Corn / SBM**

**17% Protein**

**Price per pound $0.12**

---

**Ration 4** **Cracked Corn / SBM / Cottonseed Hulls / Beet Pulp**

**16% Protein**

**Price per pound $0.14**

## More Information and Questions on the Back

**25 Ewes weigh a total of 5000 pounds.**

**Ewes eat a ratio of 4:1 Hay to Grain**

**Ewes eat 2.5% of their body weight per day of a combination of Hay & Grain**

**Alfalfa hay $200 / Ton**

1. **Calculate the average weight of the ewes: 200 or 200 pounds**

2. **Calculate how many total pounds of a combination of Hay and Grain does each ewe need?**

   **5 total or 5 pounds or 4 pounds of hay and 1 pound of grain**

3. **Which ration would you most likely be feeding to ewes at this stage of pregnancy? Ration 2**

4. **What would your grain cost be for the group for the last 28 days of gestation if you didn't have to add any extra grain beside the 4:1 ratio?**

   **$84**

5. **If you needed to added energy due to an extreme drop in temperatures would you increase the grain or the hay? Grain**

6. **How much hay would it take to feed the ewes for 28 days?**

   **2800 or 2800 pounds**

7. **What would be your hay cost? $280**

8. **What would be your total cost per ewe for the 28 day period? $14.56**

9. **Which ration would best fit the needs of a Cattle Project? Ration 4**

10. **Which ration would best fit the needs of a Swine Project? Ration 3**

# Draxxin®
## (tulathromycin)
## Injectable Solution

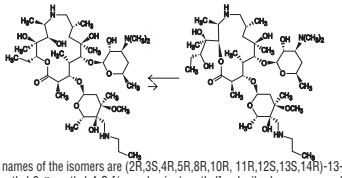
**Antibiotic**
100 mg of tulathromycin/mL

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-trideoxy-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<br>2007-2008 | 135<br>88 | 16<br>16 | 32<br>16 | 16 to 32<br>4 to 32 |
| *Haemophilus parasuis* | 2000-2002 | 31 | 1 | 2 | 0.25 to > 64 |
| *Pasteurella multocida* | 2000-2002<br>2007-2008 | 55<br>40 | 1<br>1 | 2<br>2 | 0.5 to > 64<br>≤ 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 histopathologic 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

**7.)** How could **Draxxin** be used to treat one of the Dorset rams with foot rot?

A.) Sheep are just "small beef cattle", so follow the same directions as for beef cattle

B.) Draxxin is not labeled to treat sheep. You must consult your veterinarian and have a valid vet-client-patient-relationship to use Draxxin for treatment in sheep. This is considered extra-label drug use.

C.) Draxxin is only labeled to treat ORD in sheep, not foot rot

D.) Draxxin is not labeled to treat mature breeding animals

**8.)** What is one of the microorganisms that cause foot rot?

A.) *Pasteurella multocida*

B.) *Campylobacter fetus*

C.) *Fusobacterium necrophorum*

D.) *Mannheimia haemolytica*

**9.)** **Draxxin** is what type of drug?

A.) Prescription Antibiotic

B.) OTC Antibiotic

C.) OTC Anthelmintic

D.) Prescription Vaccine

**10.)** What is the concentration of the active ingredient in **Draxxin**?

A.) 5mg/ml of monothioglycerol

B.) 100 mg of propylene glycol/ml

C.) 50% propylene glycol

D.) 100 mg of tulathromycin/ml

**4.)** From question 3 above, what is the ear notch of the untreated pig and why is it "unusual"?

A.) The notch is 44-81 and it is probably not notched according to the Universal Ear Notching System

B.) The pig was possibly incorrectly notched and may actually be 81-44.

C.) The notch is 44-81 and it is probably from a large commercial farm due to the high number

D.) Both A and B could be correct answers

**5.)** From question 3 above, when can the treated pigs be slaughtered for human consumption?

A.) At any time, **Draxxin** has no slaughter withdrawal time

B.) After 5 days from the last day of treatment

C.) After 18 days from the last day of treatment

D.) After 21 days from the last day of treatment

II.) Some of your "clean-up" bulls used in the Simmental and SimAngus herd are suffering from foot rot and some of your Dorset rams are also showing signs of foot rot and foot scald

**6.)** To treat a 2000 pound Simmental bull how many ml of **Draxxin** should be used and how should it be administered?

A.) 22 ml of **Draxxin** should be injected subcutaneously in the neck using 3 different injection sites

B.) 22 ml of **Draxxin** should be injected subcutaneously in the neck using 1 injection site

C.) 20 ml of **Draxxin** should be injected IM in the neck using 2 different injection sites

D.) 20 ml of **Draxxin** should be injected IV

# Senior Quality Assurance Exercise-Team-2016
# County _____

Your team is the group managers of a diversified livestock operation that consists of a herd of Purebred Simmental and SimAngus beef cattle, a contract wean-to-finish swine operation, and a flock of Purebred Dorset sheep. Use the **Draxxin** label and photos to answer the questions below.

