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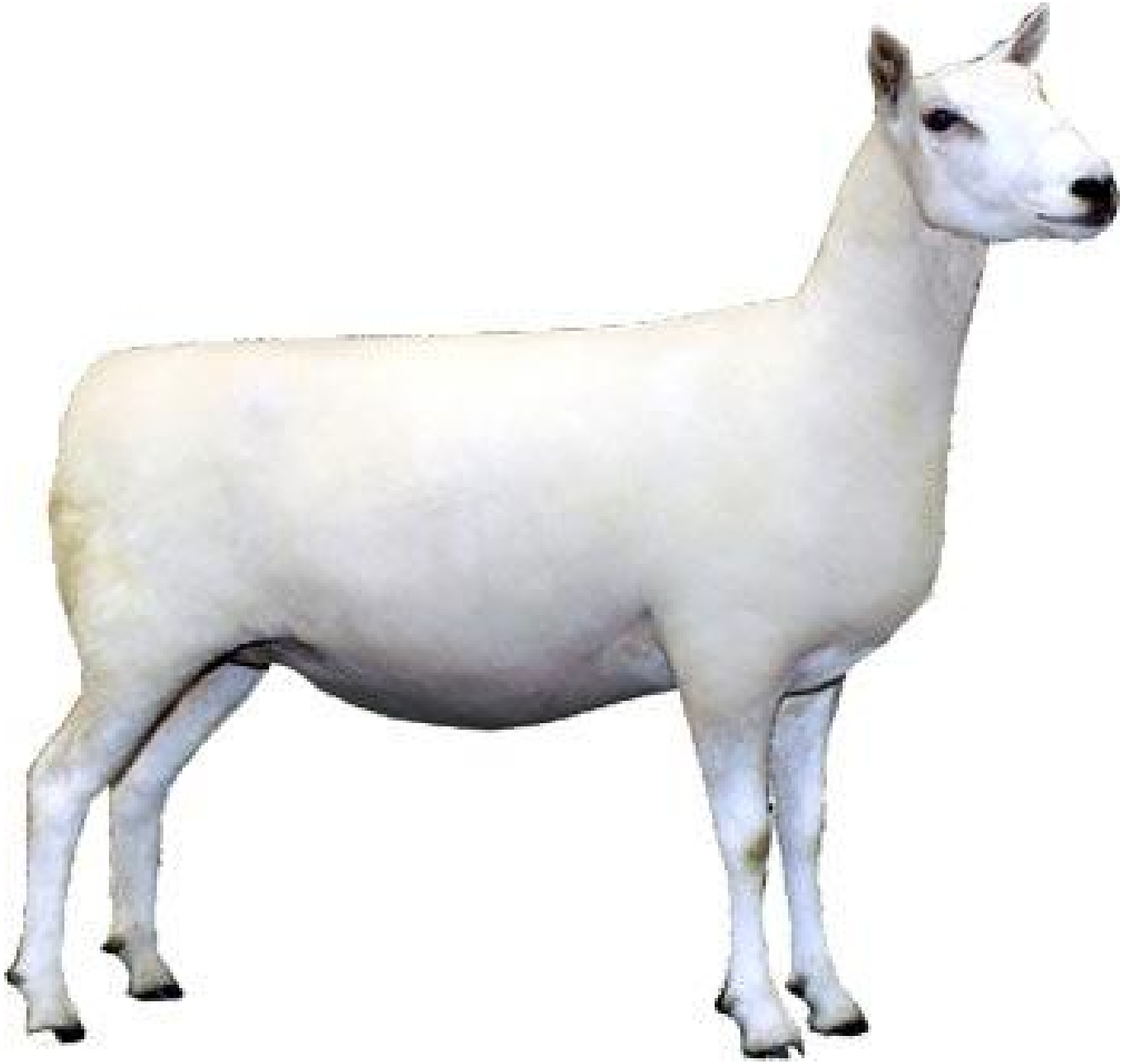

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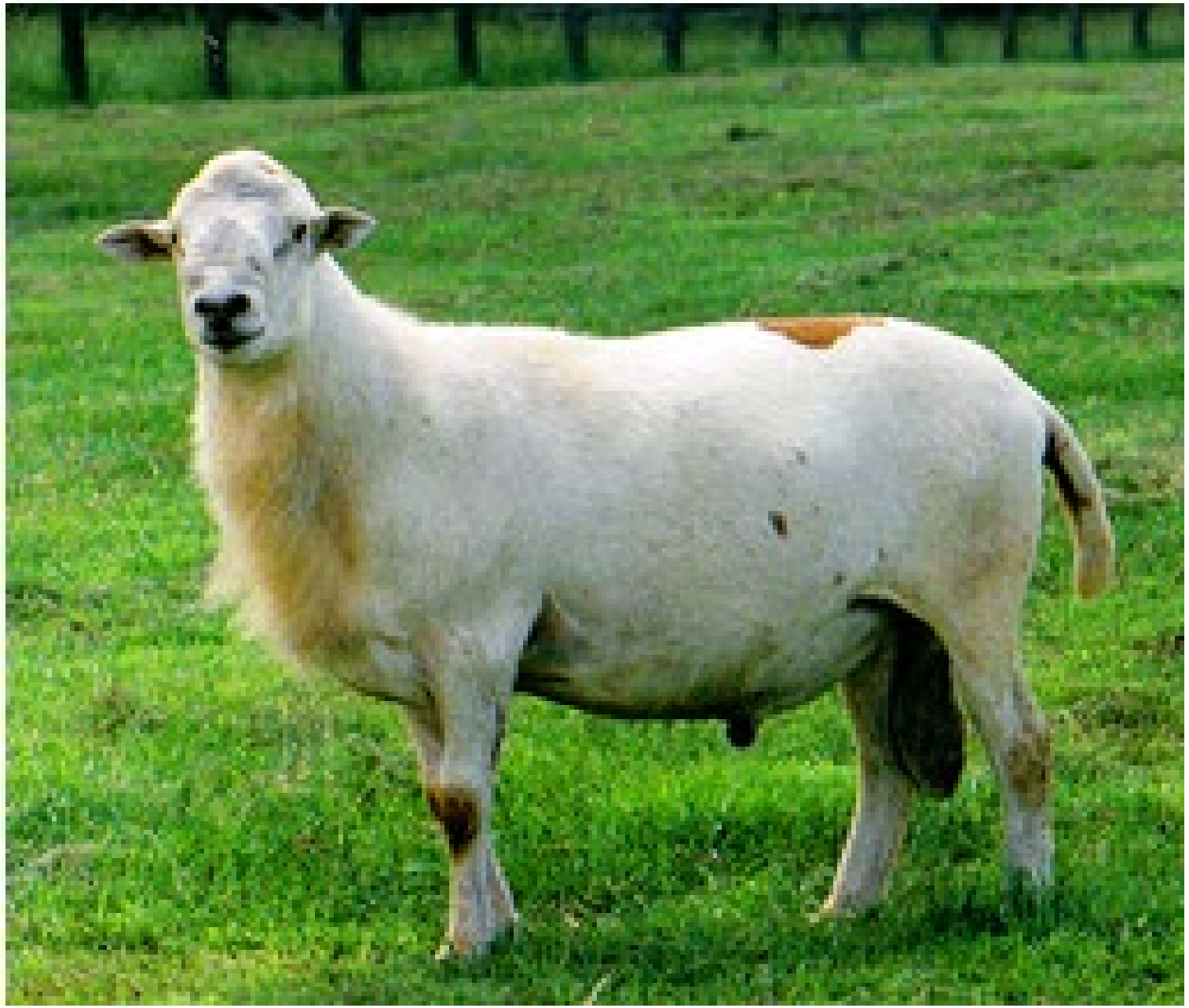

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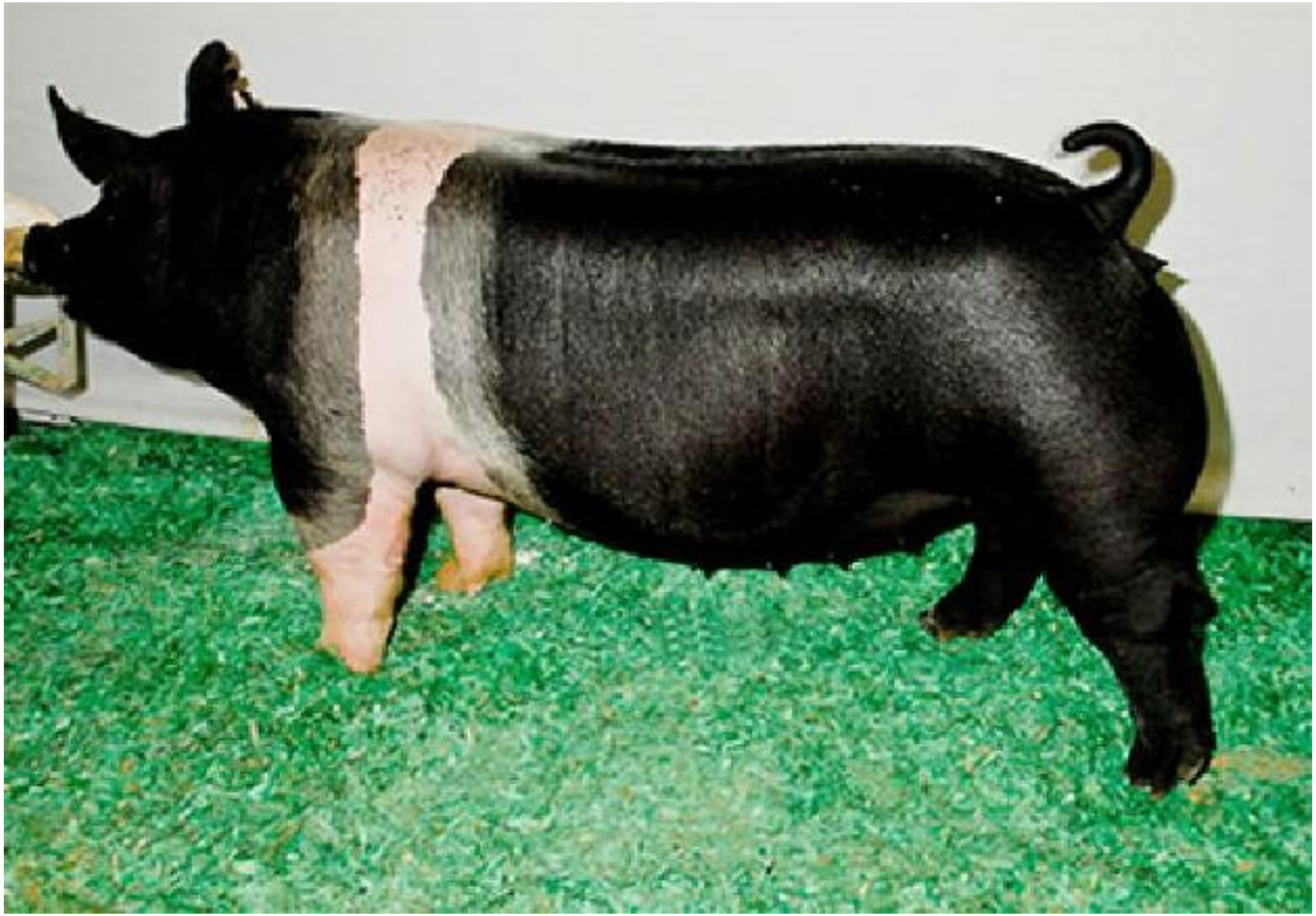

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Name_____**KEY**_____ **Contestant #**_____**County**_____

Senior Livestock Breeds Identification – 2020

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

	Breed Name	Origin of Breed	Important Traits
1.	30	D	G
2.	45	E	H
3.	37	I	F
4.	27	J	D
5.	50	F	I
6.	54	H	J
7.	52	G	K
8.	1	C	C
9.	3	B	A
10.	15	A	B

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 Face Cross	

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

Answers will be used ONLY once

A. Tees River Valley in England

B. U.S. primarily at USDA Experiment Station in Jeanerette, LA.

C. Aberdeen and Angus Counties of Scotland

D. Cheviot Hills of the border of England and Scotland

E. Suffolk, England

F. England

G. Danish descendants

H. Developed in Butler and Warren Counties, OH, US

I. Maine, U.S.

J. Descendants of goats brough to America by Spanish Explorers

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

Beef Cattle Characteristics/Traits

A. Disease resistance, heat resistance, hardiness, and maternal instinct.
B. Moderate frame size, short broad head, wide-set eyes, and short horns.
C. Excellent Meat Quality (nicely marbled), Calving Ease, and Hardy.

Goats Characteristics/Traits

D. Meat yield, tough and hardy, agile and browsing ability.

E. High Butterfat Content, Extended Breeding Season, Multi-Purpose use, (milk, meat and hide).

Sheep Characteristics/Traits

F. Well-muscled carcass that is naturally lean, significantly tolerant of internal and external parasites.
G. Easy lambing, mothering instinct, early maturity, vigorous forager and carcass conformation.
H. Muscling and leanness, growth rate, and fertility.

Swine Characteristics/Traits

I. Heavy Muscle, lean and good feed efficiency.
J. Meat Quality (Intramuscular Fat).
K. Prolificacy (litter size), milking ability, mothering ability.

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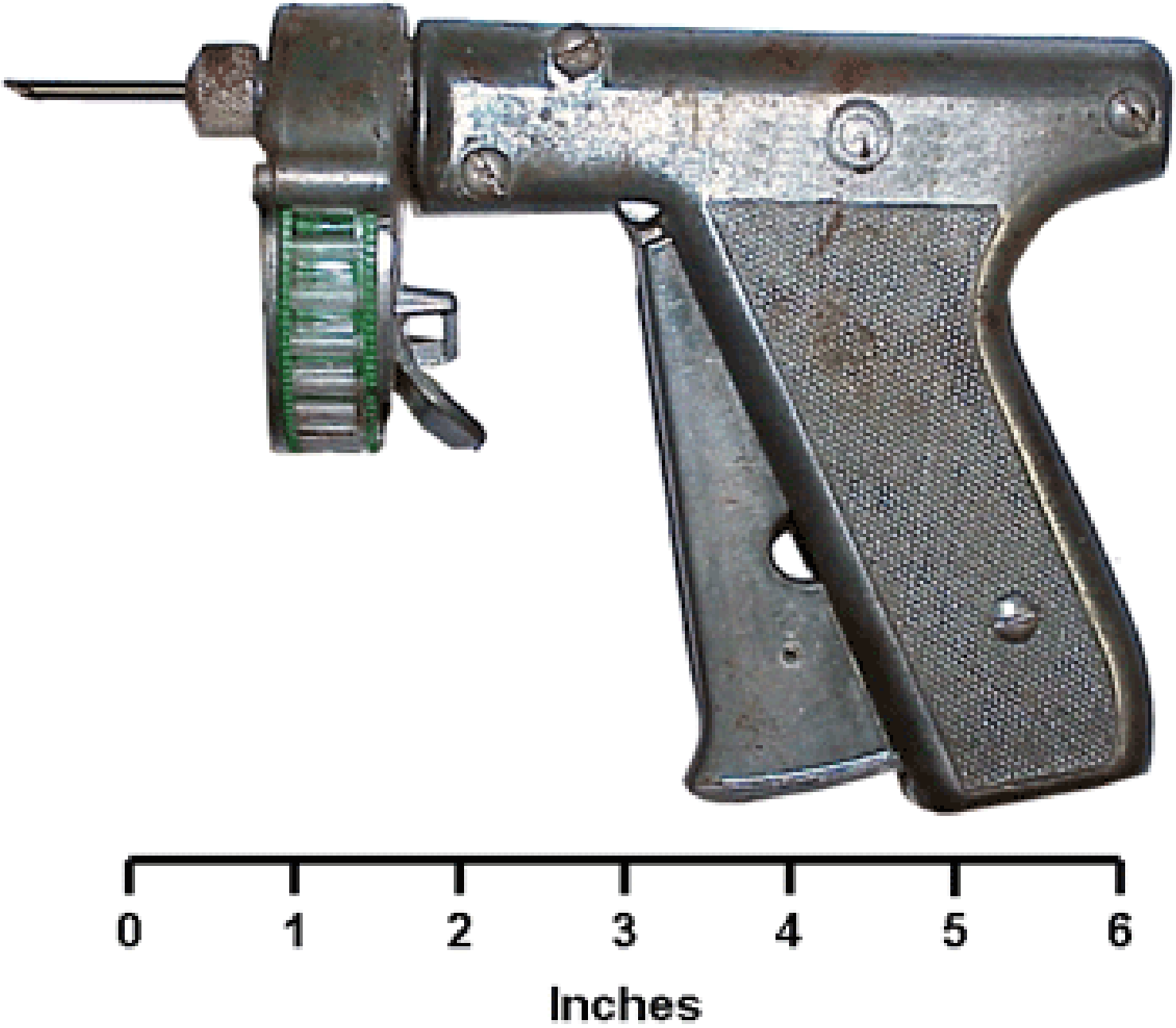

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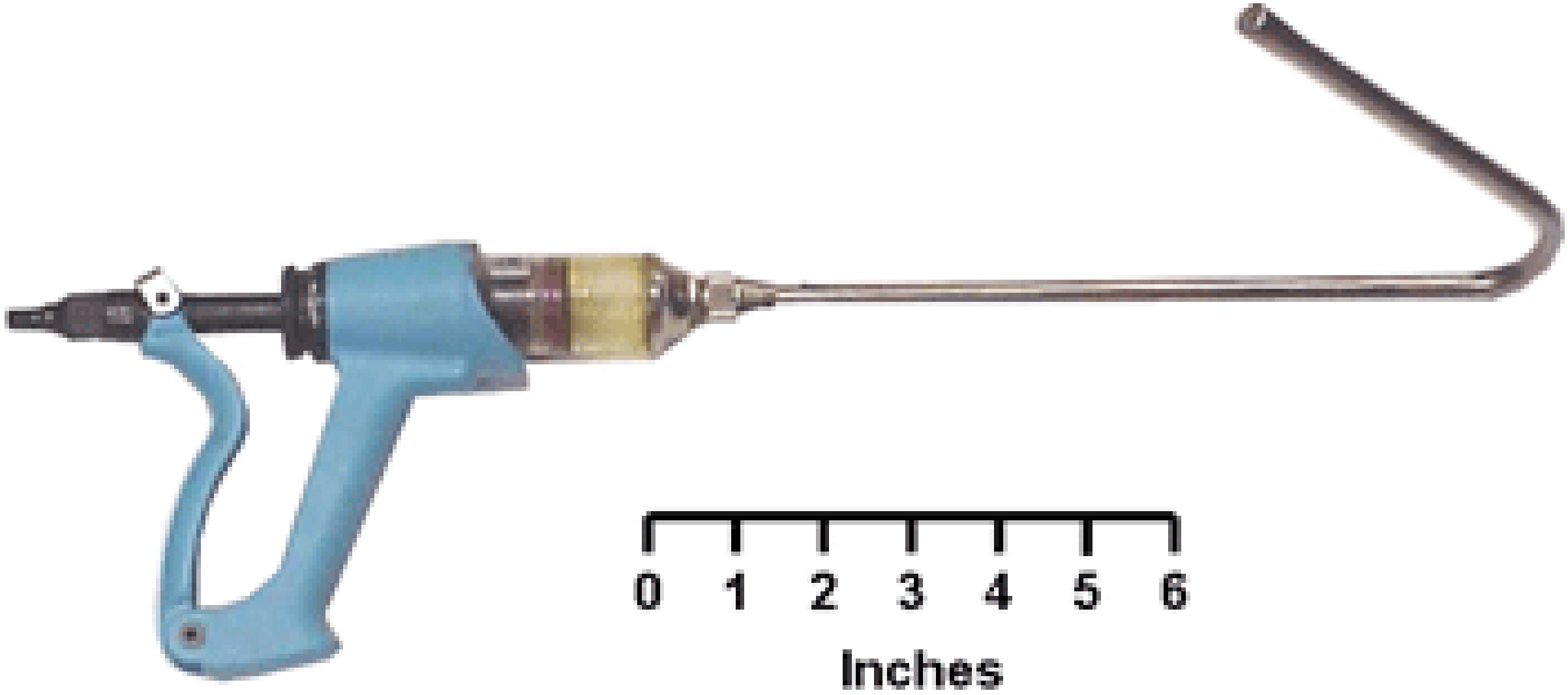

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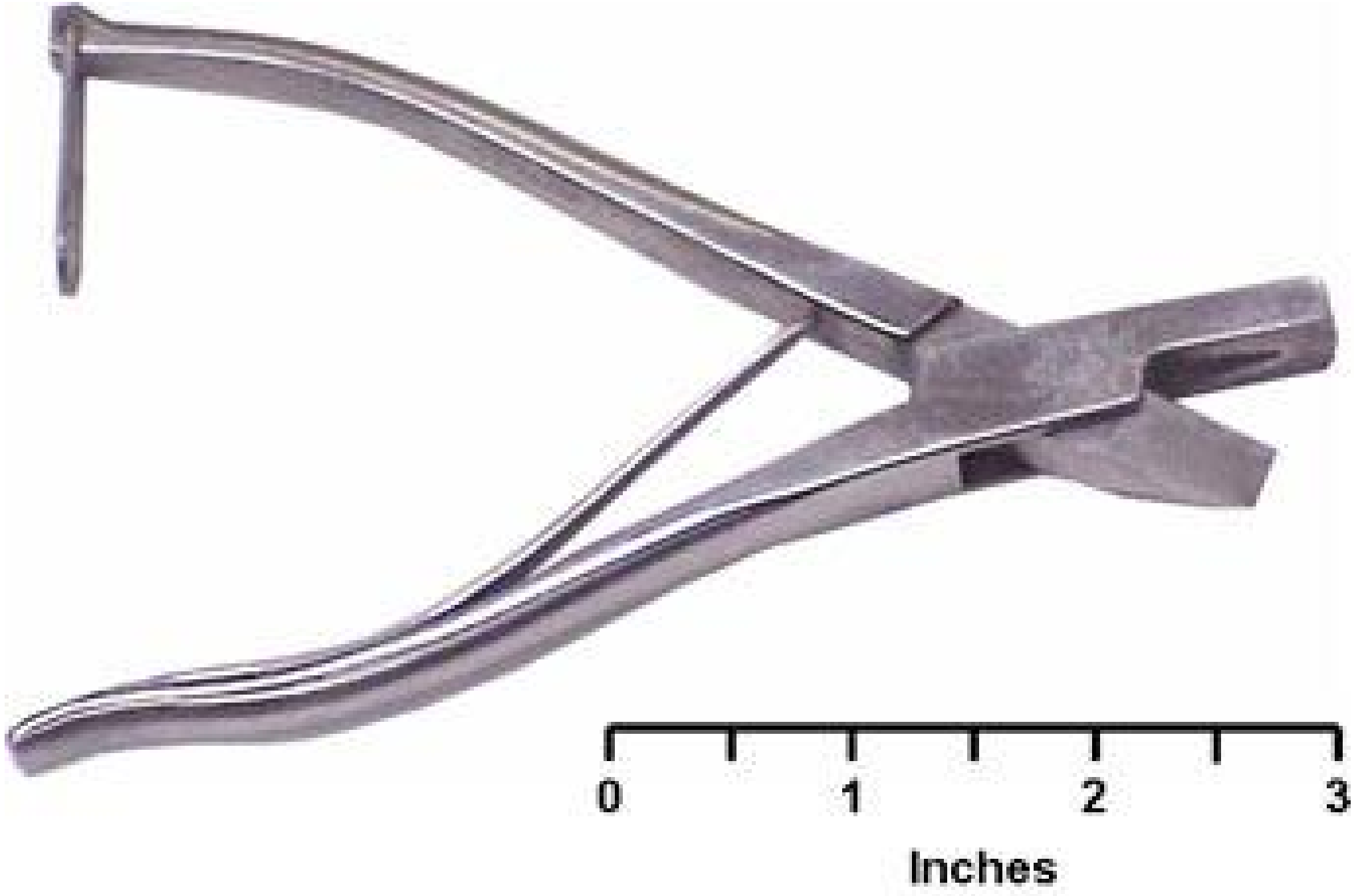

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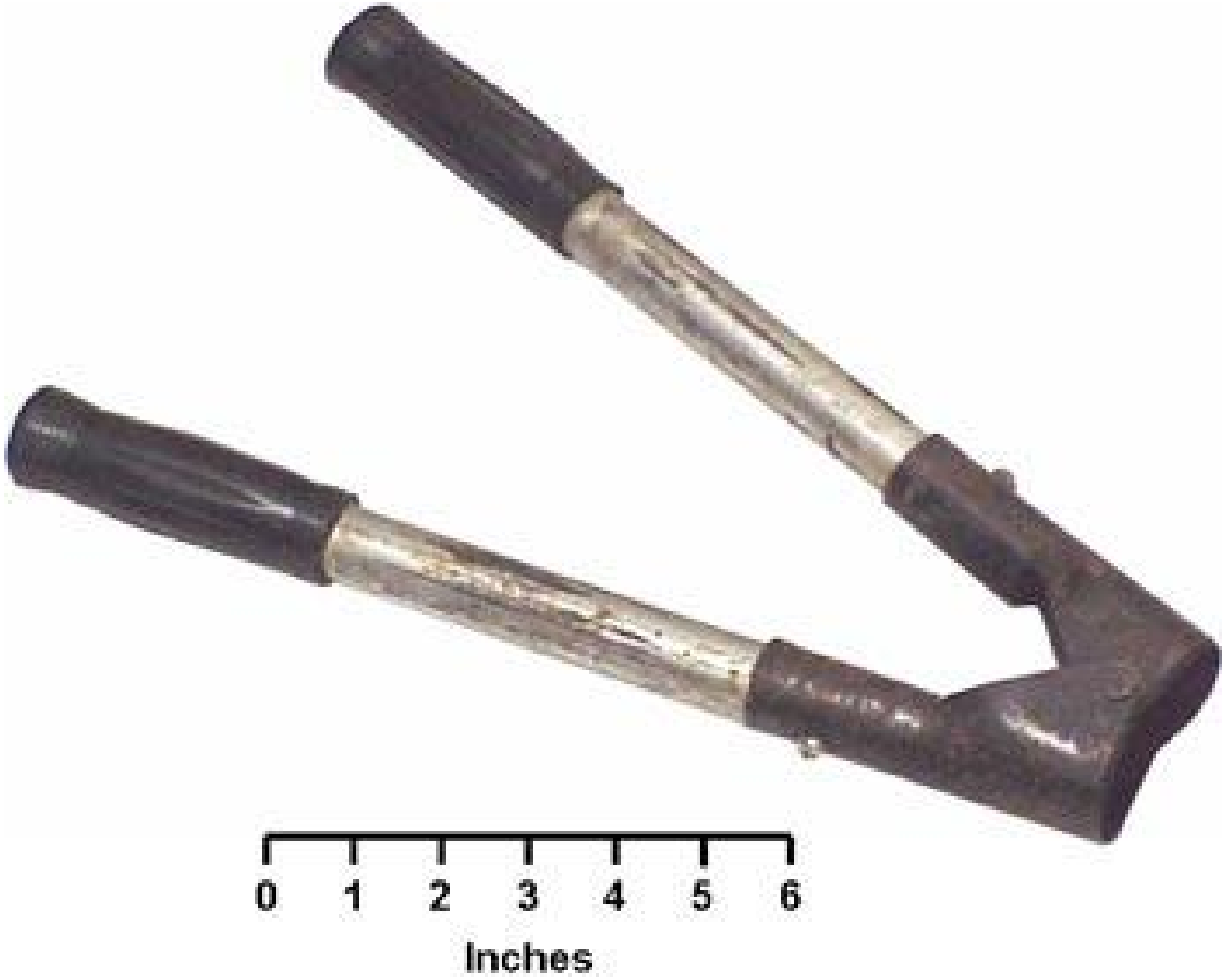

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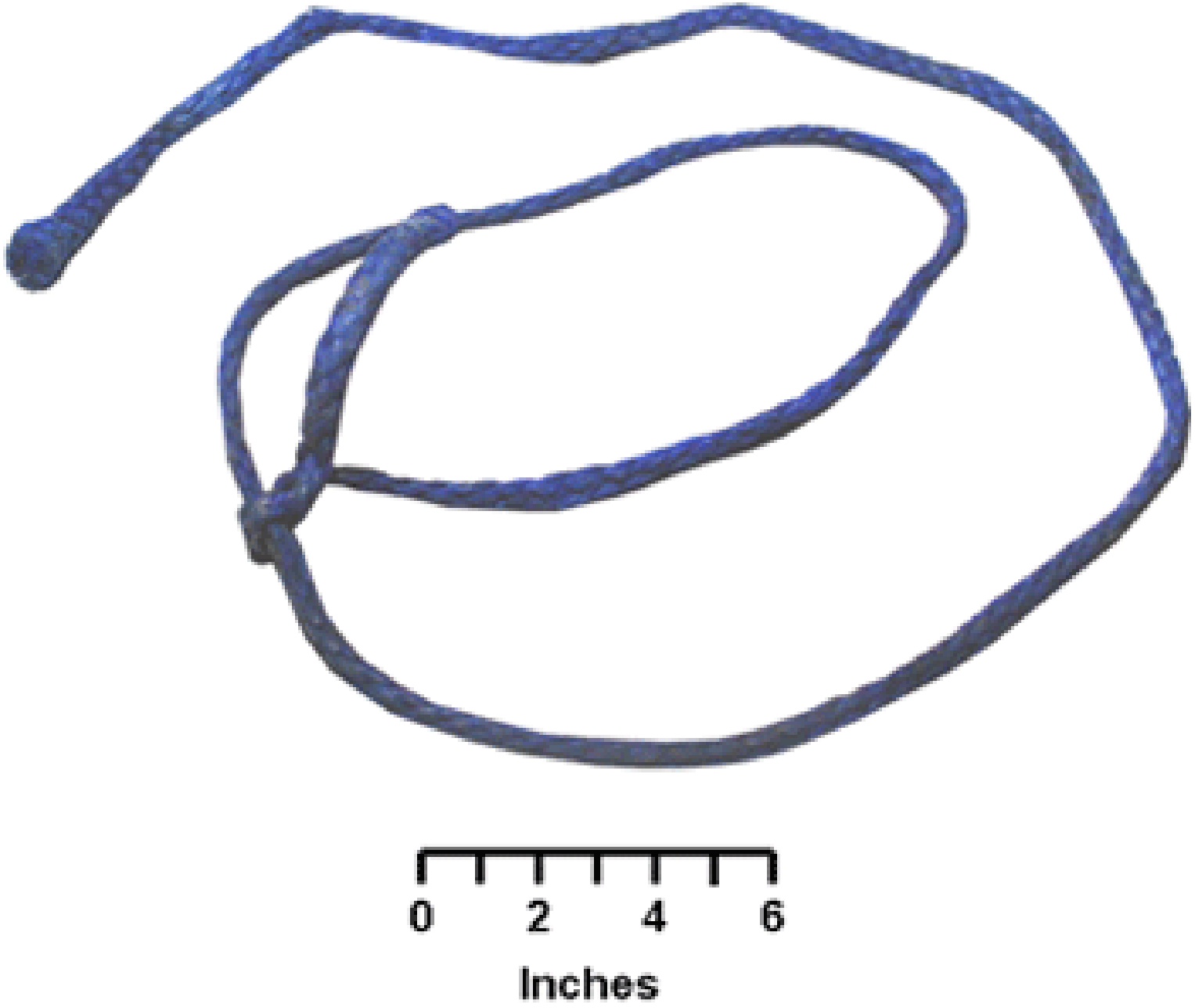

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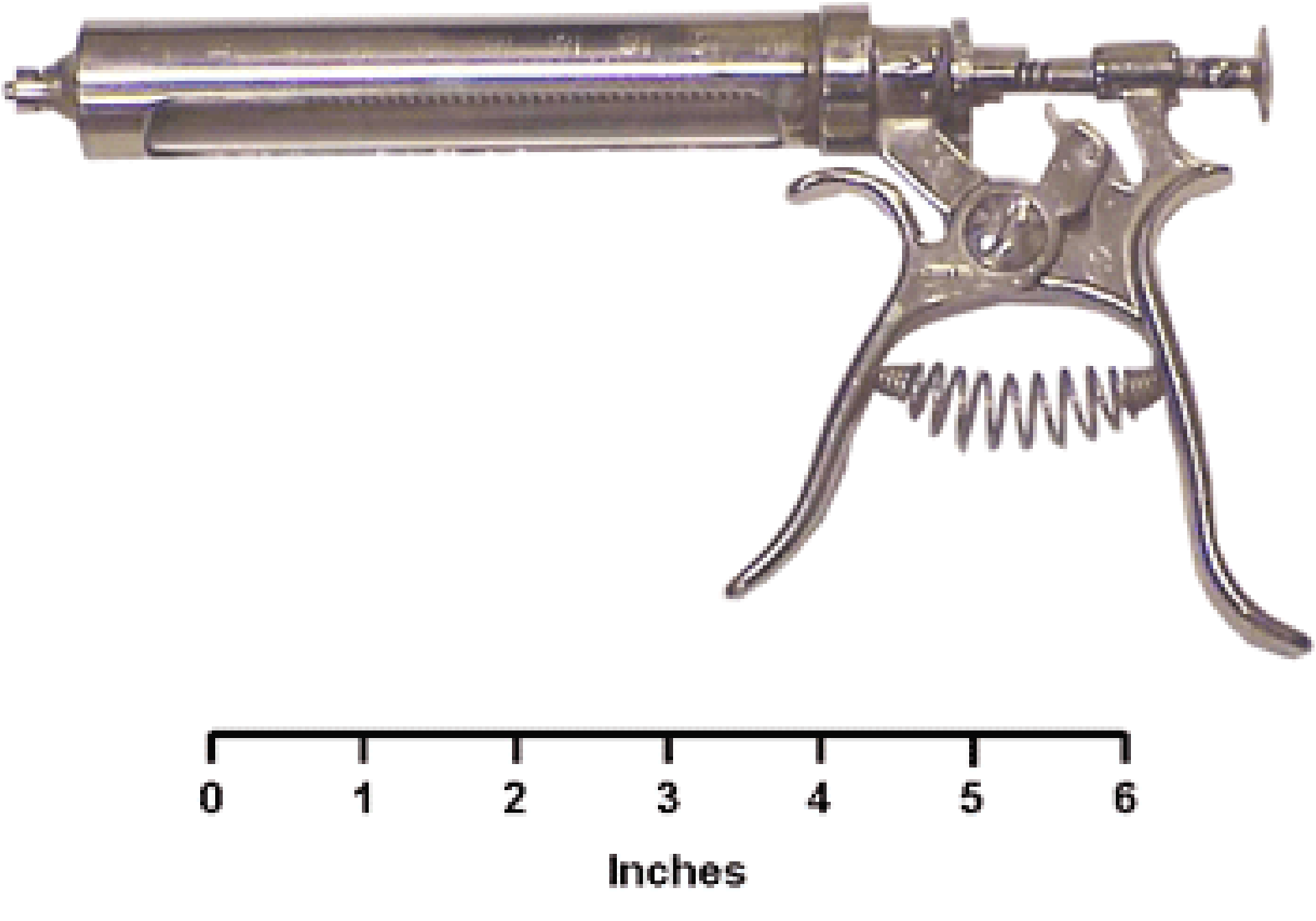