(Each question is worth 20 points each for a total of 200 points possible)

I.) You have had quite a bit of coughing and some pigs showing signs of fever in one of your finishing barns. Upon consultation and testing, your veterinarian informs you that the sickness is a result of the following disease causing organism: *Mycoplasma hyopneumoniae*

**1.)** According to the **Draxxin** label, what is the common name for the disease caused by *Mycoplasma hyopneumoniae*?

A.) SRD C.) Circovirus

B.) PRRS D.) TGE

**2.)** How should **Draxxin** be administered to treat a 120 pound pig from the above example?

A.) The pig should receive an IM dose of 1.5 ml of Draxxin

B.) The pig should receive an IV dose at 0.25 ml per 22 pounds of body weight of Draxxin

C.) The pig should receive an IM dose at 0.25 ml per 22 pounds of body weight of Draxxin

D.) Both A and C are Correct

**3.)** You treated the following 4 pigs yesterday (Friday, February 19th) with **Draxxin** according to label directions: Ear Notch 36-5, 38-2, 45-7, and 54-6. Use the photos to read the ear notches and determine which pig **WAS NOT** treated?

A.) Pig 1 C.) Pig 3

B.) Pig 2 D.) Pig 4

**[OVER]**

**7.)** How could **Draxxin** be used to treat one of the Dorset rams with foot rot?

A.) Sheep are just "small beef cattle", so follow the same directions as for beef cattle

**B.) Draxxin is not labeled to treat sheep. You must consult your veterinarian and have a valid vet-client-patient-relationship to use Draxxin for treatment in sheep. This is considered extra-label drug use.**

C.) Draxxin is only labeled to treat ORD in sheep, not foot rot

D.) Draxxin is not labeled to treat mature breeding animals

**8.)** What is one of the microorganisms that cause foot rot?

A.) *Pasteurella multocida*

**C.) *Fusobacterium necrophorum***

B.) *Campylobacter fetus*

D.) *Mannheimia haemolytica*

**9.)** **Draxxin** is what type of drug?

**A.) Prescription Antibiotic**

C.) OTC Anthelmintic

B.) OTC Antibiotic

D.) Prescription Vaccine

**10.)** What is the concentration of the active ingredient in **Draxxin**?

A.) 5mg/ml of monothioglycerol

C.) 50% propylene glycol

B.) 100 mg of propylene glycol/ml

**D.) 100 mg of tulathromycin/ml**

**4.)** From question 3 above, what is the ear notch of the untreated pig and why is it "unusual"?

**A.) The notch is 44-81 and it is probably not notched according to the Universal Ear Notching System**

B.) The pig was possibly incorrectly notched and may actually be 81-44

C.) The notch is 44-81 and it is probably from a large commercial farm due to the high number

D.) Both A and B could be correct answers

**5.)** From question 3 above, when can the treated pigs be slaughtered for human consumption?

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C.) After 18 days from the last day of treatment

D.) After 21 days from the last day of treatment

II.) Some of your "clean-up" bulls used in the Simmental and SimAngus herd are suffering from foot rot and some of your Dorset rams are also showing signs of foot rot and foot scald

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D.) 20 ml of **Draxxin** should be injected IV

# Senior Quality Assurance Exercise-Team-2016
# County Key

Your team is the group managers of a diversified livestock operation that consists of a herd of Purebred Simmental and SimAngus beef cattle, a contract wean-to-finish swine operation, and a flock of Purebred Dorset sheep. Use the **Draxxin** label and photos to answer the questions below.

(Each question is worth 20 points each for a total of 200 points possible)

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**1.)** According to the **Draxxin** label, what is the common name for the disease caused by *Mycoplasma hyopneumoniae*?

**A.) SRD** C.) Circovirus

B.) PRRS D.) TGE

**2.)** How should **Draxxin** be administered to treat a 120 pound pig from the above example?

A.) The pig should receive an IM dose of 1.5 ml of Draxxin

B.) The pig should receive an IV dose at 0.25 ml per 22 pounds of body weight of Draxxin

**C.) The pig should receive an IM dose at 0.25 ml per 22 pounds of body weight of Draxxin**

D.) Both A and C are Correct

**3.)** You treated the following 4 pigs yesterday (Friday, February 19th) with **Draxxin** according to label directions: Ear Notch 36-5, 38-2, 45-7, and 54-6. Use the photos to read the ear notches and determine which pig **WAS NOT** treated?

A.) Pig 1 C.) Pig 3

B.) Pig 2 **D.) Pig 4**

**[OVER]**