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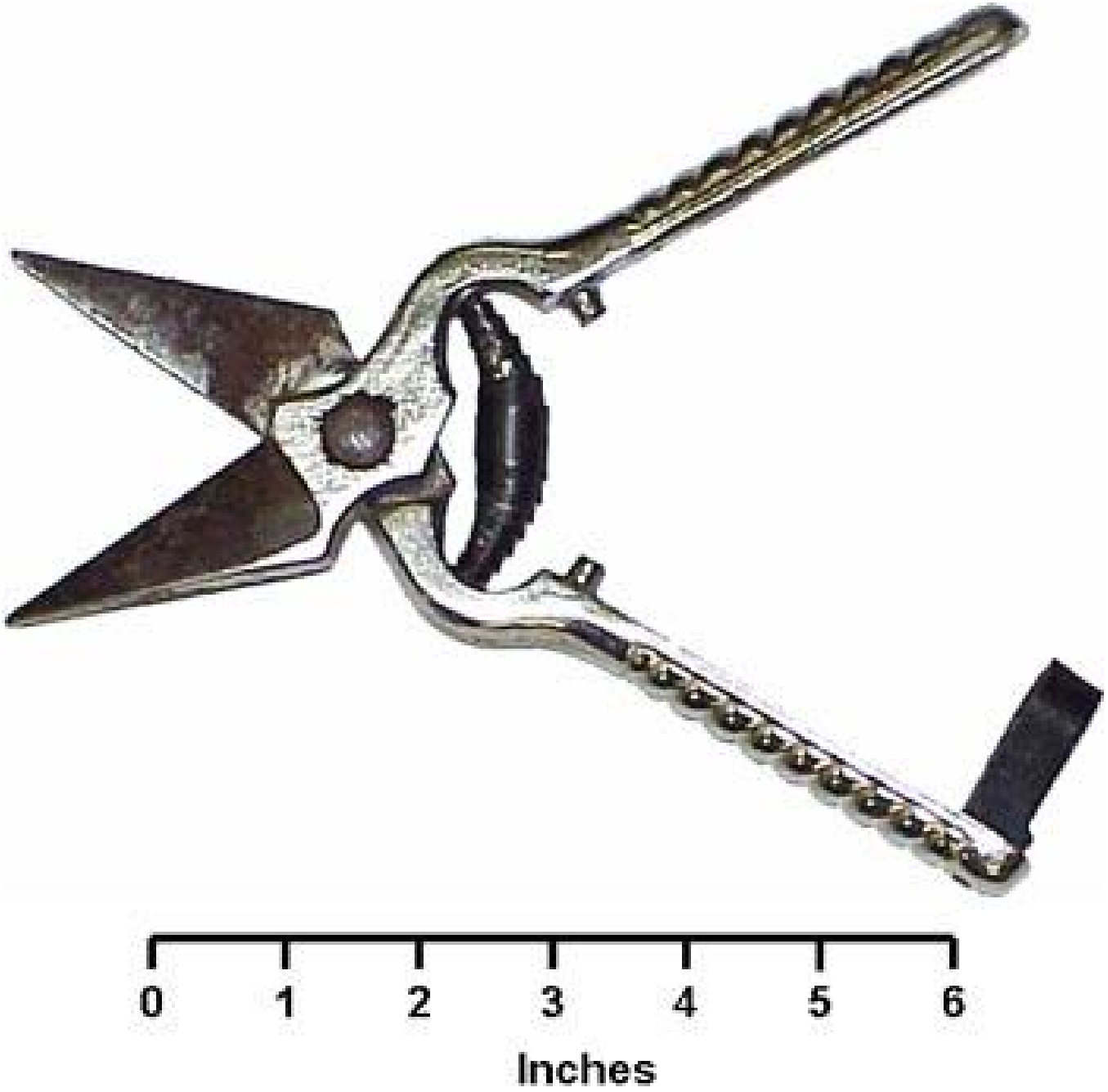

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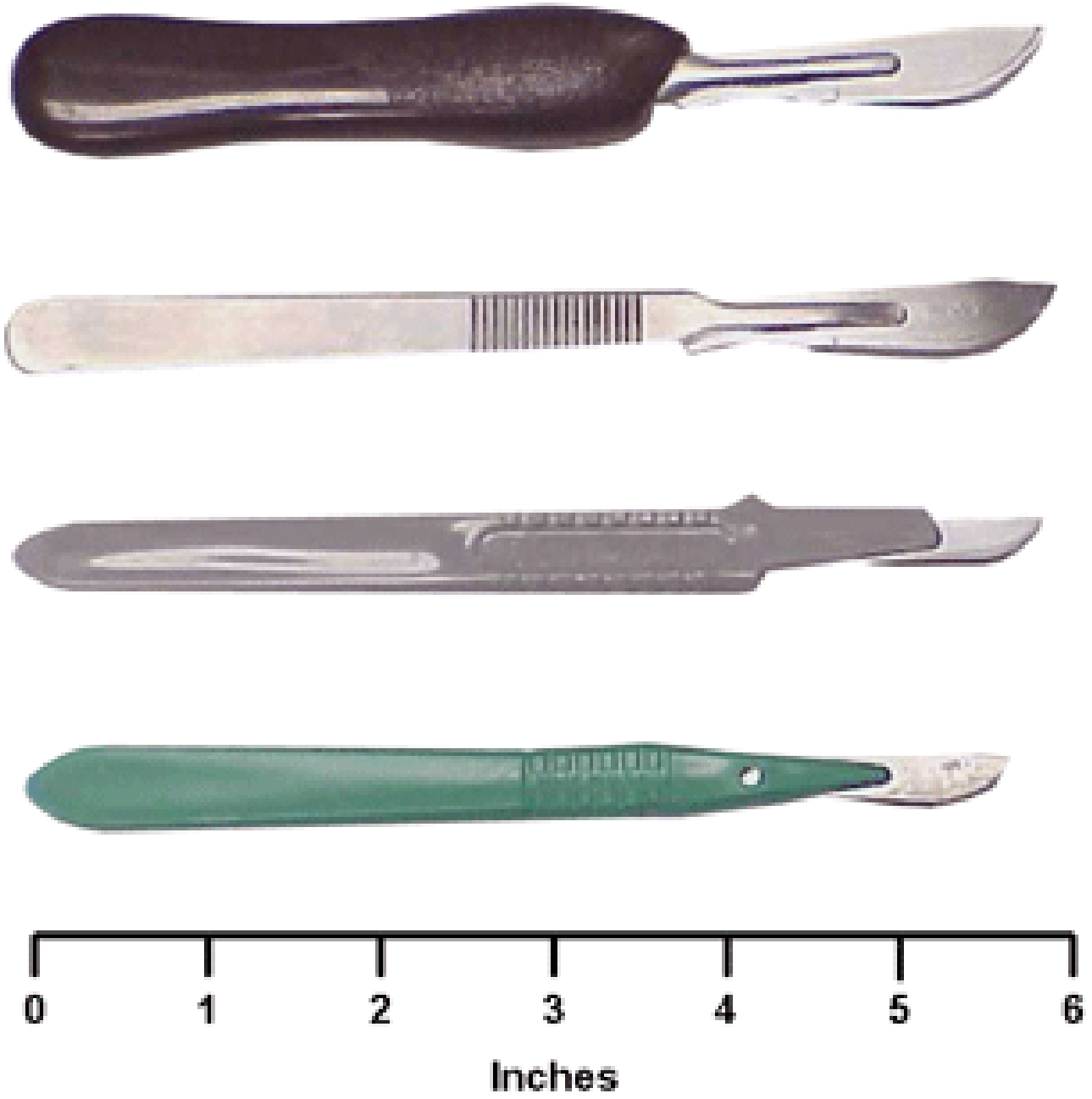

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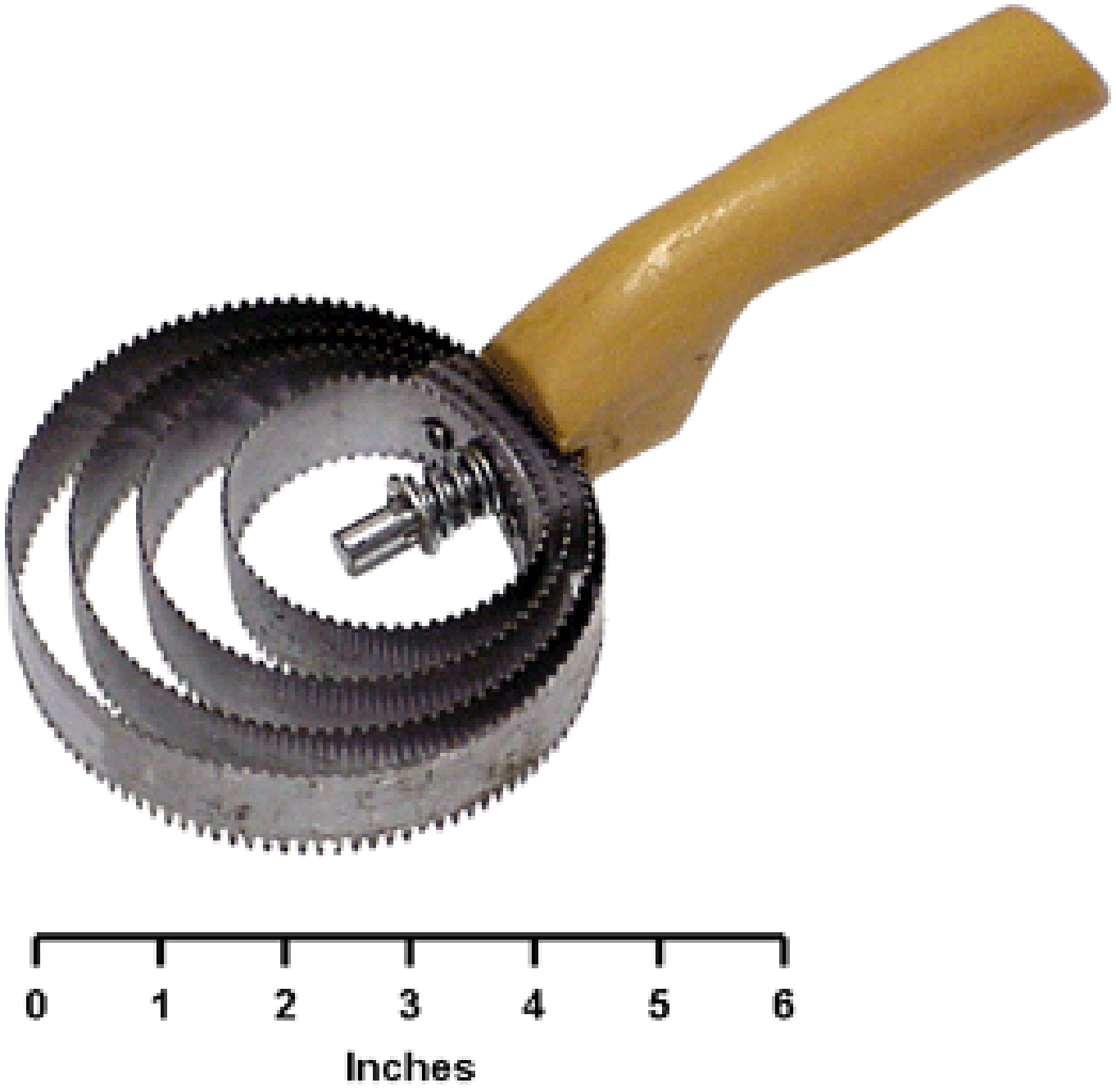


Name_____KEY____ Contestant #_____County_____

Senior Livestock and Meat Equipment Identification – 2020

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

	Equipment Name	Equipment Use
1.	34	O
2.	11	K
3.	12	P
4.	5	A
5.	36	G
6.	35	B
7.	33	K
8.	22	I
9.	39	M
10.	9	N

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

Livestock Equipment

1. All Weather Paintstik.
2. Artificial insemination pipettes (Swine)
3. Bowl waterer
4. Balling gun
5. Barnes dehorner
6. Cattle clippers
7. Clipper comb
8. Clipper cutter
9. Currycomb
10. Disposable syringes
11. Drench gun
12. Ear notchers
13. Ear tag
14. Elastrator
15. Electric branding iron
16. Electric docker
17. Electric fence wire roller
18. Electric sheep shears
19. Emasculatome (Burdizzo)
20. Ewe prolapse retainer
21. Fencing pliers
22. Foot rot shears
23. Freeze branding iron
24. Hanging Scale
25. Hand sheep shears
26. Lamb tube feeder
27. Needle teeth nippers
28. Nipple waterer
29. Nose ring
30. Nose ring pliers
31. Obstetrical (O.B.) chain
32. Plastic Sleeve
33. Pistol Grip Syringe
34. Ralgro pellet injector
35. Ram marking harness
36. Rope Halter – Sheep
37. Rope Halter - Cattle
38. Rumen magnate
39. Scalpel
40. Scotch Comb
41. Semen Storage Tank
42. Slap tattoo
43. SYNOVEX Implant cartridge
44. SYNOVEX Implant gun
45. T-Post Electric Fence Insulator
46. Water Heater
47. Wood post electric fence insulator
48. Wool Card

Meat Equipment

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

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

A. Used to dehorn calves, sheep and goats.

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

C. Used to chop meat for sausages.

D. Used to administer precise amounts of liquid medications to cattle, sheep, goats and horses. The hooked portion is placed in the animal's mouth to administer the liquid medication.

E. An instrument used for the bloodless castration (young male calves, lambs, and goats) and docking of tails (young lambs and goats).

F. Used to card (comb or rake) the wool on sheep prior to shearing.

G. Used to lead (walk) sheep.

H. Device used to deposit boar semen into reproductive tract of a gilt or sow.

I. Used to trim hooves of cattle, sheep, and goats to help prevent foot disease.

J. An automatic waterer used to provide clean, fresh water to pigs.

K. Used to give vaccinations to multiple animals without needing to reload the syringe with more vaccine.

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

M. Used by veterinarians for various surgical procedures, and by farmers for various health related and management practices (such as castration).

N. Used to removed dirt and loose hair from cattle when grooming.

O. Used to insert a RALGRO pellet (for growth promotion) under loose skin and above the cartilage on the back side of a beef calf's ear.

P. Used to clip small notches in a pig's ear to provide a form of permanent individual pig identification.

Name_____**KEY**_____ **Contestant #**_____ **County**_____

Senior Livestock Feed Identification – 2020

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.	70	V	M
2.	28	C	B
3.	13	P	N
4.	20	C	H
5.	68	P	G
6.	27	M	D
7.	51	P	C
8.	57	C	A
9.	19	C	I
10.	69	F	F

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

1. Alfalfa cubes
2. Alfalfa pasture
3. Barley (whole)
4. Blood meal
5. Brewers dried grain
6. Canola meal
7. Copper sulfate
8. Corn distillers dried grain
9. Corn distillers dried grain with soluble
10. Corn gluten feed
11. Cottonseed (whole)
12. Cottonseed hulls
13. Cottonseed meal
14. Cracked shelled corn
15. Crimped oats
16. Defluorinated rock phosphate
17. Dicalcium phosphate
18. DL-methionine
19. Dried Beet pulp
20. Dried molasses
21. Dried skim milk
22. Feather meal
23. 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. These have been passed through a roller to produce a flake. Primarily used in horse feeds or young animals.

B. Shelled corn that has been mechanically processed through a hammer mill.

C. Most widely used protein supplement in the U.S. Excellent source of protein and amino acids. Produced by grinding the flakes that remain after oil is extracted from this.

D. A natural source of calcium that is relatively inexpensive used in livestock, horse and poultry diets. Also called calcium carbonate.

E. Bulk density = 32 pounds/bushel

F. A very potent energy source supplying about 2.25 times more energy than starch or sugar.

G. A source of nitrogen. Should be fed to ruminants only. Need to be mixed with a feed source that contains energy.

H. Dried by-product of the manufacture of sugar from either sugar beets, or more commonly, sugarcane.

I. Produced by extracting the sugar from sugar beets and drying the remaining pulp.

J. High in protein, and contains active immunoglobulins.

K. Good source of ruminant bypass protein and used in limited amounts in pig diets.

L. Also referred to as bluestone.

M. May contain both fat soluble and water soluble vitamins. Various feedstuffs (such as rice hulls, soybean meal, corn gluten meal and wheat middlings) are used as carriers in this.

N. Produced by grinding the flakes that remain after oil is extracted from whole cottonseeds.

Senior Hay Judging Class – 2020

Name_____ **Contestant #**_____ **County**_____

(50 points possible)

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 have kept a group of replacement heifers to winter and breed this spring. As of February 22nd the average weight of the heifers is 675 pounds. The heifer calves are up to date on vaccinations. Target weight for heifers at breeding is 800 pounds with a projected breeding date of May 22nd. Rank the four hay samples in the order that you would utilize them as the most effective source of forage for these replacements. A 12% pelleted beef feed is being fed, but mainly as a means to break heifers to come and calm cattle down. Ultimately the hay you choose will be the main source of feed until spring grass arrives.

Nutrient Requirements for 675 pound heifer to gain 1.3 pounds per day.

Dry Matter: 16.2 (lbs.)
Crude Protein: 10.1%
TDN: 64%

Forage Analysis

	Hay Lot #1 2019 2nd Cutting Grass Mixture	**Hay Lot #2 2018 2nd Cutting Grass Mixture**	**Hay Lot #3 2017 Late Cut Grass Mixture**	**Hay Lot # 4 2018 1st Cutting Grass Mixture**
Dry matter	88.9%	88.6%	88.9%	88.6%
Crude protein	12.7%	10.7%	8.5%	10.6%
Acid detergent fiber (ADF)	44.9%	44.6%	49.7%	44.8%
Neutral detergent fiber (NDF)	66.2%	67.5%	69.4%	67.3%
Total digestible nutrients (TDN)	66.0%	64.5%	52.0%	63.6%
Price per ton	$104	$105	$85	$110

Senior Hay Judging Class – 2020

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

(50 points possible)

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

[Turn over for Scenario and Forage Analysis Information]

FACT SHEET

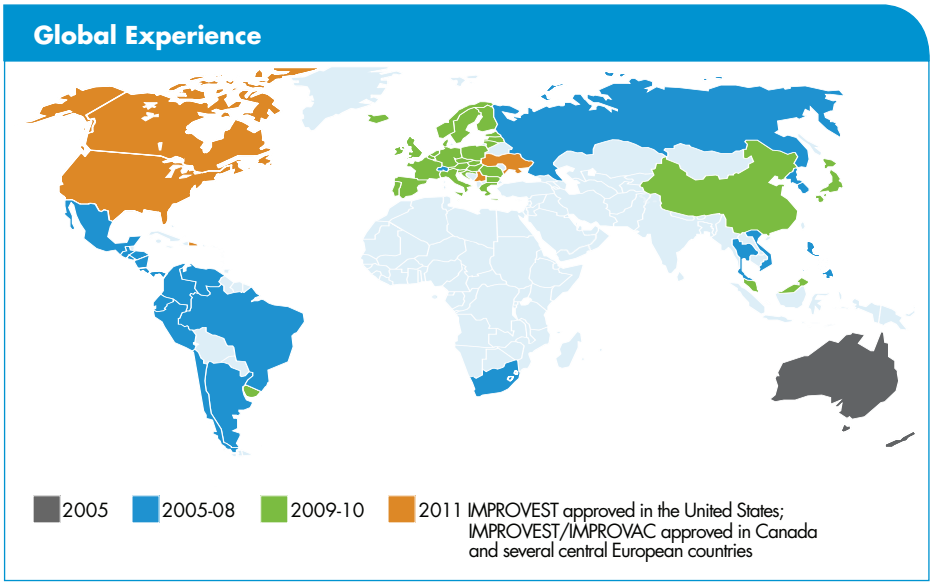
Global Experience

IMPROVEST *(gonadotropin releasing factor analog – diphtheria toxoid conjugate)* is an FDA-approved veterinary prescription product that is a safe and effective alternative to physical castration[1] to manage unpleasant aromas that can occur when cooking pork from some male pigs. It's a protein compound that works like an immunization to temporarily protect against off odors in pork. Male pigs are given IMPROVEST later in the finishing phase to manage off odors, eliminating the need for physical castration.

This technology has been approved in more than 60 countries, including the European Union and Japan, under the related global brands IMPROVAC®, INNOSURE® and VIVAX. This fact sheet summarizes how this new technology has been adopted in a variety of pork-producing markets around the world.

Australia (1998, IMPROVAC)

Historically, Australia has been primarily a non-castrate market. As such, fresh pork buyers have to be particularly careful to avoid meat with off odors, so they actually pay a premium for meat from female pigs. Initially IMPROVAC was used mainly with males pigs destined for export markets that demanded high-value branded pork. Recently, the market for IMPROVAC in Australia has begun to greatly accelerate in the high value, fresh branded pork market as major industry stakeholders are expanding branding efforts to improve the reputation of pork. Pork from pigs that receive IMPROVAC is characterized as "assured of high eating quality."



Countries where IMPROVEST, or related global brands, have been approved.

Now approved in more than 60 countries this immunological technology continues to gain acceptance around the world. This technology is approved in these countries:

Australia
Austria
Argentina
Belgium
Bulgaria
Brazil
Canada
Chile
China
Colombia
Costa Rica
Croatia
Cyprus
Czech Republic
Denmark
Dominican Republic
Ecuador
El Salvador
Estonia
Finland
France
Germany
Greece
Guatemala
Honduras
Hungary
Iceland
Ireland
Italy
Japan
Korea
Latvia
Liechtenstein
Lithuania
Luxembourg
Malaysia
Malta
Mexico
New Zealand
Netherlands
Nicaragua
Norway
Panama
Peru
Philippines
Poland
Portugal
Romania
Russia
Serbia
Slovakia
Slovenia
South Africa
Spain
Sweden
Switzerland
Thailand
UK
Ukraine
United States
Uruguay
Venezuela
Vietnam

Improvest®

(Gonadotropin Releasing Factor Analog-Diphtheria Toxoid Conjugate, 0.2mg/mL)

zoetis

Brazil (2007, VIVAX)

More than half of the overall male pigs being marketed, including those in both small and large operations, are using VIVAX to manage off odors in pork. Brazil is a pork market with a highly consolidated production system. It has both significant domestic and export pork markets. Sales of VIVAX are made directly to key farmers, with Zoetis providing full-service administration. Uptake of the technology in Brazil has been rapid and continues to grow.

Argentina (2008, IMPROVAC)

After the approval of IMPROVAC in 2008, the administration created a new category of pork called "Entire male immunologically castrated." There are three main integrators in Argentina. Two of these companies are using IMPROVAC, along with some small producers.

Chile (2008, IMPROVAC)

Two companies in Chile are currently exporting pork to Japan.

Columbia and Venezuela (2008, IMPROVAC)

Columbia has the highest market penetration in the world. IMPROVAC is being used by non-integrated small pig-producing companies.

South Africa (2008, IMPROVAC)

This is an entire male market. Meat quality and behavior are key drivers for selling the product in South Africa.

Thailand (2008, IMPROVAC)

The largest food production company in Thailand is adopting the product. Some pork from pigs given IMPROVAC sells for a premium price.

European Union (2009, IMPROVAC) and Switzerland (2008, IMPROVAC)

For some time, animal welfare advocacy groups have petitioned member states, the food chain and even the E.U. to place limits on or ban physical castration. As a result, on Dec. 15, 2010, a voluntary committee of major pork chain stakeholders committed to the "European Declaration on the Alternatives to Surgical Castration of Pigs" (Brussels Declaration), which outlines clear measurable actions over the next seven years. The declaration ensures that after Jan. 1, 2012, no physical castration will take place without recognized analgesia and/or anesthesia, and after Jan. 1, 2018, no physical castration will take place at all. Signatories of this declaration included groups and companies such as the Liaison Center for the Meat Processing Industry in the European Union, Federation of Veterinarians of Europe, European farmers and European agri-cooperatives, Danish Agriculture and Food Council, German Meat Association, German Retail Association, and many others.

Anticipating the shifting market environment, European retailers, such as Colruyt and Okay, announced plans in August 2010 to stop selling pork from physically castrated pigs by the end of the year, and adopt IMPROVAC as the best option for off-odor control in 100 percent of their pork supply. The farmers who supply these retailers agreed to stop physical castration and have now incorporated IMPROVAC in their standard practice for rearing male pigs. The Colruyt Group based its decision on the results of independent tests of various off-odor control alternatives. The

Globally, more farmers are adopting this innovative immunological solution as an alterative to physical castration to manage off odors in pork.

results confirmed that immunization was as effective as physical castration in reducing off odors and provided a higher quality eating experience. Since Jan. 1, 2011, the only pork from male pigs available at its retail stores is from pigs raised using IMPROVAC.

Poland and Romania (2009, IMPROVAC)

Large integrators are especially interested in adopting this technology because of its feed efficiency and economic benefits.

Japan (2010, IMPROVAC)

Japan has had no restrictions on receiving pork imported from countries using this technology, and now with its 2010 regulatory approval, its use in-country is growing. There are no issues anticipated in exporting U.S. pork from pigs raised using IMPROVEST to this country.

China (2010, IMPROVAC)

The approval of IMPROVAC in China has been welcomed by government officials, who see the technology as more efficient and environmentally-friendly way to rear male pigs. Initial adoption is growing.

Important safety information

The prescribing veterinarian is responsible for informing those who administer the product of its proper use and associated risks. In the event of accidental self injection, reproductive physiology of both men and women, as well as pregnancy, may be adversely affected. **It is important to remember that these risks are not associated with eating pork from pigs that have been given IMPROVEST.**

1. FDA Freedom of Information Summary. IMPROVEST *(gonadotropin releasing factor analog–diphtheria toxoid conjugate)* Sterile Solution. NADA 141-322.
2. These odors occur naturally in mature male pigs. They do not represent a food safety concern, but need to be controlled to ensure a high-quality eating experience.

For consumer information, go to:
www.IMPROVEST.com

Improvest®

(Gonadotropin Releasing Factor Analog-Diphtheria Toxoid Conjugate, 0.2 mg/mL)

Sterile Solution for Injection

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

DESCRIPTION: IMPROVEST is a sterile solution containing Gonadotropin Releasing Factor Analog-Diphtheria Toxoid Conjugate. Each mL contains 0.2 mg Gonadotropin Releasing Factor Analog-Diphtheria Toxoid Conjugate, 150 mg of diethylaminoethyl-dextran hydrochloride, 1 mg chlorocresol, sodium hydroxide as needed to adjust pH and water for injection.

INDICATIONS FOR USE: IMPROVEST is indicated for the temporary immunological castration (suppression of testicular function) and reduction of boar taint in intact male pigs intended for slaughter.

DOSAGE AND ADMINISTRATION: IMPROVEST should be administered via subcutaneous injection into the post auricular region of the neck. A safety injector should be used, preferably one which has a dual safety system providing both a needle guard and a mechanism to prevent accidental operation of the trigger. Each intact male pig should receive two 2-mL doses of IMPROVEST. The first dose should be administered no earlier than 9 weeks of age. The second dose should be administered at least 4 weeks after the first dose. Pigs should be slaughtered no earlier than 3 weeks and no later than 10 weeks after the second dose. In case of misdosing, the animal should be re-dosed immediately.

CONTRAINDICATIONS: Do not use IMPROVEST in intact male pigs intended for breeding because of the disruption of reproductive function. Not approved for use in female pigs and barrows.

WARNINGS:

WITHDRAWAL PERIODS:
No withdrawal period is required when used according to labeling.

Not for Human Use. Keep Out of Reach of Children.

USER SAFETY WARNINGS:

Warning for person administering IMPROVEST: Accidental self injection could affect reproductive physiology of both men and women and may adversely affect pregnancy. **Pregnant women should not administer this product. Women of childbearing age should exercise extreme caution when handling this product.** Special care should be taken to avoid accidental self injection and needle stick injury when administering the product. Protective clothing including, but not limited to, safety glasses and gloves should be worn. Use a safety injector, preferably one which has a dual safety system providing both a needle guard and a mechanism to prevent accidental operation of the trigger. In case of eye contact, rinse immediately with copious amounts of water. In case of skin contact, wash immediately with soap and water. The product should be stored safely out of the reach of children. As a reminder, it is the prescribing veterinarian's responsibility to inform drug administrators of the user safety warnings associated with IMPROVEST.

Advice to the user in the event of accidental self injection: In the event of accidental self injection, wash the injury thoroughly with clean running water. Seek prompt medical attention and take the package leaflet with you. Do not administer the product, and/or any other product with a similar action, in the future.

Advice to the physician: Accidental self injection could affect reproductive physiology of both men and women and may adversely affect pregnancy. If self injection with IMPROVEST is suspected, reproductive physiology should be monitored by assay of testosterone or estrogen levels (as appropriate). The risk of a physiological effect is greater after a second or subsequent accidental injection than after a first injection. The patient should be advised not to administer IMPROVEST, and/or any other product with a similar action, in the future.

For customer service, to report suspected adverse reactions or to obtain a copy of the Material Safety Data Sheet (MSDS) call 1-888-963-8471.

PRECAUTIONS: Subcutaneous injection in intact male pigs can cause a transient local injection site reaction that may result in trim loss at slaughter.

ADVERSE REACTIONS: The field study observations from field effectiveness studies were consistent with the observations made during the target animal safety studies of transient inflammation at the injection sites. IMPROVEST did not cause unusual clinical signs or an unexpected frequency or severity of injection site reactions. Adverse events, as reported, were not uniquely attributable to IMPROVEST.

TARGET ANIMAL SAFETY:

Margin of Safety: The safety of two doses of IMPROVEST was evaluated in intact male swine. Thirty 9-week old intact boars received two subcutaneous doses of IMPROVEST in the same location 14 days apart. The boars received one of three treatments: Saline Control (12-mL), IMPROVEST at the intended dose (2-mL, 1X), or IMPROVEST at 6 times the intended dose (12-mL, 6X). Boars were clinically monitored daily. In addition, observation and measurement of injection sites, body weight, quantitative feed consumption, hematology, and clinical chemistry analyses were also obtained. A complete postmortem examination was conducted on each boar 14 days after the second injection. IMPROVEST, administered subcutaneously at the label dose (2-mL) resulted in mild transient injection site reactions at the 1X dose and caused clinical signs of systemic inflammation at 6X the intended dose. The signs of inflammation included depression, stiffness of the neck lasting up to five days, reduction in feed intake, and lower body weights. Multiple swollen joints and associated lameness, which may be signs of systemic inflammation, were observed in one 6X boar. Evaluation of blood work revealed increased white blood cell counts (eosinophilia and neutrophilia); slight increases in total serum protein (above normal reference range in 50% of the 6X boars) and globulin (above the normal reference range in 40% of the 6X boars); and slight decreases in serum albumin in 6X boars. Injection sites for the 6X boars showed clinically detectable firmness persisting in all animals for 14 days after the second injection. Pain and sensitivity at the injection site persisted for up to five days, and erythema and heat were more prominent in the 6X boars than in the 1X boars. Mild to moderate chronic inflammation and discoloration in the subcutaneous tissues at the injection site were observed. In all IMPROVEST treated boars, atrophy of testes, prostate, and bulbourethral glands were observed as expected consequences associated with the intended effect of the drug. At the label 2-mL dose, IMPROVEST may cause transient injection site inflammation.

Injection Site Safety: Injection site safety was evaluated following the injection of IMPROVEST into healthy 17-week old boars. The treated boars received two 2-mL doses of IMPROVEST into the same injection site location 28 days apart, while the control boars received saline. Daily monitoring included clinical evaluation and observation and measurement of injection sites. Two days after the second injection, postmortem observations of injection sites were conducted. All clinical signs of observable injection site swelling were resolved within 24 hours, and pain on palpation resolved by 48 hours post-injection. Firmness persisted for up to 11 days after the first injection in 10% of boars. Gross injection site alterations consisted of subcutaneous edema with tan or red discoloration. Two 2-mL injections of IMPROVEST, administered 28 days apart into the same location resulted in transient injection site reactions following each injection and resulted in discoloration of tissue at the injection site which was observable approximately 48 hours after the second injection.

Field Safety: During the conduct of the nine location field effectiveness study, IMPROVEST did not cause unusual clinical signs or an unexpected frequency or severity of injection site reactions. The field safety observations from this study were consistent with the observations made during the target animal safety studies of transient inflammation at the injection sites. Adverse events, as reported, were not uniquely attributable to IMPROVEST.

EFFECTIVENESS: IMPROVEST is an injectable sterile solution containing an incomplete analog of natural gonadotropin releasing factor (GnRF) conjugated to diphtheria toxoid in an adjuvanted formulation. Immunization with a two dose regimen of IMPROVEST, with a four week interval between doses, stimulates the pig's immune system to produce antibodies which can neutralize its own GnRF. Pigs given an initial dose of IMPROVEST are immunologically primed but do not produce sufficient antibodies to have any physiological effect. Following receipt of the second dose, the pig's immune system responds with a strong antibody response. These antibodies bind to and neutralize circulating GnRF in the bloodstream. Neutralization of GnRF blocks the hypothalamic-pituitary-gonadal endocrine axis, thereby suppressing testicular function, including both sex hormone production and reproductive capability, thereby providing temporary immunological castration in these injected boars.

Evidence of temporary immunological castration was provided in a series of studies showing that within 1-2 weeks after the second injection of IMPROVEST, anti-GnRF antibody levels increase significantly. With this rise in anti-GnRF antibodies, the levels of gonadal sex hormones were substantially reduced, the size of the testes, and spermatogenesis suppressed, as was the expression of typical male behaviors (aggression and sexual, e.g., mounting). Full immunological castration was demonstrated to last from 3 to 10 weeks after the second dose.

IMPROVEST injected boars will start to return to full reproductive function at a variable period after this time, as evidenced by increases in male sex hormones, testicle size, and intact male behavior. IMPROVEST should not be used in boars intended for breeding purposes.

Evidence to assess the acceptability of pork from IMPROVEST treated pigs was provided through a series of consumer taste panels using consumers deemed sensitive to the taste of "tainted" meat. The presence of boar taint was evaluated on the basis of pork aroma and flavor and not by chemical analysis. Four consumer taste panel studies were conducted to demonstrate the difference of pork generated from IMPROVEST treated boars and intact boars. A surgically castrated male group was not evaluated during these studies. In these four studies, 767 sensitive consumers evaluated cooked pork loin samples from IMPROVEST treated and intact boars. These pigs were raised to market weight, injected with IMPROVEST as per product labelling and slaughtered 3 to 10 weeks after receipt of the second IMPROVEST injection. The consumers found the aroma and flavor of pork from the IMPROVEST injected pigs to be more acceptable than from the intact boars in all four studies.

STORAGE INFORMATION: Store under refrigeration at 2°-8°C (36°-46°F). Once broached, product may be stored under refrigeration for 28 days. Store bottles in carton until used. Protect from light. Protect from freezing.

HOW SUPPLIED: IMPROVEST is available in the following package sizes:
20 mL bottle, 100 mL bottle, 250 mL bottle, 500 mL bottle.

Revised: January 2013

NADA # 141-322, Approved by FDA

zoetis

Distributed by
Zoetis Inc.
Kalamazoo, MI 49007

PAA035383

Name_____**Contestant#**_____**County**_____

Senior Individual Quality Assurance – 2020

You recently started working at a farrow to finish swine operation. Each year the operation keeps back 30 prospect boars. Over time of developing those boars the operation then starts to cull down to 15 boars. Instead of taking a discount on intact males, the operation has decided to feed them out while immunologically castrating them using Improvest. The operation will then privately market the product to consumers after the boars are finished out. Use the **Improvest 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. **Improvest should be used on which of the following?**

   A.) Intact boars during offseason of breeding
   C.) Intact boars going to slaughter
   B.) Barrows for increased weight gain
   D.) Both A & c

2. **How should Improvest be administered?**

   A.) On the skin
   C.) In the nose
   B.) Intramuscular
   D.) Subcutaneously

3. **When an adverse reaction occurs from using Improvest what should you do?**

   A.) Give another shot of Improvest
   C.) No known treatment
   B.) Give 3 CC of Penicillin
   D.) Drench with water

4. **If you have a group of pigs at 8 weeks of age, what dosage would you use?**

   A.) 1 ½ mL
   C.) 2 mL
   B.) ¼ mL
   D.) Not intended for hogs younger than 9 weeks of age

5. **What is the best way to fully understand how to properly use Improvest?**

A.) Follow your veterinarians instructions and/or the label insert for Improvest

B.) Carefully read and follow the entire insert for Improvest but do not consult your veterinarian

C.) Take the advice of your neighbor who has been using the product for 3 years

D.) B & C

6. **What package size is Improvest not supplied in?**

A.) 20 ML B.) 75 ML C.) 250 ML D.) 500 ML

7. **If accidental user self-injection happens what should you do?**

A.) Wash with clean running water

B.) Seek prompt medical attention

C.) Do not administer product with similar action in future

D.) All of the above

8. **When injecting Improvest we should not give it _____?**

A.) In the Loin B.) In the vein C.) Under skin on Neck D.) Both A and B

9. **Improvest can be obtained by which of the following ways?**

A.) Through a licensed veterinarian C.) Ordering Online

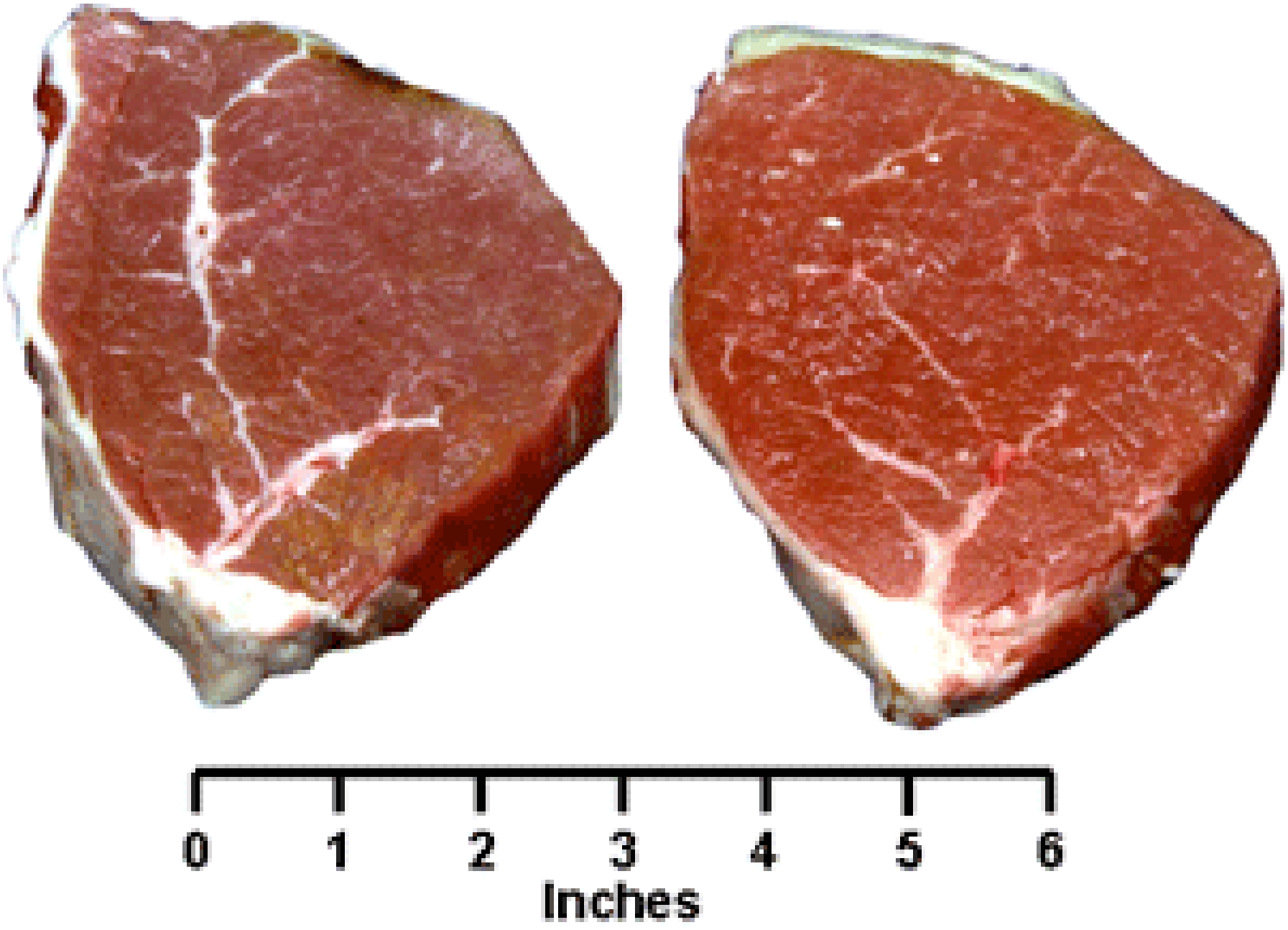
B.) Kentucky Department of Agriculture D.) None of the above

10. **Improvest should be stored at _____?**

A.) 2 degrees C to 8 degrees C C.) 36 degrees F to 46 degrees F

B.) Room temperature D.) Both A and C

1.



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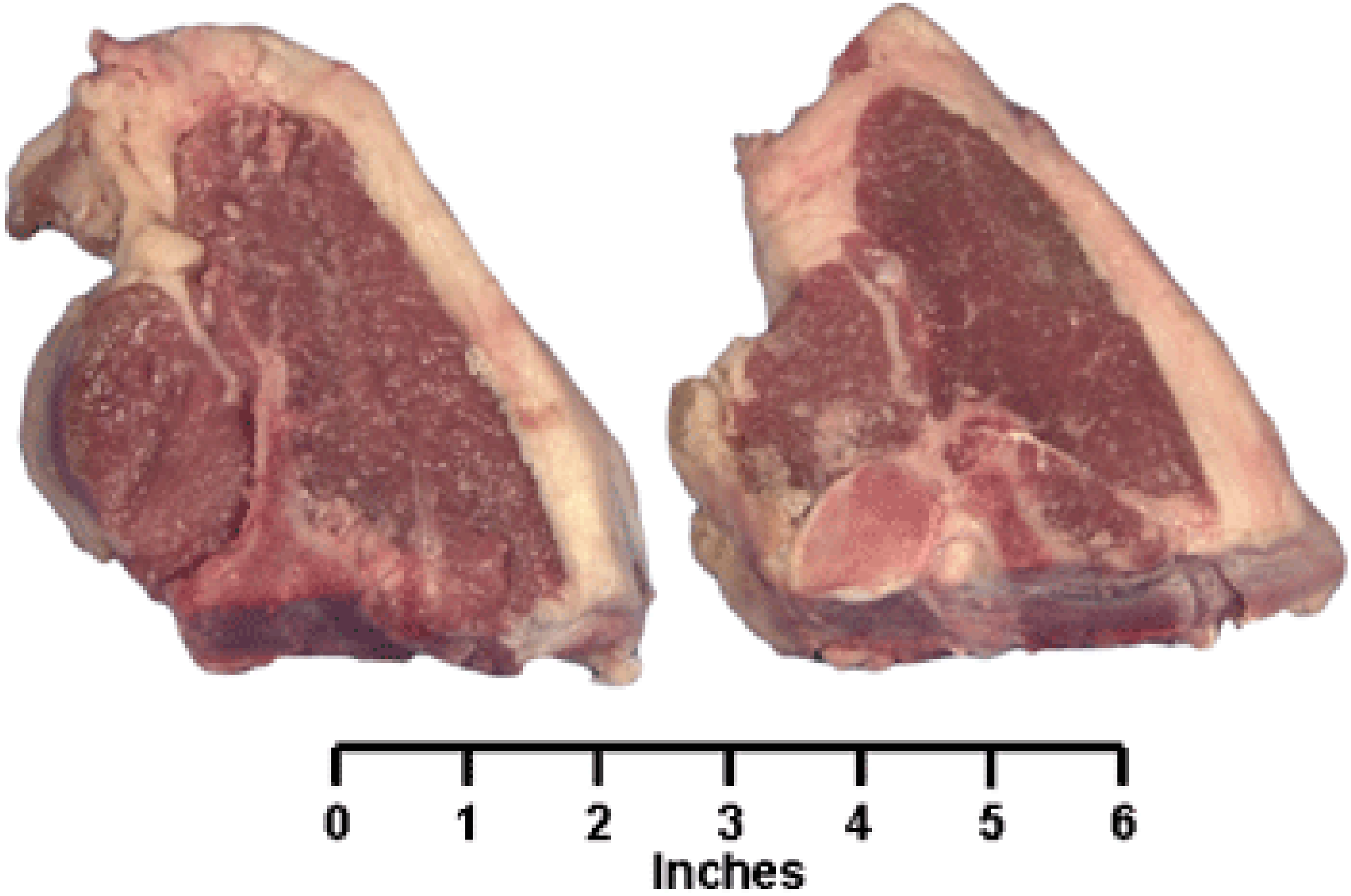

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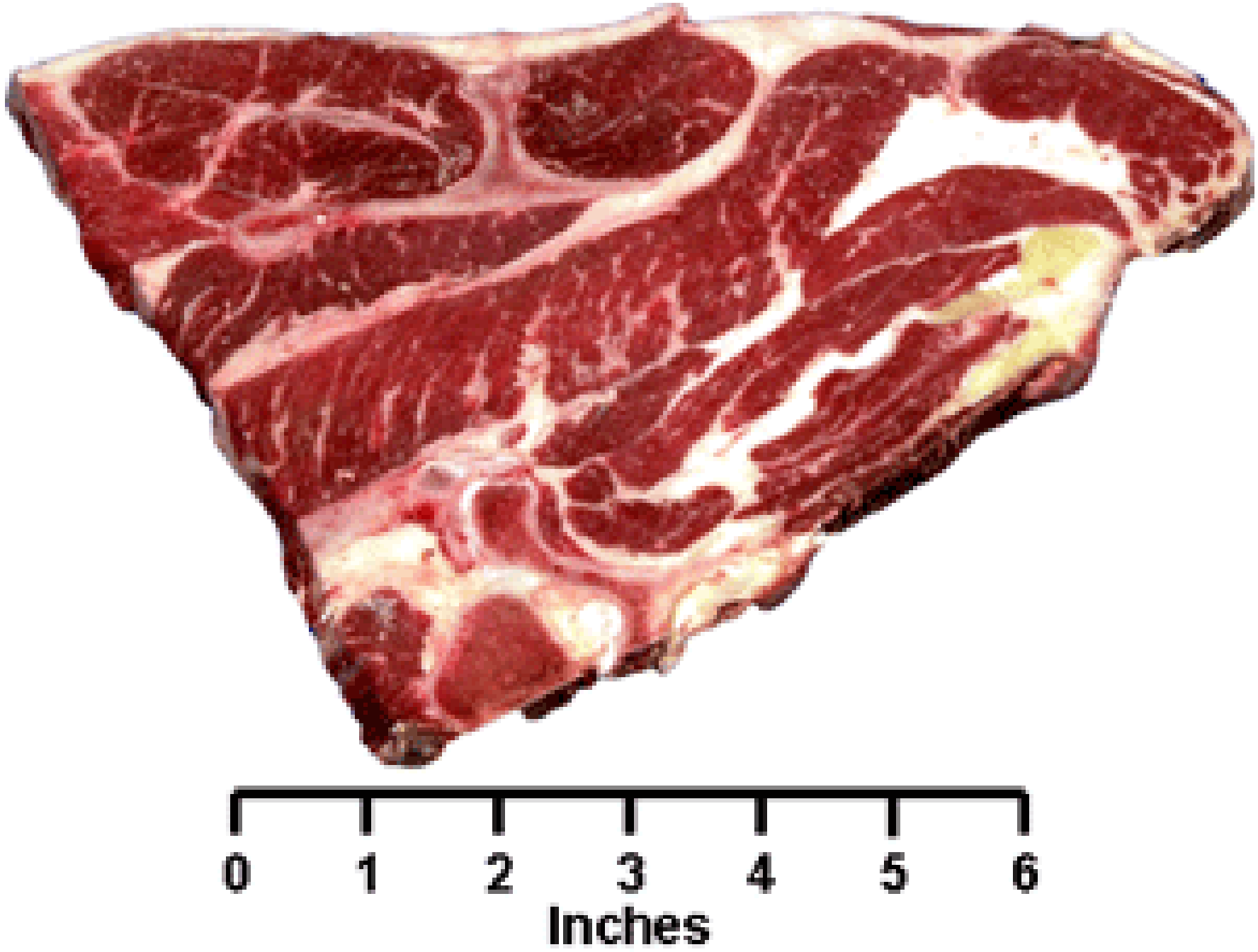

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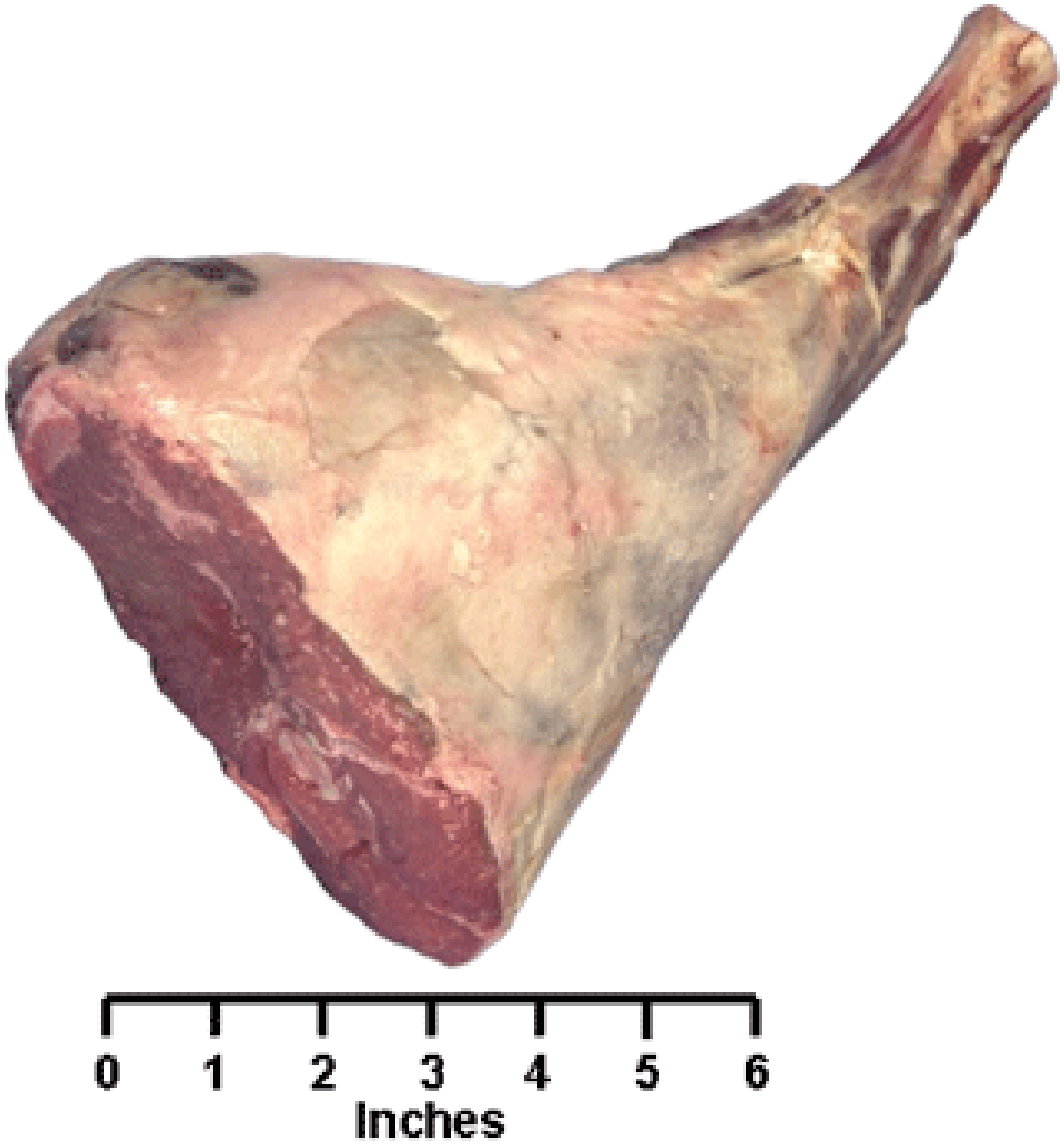

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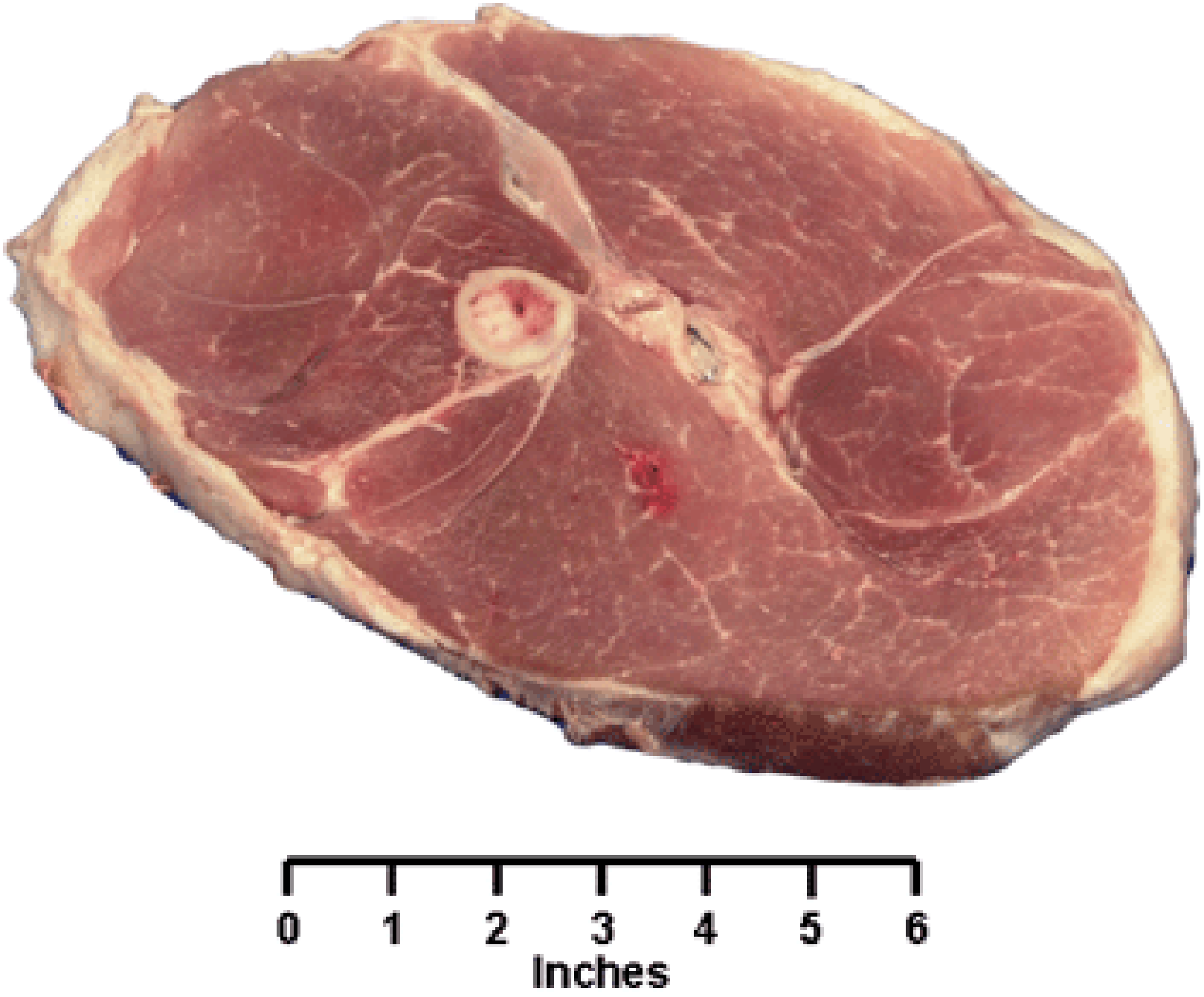

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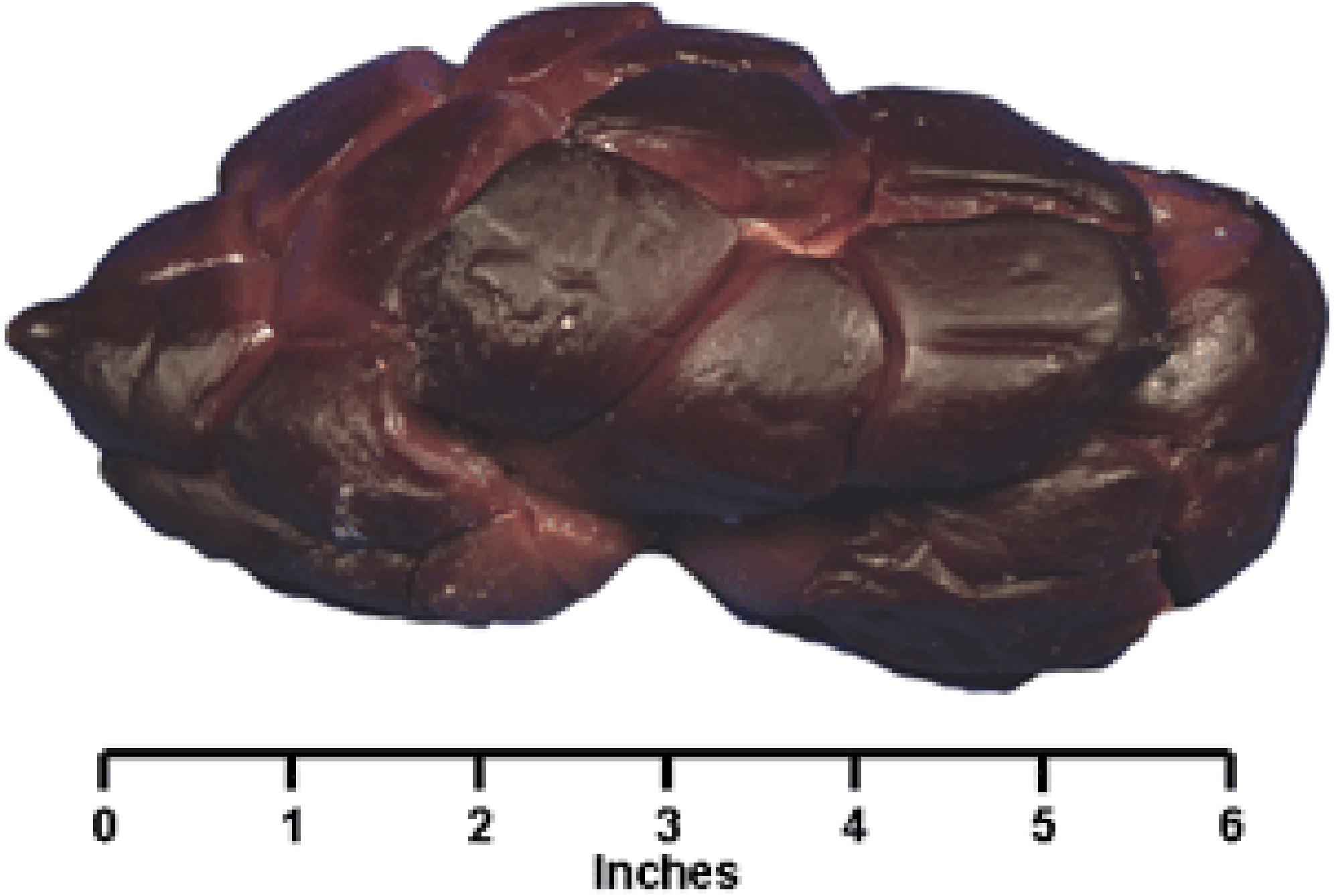

10.

Name___**KEY**_____ **Contestant #**_____**County**_____

Senior Retail Meat Cut Identification – 2020

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.	35	B	G
2.	57	L	L
3.	61	L	M
4.	70	P	P
5.	11	B	B
6.	21	B	D
7.	54	L	K
8.	67	P	R
9.	48	B	I
10.	72	P	L

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
48. Kidney

Lamb Retail Meat Cuts

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

Pork Retail Meat Cuts

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

Senior Retail Meat Judging Class 1 – 2020

Name_____**KEY**_____ **Contestant #**_____ **County**_____

Placing is worth a possible 50 points

Placing: 2,1,3,4

Cuts:2-2-4

Contestant Number _____

Placing Score _____

University of Kentucky
College of Agriculture
Animal Sciences Department

Contestant's Name

_____

_____

Address

_____

_____

County

_____

Class: 1: Beef Loin

A	1 2 3 4	**48**
B	1 2 4 3	**44**
C	1 3 2 4	**44**
D	1 3 4 2	**36**
E	1 4 2 3	**36**
F	1 4 3 2	**32**
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	**42**
N	3 1 4 2	**34**
O	3 2 1 4	**44**
P	3 2 4 1	**38**
Q	3 4 1 2	**28**
R	3 4 2 1	**30**
S	4 1 2 3	**30**
T	4 1 3 2	**26**
U	4 2 1 3	**32**
V	4 2 3 1	**30**
W	4 3 1 2	**24**
X	4 3 2 1	**26**

Senior Retail Meat Judging Class 2 – 2020

Name_____**Key**_____ **Contestant #**_____ **County**_____

(Placing 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)

Placing: 3,4,1,2
Cuts: 2-4-2

Contestant Number _____
Placing Score _____

University of Kentucky
College of Agriculture
Animal Sciences Department

Contestant's Name

_____

_____

Address

_____

_____

County

_____

Class 2: Ribeyes

A	1 2 3 4	26
B	1 2 4 3	24
C	1 3 2 4	34
D	1 3 4 2	40
E	1 4 2 3	30
F	1 4 3 2	38
G	2 1 3 4	24
H	2 1 4 3	22
I	2 3 1 4	30
J	2 3 4 1	34
K	2 4 1 3	26
L	2 4 3 1	32
M	3 1 2 4	40
N	3 1 4 2	46
O	3 2 1 4	38
P	3 2 4 1	42
Q	3 4 1 2	50
R	3 4 2 1	48
S	4 1 2 3	34
T	4 1 3 2	42
U	4 2 1 3	32
V	4 2 3 1	38
W	4 3 1 2	48
X	4 3 2 1	46

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

QUESTIONS

1) **Which Ribeye has the most Ribeye area? ___3_____**

2) **Between 1 and 4 which Ribeye has more marbling? ___1_____**

3) **Between 2 and 3 who has less seam fat? ___3_____**

4) **Which Ribeye has the most cherry red color? _____2_**

5) **T/F are all of the Ribeye's USDA Choice? ___T_____**

Name___KEY_____ Contestant #_____County_____

Senior Quiz – 2020

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.) Which one of the following is not a recognized USDA Quality Grade for a lamb carcass?

a. Select
b. Good
c. Prime
d. Choice

2.) Which one of the following would be a management technique used in processing a litter of baby pigs?

a. Docking Tails
b. Giving an iron injection
c. Clipping needle teeth
d. All of the above

3.) The period of time from calving to first heat is called _____?

a. Generation interval
b. Postpartum interval
c. Lactation
d. Gestation

4.) A heifer born twin to a bull is called a what?

a. Freemartin
b. Deformity
c. Heiferette
d. Sterile Heifer

5.) The length of the gestation period for swine is _____?

a. 336 days
b. 107 days
c. 150 days
d. 114 days

6.) What does EPDs stand for in the livestock industry?

a. Expected Progeny Differences
b. Every Progeny Differences
c. Exceptional Pig Duroc
d. Ewes, Pigs and Dogs

7.) The ideal pork quality standard is _____?

a. DFD
b. RFN
c. PSE
d. None of the above

8.) What is the average gestation length in goats?

a. 120 days
b. 80 days
c. 150 days
d. 160 days

9.) Which one of the following rams would pass on only Scrapie susceptible genes to their progeny?

a. QRNn
b. QQNN
c. RRNN
d. RRNn

10.) Which one of the following diseases is related to a lack of vitamin E and selenium in sheep?

a. White Muscle Disease
b. Curley Calf Syndrome
c. Shipping Fever
d. Leptospirosis

11.) Which of the following is considered a *Bos Taurus* breed?

a. Angus
b. Brahman
c. Red Poll
d. Both A and C

12.) What is <u>most important</u> when selecting breeding animals to be used as replacements?

a. Color and breed
b. Bone and foot size
c. Structural and reproductive soundness
d. Muscle

13.) Which breed of swine would you select for mothering ability?

a. Yorkshire
b. Hampshire
c. Duroc
d. Poland China

14.) Which of the following beef carcasses would return the most dollars if sold on a "grid" that paid premiums for both USDA Quality and Yield Grade?

a. USDA Select, Yield Grade 1.8
b. USDA Prime, Yield Grade 2.9
c. USDA Prime, Yield Grade 4.9
d. USDA Choice, Yield Grade 2.9

15.) What is the most popular breed of cattle (by registration numbers) in the USA?

a. Hereford
b. Simmental
c. Maine-Anjou
d. Angus

16.) What is the common dressing percent for hogs?

a. 52 %
b. 88 %
c. 72 %
d. 65 %

17.) Which of the following might cause scours in a herd of meat goats?

a. Change in feed ration
b. Parasites
c. Coccidiosis
d. All of the above

18.) On average how many pounds of grain does it take to get one pound of gain on a market cattle?

a. 12.5 – 13.0
b. 2.5 – 3.5
c. 5.5 – 6.5
d. 8.5 – 9.5

19.) What is dystocia?

a. A genetic defect
b. Calving difficulty
c. Light muscled
d. None of the above

20.) Which of the following is not a vitamin?

a. Vitamin K
b. Thiamine
c. Ascorbic acid
d. All of these are vitamins

21.) Which of these is a monogastric?

a. Cow
b. Ram
c. Barrow
d. Steer

22.) What is the gestation length in sheep?

a. 100 days
b. 150 days
c. 244 days
d. 283 days

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

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

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

a. 150 days
b. 244 days
c. 365 days
d. 283 days

25.) The North American International Livestock Exposition is held where?

a. Denver
b. Lexington
c. Houston
d. Louisville

County_____**KEY**_____

Team Members

_____

_____

Senior Team Breeding Exercise – 2020

Your group is working with Farmer Fred to help him decide which Hampshire Rams to buy to breed to his flock. Farmer Fred needs 2 rams and has a budget of $2,000. The rams bought will be utilized in a Central Kentucky flock, and will be mated to Dorset x blackface crossbred ewes. All progeny will be sold to slaughter. Depending on market conditions, lambs may be sold into ethnic market at 80-100 pounds live weight. Alternatively, the lamb crop is fed to 130-150 pounds and sold directly to a processor on a carcass weight basis. Please select 2 rams that would best fit this situation for Farmer Fred and answer the 10 questions below. Additionally you will need to discuss your choices with the contest official.

[The questions are 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.]

Animal ID	Tag #	Birth Type	Codon 171	Weaning Weight (kg)	Post Weaning Weight (kg)	Maternal Milk (kg)	Maternal Lambs Weaned (kg)	Loin Muscle Depth (mm)	Price
1	8658	TW	QR	+3.3	+5.0	+0.3	0.0	+1.4	$1150
2	8648	TW	RR	+0.3	+1.8	+0.1	+1.0	0.0	$600
3	8679	TW	RR	+2.9	+4.4	+0.8	+1.5	+0.3	$950
4	8678	S	QR	+2.7	+4.9	-0.3	+0.8	+0.8	$800
5	8697	S	QR	+2.8	+4.8	0.0	+0.9	+1.0	$850
Breed Average				+2.4	+4.1	+0.2	+0.6	+0.4	

1. Which Ram is the most progressive across his genetic profile?

1 **2** **3** **4** **5**

2. Of the clean blooded rams, who is the flattest and lightest muscled?

1 **2** **3** **4** **5**

3. Which Ram offers the least breeding value both on and off paper?

1 **2** **3** **4** **5**

4. Which ram has the most breed character?

1 **2** **3** **4** **5**

5. Which ram should best compliment speckle face ewes for the production of market lambs?

1 **2** **3** **4** **5**

6. Of the Rams ranging for $800-$950, which ram is the least structurally correct?

1 **2** **3** **4** **5**

7. How many Rams have scrapie?

0 **1** **2** **3** **4** **5**

8. If the blood type for Farmer Fred's ewe base is RR, how many of the rams will have sheep born susceptible to scrapie?

0 **1** **2** **3** **4** **5**

9. Who is the slick legged, coarse, round-built ram off both ends of his skeleton?

1 **2** **3** **4** **5**

10. Who is the tallest fronted, longest bodied ram?

1 **2** **3** **4** **5**

SHOW-RITE®

#1

HERD BUILDER GOAT GROWER

The perfect ration for your show goats. This product will maximize your goats potential come show day.

For the prevention of coccidiosis caused by Eimeria crandallis, Eimeria christenseni and Eimeria ninakohlyakimovae in goats.

GUARANTEED ANALYSIS:

Crude Protein, min*	16.5%
Crude Fat, min	3.0%
Crude Fiber, max	19.0%
Calcium, min	0.7%
Calcium, max	1.2%
Phosphorus, min	0.3%
Salt, min	0.6%
Salt, max	1.1%
Vitamin A, min	16,000 IU/lb
Vitamin D, min	3,500 IU/lb
Vitamin E, min	50 IU/lb
Selenium, min	0.3 PPM
Acid Fiber Detergent, max	25.0%
Copper, min	15 PPM
Copper, max	45 PPM

*This includes not more than 1.2 % equivalent protein from non-protein nitrogen.**

Active Drug Ingredient:

Monensin.....20 G/TON

FEEDING INSTRUCTIONS:

Feed Herd Builder Goat Grower R20 as the sole ration. Feed to goats along with a good quality forage and clean, fresh drinking water.

CAUTION: Do not allow horses or other equines access to formulations containing Monensin. Ingestion of Monensin by equines has been fatal. Monensin-medicated cattle and goat feeds are safe for use in cattle and goats only. Consumption by unapproved species may result in toxic reactions. Do not exceed the levels of Monensin recommended in the feeding directions as reduced average daily gains may result.

WARNING: Do not feed to lactating goats.

INGREDIENTS:

Please refer to the product label/tag for a complete list of ingredients.

WARNING: This product, which contains added copper, should not be fed to sheep or related species that have a low tolerance to copper.

This product has been formulated specifically for goats and is not intended for other species.

Hubbard does not use "Restricted-use Proteins" in their products and is in compliance with FDA and state requirements regarding the use, handling and storage of "Restricted-use Protein" products.

PROFILE:

Herd Builder Goat Grower accelerates growth and development in doe kids, show does, donor does and breeding age bucks. Ideal ration for maintaining body condition and maximizing frame growth in breeding show does and bucks.

THIS IS A PRODUCT INFORMATION SHEET ONLY IN NO WAY SHOULD THIS BE UTILIZED AS A LABEL

Options in a 50lb bag #22433 or Bulk Invoice

SHOW-RITE®

#2

FAT N SASSY R20

Designed to enhance youthful bloom, accelerate growth and develop clean conformation in growing to older does, bucks and breeding through age mature does

GUARANTEED ANALYSIS:

Crude Protein, min*	15.5%
Crude Fat, min	4.0%
Crude Fiber, max	19.0%
Calcium, min	0.7%
Calcium, max	1.2%
Phosphorus, min	0.3%
Salt, min	0.7%
Salt, max	1.2%
Vitamin A, min	16,000 IU/lb
Vitamin D, min	3,500 IU/lb
Vitamin E, min	50 IU/lb
Selenium, min	0.3 PPM
Acid Fiber Detergent, max	27.0%
Copper, min	15 PPM
Copper, max	65.0 PPM

*This includes not more than 1.2 % equivalent protein from non-protein nitrogen.**

FEEDING INSTRUCTIONS:

Feed Duncan Fat "N" Sassy R20 as the sole ration. Feed to goats along with a good quality forage and clean, fresh drinking water.

CAUTION: Do not allow horses or other equines access to feed containing Monensin. Ingestion of Monensin by horses has been fatal. Monensin medicated cattle and goat feeds are safe for cattle and goats only. Consumption by unapproved species may result in toxic reactions. Do not exceed the levels of Monensin recommended in the feeding directions, as reduced average daily gains may result. Do not feed to lactating goats.

Hubbard does not use "Restricted-use Proteins" in their products and is in compliance with FDA and state requirements regarding the use, handling and storage of "Restricted-use Protein" products.

INGREDIENTS:

Please refer to the product label/tag for a complete list of ingredients.

WARNING: This product, which contains added copper, should not be fed to sheep or related species that have a low tolerance to copper.
This product has been formulated specifically for goats and is not intended for other species.

Active Drug Ingredient:

Monensin.....20 G/TON

PROFILE:

An initial creep feed and starter for goats of all classes from birth to six months of age and for developing bucks and show does requiring extra bloom. Designed to enhance youthful bloom, accelerate growth and develop clean conformation in growing to older does, bucks and breeding through age mature does.

THIS IS A PRODUCT INFORMATION SHEET ONLY IN NO WAY SHOULD THIS BE UTILIZED AS A LABEL

Options in a 50lb bag #29148 or Bulk Invoice

SHOW-RITE®

#3

ADVANCER PLUS R20

Show-Rite® Advancer Plus R20 promotes earlier bloom and smoother handle in sale wethers and jackpot goats. Advance maturity and muscularity in market goats at all stages of growth. Includes the daily recommended level of Rite-Factor already in the bag

For the prevention of coccidiosis caused by Eimeria crandallis, Eimeria christenseni and Eimeria ninakohlyakimovae in goats maintained in confinement.

GUARANTEED ANALYSIS:

Crude Protein, min*	15.0%
Crude Fat, min	3.5%
Crude Fiber, max	12.0%
Calcium, min	0.7%
Calcium, max	1.2%
Phosphorus, min	0.3%
Salt, min	0.9%
Salt, max	1.4%
Vitamin A, min	8,000 IU/lb
Vitamin D, min	900 IU/lb
Vitamin E, min	190 IU/lb
Selenium, min	0.3 PPM
Acid Fiber Detergent, max	16.0%
Copper, min	25 PPM
Copper, max	75 PPM

*This includes not more than 1.6 % equivalent protein from non-protein nitrogen.**

Active Drug Ingredient:

Monensin.....20 G/TON

FEEDING INSTRUCTIONS:

Feed Show-Rite Advancer® Plus R20 continuously as the sole ration to non-lactating goats. A source of good quality hay and a constant supply of clean fresh water is also required.

CAUTION: Do not allow horses or other equines access to formulations containing Monensin. Ingestion of Monensin by equines has been fatal. Do not feed undiluted. Monensin medicated cattle and goat feeds are safe for cattle and goats only. Consumption by unapproved species may result in toxic reactions. Must be thoroughly mixed in feed before use.

Do not exceed the levels of Monensin recommended in the feeding directions, as reduced average daily gains may result. Feeding undiluted or mixing errors resulting in high concentrations of Monensin has been fatal to cattle and could be fatal to goats.

WARNING: Do not feed to lactating goats.

INGREDIENTS:

Please refer to the product label/tag for a complete list of ingredients.

WARNING: This product, which contains added copper, should not be fed to sheep or related species that have a low tolerance to copper.
This product has been formulated specifically for goats and is not intended for other species.

PROFILE:

Advancer PLUS has Rite-Factor Technology in the bag, and added barley for a smoother look and fresher handle desired in today's competitive show arena. Utilizing specific levels of protein and energy sources, this feed has a unique ability to "Advance" maturity, muscle development, and maximize genetic potential in show goats. Advancer PLUS contains Monensin (R20) to help combat Coccidiosis.

THIS IS A PRODUCT INFORMATION SHEET ONLY IN NO WAY SHOULD THIS BE UTILIZED AS A LABEL

Options in a 50lb bag #47855 or Bulk Invoice

SHOW-RITE®

#4

G.O.A.T. R20

Texturized show goat feed, specially formulated for all life stages. Premium quality nutrition from Show-Rite, fortified with industry-leading Alltech Technologies designed to improve growth performance, reproduction, and overall animal health.

GUARANTEED ANALYSIS:

*Crude Protein, min	17.0%
Crude Fat, min	4.0%
Crude Fiber, max	12.0%
Acid Detergent Fiber, max	16.0%
Calcium, min	1.0%
Calcium, max	1.5%
Phosphorus, min	0.4%
Salt, min	0.5%
Salt, max	1.0%
Copper, min	13 ppm
Copper, max	43 ppm
Selenium, min	0.2 PPM
Vitamin A, min	6,600 IU/LB
Vitamin D, min	500 IU/LB
Vitamin E, min	160 IU/LB

*This includes not more than 1.3 % equivalent protein from non-protein nitrogen

Active drug ingredients:

Monensin.....20 g/ton

FEEDING INSTRUCTIONS:

Feed Show-Rite G.O.A.T. R20 continuously to developing goats. Feed along with good quality forage. Provide a constant supply of clean, fresh water.

INGREDIENTS:

Please refer to the product label/tag for a complete list of ingredients.

WARNING: This product, which contains added copper, should not be fed to sheep or related species that have a low tolerance to copper.
This product has been formulated specifically for goats and is not intended for other species.

CAUTION: Do not allow horses or other equines access to formulations containing Monensin. Ingestion of Monensin by equines has been fatal. Do not feed undiluted. Monensin medicated cattle and goat feeds are safe for cattle and goats only. Consumption by unapproved species may result in toxic reactions. Must be thoroughly mixed in feed before use. Do not exceed the levels of Monensin recommended in the feeding directions, as reduced average daily gains may result. Feeding undiluted or mixing errors resulting in high concentrations of Monensin has been fatal to cattle and could be fatal to goats. Goat Type B Feeds: Goat Type C Feeds: Do not feed to lactating goats.

Hubbard does not use "Restricted-use Proteins" in their products and is in compliance with FDA and state requirements regarding the use, handling and storage of "Restricted-use Protein" products.

PROFILE:

- Texturized to enhance feed palatability
- Improves intake for pellet stubborn show goats
- Quick bloom for early prospect-bound goats
- Excellent transition feed for breeders
- Increase bloom in colder climates
- Explosive feed response, adding volume and cover to show does

THIS IS A PRODUCT INFORMATION SHEET ONLY IN NO WAY SHOULD THIS BE UTILIZED AS A LABEL

Product # 65639 in a 50lb bag

Senior Team Feeding Judging Class – 2020

Names:_____**KEY**_____ **County**_____

(50 points possible)

Contestant Number ____**4,3,2,1**____**2-5-2**_____

Placing Score _____

University of Kentucky
College of Agriculture
Animal Sciences Department

Contestant's Name

_____

_____

Address

_____

_____

County

_____

Class

Feeding Class

A	1 2 3 4	18
B	1 2 4 3	20
C	1 3 2 4	23
D	1 3 4 2	30
E	1 4 2 3	27
F	1 4 3 2	32
G	2 1 3 4	20
H	2 1 4 3	22
I	2 3 1 4	27
J	2 3 4 1	36
K	2 4 1 3	31
L	2 4 3 1	38
M	3 1 2 4	30
N	3 1 4 2	37
O	3 2 1 4	32
P	3 2 4 1	41
Q	3 4 1 2	46
R	3 4 2 1	48
S	4 1 2 3	36
T	4 1 3 2	41
U	4 2 1 3	38
V	4 2 3 1	45
W	4 3 1 2	48
X	4 3 2 1	50

Senior Team Feeding Activity Exercise – 2020 County:_____KEY_____

Team Members_____

Your team is advising a local 4-H exhibitor who just started showing goats this year. Your team initially helped the young exhibitor pick out his goat at the beginning of the year. Now that it is 60 days out until state fair the young man wants your team to look at the goat and give feeding advice. As your team evaluates the goat you notice several things. First the goat looks pretty full. It looks like the wether is practically bloated. Next your team handles the wether. Everyone agrees that the goat is plenty soft over his ribs. In reality he needs to be leaned up some. After that your team looks at his feed pan and water bucket. There is pelletized feed left in the pan and feces in the water bucket. Your team agrees that there are some serious changes that need to happen before the State Fair if this new 4-H exhibitor wants to be successful. Please rank the feeds (based off of the 4 feed product information sheets provided below) in the order that would best compliment the 4-H exhibitor's wether, going into the last 60 days before the state fair. Additionally, please answer the 5 questions below. Finally, your team will need to present to the official on your thoughts and any advice you would give the young 4-H exhibitor. *(Ranking the feed correctly is worth 50 points. The 5 questions are worth 10 points each for a total of 50 points making the written portion worth a total of 100 points. The oral portion is worth 100 points for a Grand Total of 200 points.)*

Assume all feeds are priced the same and all can be bought with the same availability.

Circle the answers to the questions below:

1. **Which feed is texturized?**
   Fat N Sassy R20 Advancer Plus R20 G.O.A.T. R20 Herd Builder Goat Grower None
2. **Which feed could be fed to sheep?**
   Fat N Sassy R20 Advancer Plus R20 G.O.A.T. R20 Herd Builder Goat Grower None
3. **Monensin is provided in each feed as a means to combat _____?**
   Coccidiosis Helminthiasis Urinary Calculi Soremouth
4. **Which feed offers the most protein?**
   Fat N Sassy R20 Advancer Plus R20 G.O.A.T. R20 Herd Builder Goat Grower
5. **Which feed would maximize a mature buck you are preparing for show?**
   Fat N Sassy R20 Advancer Plus R20 G.O.A.T. R20 Herd Builder Goat Grower

Presentation Score:	**Questions Score:**

LOT
EXP

256021

0 87219 08787 9

Indications: *Cattle:* For treatment and control of gastrointestinal roundworms, lungworms, eyeworms, grubs, sucking lice, and mange mites. Dectomax injectable solution has been proved to effectively control infections and to protect cattle from reinfection with *Cooperia oncophora* and *Haemonchus placei* for 14 days, *Ostertagia ostertagi* for 21 days, and *C. punctata, Oesophagostomum radiatum,* and *Dictyocaulus viviparus* for 28 days after treatment. *Swine:* For treatment and control of gastrointestinal roundworms, lungworms, kidney worms, sucking lice, and mange mites. See package insert for complete indications and directions for use.

Recommended Dose: *Cattle:* 1 mL (10 mg doramectin) per 110 lb of body weight (200 mcg/kg) administered by subcutaneous (SC) or intramuscular (IM) injection in the neck region. Beef Quality Assurance guidelines recommend SC administration as the preferred route. *Swine:* 1 mL (10 mg doramectin) per 75 lb of body weight (300 mcg/kg) administered by IM injection only.

Residue Warnings: *Cattle:* Do not slaughter for human consumption within 35 days of treatment. Not for use in female dairy cattle 20 months of age or older. A withdrawal period has not been established for this product in preruminating calves. Do not use in calves to be processed for veal. *Swine:* Do not slaughter for human consumption within 24 days of treatment.

Precaution: For SC injection in cattle only.
For IM injection in swine and cattle.

Store Below 30°C (86°F)

Disposal: Do not contaminate water by direct application or by improper disposal of drug containers. Dispose of containers in an approved landfill or by incineration.

Consult your veterinarian for assistance in the diagnosis, treatment, and control of parasitism.

Not for human use

Restricted Drug (CA) Use only as directed.

Distributed by:
Zoetis Inc.
Kalamazoo, MI 49007

8186000
79-5197-00-9
Made in Brazil

DECTOMAX®

(doramectin)

Antiparasitic

1% injectable solution for cattle and swine

10 mg/mL

Net Contents: 200 mL

NADA #141-061, Approved by FDA

036254Z0

zoetis

Draxxin® 25
(tulathromycin injection)
Injectable Solution

Antibiotic
25 mg of tulathromycin/mL
For use in suckling calves, dairy calves, veal calves, and swine. Not for use in ruminating cattle.

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

DESCRIPTION
DRAXXIN 25 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 25 contains 25 mg of tulathromycin as the free base in a 50% propylene glycol vehicle, monothioglycerol (5 mg/mL), citric acid (4.8 mg/mL) with hydrochloric acid and sodium hydroxide added to adjust pH. DRAXXIN 25 consists of an equilibrated mixture of two isomeric forms of tulathromycin in a 9:1 ratio.

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-ribohexopyrano-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-ribohexopyrano-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-xylohexopyranosyl]oxy]-1-oxa-4-azacyclotridecan-13-one, respectively.

INDICATIONS
Swine
DRAXXIN 25 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.

Suckling Calves, Dairy Calves, and Veal Calves
BRD - DRAXXIN 25 Injectable Solution is indicated for the treatment of bovine respiratory disease (BRD) associated with *Mannheimia haemolytica*, *Pasteurella multocida*, *Histophilus somni*, and *Mycoplasma bovis*.

DOSAGE AND ADMINISTRATION
Swine
Inject intramuscularly as a single dose in the neck at a dosage of 2.5 mg/kg (1 mL/22 lb) Body Weight (BW). Do not inject more than 4 mL per injection site.

Table 1. DRAXXIN 25 Swine Dosing Guide (25 mg/mL)

Animal Weight (Pounds)	Dose Volume (mL)
4	0.2
10	0.5
15	0.7
20	0.9
22	1.0
25	1.1
30	1.4
50	2.3
70	3.2
90	4.0

Calves
Inject subcutaneously as a single dose in the neck at a dosage of 2.5 mg/kg (1 mL/22 lb) body weight (BW). Do not inject more than 11.5 mL per injection site.

Table 2. DRAXXIN 25 Calf Dosing Guide (25 mg/mL)

Animal Weight (Pounds)	Dose Volume (mL)
50	2.3
75	3.4
100	4.5
150	7.0
200	9.0
250	11.5

CONTRAINDICATIONS
The use of DRAXXIN 25 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
Swine
Swine intended for human consumption must not be slaughtered within 5 days from the last treatment.
Calves
Calves intended for human consumption must not be slaughtered within 22 days from the last treatment with DRAXXIN 25 Injectable Solution. This drug is not for use in ruminating cattle.

PRECAUTIONS
Swine
The effects of Draxxin 25 Injectable Solution 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.
Cattle
The effects of Draxxin 25 Injectable Solution 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.

ADVERSE REACTIONS
Swine
In one field study, one out of 40 pigs treated with DRAXXIN Injectable Solution (100 mg/mL) at 2.5 mg/kg BW exhibited mild salivation that resolved in less than four hours.
Calves
In one BRD field study, two calves treated with DRAXXIN Injectable Solution (100 mg/mL) at 2.5 mg/kg BW exhibited transient hypersalivation. One of these calves also exhibited transient dyspnea, which may have been related to pneumonia.

Post Approval Experience
The following adverse events are based on post approval adverse drug experience reporting for DRAXXIN Injectable Solution (100 mg/mL). Not all adverse events are reported to the FDA CVM. It is not always possible to reliably estimate the adverse event frequency or establish a causal relationship to product exposure using these data. The following adverse events are listed in decreasing order of reporting frequency in cattle: Injection site reactions and anaphylaxis/anaphylactoid reactions. For a complete listing of adverse reactions for DRAXXIN Injectable Solution or DRAXXIN 25 Injectable Solution reported to the CVM see: http://www.fda.gov/AnimalVeterinary.

CLINICAL PHARMACOLOGY
At physiological pH, tulathromycin (a weak base) is approximately 50 times more soluble in hydrophilic than lipophilic 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 lung parenchyma as compared to the plasma, and these elevated concentrations can remain in lung tissue for several days beyond that which can be measured in the plasma. However the clinical relevance of these elevated lung concentrations is undetermined.

As a class, macrolides tend to be primarily bacteriostatic, but may be bactericidal against some pathogens.[2] When acting as a cidal compound, they 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.[3] 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.
[3] Andes D, Anon J, Jacobs MR, Craig WA. (2004). Application of pharmacokinetics and pharmacodynamics to antimicrobial therapy of respiratory tract infections. Clin Lab Med., **24**:477-502.

Swine
Following intramuscular (IM) administration to feeder pigs at a dosage of 2.5 mg/kg BW, tulathromycin is nearly completely absorbed, with peak plasma concentrations achieved within ~0.25 hr. The volume of distribution exceeds 15 L/kg, which is consistent with extensive tissue binding. This large distribution volume results in a long terminal elimination half- life (60 to 90 hours) despite a rapid systemic free drug clearance (187 mL/kg/hr). There are no gender differences in swine tulathromycin pharmacokinetics.

Comparative Bioavailability Summary
Despite slightly lower peak concentrations with DRAXXIN 25 Injectable Solution, a single IM dose of 2.5 mg tulathromycin/kg BW of either DRAXXIN Injectable Solution (100 mg/mL) or DRAXXIN 25 Injectable Solution (25 mg/mL) resulted in comparable tulathromycin total systemic exposure. Therefore, DRAXXIN 25 Injectable Solution is considered to be therapeutically equivalent to DRAXXIN Injectable Solution when administered to swine by IM injection at a dose of 2.5 mg tulathromycin/kg BW.

Calves
Following subcutaneous (SC) administration into the neck of feeder calves at a dosage of 2.5 mg/kg BW, tulathromycin is nearly completely absorbed, with peak plasma concentrations achieved within ~0.25 hr. The volume of distribution exceeds 11 L/kg[4], which is consistent with extensive tissue binding. This large distribution volume results in a long terminal elimination half- life of more than 100 hours, despite a rapid systemic free drug clearance (170 mL/kg/hr). No pharmacokinetic differences are observed in castrated male versus female calves.

Comparative Bioavailability Summary
Despite lower peak concentrations with DRAXXIN 25 Injectable Solution, a single SC dose of 2.5 mg tulathromycin/kg BW of either DRAXXIN Injectable Solution (100 mg/mL) or DRAXXIN 25 Injectable Solution (25 mg/mL) resulted in comparable total systemic tulathromycin exposure. Therefore, DRAXXIN 25 Injectable Solution is considered to be therapeutically equivalent to DRAXXIN Injectable Solution when administered to calves by SC injection at a dose of 2.5 mg tulathromycin/kg BW.
[4] Clearance and volume estimates are based on intersubject comparisons of 2.5 mg/kg BW administered by either subcutaneous or intravenous injection.

MICROBIOLOGY
Swine
Tulathromycin has demonstrated *in vitro* activity against *A. pleuropneumoniae*, *P. multocida*, *B. bronchiseptica*, *H. parasuis*, and *M. hyopneumoniae*. The MICs of tulathromycin against indicated pathogens collected from field studies were determined using methods recommended by the Clinical and Laboratory Standards Institute (CLSI, M31-A and M31-A3). MICs for *H. parasuis* were determined using Veterinary Fastidious Medium and were incubated up to 48 hours at 35 to 37°C in a CO2-enriched atmosphere. These values are represented in Table 3, below.

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

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

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

Calves
Tulathromycin has demonstrated *in vitro* activity against *M. haemolytica*, *P. multocida*, *H. somni*, and *M. bovis*, four pathogens associated with BRD. The MICs of tulathromycin against indicated pathogens collected from field studies using DRAXXIN Injectable Solution (100 mg/mL) were determined using methods recommended by the CLSI (M31-A2). These values are represented in Table 4, below.

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

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

* 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

Swine

Plasma concentrations of tulathromycin administered as DRAXXIN Injectable Solution (100 mg/mL) or as DRAXXIN 25 Injectable Solution were demonstrated to be therapeutically equivalent (see CLINICAL PHARMACOLOGY, Comparative Bioavailability Summary). Therefore effectiveness studies conducted with DRAXXIN Injectable Solution (100 mg/mL) support the effectiveness for DRAXXIN 25 Injectable Solution.

In a multi-location field study to evaluate the treatment of naturally occurring SRD, 266 pigs were treated with DRAXXIN Injectable Solution (100 mg/mL). 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 Injectable Solution (100 mg/mL) 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 Injectable Solution (100 mg/mL) 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%).

Calves

Plasma concentrations of tulathromycin administered as DRAXXIN Injectable Solution (100 mg/mL) or as DRAXXIN 25 Injectable Solution were demonstrated to be therapeutically equivalent (see CLINICAL PHARMACOLOGY, Comparative Bioavailability Summary). Therefore effectiveness studies conducted with DRAXXIN Injectable Solution (100 mg/mL) support the effectiveness for DRAXXIN 25 Injectable Solution.

BRD - In a multi-location field study, 314 calves with naturally occurring BRD were treated with DRAXXIN Injectable Solution (100 mg/mL). 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 Injectable Solution (100 mg/mL)-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 Injectable Solution (100 mg/mL) 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 Injectable Solution (100 mg/mL) 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 Injectable Solution (100 mg/mL) was 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.

Two induced infection model studies were conducted to confirm the effectiveness of DRAXXIN Injectable Solution (100 mg/mL) 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).

ANIMAL SAFETY

Swine

Plasma concentrations of tulathromycin administered as DRAXXIN Injectable Solution (100 mg/mL) or as DRAXXIN 25 Injectable Solution were demonstrated to be therapeutically equivalent (see CLINICAL PHARMACOLOGY, Comparative Bioavailability Summary). Therefore systemic target animal safety studies conducted with DRAXXIN Injectable Solution support the systemic safety for DRAXXIN 25 Injectable Solution.

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 (both studies utilized DRAXXIN Injectable Solution (100 mg/mL)). 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.

Sixteen growing pigs were injected with either saline or DRAXXIN 25 Injectable Solution as a single injection of 4 mL. Injection site observations included two instances of erythema in the DRAXXIN 25-treated group on Day 1 post-injection. No heat, sensitivity, firmness, necrosis, drainage, or swelling was observed at any injection sites in either treatment group. The gross and microscopic findings in the DRAXXIN 25-treated group were consistent with inflammatory changes induced by injections and were considered to be mild or moderate with progression to macroscopic resolution by Day 28 post-injection and microscopic resolution by Day 42 post-injection.

Calves

Plasma concentrations of tulathromycin administered as DRAXXIN Injectable Solution (100 mg/mL) or as DRAXXIN 25 Injectable Solution were demonstrated to be therapeutically equivalent (see CLINICAL PHARMACOLOGY, Comparative Bioavailability Summary). Therefore effectiveness studies conducted with DRAXXIN Injectable Solution support the effectiveness for DRAXXIN 25 Injectable Solution.

A safety study was conducted in feeder calves receiving DRAXXIN Injectable Solution (100 mg/mL) as 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 DRAXXIN Injectable Solution (100 mg/mL) as 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 DRAXXIN Injectable Solution (100 mg/mL) at 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.

Sixteen growing cattle were injected with either saline (eight animals) as a single injection of 11.5 mL or DRAXXIN 25 Injectable Solution (eight animals) as a single injection of either 2.5 mg/kg BW or a dose volume of 11.5 mL (whichever volume was higher). One calf in the DRAXXIN 25-treated group was observed to have firmness at the injection site for a single day. Two DRAXXIN 25-treated calves exhibited injection site swelling. In one calf, the swelling resolved within 48 hours. In the other calf, the swelling was observed over a three-day period, after which the calf underwent a scheduled necropsy, preventing further injection site observations. No injection site swelling was observed in saline-treated animals. At necropsy, three of the saline-treated calves and five of the DRAXXIN 25-treated calves had altered tissue present at the injection site. The gross and microscopic findings in the DRAXXIN 25-treated group were consistent with inflammatory changes induced by injections, were considered to be mild to marked, and progressed to macroscopic resolution and microscopic resolution by Day 42 post-injection.

STORAGE CONDITIONS:

Store at or below 25°C (77°F). Use within 90 days of first vial puncture.

HOW SUPPLIED

DRAXXIN 25 Injectable Solution is available in the following package sizes:
50 mL vial
100 mL vial
250 mL vial

NADA 141-349, 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 25 product information call: **1-888-DRAXXIN** or go to **www.DRAXXIN.com**

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Revised: September 2014

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Technical Service (Livestock): 800-211-3573
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Every effort has been made to ensure the accuracy of the information published. However, it remains the responsibility of the readers to familiarize themselves with the product information contained on the USA product label or package insert.

Banamine®-S

℞

Intervet/Merck Animal Health

PRODUCT INFORMATION

NADA #101-479, Approved by FDA.

(flunixin meglumine injection)

50 mg/mL

Veterinary

For intramuscular use in swine.

Not for use in breeding swine.

CAUTION

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

DESCRIPTION

Each milliliter of BANAMINE-S (flunixin meglumine injection) contains 50 mg flunixin (equivalent to 83 mg flunixin meglumine), 0.1 mg edetate disodium, 2.5 mg sodium

formaldehyde sulfoxylate, 4.0 mg diethanolamine, 207.2 mg propylene glycol; 5.0 mg phenol as preservative, hydrochloric acid, water for injection q.s.

CLINICAL PHARMACOLOGY

Flunixin meglumine is a potent non-narcotic, nonsteroidal, analgesic agent with anti-inflammatory and antipyretic activity. It is significantly more potent than pentazocine, meperidine, and codeine as an analgesic in the rat yeast paw test.

Flunixin is known to persist in inflammatory tissues[1] and is associated with anti-inflammatory properties which extend well beyond the period associated with detectable plasma drug concentrations[2]. Therefore, prediction of drug concentrations based upon estimated plasma terminal elimination half-life will likely underestimate both the duration of drug action and the concentration of drug remaining at the site of activity.

The pharmacokinetic profiles were found to follow a 2-compartmental model, although a deep (third) compartment was observed in some animals. The mean terminal elimination half-life (β half-life) of flunixin after a single intramuscular injection of Banamine (2.2 mg/kg) to pigs was between 3 and 4 hours. The mean observed maximum plasma concentration was 2944 ng/mL, achieved at a mean time of approximately 0.4 hours. The mean $AUC_{(0\text{-}LOQ)}$ was 6431 ng*hr/mL. Following IM administration of flunixin, quantifiable drug concentration could be measured up to 18 hours post dose. The mean volume of distribution was 2003 mL/kg and the mean total clearance was 390 mL/hr/kg. The mean absolute bioavailability of flunixin following an intramuscular injection in the neck was 87%.

INDICATION

BANAMINE-S (flunixin meglumine injection) is indicated for the control of pyrexia associated with swine respiratory disease.

DOSE AND ADMINISTRATION

The recommended dose for swine is 2.2 mg/kg (1 mg/lb; 2 mL per 100 lbs) body weight given by a single intramuscular administration. The injection should be given only in the neck musculature with a maximum of 10 mL per site.

USE WITHIN 28 DAYS OF FIRST PUNCTURE AND PUNCTURE A MAXIMUM OF 10 TIMES. WHEN USING A DRAW-OFF SPIKE OR NEEDLE WITH BORE DIAMETER LARGER THAN 18 GAUGE, DISCARD ANY PRODUCT REMAINING IN THE VIAL IMMEDIATELY AFTER USE.

Note: Intramuscular injection may cause local tissue irritation and damage. In an injection-site irritation study, the tissue damage did not resolve in all animals by Day 28 post-injection. This may result in trim loss of edible tissue at slaughter.

CONTRAINDICATIONS

There are no known contraindications to this drug in swine when used as directed. Do not use in animals showing hypersensitivity to flunixin meglumine. Use judiciously when renal impairment or gastric ulceration is suspected.

RESIDUE WARNINGS

Swine must not be slaughtered for human consumption within 12 days of the last treatment.

PRECAUTIONS

As a class, cyclo-oxygenase inhibitory NSAIDs may be associated with gastrointestinal, renal and hepatic toxicity. Sensitivity to drug-associated adverse events varies with the individual patient. Patients at greatest risk for adverse events are those that are dehydrated, on concomitant diuretic therapy, or those with existing renal, cardiovascular, and/or hepatic dysfunction. Concurrent administration of potentially nephrotoxic drugs should be carefully approached. NSAIDs may inhibit the prostaglandins that maintain normal homeostatic function. Such prostaglandin effects may result in clinically significant disease in patients with underlying or pre-existing disease that has not been previously diagnosed.

Since many NSAIDs possess the potential to produce gastrointestinal ulceration, concomitant use of flunixin meglumine with other anti-inflammatory drugs, such as other NSAIDs and corticosteroids, should be avoided.

Not for use in breeding swine. The reproductive effects of BANAMINE-S (flunixin meglumine injection) have not been investigated in this class of swine.

Intramuscular injection may cause local tissue irritation and damage. In an injection site irritation study, the tissue damage did not resolve in all animals by Day 28 post-injection. This may result in trim loss of edible tissue at slaughter.

ADVERSE REACTIONS

Flunixin was mildly irritating at the injection sites. No other flunixin-related changes (adverse reactions) were noted in swine administered a 1X (2.2 mg/kg; 1.0 mg/lb) dose for 9 days.

ANIMAL SAFETY

Minimal toxicity manifested itself as statistically significant increased spleen weight at elevated doses (5X or higher daily for 9 days) with no change in normal microscopic architecture.

HOW SUPPLIED

BANAMINE-S (flunixin meglumine injection), 50 mg/mL is available in 100-mL (NDC # 0061-1838-30) multi-dose vials.

Store at or below 25°C (77°F). Do not freeze.

See the In-Use statement as provided in the Dose and Administration section.

1. Lees P, Higgins AJ. Flunixin inhibits prostaglandin E_2 production in equine inflammation. *Res Vet Sci.* 1984; 37:347-349.

2. Odensvik K. Pharmacokinetics of flunixin and its effect on prostaglandin $F_{2\alpha}$ metabolite concentrations after oral and intravenous administration in heifers. *J Vet Pharmacol Ther.* 1995; 18:254-259.

Distributed by: Intervet Inc d/b/a Merck Animal Health, Madison, NJ 07940

Made in Germany

Rev. 01/17

180996 R3

CPN: 1047251.2

County_____**KEY**_____

Team Members _____

_____

Senior Team Quality Assurance Exercise – 2020

You are a farm to fork hog operation. Your operation has really taken off with the push for locally sourced pork products. Just like any operation you have your share of animals that get sick. Currently you have 3 hogs that are in your treated pen. These three hogs have been spoken for by local buyers and they would like to have their product as soon as possible. You mentioned you would go through your routine quality assurance check list and let them know if the hogs could go to slaughter on 2/24/2020. Using the three (3) medication inserts provided, answer the questions below and finish filling in the table of treatment records on the reverse side of this page. Once the table is filled in, please draw the ear notches on the three pig heads below to confirm you know who each pig is. A calendar is provided for your use as well. (Each answer is worth 7 points each for a total of 140 points, plus each ear correctly notched is worth 10 points each for a total of 60 points. Total points for exercise=200)

NOTES ON TREATMENTS:

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

1) Which medication is a parasiticide? **Dectomax**

2) When giving Banamine-S, what's the largest amount that should be administered in 1 site? **10** mL

3) Which of the medications should not be given to sheep? **None of the medications should be given**

4) Which of the medications has an adverse reaction of hogs with mild salivation that resolved in less than four hours? **Draxxin 25**

5) Which of the medications is made in Germany? **Banamine- S**

[OVER]

TREATMENT RECORD

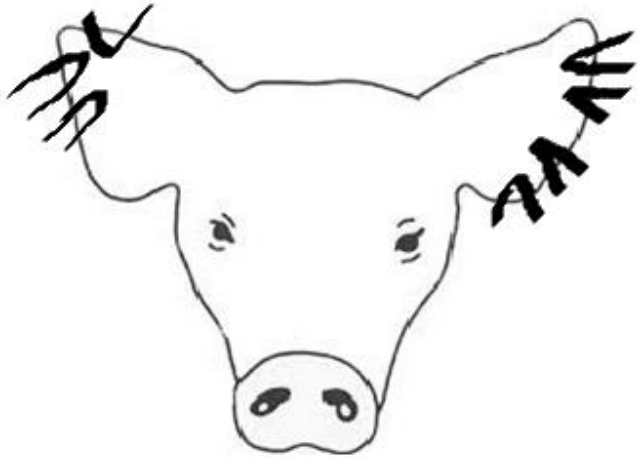
Treatment Date	Hog Treated (Ear Notch)	Hog Weight	Medication Given	Route Given	Amount Given	Required Withdrawal Period (days)	Date Withdrawal Complete	Can Hog Be Sold on 2/24/20 (yes or no)
1/27/20	74-5	250 lbs	Banamine - S	IM	5 ml	12 days	02/08/20	yes
2/15/20	15-8	290 lbs	Draxxin 25	IM	13.18 or 13.2 ml	5 days	02/20/20	yes
1/15/20	106-10	220 lbs	Dectomax	IM	2.93 or 2.9 ml	24 Days	02/08/20	yes

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

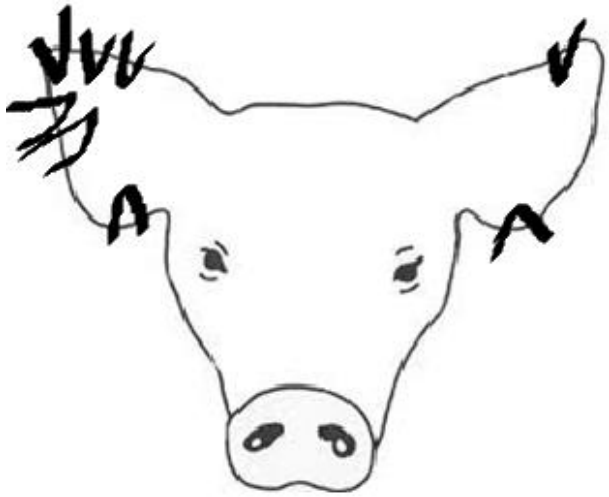
Please notch the hogs below. There notches will be listed above each head.
Please use the following symbol in the area of the ear you want notched: >
Each ear worth 10 points a piece.

74-5

15-8



106-10



CALENDAR

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
December 1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	January 1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	February 1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29